EXHIBIT A

TO

DECLARATION OF MR. CARLOS DE LA HUERGA IN SUPPORT OF HYPERPHRASE'S OPPOSITION TO GOOGLE'S MOTION FOR SUMMARY JUDGMENT OF INVALIDITY

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IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN

HYPERPHRASE TECHNOLOGIES, LLC and HYPERPHRASE, INC. Plaintiffs, v. GOOGLE, INC. Defendant.	Civil Action No. 06 C 0199 S

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

INTRODUCTION

1. I, Carlos de la Huerga, the inventor of U.S. Patent No. 6,516,321 and co-inventor of U.S. Patent No. 5,903,889, have, in accordance with Federal Rule of Civil Procedure 26(a)(2)(b), been designated as an expert witness for HyperPhrase Technologies, LLC and HyperPhrase, Inc. (hereafter "HyperPhrase"). By my education, training, and experience, as evidenced by my *curriculum vitae* and List of Publications/Patents (see Exhibit A), I am qualified to provide testimony on the understanding of persons of ordinary skill in the art regarding U.S. Patent No. 6,516,321 (the '321 patent) and U.S. Patent No. 5,903,889 (the '889 patent) at the time of its filing. I am also qualified to provide testimony regarding the '312 and '889 patents and the claims at issue. In addition, I may be called to testify in rebuttal on other matters as this lawsuit progresses.

2. In connection with preparing this expert report, I have reviewed, among other

things, the patents at issue, their file histories, patent application drafts for the '889 and '321 patents, the prior art references cited in the '889 and '321 patents, this Court's rulings and the Federal Circuit's Dec. 26, 2007 ruling, memorandum supporting Google's motion for summary judgment of invalidity of the '889 and '321 patents, Google's expert reports, including the recent Supplemental Expert Report of Dr. W. Bruce Croft, and the rebuttal expert report and declaration of Dr. Sergei Nirenburg. See, Exhibit B for a List of Documents and Materials Reviewed in Preparation of Expert Report. All of the opinions provided in this expert report and declaration are:

a. based upon sufficient facts and data to allow me to reach the opinions contained in this expert report and declaration;

b. the product of reliable principles and methods;

c. a reliable application of those principles and methods to the facts of this case; and

d. based upon information of a type reasonably relied upon by experts in the arts applicable (technical dictionaries, technical descriptions, technical publications, schematics, patent disclosures and claims) and analogous to the '321 and '889 patents.

PERSONAL BACKGROUND INFORMATION AND QUALIFICATIONS

3. I am the Founder and President of HyperPhrase Technologies, LLC and HyperPhrase, Inc. I am the inventor of the '321 patent and co-inventor of the '889 patent. I received a B.A. in Mathematics Reed College, Portland, Oregon and I worked for Marquette Electronics in Milwaukee, Wisconsin, from 1974 to 1994. At Marquette, I held a numerous senior positions including Vice President of Engineering and Vice President & Divisional Manger for Diagnostics. During my tenure at Marquette, I was personally responsible for the development of more than 40 products related to medical instrumentation, especially for

cardiologists. I also pioneered the development several generations of medical database systems, which included the Marquette Muse system that was installed in and used by over half the hospitals in the U.S. and widely sold in Japan and Europe. I have been granted 31 patents by the United States Patent & Trademark Office in the fields of medical devices, software, computer security, electronic devices, and systems for medical error reduction. I also have several pending patent applications. I have served on the Board of Trustees for Reed College, I am a Past President of the Wisconsin Area Research Mangers Association, and I have served as a charter member on the Governor's Wisconsin Technology Council since 2001. My education, employment history, honors, and list of patents/publications are summarized in the Curriculum Vitae shown in Exhibit A.

SUMMARY OF SUBJECT MATTER OF MY TESTIMONY

4. Subjects to which I will be prepared to testify about, if asked, are:

a. The understanding of the '321 patent and its claims and the '889 patent and its claims to a person of ordinary skill in the art of collecting, storing and retrieving data on computer systems; and

b. The state of the pertinent prior art with respect to the '321 patent and its claims and the '889 patent and its claims.

5. I am advised that discovery is ongoing in this lawsuit and has not been completed. Accordingly, the foregoing subject matter areas may change as more information becomes available, and the right to supplement pursuant to Rule 26(e)(1) is specifically reserved with respect to this expert witness statement in order to allow appropriate addition or modification of opinions, data, information and evidence as discovery continues. The right to submit supplemental reports pursuant to Rule 26(a)(2)(C) is also specifically reserved.

6. I also expect to be called to testify and provide rebuttal testimony in response to arguments advanced by Google in the above-referenced action on all subjects for which my

expert testimony may be appropriate.

OPINIONS TO BE EXPRESSED

7. Based on my analysis of the '321 patent, its claims, its file history and the relevant prior art, I have reached the conclusion that a person of ordinary skill in the art of collecting, storing and retrieving data on computer systems would find that claims 1, 24, 27 and 86 of the '321 patent are valid in light of the prior art references presented by Google.

8. Based on my analysis of the '889 patent, its claims, its file history and the relevant prior art, I have reached the conclusion that a person of ordinary skill in the art of collecting, storing and retrieving data on computer systems would find that claims 1 and 7 of the '889 patent are valid in light of the prior art references presented by Google.

9. Based on my analysis of the '889 and '321 patents, I have reached the conclusion that one of ordinary skill in the art of collecting, storing and retrieving data on computer systems would find the claims at issue in the '889 and '321 patents are definite and enabled.

10. Based on my review of the rebuttal expert report of Dr. Sergei Nirenburg, dated Dec. 5, 2006, and the declaration of Prof. Sergei Nirenburg, dated Nov. 20, 2006, I adopt these documents in their entirety.

11. The date of invention for the '321 patent is at least as far back as April 10, 1996, and the date of invention for the '889 patent is at least as far back as September 30, 1996.

COMMENTS/OPINIONS ON SUBJECT MATTER OF MY TESTIMONY

12. I am not a patent attorney and I am not rendering any opinions on the law. But I have been informed about the applicable law and relevant legal principles by HyperPhrase attorneys.

13. It is my understanding that a patent is presumed valid. The challenger bears the heavy burden of that a patent is invalid by clear and convincing evidence. Clear and convincing

evidence has been described as that necessary to produce in the mind of the trier of fact an abiding conviction that truth of the factual contentions are highly probable.

14. Anticipation requires strict identity between the prior art and the challenged patent. There is no anticipation unless all of the same elements are found in exactly the same situation and united in the same way in a single prior art reference. If even a single element or limitation required by the claim is not disclosed in the exact same way in the allegedly anticipatory reference, there can be no anticipation. Hence, anticipation requires the presence in a single prior art disclosure of all elements of a claim arranged as in the claim.

15. A prior art reference may anticipate without disclosing a feature of the claimed invention if that missing characteristic is necessarily present, or inherent, in the single anticipating reference. To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. But such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill in the relevant art. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. Short of anticipation, for a claim to be invalid for obviousness over a combination of references, there must have been a motivation to combine the prior art references to produce the claimed invention.

16. When combining references, the test for obviousness is as follows: The scope and content of the prior art are to be determined; the differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art is to be resolved. Against this background, the non-obviousness of the subject matter is to be determined.

17. In addition, secondary considerations such as commercial success, long felt but unsolved needs, evidence of teaching away, failure of others, and the like might be utilized to

give light to the circumstances surrounding the origins of the subject matter sought to be patented. As indicia of non-obviousness, these inquiries may have relevancy. These objective evidence of non-obviousness must be taken into account always and not just when the decision maker is in doubt.

18. What may be clear and thus obvious to a Court, with the invention fully diagrammed, may have been a breakthrough of substantial dimension when first unveiled. In short, hindsight is a tempting but forbidden zone.

19. It is also my understanding that there is no basis for concluding that an invention would have been obvious solely because it is a combination of elements that were known in the art at the time of the invention. Using the patents at issue to identify specific pieces of prior art and then simply pulling these references together is firmly prohibited as amounting to hindsight reconstruction by using the inventions themselves.

20. It is also my understanding that the claims in a patent must be definite, i.e., the claims must particularly point and distinctly claim the subject matter which the applicant regards as his invention.

21. It is also my understanding that the specification in a patent must enable a person of ordinary skill in the art to which the patent pertains to make and use the invention.

22. I have reviewed the '321 and '889 patents and their file histories. I have also reviewed the following prior art references: U.S. Patent No. 5,742,768 to Gennaro ("Gennaro"), Ian S. Graham, HTML Sourcebook: A Complete Guide to HTML ("Graham"), Todd Mills et al., Providing World Wide Access to Historical Sources ("Mills"), A. Myka et al., Automatic Hypertext Conversion of Paper Document Collections ("Myka"), Paul Thistlewaite, Automatic Construction and Management of Large Open Webs ("Thistlewaite" or "PasTime"), George Krupka, SRA, Description of the SRA System as Used for MUC-6 ("Krupka"), MUC-6 Named Entity Task Definition Task Overview ("Task Overview"), J. Aberdeen et al., MITRE:

Description of the Alembic System Used for MUC-6 ("Aberdeen"), and U.S. Patent No. 5,815,830 to Anthony.

23. The '321 and '889 patents pertain to the art of collecting, storing and retrieving data on computer systems.

24. A person of ordinary skill in the art of collecting, storing and retrieving data on computer systems would possess knowledge of basic computer science and programming skills that is acquired either through work experience or formal education. Typically, a person of ordinary skill in this field would possess a Bachelor's degree in Science, Mathematics or Engineering or acquire similar education and competency through work experience for 2-3 years.

25. The '889 patent was filed on June 9, 1997. As shown in Appendix A-1, regarding the priority date for the '889 patent, I conceived claims 1 and 7 in the '889 patent at least as far back as September 30, 1996. My patent attorney and I were reasonably diligent between Sept. 30, 1996 through to the June 9, 1997 filing date in completing the constructive reduction to practice of the '889 patent application. As shown in Appendix A-1, the '889 patent draft was enhanced and claims added to it over the period of time from September 30, 1996 to the filing date of June 9, 1997, with intermediate revisions noted on at least the following dates: September 9, 1996, January 1, 1997, February 26, 1997, April 7, 1997, April 8, 1997, April 14, 1997, April 25, 1997, May 5, 1997, May 6, 1997, May 13, 1997 and June 3, 1997. The high level of activity reflects what I remember to be the case: My patent attorney and I were working diligently to review the drafts, revise the claims, revise the specification for clarity, and add or modify some figures to develop the best way to explain my inventions. I understand my patent attorney was working on the '889 patent application consistently and at a reasonable pace during the Sept. 1996 through June 1997 timeframe.

26. The '321 patent was filed on Aug. 13, 1999 and claims priority from a provisional patent application, Ser. No. 60/023,126, filed on July 30, 1996. As shown in Appendix A-2,

regarding the priority date for the '321 patent, I conceived claims 1, 24, 27 and 86 in the '321 patent at least as far back as April 10, 1996. My patent attorney and I were reasonably diligent between April 10, 1996 and July 30, 1996, the provisional patent application filing date, in completing the constructive reduction to practice of the '889 patent application. As shown in Appendix A-2, the '321 patent draft was enhanced and claims added to it over the period of time from April 10, 1996 to the provisional filing date of Jul. 30, 1996, with intermediate revisions noted on at least the following dates: April 10, 1996, June 4, 1996, June 20, 1996, June 26, 1996, July 1, 1996, July 4, 1996, July 5, 1996, July 7, 1996, July 11, 1996, and July 28, 1996. The high level of activity reflects what I remember to be the case: My patent attorney and I were working diligently to review the drafts, revise the claims, revise the specification for clarity, and add or modify some figures to develop the best way to explain my inventions. I understand my patent attorney was working on the '321 patent application consistently and at a reasonable pace during the April 1996 through July 1996 timeframe.

27. None of the claims 1, 24, 27 and 86 of the '321 patent and claims 1 and 7 of the '889 patent are anticipated or rendered obvious by the Graham reference. See Appendix A-3 for a detailed claim chart showing the elements of the properly construed claims that are missing in the Graham reference.

28. None of the claims 1, 24, 27 and 86 of the '321 patent and claims 1 and 7 of the '889 patent are anticipated or rendered obvious by the Thistlewaite reference. At the outset, Thistlewaite is not prior art since it is predated by the dates of invention for the '321 patent and the '889 patent. See Appendix A-2 for a detailed claim chart establishing a priority date of April 10, 1996 for the '321 patent. Also see Appendix A-1 for a detailed claim chart establishing a priority date of Sept. 30, 1996 for the '889 patent. Assuming that Thistlewaite is prior art, Appendix A-4 shows a detailed claim chart explaining the elements of the properly construed claims that are missing in the Thistlewaite reference.

29. Claim 27 of the ‘321 patent is not anticipated or rendered obvious by the Mills reference. At the outset, Mills is not prior art since it is predated by the dates of invention for the ‘321 patent. See Appendix A-2 for a detailed claim chart establishing a priority date of April 10, 1996 for the ‘321 patent. Assuming that Mills is prior art, Appendix A-5 shows a detailed claim chart explaining the elements of Claim 27 in the ‘321 patent that are missing in the Mills reference.

30. Claim 86 of the ‘321 patent is not anticipated or rendered obvious by the Myka reference. Appendix A-6 shows a detailed claim chart explaining the elements of Claim 86 in the ‘321 patent that are missing in the Myka reference.

31. Claim 27 of the ‘321 patent is not anticipated or rendered obvious by the Krupka reference. Appendix A-7 shows a detailed claim chart explaining the elements of Claim 27 in the ‘321 patent that are missing in the Krupka reference.

32. Claim 27 of the ‘321 patent is not anticipated or rendered obvious by the Task Overview reference. Appendix A-8 shows a detailed claim chart explaining the elements of Claim 27 in the ‘321 patent that are missing in the Task Overview reference.

33. Claim 27 of the ‘321 patent is not anticipated or rendered obvious by the Aberdeen reference. Appendix A-9 shows a detailed claim chart explaining the elements of Claim 27 in the ‘321 patent that are missing in the Aberdeen reference.

34. Claim 86 of the ‘321 patent is not anticipated or rendered obvious by the Gennaro reference. At the outset, Gennaro is not prior art since it is predated by the dates of invention for the ‘321 patent. See Appendix A-2 for a detailed claim chart establishing a priority date of April 10, 1996 for the ‘321 patent. Assuming that Gennaro is prior art, Appendix A-10 shows a detailed claim chart explaining the elements of Claim 86 in the ‘321 patent that are missing in the Gennaro reference.

35. Claims 1 and 7 of the ‘889 patent are not anticipated or rendered obvious by the

Anthony reference. Appendix A-11 shows a detailed claim chart explaining the elements of Claims 1 and 7 in the '321 patent that are missing in the Anthony reference.

36. Regarding claims 1 and 7 in the '889 patent, and as explained in Appendix A-3, the term "means for parsing" is both definite and enabled. Regarding the means for parsing, Fig. 1 in the '889 patent shows hospital computer network 100, including Data Translation and Collection System 110. Data Translation and Collection System 110 is used throughout this patent to perform various software steps as shown in Figs. 5A–5F, Figs. 12A–12 C, Figs. 13A–13C, and Figs. 15A–15B. The Brief Description of the Drawings section states, for example, at col. 5, l. 66 to col. 6, l. 4:

> "FIGS. 13A-13C are a functional flow chart showing the steps by which the data translation and collection system processes a data record received or retrieved from a workstation or database system on the medical computer network, reformat the data record, assign it a URL address, and deliver it to a database for storage." (emphasis added)

The '889 patent also states in col. 9, ll. 19 – 23:

> "FIGS. 13A-13C set forth an alternate embodiment of the operation of the data translation and collection system 110 (FIG. 1) with particular reference to receiving, translating, and formatting data records to facilitate access through browsers and hypertext links for future users."

Step 654 of Fig. 13A refers to the action of "PARSE Record" which is performed, for example, by the data translation and collection system 110. The exact steps to parse a record are shown in Figs. 15A–15B and in col. 16, ll. 27-36:

> FIG. **15**A illustrates how a data record is parsed. A data record is parsed to locate data references by searching it for text corresponding to a hypertext link or a multimedia data request. If one is found, the URL is located after the initial control sequence and will be saved (step **812**) for use after the parsing is completed. If none are found, or when the record has been completely parsed, another pass can be made to search for data references in the form of key words or key phrases (step **820**).

The means for parsing is the data translation and collection system 110 performing a series of comparisons and matches steps as is well known to one of ordinary skill in the art. In Croft's Supplemental Expert Report, Appendix C-2, p. 3, he states: "The corresponding structure for this element [for claim element (d)] is a generic, black box program that parses incoming data records. *See* '889 patent, col. 8, ll. 37-40. The details of the parser are not adequately disclosed in the specification." Croft has failed to reference sub-section G. Parsing to Locate Data references at col. 16, ll. 27-59 and Figs. 15A and 15B (the entire figures) of the '889 patent, which explains how text (not computer code) in a data record is parsed. Col. 16, ll. 27-36 of the '889 patent states:

> FIG. **15**A illustrates how a data record is parsed. A data record is parsed to locate data references by searching it for text corresponding to a hypertext link or a multimedia data request. If one is found, the URL is located after the initial control sequence and will be saved (step **812**) for use after the parsing is completed. If none are found, or when the record has been completely parsed, another pass can be made to search for data references in the form of key words or key phrases (step **820**).

This section explains how text is recognized in a first data record and how it can be converted into a hyperlink to be used to retrieve a second data record. This section shows a sample address computed to retrieve an "Admission ECG" and the corresponding HTML programming codes that are added to the first record according to Step 600 of Fig 12C as described in col. 9, ll. 7-11. Parsing a data record is also discussed in Figs. 13A and 13B of the '889 patent. In addition, as is well-known to one of ordinary skill in the art, parsing was a well-known concept in the 1995 time frame.

37. Regarding claims 1 and 7 in the '889 patent, and as explained in Appendix A-3, the term "means for modifying" is both definite and enabled. Regarding the term means for modifying, Figure 1 shows hospital computer network 100, including Data Translation and

Collection System 110. Data Translation and Collection System 110 is used throughout the patent to perform various software steps as shown in Figs. 5A–5F, Figs. 12A–12 C, Figs. 13A–13C, and Figs. 15A–15B. The Brief Description of the Drawings section states, for example, at col. 5, l. 66 to col. 6, l. 4:

> "FIGS. 13A-13C are a functional flow chart showing the steps by which the data translation and collection system processes a data record received or retrieved from a workstation or database system on the medical computer network, reformat the data record, assign it a URL address, and deliver it to a database for storage." (emphasis added)

The '889 patent also states in col. 9, ll. 19–23:

> "FIGS. 13A-13C set forth an alternate embodiment of the operation of the data translation and collection system 110 (FIG. 1) with particular reference to receiving, translating, and formatting data records to facilitate access through browsers and hypertext links for future users."

Step 684 of Fig. 13A refers to the action of "Use Hypertext Cipher 138 to add hypertext links and other data references". This action is results in the text record of Fig. 14C being modified to become the HTML tagged version shown in Fig. 14D and displayed by a browser in Fig. 14E. The means for modifying is the data translation and collection system 110 which in response to a series of comparisons and matches steps adds hyperlink anchor start and end tags to modify the record so that it becomes HTML tagged as is well-known to one of ordinary skill in the art.

In Croft's Supplemental Expert Report, Appendix C-2, p. 4, he states: "The corresponding structure [for claim element (e)] is a generic, black box program that modifies the reference in the first record. *See* '889 patent, col. 9, ll. 1-11. The details of this program are not adequately disclosed in the specification." Croft has failed to reference sub-section G. Parsing to Locate Data references at col. 16, ll. 27-59 and Figs. 15A and 15B of the '889 patent, which explains how text is recognized in a first data record and can be converted into a hyperlink to be

used to retrieve a second data record. This section shows a sample address computed to retrieve an "Admission ECG" and the corresponding HTML programming codes that are added to the first record according to Step 600 of Fig 12C as described in col. 9, ll. 7-11.

The Federal Circuit in its Dec. 26, 2007 ruling had no difficulty with the concept of parsing a record. They frequently referred to Fig. 14C-E, identifying in the decision that the text "Catheterization Reports" is recognized. For example, an initial record is shown in Fig. 14C prior to modification. As discussed, this record example is a conventional text document that is without additional program codes. In Fig. 14D, the same initial record is shown in a HTML programming environment after basic HTML formatting codes have been added to it (for example "<html>", "</html>", "<body>", or "</body>"). Furthermore, specific text (for example the patient name "Charles F. Smith" and "Catheterization Reports") has been found in the initial record and converted into hyperlinks that can retrieve a demographic report for patient Charles F. Smith and Radiology and Homodynamic Catheterization Reports for the patient. Specifically, the links are in the form of HTML anchor hyperlink references ("<a href'…"). The record has been modified to include the hyperlink program codes using the created addresses (for example, "hww.st_mary.springfield/ecg/987654321/ 03may1997/ecg/admission.html") to retrieve the related information for the patient. In col. 16, ll. 37-59, the '889 patent states:

> A key word or phrase is a recognized text string that is to be converted into a hypertext link. As an example, the data reference indicated by the phrase, "Admission ECG," can be converted (steps 828, 830) into the following hypertext link:
>
> Admission ECG.
>
> The expression "03may1997" is the date the data record being parsed was created. The patient ID (987654321), the date, and other descriptors are available from steps 200 and 226, or from steps 544 or 560. A wide variety of medical expressions can be recognized

> as key words or phrases, and appropriate hypertext links created from them. The URL of the hyperlink is saved for later use (step 832). When the entire record has been searched (step 836), the URLs of the located data references are returned to the section of the flow chart that requested the record to be parsed (step 840).

In col. 9, ll. 7-11, the '889 patent states:

> In step 600, the data translation and collection system 110 inserts hypertext links or other references to the selected record in accordance with the hypertext cipher 138 identified in step 548. If directed by the hypertext cipher 138, the record may also be interpreted and modified or reformatted.

38. Regarding claims 1 and 7 in the '889 patent, and as explained in Appendix A-3, the term "means for sending" is both definite and enabled. Regarding the term means for sending, Figure 1 shows hospital computer network 100, including Data Translation and Collection System 110. Data Translation and Collection System 110 is used throughout the patent to perform various software steps as shown in Figs. 5A–5F, Figs. 12A–12 C, Figs. 13A–13C, and Figs. 15A–15B. The Brief Description of the Drawings section states, for example, at col. 5, l. 66 to col. 6, l. 4:

> "FIGS. 13A-13C are a functional flow chart showing the steps by which the data translation and collection system processes a data record received or retrieved from a workstation or database system on the medical computer network, reformat the data record, assign it a URL address, and deliver it to a database for storage." (emphasis added)

Any of the actions specified in the functional flowcharts can be performed by the data translation and collection system 110. For example Step 604 of Fig. 12C states: "Send the desired and translated report to the requesting processor or workstation. The means for sending is the data translation and collection system 110 which after modifying a record sends to another processor or workstation using communication network 112, for example, in response to a web browser request for a record as is well-known to one of ordinary skill in the art.

In Croft's Supplemental Expert Report, Appendix C-2, p. 5, he states: "The corresponding structure for this element [for claim element (f)] is a generic, black-box program that sends the modified first data record to the browser. *See* '889 patent, col. 9, ll. 12-15. The details of this program are not adequately disclosed in the specification." Croft has failed to reference sub-section Figs. 12A through 12C in the '889 patent which explain the steps to be executed by the sending means. As noted in the '899 patent, col. 5, ll. 62-65, the sending means execute the steps described in the Fig. 12A-C:

> FIGS. 12A-12C are a functional flow chart showing the steps used to receive a request for a data record, translate the request, retrieve the data record, and reformat the data record prior to sending it to its requested destination.

39. The term "record reference" in claim 24 of the '321 patent is definite to one of ordinary skill in the art. It is clear to one of ordinary skill in the art that "record reference" refers to the "data reference (DR)" in Claim 1.

Furthermore, the Federal Circuit has stated that:

> "We begin with the parties' agreement, and the district court's holding, that the terms "data reference," record reference," "specifying reference,", and "reference," as used throughout the Patents-In-Suit, are interchangeable and have the same meaning. We agree. The claims and specifications of the Patents-in-Suit all indicate to a person of ordinary skill in the art that these terms are interchangeable."

Using this definition, it is clear that in Claim 24, the term "record reference" is interchangeable with the term "data reference" or DR. A person of ordinary skill in the art would also understand, consistent with the Federal Circuit's decision, that a "record reference" is defined as the same as a "data reference" in Claim 1.

40. The term "seemingly general" in claim 86 of the '321 patent is definite to one of ordinary skill in the art. The text "ECG image" shown in Fig. 25 of the '321 patent is an

example of a general specifying reference (SR). A typical physician reading this text in a medical report would have no precise understanding of its meaning. It could be a sample ECG image in a brochure, it could be any of 1,000,000 ECG images collected for every patient in a hospital over a series of years or any of 50 ECG images stored for a specific patient. To a physician, this text is a general reference to images and using the text of the claim, it is a "seemingly general SR".

In col. 14, ll. 34–42 of the '321 patent, it is stated:

> "First, where ambiguity occurs, processor 14 may query a system user to determine which, if any, DR/MR combinations and which DRs should be used for linking purposes. In the present example, this is accomplished by, when a system recognizes potentially overlapping SRs, providing a selection box to the user indicating all possible SRs (i.e., DRs or DR/MR combinations) associated with a phrase. Referring to FIG. 25, box 550 indicates four possible SRs including "ECG image"."

A seemingly general SR is the overlapping or ambiguous SRs discussed in this and other paragraphs. One of ordinary skill in the art would understand that a "seemingly general" SR is one that can refer to multiple records. This is made even more clear to one of ordinary skill in the art by the comparison of "seemingly general SR" with the text that follows this term in Claim 86, namely "a seemingly general SR is modified by other record information which renders the SR relatively specific,…"

41. The term "relatively specific" in claim 86 in the '321 patent is definite to one of ordinary skill in the art. In col. 14, ll. 34–45 of the '321 patent, it is stated:

> "First, where ambiguity occurs, processor 14 may query a system user to determine which, if any, DR/MR combinations and which DRs should be used for linking purposes. In the present example, this is accomplished by, when a system recognizes potentially overlapping SRs, providing a selection box to the user indicating all possible SRs (i.e., DRs or DR/MR combinations) associated with a phrase. Referring to FIG. 25, box 550 indicates four possible SRs including "ECG image".

> "ECG image of Jan. 16, 1996", "x-ray image" and "x-ray image of Jan. 16, 1996." In addition an "OK" icon 569 is provided."
>
> The text "ECG image", as SR, is now shown relatively specific, that is more precise, as a specific ECG image recorded on a specific date. It is relatively specific because a typical physician would anticipate that there are often more than one ECG recorded for a patient on a single day. The typical physician would not be surprised to find that a link for "ECG image" for "January 16, 1996" may return two ECG images to for review by the physician.

One of ordinary skill in the art would understand that a "relatively specific" SR is one that can refer to a single or multiple records. One of ordinary skill in the art would understand that "other record information which renders the SR relatively specific …" is a step that makes the specifying reference (SR) more specific, but not necessarily specific enough to identify just a single record.

42. None of the claims at issue in the '889 and '321 patent are obvious to one of ordinary skill in the art. It is my understanding that it is proper to look at "secondary considerations" such as long felt need and to also look at evidence of teaching away in order to determine whether the claims are issue are obvious. I conclude that the patent claims at issue are not obvious in light of the prior art put forth by Google.

The '889 and '321 patents, and other patents that the '321 patent is a continuation-in-part from, were solutions that responded to a long felt need to improve the way users, such as physicians and others, used computers to refer to and find relevant information. As Vice President and Division Manager of the Cardiology Division in Marquette Electronics, I personally experienced both the value of and the frustration with database systems.

The Marquette Electronics Muse system was the leading cardiology database system in the country. It was installed or used by over half of the hospitals and major diversified clinics in

the United States. Some of these systems had been upgraded for over 20 years, eventually storing millions of cardiology records and images on-line. However, the benefit of this system was limited as physicians who were not trained to use the system did not know how to access its valuable records, for example emergency department physicians. At Marquette, we developed a number of interfaces to send, mostly textual, cardiology records from our system to others. In spite of the efforts to create standardized medical record communication protocols, little real sharing of medical records was possible. Only through customized interfaces could image data be transferred to other systems. I personally worked with several major healthcare centers to develop interfaces for them, but in the end, little seemed to come of it.

In the early 1990s, the Internet was beginning to become less of an academic tool and more of a any-person tool. Multimedia browsers (text, pictures, audio, and video) clearly had the potential to allow physicians to review data in a computer platform-independent manner. Conceivably, many of the medical databases would no longer be required to have custom interfaces to work with each other. Instead, data could be presented to a physician as long as it was formatted in any of the acceptable browser or browser plug-in formats.

However, there was still the significant problem of physicians not knowing where to find data. A user, such as a physician, did not want to run a database search to find the exact data they wanted and users, such as physicians, did not want to learn how to operate even one database let alone several databases. After building a prototype Internet-based medical database, it became clear that just giving users, such as physicians, access to a lot of data through various menus was not the solution one might have expected. It would still take physicians too much time to find the medical records they wanted.

One critical concept came out of this experimentation – physicians' primary work output, besides surgery, taking physicals of patients, and the like, is to write reports about their observations, findings, and diagnoses. The vast majority of these reports had been dictated and then transcribed using a word processor to create what were known as unstructured reports. Many times one report, for example, an admission report, would refer to several other reports, procedures, images, etc… However, a physician who reads such a report would be stymied trying to locate the referenced reports. The time it would take to locate them is much too long for a physician to spend. In many cases, they would forgo the opportunity to review the original data just because it is too difficult to find. Hence, there was a long felt need for a system and method that could put users, such as physicians, just a click away from accessing any data that is referred to in another document, such as a medical record.

Word processors, such as Microsoft Word, have a provision to manually enter hyperlinks between selected text and a record address. However, medical transcriptionists are unable to create such links for physicians. First, the transcriptionist is generally unaware of what text might refer to a medical record that is available online in a hospital. Even if the transcriptionist were aware of text that could be converted into a link, they do not have the knowledge on how to form the long and complicated addresses to retrieve data from one of several servers. A special concern is that even a single typographical error would guarantee that either no data is retrieved or even worse an incorrect patient record would be retrieved. For example, instead of entering the patient ID number.9876543231 for an ECG record, the ID number 9**9**7654321 is accidentally entered which is a record for the wrong patient.

To overcome these problems, a set of rules were established that could be used with a word processor to automatically recognize key word phrases in a dictated medical report that refer to other medical records. The patient ID for the record is also recognized, as can the record date. This information was combined with rules to determine an Internet retrieval address for the referenced record, for example, the address may include a base address and extra information identifying the reference record type, the patient ID number, and date of the refereeing record. Once a key word phrase match was found in a referring record and a retrieval address created, the word processor could automatically insert a hyperlink in the referring record where the key word phrase was found using the computed address. With this automation, the transcriptionist would be relieved from having to create hyperlinks and the physician would then be able to quickly and effortlessly be able to retrieve medical records referred to in one record. It is technological advancements such as this that became the focus of my work and resulted in the inventions and patents at issue in this litigation. Such a system would ensure that a user, such as a physician, was only one click away from accessing any data in a referred to in a medical record. Now, a physician would be given a tool that was never previously available to them.

43. A number of the prior art references cited by Google actually teach away from the ‘321 patent and the ‘889 patent.

As discussed in Appendix A-11, Anthony discusses a process to recognize text between documents that teaches away from using this scheme on a system that had multiple databases. Anthony envisions a record storage scheme where text is stored in one section and a unique topic name is stored in another section of it; that is of Anthony’s own design. Furthermore, if it were spread across multiple databases they not only would have to adopt is storage scheme, the data

owners would have to agree to mutually exclusive unique names (for which Anthony has no solution), and the time to search every record in multiple databases to see which one has a topic name matching a text sequence becomes impossibly long as every record in every database has to be checked before a match might be made.

As discussed in detail in Appendix A-7, Krupka teaches away from using a subject matter search rules, and Krupka uses heuristic computing, instead, to decide what matches are similar to a previously manually annotated text. The parameter sliders and the threshold dial allow the Hasten system to be adjusted to tolerate similarities, as opposed to the exact matches of the '321 patent.

As discussed in detail in Appendix A-5, Mills teaches away from attempting to construct "subject matter search rules" as there is "no self-evident solution" to be encapsulated in a rule.

As discussed in detail in Appendix A-10, Gennaro teaches away from the '321 patent. Gennaro's concept is to add a dramatic graphic icon indicating a subject that can be interacted with. Gennaro recognizes and appreciates the value of a limitation of his invention. The text is not "visually distinguished from other record information so as to indicate selectability" as in the patent. Instead, he applies the graphic icon adjacent to some text.

As discussed in detail in A-9, Aberdeen teaches away from either data reference or record segment identification. He is only concerned about the potential inferred meaning of a sentence. He has no concept of how a data reference relates to other data records or record segments; or that databases of records even exist. He also does not describe a concept of how record segments can be identified for use by data references (in another document) to retrieve the record segment.

For example, every time the text “Mr.” appears in a document it will be tagged according the many examples in Aberdeen so that it appears as “<ttl>Mr.</ttl>”. In a record should the title “Mr.” appear twenty times, or even three times in one sentence, it is clear from Aberdeen that he has no intention of declaring each occurrence to be a separate record segment or to be a data reference. His only purpose is to identify the title and to infer that the text following it is likely to be a person’s name.

As discussed in detail in Appendix A-4, Thistlewaite teaches away from claim 27 of the ‘321 patent in that Thistlewaite has a requirement that before a link can be created a check is made to determine that the document it points to exists and when it does not exist, a link is not created. The ‘321 patent does not have any such limitation. In fact, U.S. Patent No. 5,895,461 from which the ‘321 patent is a continuation-in-part, explicitly describes circumstances where making links to documents that do not exist, is desirable.

Other record information in the ‘321 patent does not include hidden programming codes to be analyzed. Thistlewaite, by using hidden programming codes, is teaching away from the patent which does not use these codes as it can be detrimental for a physician to see the text SR “ECG” and then not have any idea what modifier reference information is used in a hidden programming codes. For example, the physician would not know what date is being associated with the “ECG” if it were hidden. Inherently, the physician would not trust such a system and from a printed copy of a medical report that included with the DR “ECG: the reader would have not context to determine why the DR “ECG” was identified.

44. I have noted earlier that Thistlewaite is not prior art to the ‘321 and ‘889 patents. Croft is incorrect to conclude in para. 17 of his Supplemental Report that Thistlewaite discloses

multiple databases. As discussed in Appendix A-4, the term Thistlewaite uses is "hyperbase," an uncommon term in computer lexicography. Several computer dictionary sources provide no definition for this term. Other sources describe it as anything from hyperlink information (document location and character extent coupled with an address that indicates where a hyperlink might be placed in a document) to files with HTML markings already in place. Whatever a hyperbase is, it is very clear in Thistlewaite that there is to be only one of them. In his 12 page article, Thistlewaite uses the phrase "a hyperbase" and "the hyperbase" at least 30 times. In relationship to his own work, he never uses "the hyperbases" or "multiple hyperbases". Croft appears to be inserting words and intention where it is not present and even contrary to what is disclosed in Thistlewaite. Thistlewaite either has no database, and if he does we must take him for his own words, then he has only one.

45. Croft would like us to believe that text documents are in a plurality of formats, see para. 18 of his Supplemental Report. This is not the case. Any reader of a text based document on a browser screen cannot tell their origin by the appearance of the document. A document in ".txt", ".rtf", ".html", or '.doc" formats will all appear to be the same when presented to a user. They are all composed of text, and text is the only structure Thistlewaite is concerned with. Other formats would include audio records, video recordings, but not interchangeable text presentations. Differences in file structure cannot be used to create the illusion of multiple formats where there is none. Any person reading any document referred to by Thistlewaite in any of the above file types and printing them out reveals that they can all still be read equally well on paper. However, the same users when confronted by information of an audio or video

format will have no difficulty distinguishing them from text and, of course, audio and video format information cannot be printed out.

46. Croft is wrong regarding the issue of the "date" as a modifier reference, see para. 26 of his Supplemental Report. A modifier reference is text in the document that any person can read on a screen or see on a printed copy of the record when displayed as it is intended for the target reader to see. It is not a hidden programming code that that may be understood to provide formatting instructions or link addresses. The issue of "date" is discussed in Thistlewaite in relationship to "the Prime Minister" in the very last paragraph of the paper on P.172. Thistlewaite states:

> "… Politically speaking, it is an even worse mistake to link the referring expression "the Prime Minister" occurring in the 1985 Hansard to biographical details of the current incumbent. This problem was corrected by extending Form (4) link descriptors to take additional arguments to the function for calculating the target of a source anchor expression – in additional to taking whatever string matched the patterns, the function can also take attribute information for the document (in this case, the date), which enables the identification of the correct target to be computed." (emphasis added)

We find that the Thistlewaite defines attribute information on P. 171 as:

> "3. attribute information is extracted (or deduced) for each component document – for example sub-collection type, the date, the name of the speaker – and is stored in a separate file." (emphasis added)

Croft would incorrectly let us believe that the date Thistlewaite uses to resolve "the Prime Minster" is a modifier reference or even as Croft appears to propose metadata. Thistlewaite states the date is stored in a different file, possibly a file that is not kept synchronous to the original file, and therefore, out of date and possibly incorrect. For example, should the original document be edited the secondary file may not reflect the changes.

In the '321 patent, claim 1 (to which Croft is directing his comments), it is very clear that a modifier reference is in the document text and it is not in a separate file. No part of this claim

seeks to examine a separate file for a modifier reference. In fact, it is not consistent with the '321 patent to have a reader of a record to see a data reference that can be read and a modifier reference that appears in a silent, hidden, and unknown to the reader, separate file.

We are also told by Thistlewaite that the attribute information (including a date) can be deduced. Again, this is against the interest of a physician reader to be told, for example, in keeping with Thistlewaite, that the data reference "ecg" is coupled with a modifier reference of a deduced, and possibly incorrect, patient ID. A physician, in order to believe a medical record for a patient, must know the patient ID is indeed precise and not deduced in some way.

Furthermore, Thistlewaite does not detail how the date is extracted or deduced. Is it part of the document file name or in hidden programming, or markup language tags (as Thistlewaite acknowledges can be present on P. 164)? In either case, neither can be considered to be a modifier reference as understood in the '321 patent. Since Thistlewaite is silent on the extraction and deduction process, we are left to conclude that Croft cannot assert that the date in question represents a modifier reference, in accordance with the '321 patent.

47. Thistlewaite discusses, at the top of P. 170, a process of finding the text "BILL" and "Later functions could involve checking for the presence of a year designator (e.g. "…BILL… 1993" …" Croft can only surmise that there are both a data reference and a modifier reference here.

However, Thistlewaite also adds another required element to his process. He states on P. 168:

> "Consequently, at the time of serving a document to a client, a link is only embedded into the byte stream by the CGI program doing the pattern detection and link resolution if (i) an expressi0on in the document matches one of the source anchor patterns applicable to that document, and (ii) the corresponding target document exists." (emphasis added)

So, for any link to be made a check must be made that the record to be retrieved must exist. In contrast, there is no provision to ensure that a data reference or data reference/modifier reference in the '321 patent need exist before identifying an association with another record. In fact, the earliest provisional patent application, Ser. No. 60/023,126 from which '321 patent is a continuation-in-part, states that in many cases the referenced record will not exist when a keyword reference is recognized, see col. 9, ll. 12-15:

> "Word processor 14 recognizes these keywords and maintains a list of the addresses of the reports to which they refer even though those reports may not yet have been created or published to other users. "

48. Croft's comment in para. 29 of his Supplemental Report that "The idea of looking for "modifier information" once one has encountered a term that is either ambiguous or indeterminate was commonplace long prior to these alleged inventions" is completely unsubstantiated by any examples or cites to any documents. Not satisfied with making a vague wave-of-the-hand argument, Croft proceeds further:

> "It is also a notion that is by no means limited to the computer field. This is precisely what human beings have always done when reading a text. If one were to skim a newspaper article and see a reference to the last name shared by an old acquaintance, it is simple and common place to then look to the surrounding text for information such as first name, city of residence, age, etc. (or other such "rules") to see if the person being referenced is indeed the old friend."

Croft is now ignoring virtually every element of Claim 1 of the '321 patent that he cannot explain around with his false "of course, people do this all the time" argument.

The preamble of claim 1 of the '321 patent states:

> "A method for identifying a referenced record in a referencing record wherein the referenced record is referenced in the referencing record by at least a combination of a data reference and a modifier reference, the method consisting of the steps of: (emphasis added)

Claim 1 says a referenced record is being referenced in a referencing record. Croft's short description on how he reads an article in the paper and seems to deduce the identify of a person in the article by reading the article further, does not discuss how the person's last name is referencing another newspaper article related to the same person. We know that the Federal Circuit has ruled that a "data reference" is:

> "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record."

In accordance with the Federal Circuit, reading a name in an article does not equate to having found a "data reference". Furthermore, Croft ignores the need to a modifier reference rule set (see Claim 1 (a)) and the final step of identifying the referenced record (see Claim 1 (c)). Croft does not venture to tell us that there is no identification of the referenced record.

49. Croft is addressing claim 27 of the '321 patent in para. 34 of his Supplemental Report where he infers that "a person of skill could have implemented a system to achieve this objective without undue experimentation". However, the numerous people he said reported results in the proceedings of a conference (presumably referring to the Krupka and Aberdeen references, and he has supplied no others), both have lengthy discussion about the difficulties they encountered and the number of experiments they conducted and how unsuccessful they were even at the end. For example, Krupka, out of 15 pages, devotes 7 pages starting with the section "Test Results and Analysis" to virtually the end. These sections make it very clear that Krupka can at best be viewed as an experiment in progress with numerous tables documenting various trial runs showing different levels of precision that varied from 45% to 85% success.

Regarding Aberdeen, he too has 4 pages of experimental results and error analysis out of 15 pages. This is in part due to the fact that Aberdeen at most is trying to infer the meaning of a

sentence, and not attempting to duplicate the elements of claim 27. Aberdeen closes his paper with the comment:

> "We believe that if we more intelligently took advantage of this knowledge source, we could reduce the additional errors almost entirely. In addition, we were disappointed by the fact that our exhaustive compilation only produced somewhat less than 2,000 organization names, and only led to a piffling improvement in recall."

These are not the words of a person proclaiming easy success. Instead, he is pondering the many problems he still has to deal with. This is a far cry from Croft's assertion that anyone could implement such a system with ease.

Furthermore, neither Krupka nor Aberdeen demonstrate any evidence of "subject matter tag pairs" or "subject matter search rules". In the '321 patent, the subject matter can be a record segment that is a data reference (in accordance with the Federal Circuit) or a data reference/modifier reference combination. Alternatively, the subject matter can be a record segment that identifies a specific section of a record that can be retrieved by a tag enabled application, for example, one that is responding to a data request indicated by a data reference specifying that record segment.

Neither Krupka nor Aberdeen discuss the location of data references or the identification of record segments (for example, one that can be referred to by a data reference in another record).

In addition, as shown in Appendices A-7, A-8 and A-9, Krupka, Task Overview and Aberdeen references are all references that are merely to those already considered by the PTO in the course of prosecution of the '321 patent.

50. In para. 52 of his Supplemental Report, Croft states that any of the prior art references could be readily combined with any other reference to supply any missing limitation

in any particular prior art reference. Without anything specific, it is impossibly burdensome for me to respond to any combination of 2 prior art references out of a total of 9 prior art references that then results in 36 different combinations of prior art.

51. In para. 55 of his Supplemental Report, Croft discusses attending DARPA workshops where "dynamically processing documents and linking inserted" were shown. These statements are made as out-of-hand statements with no documentary proof. He also does not identify any claim in the asserted patents to which he directs his comments. His comment appears to describe prior art that is merely cumulative to what was already considered by the PTO. See, for example, U.S. Patent No. 4,864,501 to Kucera, U.S. Patent No. 4,887,212 to Zamora, and U.S. Patent No.4,994,966 to Hutchins and others.

EXHIBITS TO BE USED

52. As of this time, I have not prepared exhibits specifically to accompany my expected testimony at trial. I reserve the right to use as trial exhibits the claim charts and tables that accompany this expert report. I also reserve the right to reply to or rely upon exhibits introduced in the course of the trial.

COMPENSATION AND PAST EXPERT TESTIMONY

53. I am not being paid for my work in this litigation. I have not served as a technical expert in the past in any litigation.

March 11 2008
Date

Carlos de la Huerga

EXHIBIT A

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

Background of Mr. Carlos de la Huerga:

March 11, 2008

Education:

Northwestern University 1969

Reed College 1970 – 1973 B.A. Mathematics

University of Washington 1975-1976 Graduate Studies in Architecture.

Employment Experience:

University of Chicago 1969
Assembly of radiation scintillators for experimental satellites

University of Oregon, Medical School 1973
Computer programming to analyze medical data

Marquette Electronics 1974
1974-1975 Implemented a cross compiler to convert IBM 360 assembly and PL-1 code to minicomputer programming code, allowing Marquette to run IBM electrocardiogram analysis code on an inexpensive minicomputer platform. Marquette become the leading provider of electrocardiogram analysis systems and sold more licenses to the IBM software than did IBM by a 20 to 1 ratio.

1975-1976 Developed a natural language processing compiler that converted physician electrocardiogram analysis criteria into computer code.

1977 Developed electrocardiogram storage system software to keep electrocardiogram data on-line.

1978 – 1980 Managed the development and programmed the Marquette 12SL™ electrocardiogram analysis program. This program became the most widely used artificial intelligence program in the world, analyzing up to a million ECG's per day. The analysis quality was improved over time and was evaluated to be comparable to the interpretation of a Board Certified cardiologist. This program initially processed ECG's using a central computer and was later adapted for use with a microprocessor and was then able to process ECG's directly in electrocardiographs. When in an electrocardiograph even third world counties could have access to electrocardiographic analysis similar to the interpretation provided by expert electrocardiographer in the United States.

1980 – 1982 Managed the development and programmed the Marquette MUSE™ cardiology database system that provided electrocardiogram computer storage and retrieval. We developed a proprietary database system as contemporary database systems were not capable of handling extremely large electrocardiogram image files. This became the most widely used hospital database, capturing 70% of the hospital market in the United States. The system allowed large hospitals to store over 25 million electrocardiograms online and when a new electrocardiogram was recorded for a patient the previous electrocardiograms were automatically retrieved and provided to the medical staff.

1981-1982 Programmed the serial comparison extension to the Marquette 12SL™ electrocardiogram analysis program to compare each new electrocardiogram with any previous electrocardiograms stored in the Marquette MUSE™. Patients then benefited from the physician reviews of the previous electrocardiograms being taken into consideration when the current electrocardiogram was analyzed.

1982 – 1988 Vice President of Engineering Marquette Electronics
Responsible for developing all of Marquette's line of cardiology equipment, which included critical care patient monitors, portable transport patient monitors, radiofrequency monitors, electrocardiograms, database systems, ambulatory monitors, stress test equipment, and arrhythmia analysis software. During this time Mr. de la Huerga developed the proprietary Marquette TrimKnob™ user interface device. This allowed complex user interactions with computers to be substantially simplified and eventually was used on every Marquette product. It and it became the preferred choice for getting non-technical nursing staff to use advanced features of medical equipment.

1988-1994 Vice President/Division Manager for Diagnostics Products Marquette Electronics
Marquette Electronics divided into 3 self-contained divisions in an attempt to decentralize management. Mr. de la Huerga assumed complete responsibility for the Diagnostics Products Division focused including new products, manufacturing, sales, and the division's bottom line performance. The Diagnostics Division was focused on products used by cardiologists in hospitals and offices. The initial goal was to improve the profits from this division by introducing new products to replace 75% of the product offering in the first two years, to create leadership in the sales force to focus on the division's products, and to streamline manufacturing. These goals were met and the division had multiple years of record profits; providing the entire company with stable cash flows for acquisitions.

Marquette Electronics purchased a defibrillator company that was integrated with the Diagnostics Division. By adding the defibrillator group, Marquette's exposure to FDA regulatory scrutiny was significantly raised. The product line

was reengineered to both make it cost less to manufacture and had to completely documented and tested to meet FDA standards within a year.

1995 Independent consultant
Worked with Genentech engineers to evaluate new blood fast acting testing modalities base on technology they licensed from Boeringer Mannheim.

Cooperative work with Dr.William Craig and Southwest Texas Methodist Hospital to evaluate alternates to conventional hospital database systems. This developed into a cooperative development with Dr. Craig to explore how to Internet technologies can be used to make hospital information systems more interactive, easier to use for physicians, and lower costs compared to proprietary or custom built systems.

They developed a complete demonstration system showing how all facets of patients' medical records could be placed and intensively interlinked using Internet technology. The demonstrate platform was presented to additional physicians and the hospital CEO for consideration. The demonstration was enthusiastically received and eventually presented to the CIO of the Hospital Corporation of America (HCA), the parent corporation.

1996 Telaric, Inc. (subsequently renamed HyperPhrase, Inc.) President
Mr. de la Huerga and Dr. Craig continued to work together to refine the system and submitted a provisional patent in 1996 describing some of the innovative concepts developed related to linking records created with application programs and additional information they refer to in databases. Telaric, Inc. was founded by them in 1996, with Mr. de la Huerga as President, with a goal to continue developing the technology. An additional patent was submitted in 1997 with Dr. Craig.

Mr. de la Huerga continued to develop additional features and innovative aspect of what he referred to as HyperPhrase technology from 1997 through 2003. Dr. Craig withdrew from active participation in the development of the company in 1998 and in the company was renamed HyperPhrase, Inc. Mr. de la Huerga also created a demonstration platform for showcasing the important capabilities of the technology in 1997 and 1998 using Microsoft Word as a platform to build upon.

1999 – President Telaric, LLC, President
In 1999 Mr. de la Huerga formed Telaric, LLC along with 2 associates. This company is started to further develop and license technologies that Mr. de la Huerga and others have developed. These include technologies related to medical errors (both at home and within healthcare settings), information technology security, data collection and verification, and product labeling and tracking. Some of these technologies directly address problems faced by 100 million Americans in the consumption of medication; a problem that has been estimated to be responsible for 100,000 deaths and costs society over $100 Billion each

year. Several of these developments have resulted in patents applications being submitted. Mr. de la Huerga is the inventor 31 patents and 13 patent applications. Others addressed various aspects of securing computer systems from attack and malicious use to harden our national cyber assets.

From these developments 3 Wisconsin based companies were formed to commercialize these developments into commercial products. Vigilo, Inc addressed the above mentioned problem of medication errors. CartaNova, Inc. developed concentrated data collection devices related to the needs for hospitals to improve patient safety and reduce labor requirements while providing improved care to patients.

Mr. de la Huerga has made presentations to the annual Innovation Conference sponsored by the University of Wisconsin, to the Marquette University Bio-Engineering School, to the Wisconsin Alumni Research Foundation, and the inaugural Wisconsin Entrepreneurs Conference regarding growing Wisconsin businesses through innovation. He is a charter member of both the Wisconsin Area Research Managers and the Governor's Wisconsin Technology Council. He has also been a member of the Board of Trustees for Reed College and has also served on their Technical Advisor Committee.

2002 - President HyperPhrase Technologies, LLC, President
HyperPhrase Technologies was established to license patents related to HyperPhrase technology that Mr. de la Huerga and Dr. Craig developed.

Programming Languages:

Fortran
PL-1
Visual Basic
Visual Basic for Applications
JavaScript
HTML
Assembly Language for various minicomputers –
Interdata
Digital Equipment Corporation

Expert testimony provided by Mr. de la Huerga in the past 4 years:

None.

Products Engineered

Medical Databases & Storage Systems

Card Recorder System for electrocardiographic data recording and retrieval

4 Generations of the Marquette Muse system storing ecg reports with images on disk drives staring with 20 MB Disk drives, then 80 MB, 300 MB and then gigabyte drives offering perpetual on-line ECG storage and automated retrieval and ECG Analysis

Several ECG Report editors and display programs

Developed compression algorithms for efficient data storage

Developed custom drivers for graphing recorders

ECG Analysis programs

Support the Smith-Mayo ECG Analysis program

Conversion of 2 generations of the IBM Bonner ECG analysis program from 360 mainframe to Interdata mimicomputer – becomes the most widely used ECG analysis program

Manager and Co-Developer of the Marquette 12SL ECG analysis program

Electrocardiographs

Mac I electrocardiograph with an integrated text and waveform writer using a combination of ink pens and thermal text printers

Mac II first electrocardiograph with 12Sl ECG Analysis program

MAC 6

Mac 12 & Mac 15 featuring advanced pacemaker analysis and Signal-Averaged Electrocardiography

Mac-VU cardiograph with full CR display

Mac 8 Cardiograph with LCD display

Mac PC miniature electrocardiograph designed for U.S. Navy submarines. Later adopted by non-military use to become the largest volume seller for Marquette

Exercise Stress Systems

- 1900 Treadmill
- Case 12, 12 lead stress system
- Case 16
- Centra multi-purpose stress system
- Max-1 cost reduced stress system

Critical Care Patient Vital Signs Monitors

- 7000 Series Critical Care Patient Monitor with cardiac arrhythmia monitoring
- 7500 Series Central System for Patient Monitors
- 7700 Series Telemetry Transmitter
- TRAM Integrated Portable Vital Signs Monitor System
- Series 9000 Critical Care Patient Monitor

Ambulatory Solid State ECG Recorder (Holter Recorder)

- SEER

Defibrillators

- Responder 1200, 1250, and 1500 Defibrillators
- First portable defibrillator with 12SL ECG analysis to detect heat attacks used by paramedics

IV Medication Management System

- Improve control and communication of IV pumps with local computers and remote servers to improve patient safety

Publications of Mr. de la Huerga's in the past 10 years:

CartaNova Enterprise Contextual Computing – An Enterprise Information Technology Architecture, August 2001

Innovation Will Leave Competitors in the Dust
Milwaukee Journal Sentinel May, 15, 2005

Failure to Innovate Sinks Many Sound Companies
Milwaukee Journal Sentinel December, 23, 2006

List of U.S. Patents and Applications

U.S. Patents

1	7,216,802	Method and apparatus for verifying information
2	7,107,281	Method for storing records at easily accessible addresses
3	7,061,831	Product labeling method and apparatus
4	7,013,298	Method and system for automated data storage and retrieval
5	7,006,894	Interactive medication cassette
6	6,928,452	Tiered and content based database searching
7	6,820,093	Method for verifying record code prior to an action based on the code
8	6,779,024	Data collection device and system
9	6,611,733	Interactive medication dispensing machine
10	6,529,446	Interactive medication container
11	6,516,321	Method for database address specification
12	6,507,837	Tiered and content based database searching
13	6,434,567	Method for specifying enterprise-wide database address formats
14	6,408,330	Remote data collecting and address providing method and apparatus
15	6,346,886	Electronic identification apparatus
16	6,345,268	Method and system for resolving temporal descriptors of data records in a computer system
17	6,308,171	Method and system for automated data storage and retrieval
18	6,272,505	Document modification based hyperlink limiting method and apparatus
19	6,259,654	Multi-vial medication organizer and dispenser
20	6,255,951	Electronic identification bracelet
21	6,139,495	Medical accident avoidance method and system
22	6,044,134	Messaging system and method
23	6,032,155	System and apparatus for administering prescribed medication to a patient

24	5,960,085	Security badge for automated access control and secure data gathering
25	5,903,889	System and method for translating, collecting and archiving patient records
26	5,895,461	Method and system for automated data storage and retrieval with uniform addressing scheme
27	5,883,576	Identification bracelet with electronics information
28	5,852,590	Interactive label for medication containers and dispensers
29	D309,295	Data terminal
30	4,895,161	Transportable data module and display unit for patient monitoring system
31	4,715,385	Patient monitoring system having transportable data module and display unit

U.S. Patent Applications

1	20070204497	Vial printing method and apparatus
2	20060054682	Method and system for tracking and verifying medication
3	20050288082	Word puzzle assembly and methods related thereto
4	20050278186	Word puzzle assembly and methods related thereto
5	20050108219	Tiered and content based database searching
6	20050091338	System and method to authenticate users to computer systems
7	20040039481	Medication dispensing machine cassette with interactive information strip
8	20030099158	Interactive medication container
9	20020116509	Data collection device and system
10	20020084904	Electronic identification apparatus
11	20020038392	Method and apparatus for controlling an infusion pump or the like
12	20010028308	Interactive medication container
13	20010017817	Product labeling method and apparatus

EXHIBIT B

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

Documents and Materials Reviewed in Preparation of Expert Report

(1) U.S. Patent No. 5,903,889 (the '889 patent) and U.S. Patent No. 6,516,321 (the '321 patent)

(2) The '889 and '321 patent families, i.e., patents and file histories that the '889 and '321 patents depend from, including provisional patent application Ser. No. 60/023,126.

(3) Patent application drafts for the '889 patent and the '321 patent as well as drafts of provisional patent application Ser. No. 60/023,126.

(4) The prior art references cited in the '889 and '321 patents.

(5) Expert Report of W. Bruce Croft on invalidity and the appendices and materials referred to in the appendices.

(6) Supplemental Expert Report of W. Bruce Croft on invalidity and the appendices and the materials referred to in the appendices.

(7) Rebuttal Expert Report of Prof. Sergei Nirenburg, Dec. 5, 2006.

(8) Declaration of Prof. Sergei Nirenburg in support of HyperPhrase's Opposition to Google's Motion for Summary Judgment of Invalidity, Nov. 20, 2006.

(9) Memorandum in Support of Google's Motion for Summary Judgment of Invalidity Regarding U.S. Patent Nos. 5,903,889 and 6,516,321 and supporting materials.

APPENDIX A-1

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

Appendix A-1

Regarding the ‘889 patent priority date, my records show the first version of the patent was drafted and drawings were prepared no later than **September 30, 1996**. Several versions of this document existed as it was prepared for submission to the PTO on June 9, 1997.

The following screen shot shows the various versions of this patent application as it was prepared for submission.

All of the elements of claims 1 and 7 of the ‘889 patent were part of the September 30, 1996 draft and drawings.

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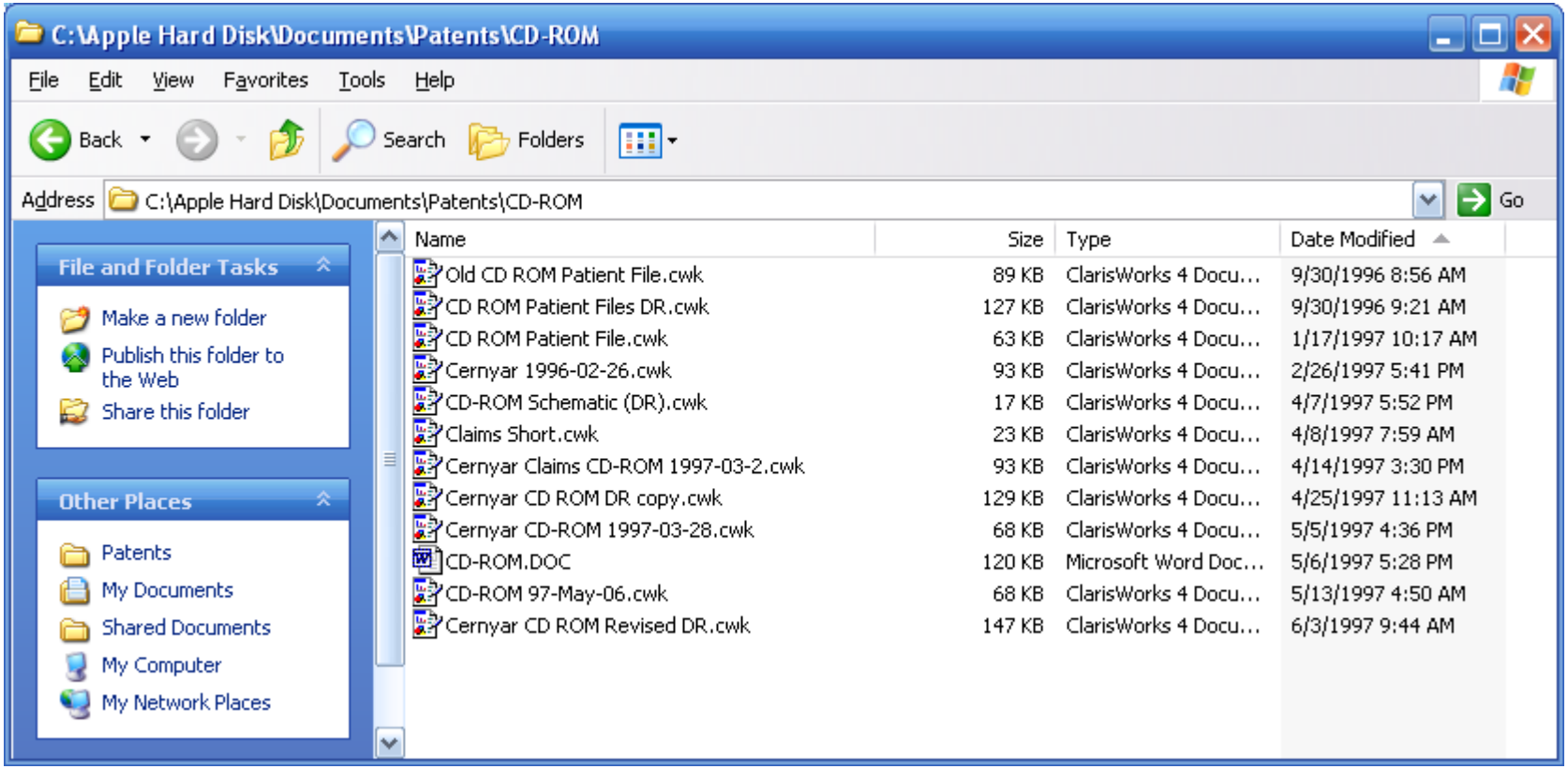
Appendix A-1



The drawings (Figures 14A–14D) cited by the Federal Circuit which related to the '889 patent are also found in the drawing file "CD ROM Patient Files DR.cwk", albeit then labeled as Figures 13A–13D. These drawings show, among other features, the parsing of one record to locate data references to other records. Furthermore as the Federal Circuit stated, the drawings show that a data reference can refer to more than one other record:

> For example, Figures 14C-E in the '889 patent depict an embodiment of the invention that shows the use of a data reference

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referring to multiple records. Figure 14C depicts a "conventional text document," which in this embodiment is a medical record. '889 patent fig. 14C; id col. 10 ll.60-63. Figure 14D illustrates how the text "Catheterization Reports" in Figure 14C is replaced by hyperlinks to two other medical records, a "Radiology Catheterization Report" and a "Hemodynamic Catheterization Report."

Finally, these Figures also show the modification of an initial record to create an address to retrieve a reference record.

The patent draft was improved and claims added to it over the period of time from September 30, 1996 to the filing date of June 9, 1997 with intermediate revisions noted on:

September 9, 1996
January 1, 1997
February 26, 1997
April 7, 1997
April 8, 1997
April 14, 1997
April 25, 1997
May 5, 1997
May 6, 1997
May 13, 1997
June 3, 1997.

There are two documents that will be referred to in this discussion.

One is "Old CD-ROM Patent File.cwk" dated September 30, 1996. It will be abbreviated as "PD-1996" for patent draft 1996.

The other is "CD-ROM Patent Files DR.cwk" also dated September 30, 1996. It will be abbreviated as "DR-1996" for drawings 1996.

Regarding the asserted '889 patent claims, note the following support for all the claim elements as of Sept. 30, 1996:

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Appendix A-1

U. S. Patent No. 5,903,889	**Elements Disclosed By Carlos de la Huerga in "Old CD-ROM Patent File.cwk" dated September 30, 1996 and other is "CD-ROM Patent Files DR.cwk" dated September 30, 1996.**
1. A computer system with a plurality of data records on a plurality of databases, and a standardized format for addressing said data records, said computer system comprising:	A network 100 (DR-1996 Fig. 1) is comprised at least one computer system 108, 110, and 111 (PD-1996 page 5 ¶ 4 and DR-1996 Fig. 1) for storing multiple data records (PD-1996 page2 ¶ 4, DR-1996 Fig. 4B) that are stored on workstations 102 and 104 (each having a database) and multiple databases 106 (Databases 1 to Database N in DR-1996 Fig. 1) and a standardized format for addressing 132 (PD-1996 18 ¶ 1 & DR-1996 Fig. 3A or PA page 22 ¶ 2 & DR-1996 Fig. 4B Destination File Name Formatting Instructiuons166) said data records
(a) a user interface having an interactive display program for requesting one of said data records and displaying a plurality of interface supported data formats;	A browser is provided (PD-1996 page 2 ¶ 1 ¶ 4) which can be used to identify the records and view them by selecting a hyper link Browsers display a plurality of data formats such as text, images, and video (PD-1996 page 5 ¶ 3)
(b) means for receiving a reference to a first data record from said interactive display program;	Records may be presented to a user of an Internet/Intranet browser program so that the user may easily identify the records and view them by selecting a hyper link. (PD-1996 page 3 ¶ 4, page 18 ¶ 1)
(c) means for retrieving said first data record;	A requested record is retrieved by the web server in response to a hyperlink request (PD-1996 page 5 ¶ 5)
(d) means for parsing said first data record to identify a reference to a second data record;	The hyperlinks can be inserted based upon the recognition of phrases or special characters sequences also known as parsing (PD-1996 page 19 ¶ 2-4 & DR-1996 Fig. 13C, 13D, & 13E).

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Appendix A-1

U. S. Patent No. 5,903,889	**Elements Disclosed By Carlos de la Huerga in "Old CD-ROM Patent File.cwk" dated September 30, 1996 and other is "CD-ROM Patent Files DR.cwk" dated September 30, 1996.**
(e) means for modifying said reference to said second data record to create an address, said address being operable to retrieve said second data record; and	Hyperlinks can be inserted which modifies the second record and an address is created (PD-1996 page 19 ¶ 1), for example according to Data References to Add and Formatting Instructions 138 of DR-1996 Fig. 3B and Step 600 DR-1996 Fig. 11C
(f) means for sending said modified first data record to said interactive display program.	The translated record may be sent 604 to the original requesting workstation or processor (PD-1996 page 19 ¶ 1 & Step 604 DR-1996 Fig. 11C)
7. The computer system of claim 1, wherein said reference to said second data record comprises a keyword phrase.	Use Data References to Add and Formatting Instructions 138 to add hyperlinks (Step 600 DR-1996 Fig. 11C)

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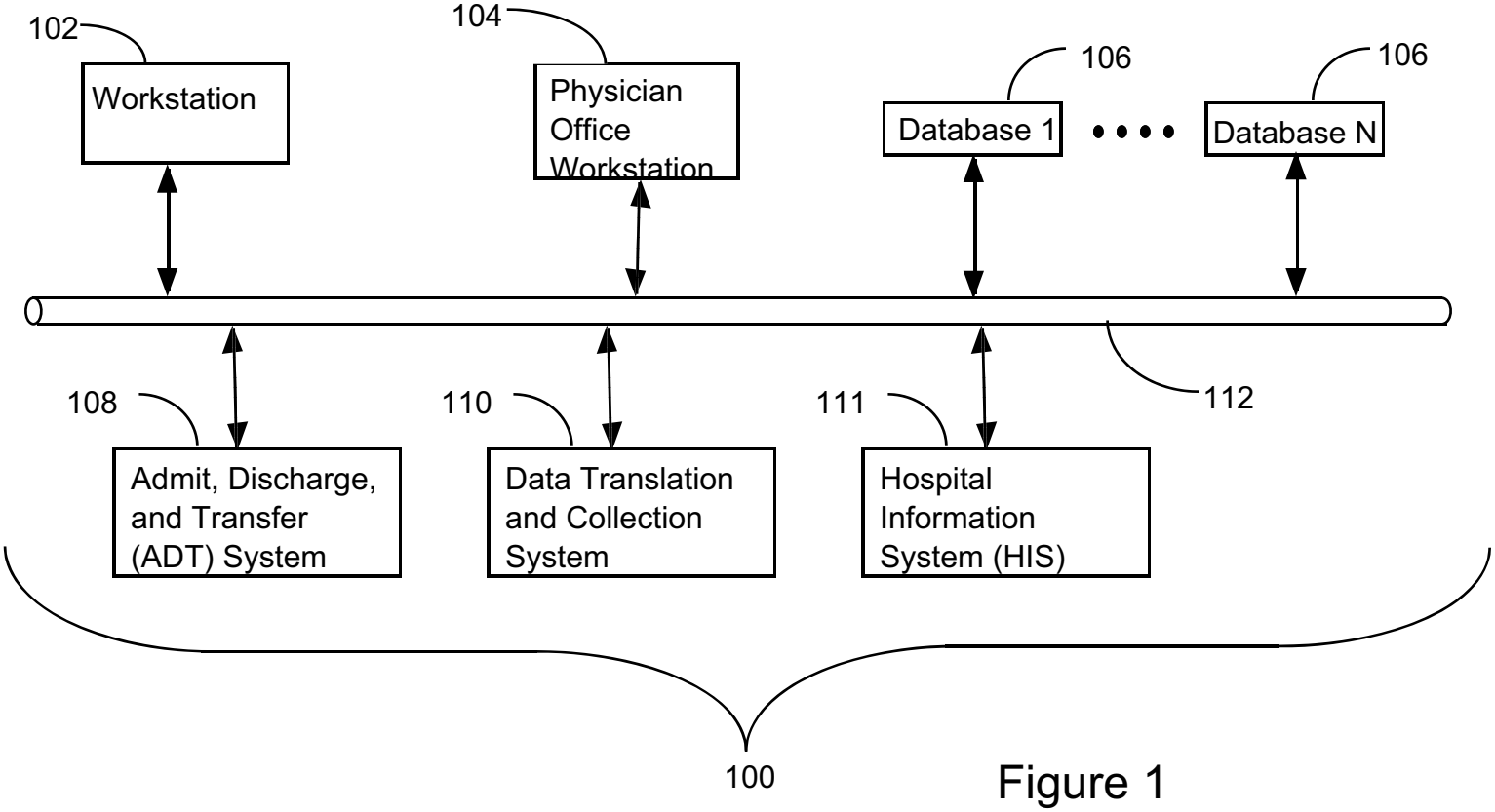


Figure 1

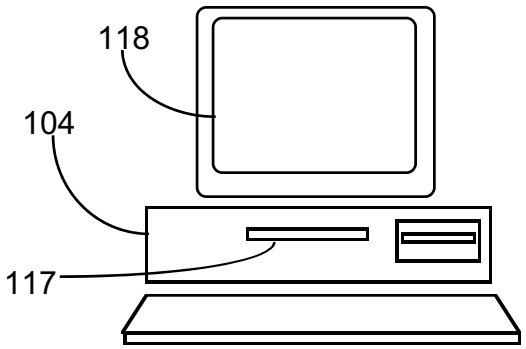


Figure 2

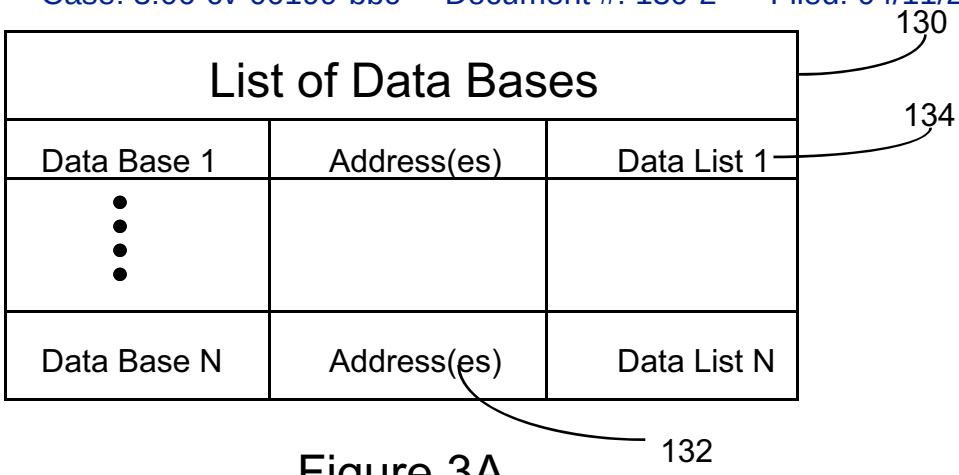


Figure 3A

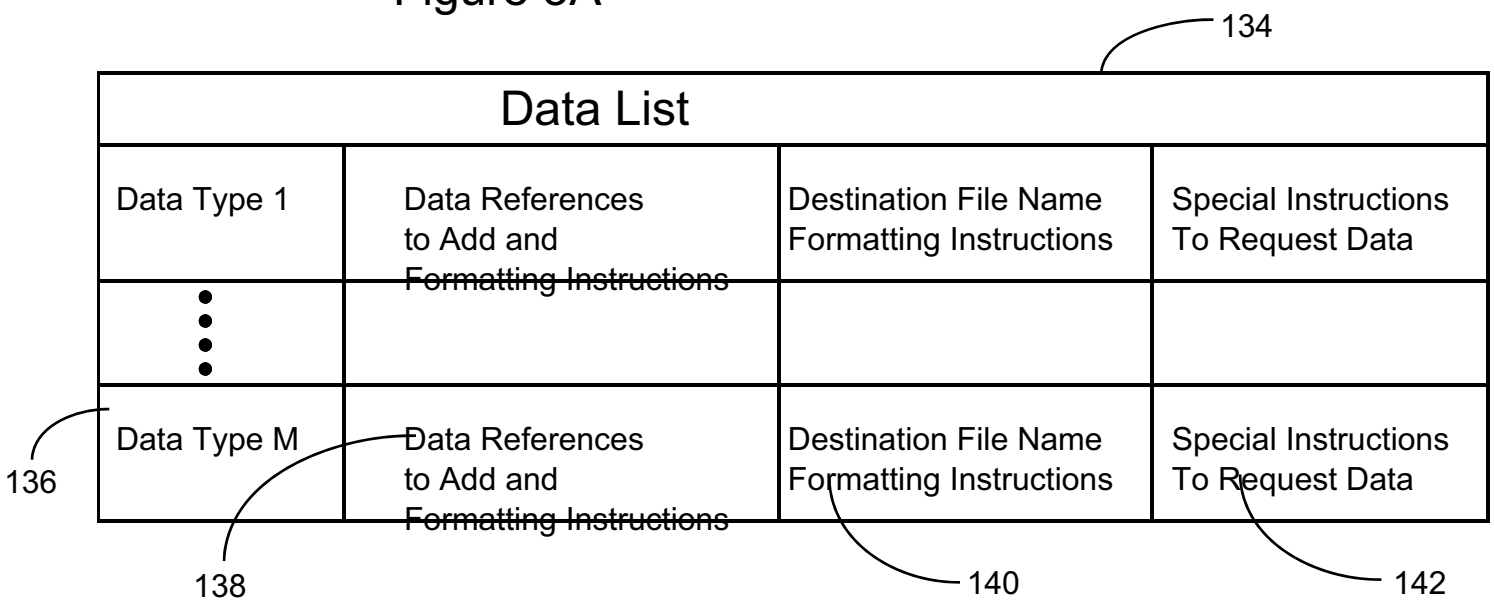


Figure 3B

Associated with: CD ROM Patient Files

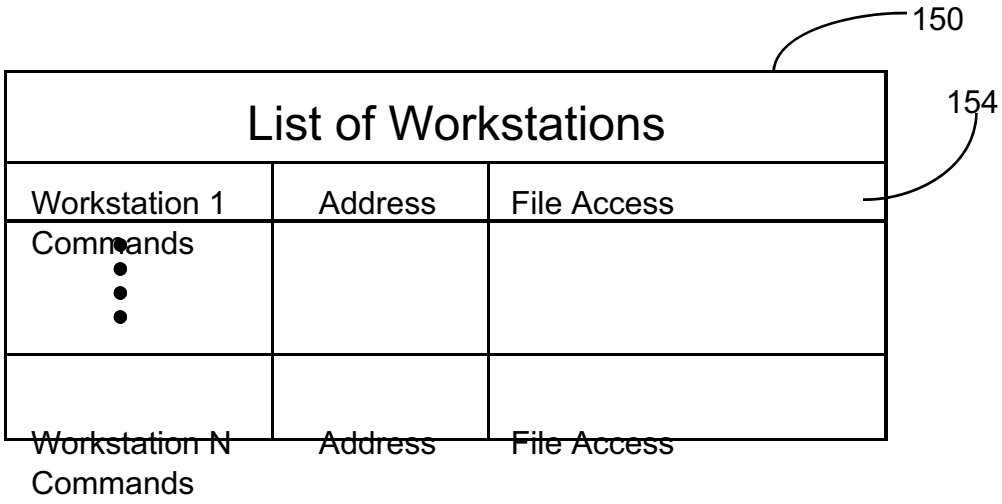


Figure 4A

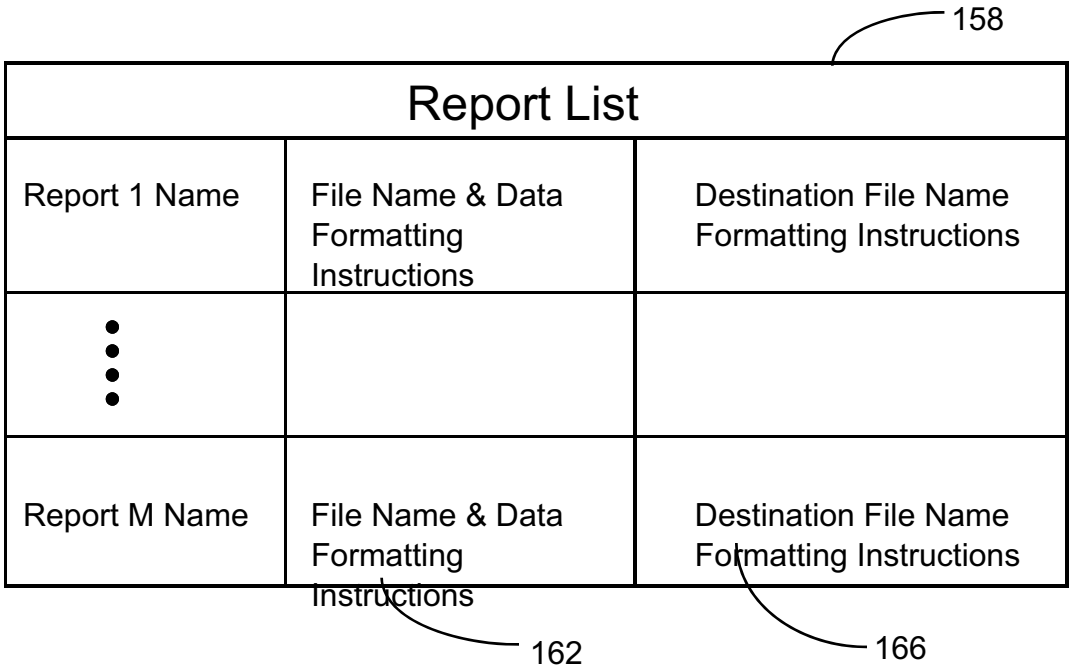


Figure 4B

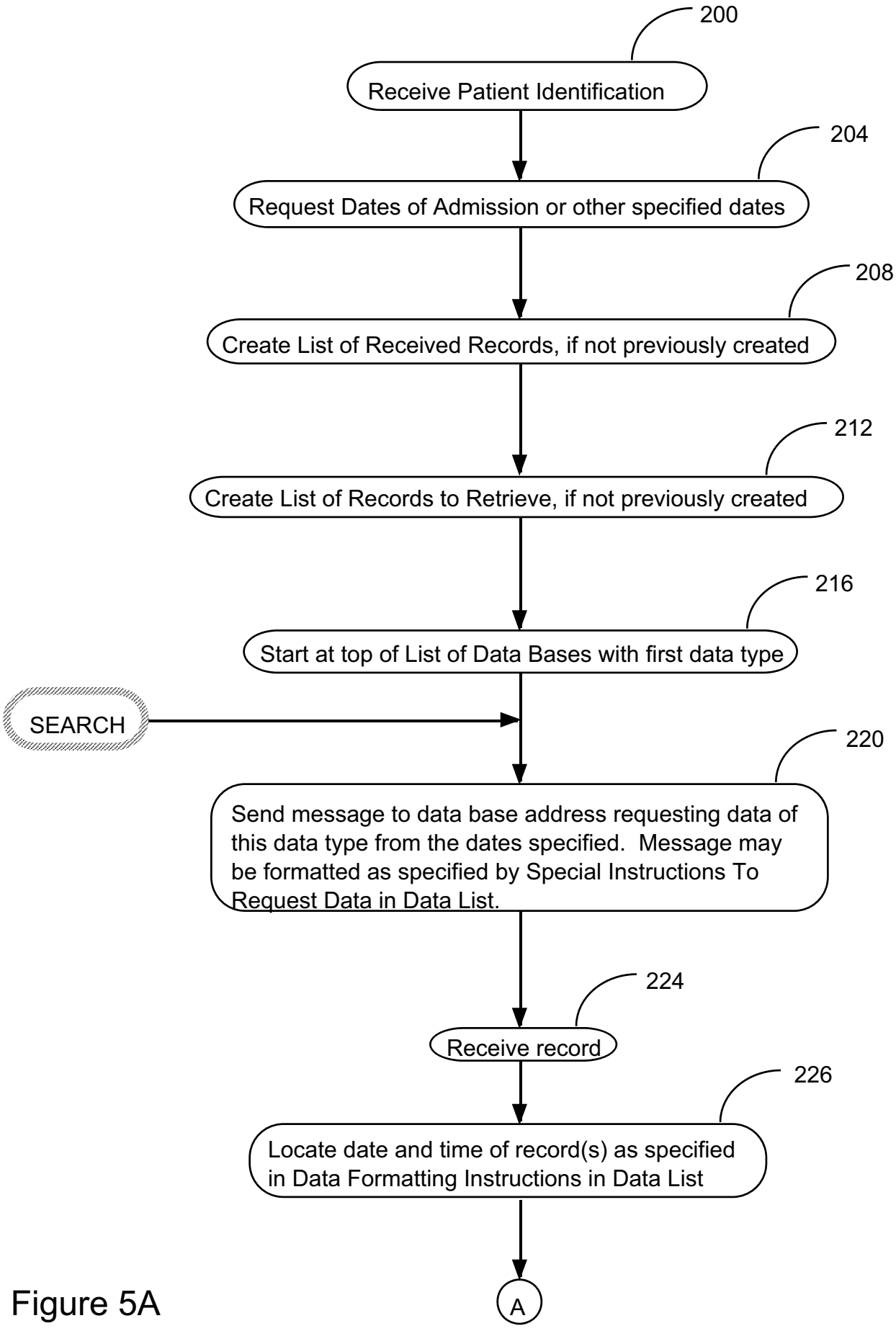

200
Receive Patient Identification
204
Request Dates of Admission or other specified dates
208
Create List of Received Records, if not previously created
212
Create List of Records to Retrieve, if not previously created
216
Start at top of List of Data Bases with first data type
SEARCH
220
Send message to data base address requesting data of this data type from the dates specified. Message may be formatted as specified by Special Instructions To Request Data in Data List.
224
Receive record
226
Locate date and time of record(s) as specified in Data Formatting Instructions in Data List
A

Figure 5A

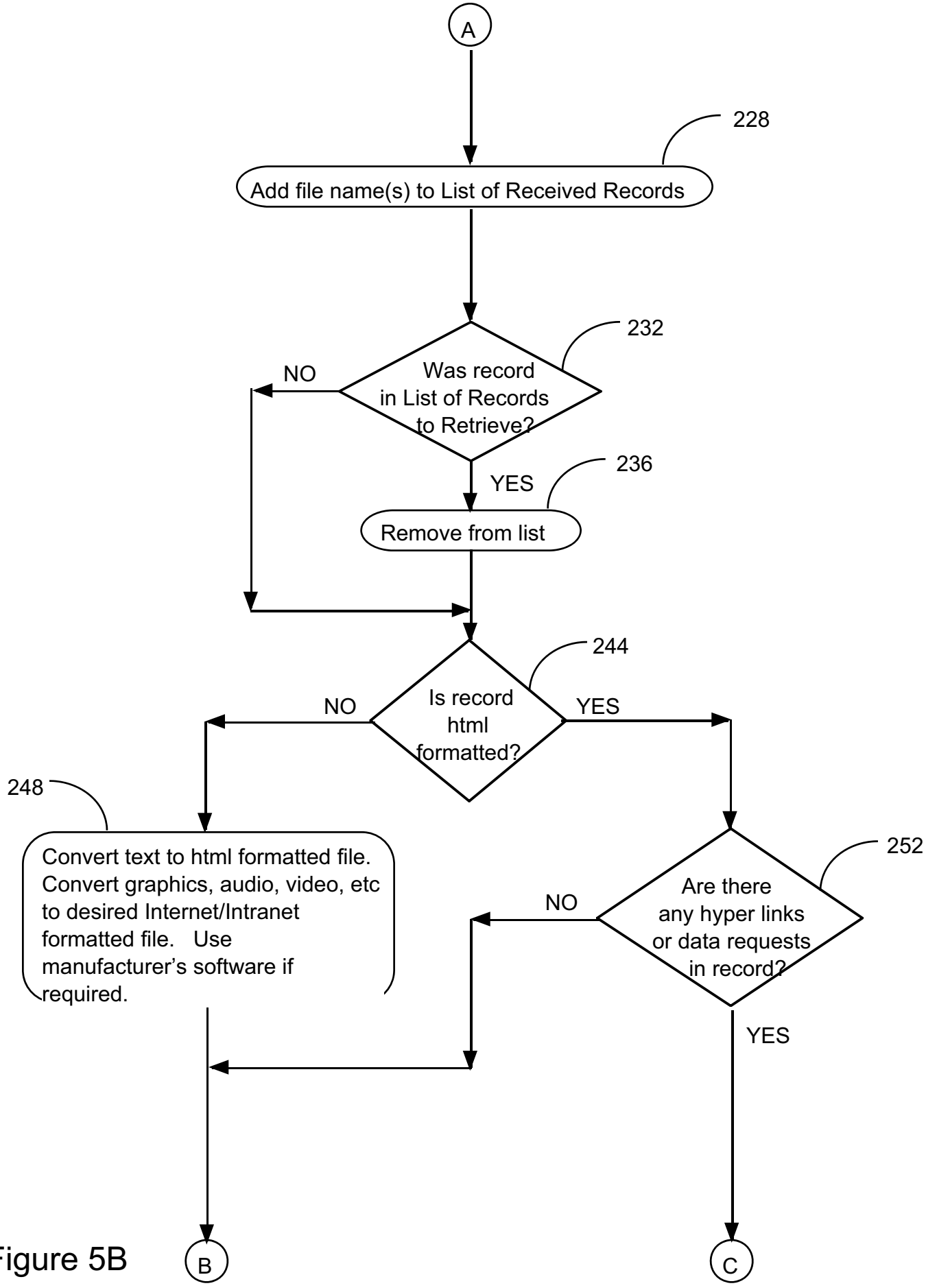


Figure 5B

Associated with: CD ROM Patient Files

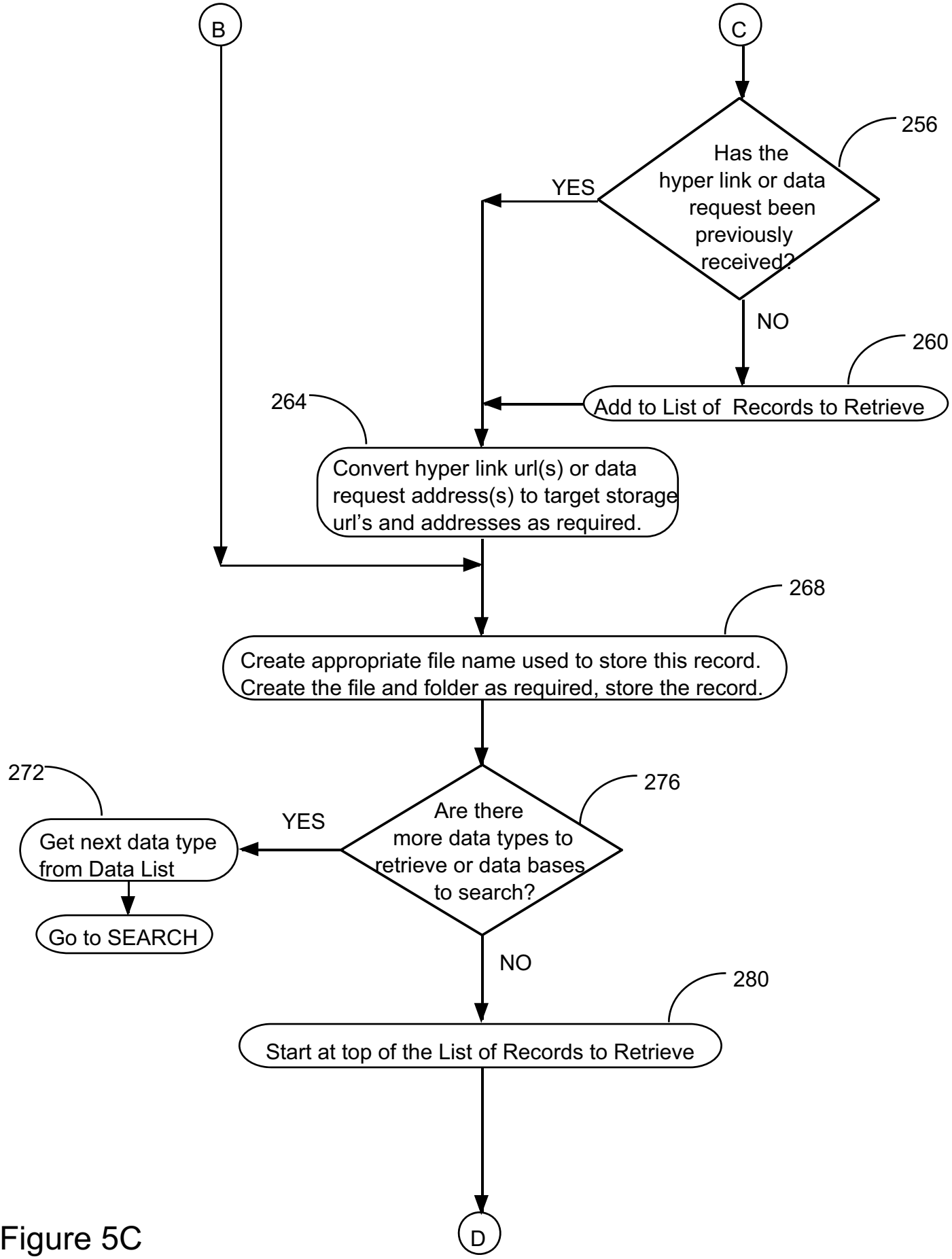

B
C
256
Has the hyper link or data request been previously received?
YES
NO
260
Add to List of Records to Retrieve
264
Convert hyper link url(s) or data request address(s) to target storage url's and addresses as required.
268
Create appropriate file name used to store this record. Create the file and folder as required, store the record.
272
276
Are there more data types to retrieve or data bases to search?
YES
Get next data type from Data List
Go to SEARCH
NO
280
Start at top of the List of Records to Retrieve
D

Figure 5C

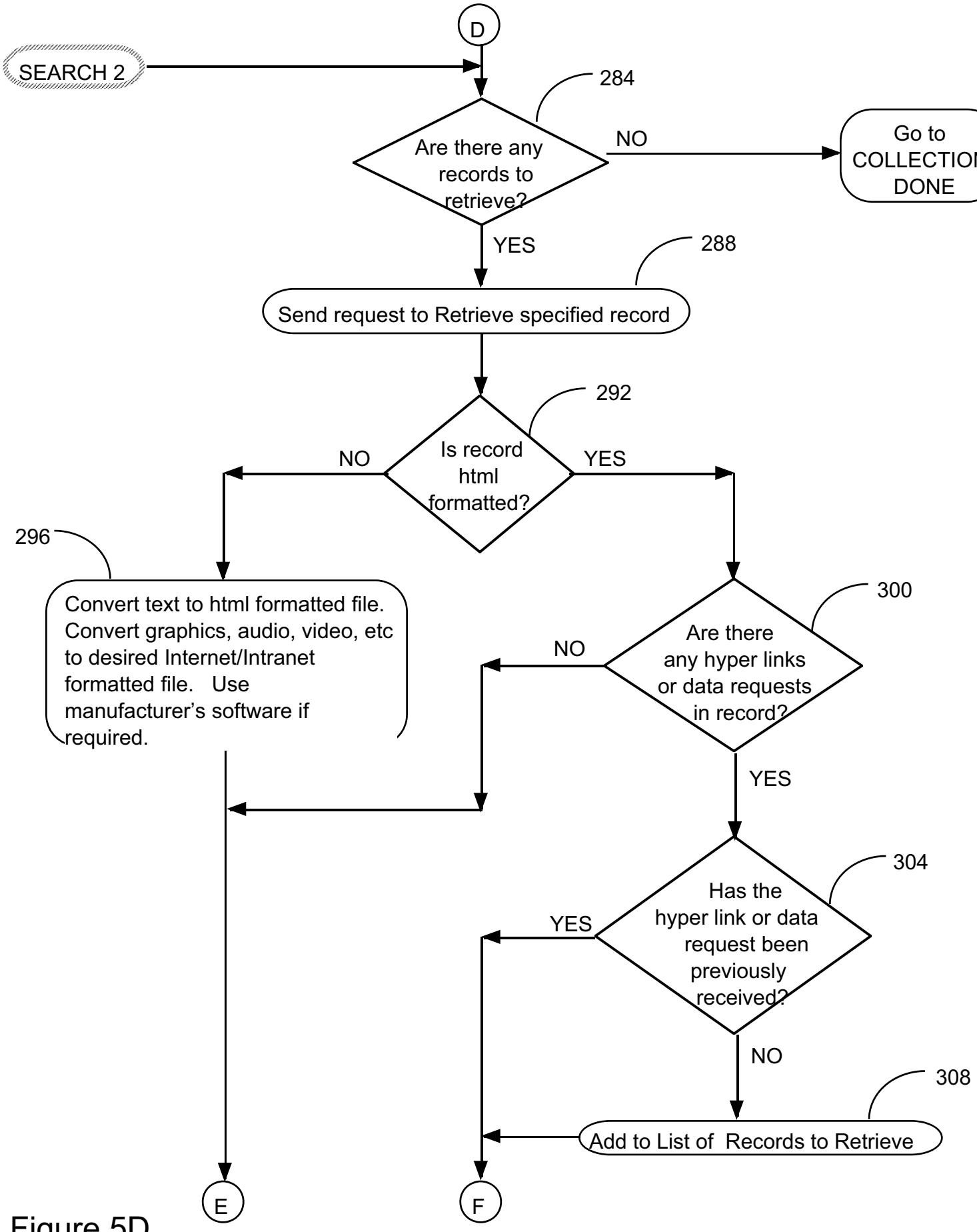

D
SEARCH 2
284
Are there any records to retrieve?
NO
Go to COLLECTION DONE
YES
288
Send request to Retrieve specified record
292
Is record html formatted?
NO
YES
296
Convert text to html formatted file. Convert graphics, audio, video, etc to desired Internet/Intranet formatted file. Use manufacturer's software if required.
300
Are there any hyper links or data requests in record?
NO
YES
304
Has the hyper link or data request been previously received?
YES
NO
308
Add to List of Records to Retrieve
E
F

Figure 5D

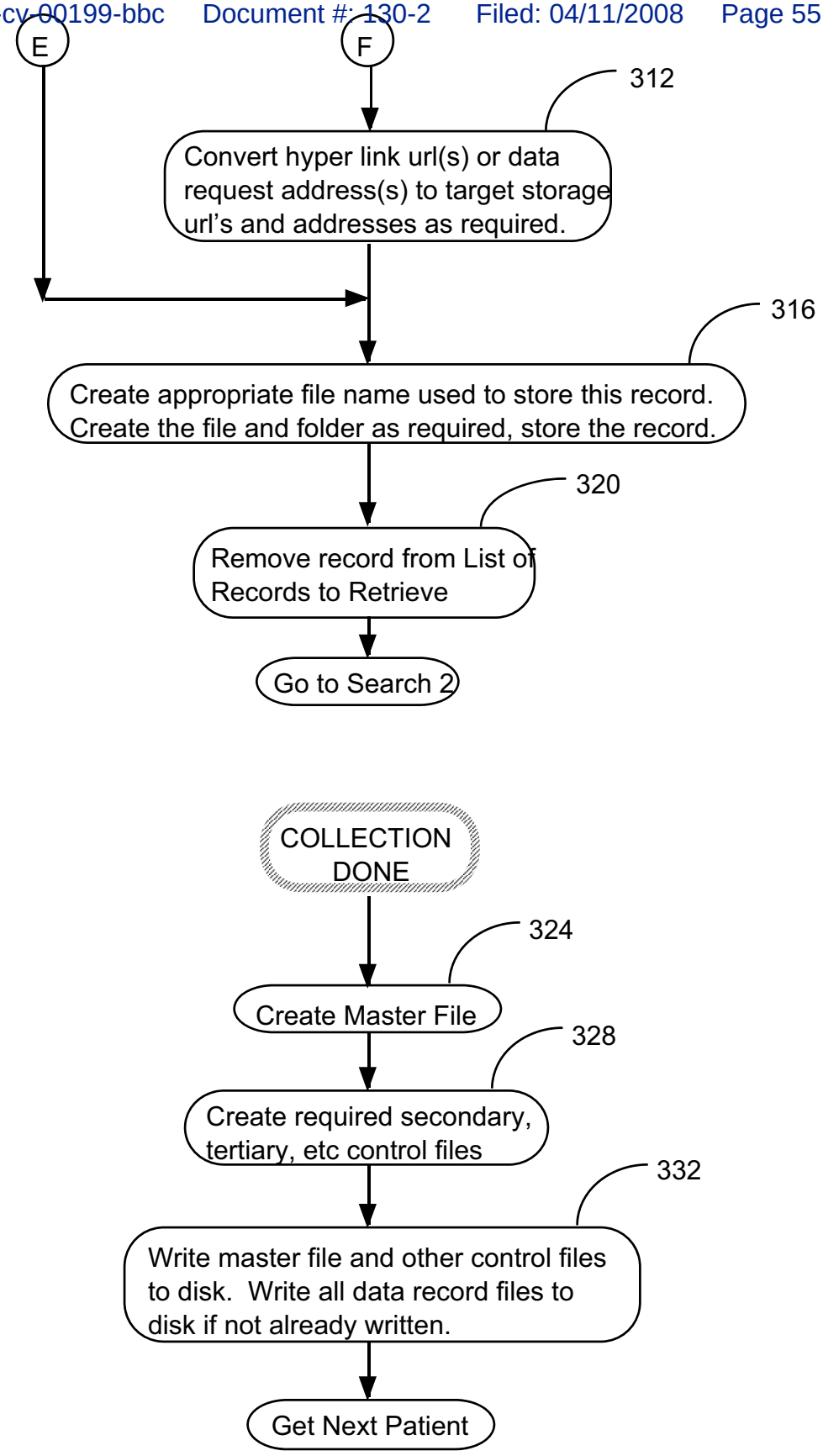

E
F
312
Convert hyper link url(s) or data request address(s) to target storage url's and addresses as required.
316
Create appropriate file name used to store this record. Create the file and folder as required, store the record.
320
Remove record from List of Records to Retrieve
Go to Search 2
COLLECTION DONE
324
Create Master File
328
Create required secondary, tertiary, etc control files
332
Write master file and other control files to disk. Write all data record files to disk if not already written.
Get Next Patient

Figure 5E

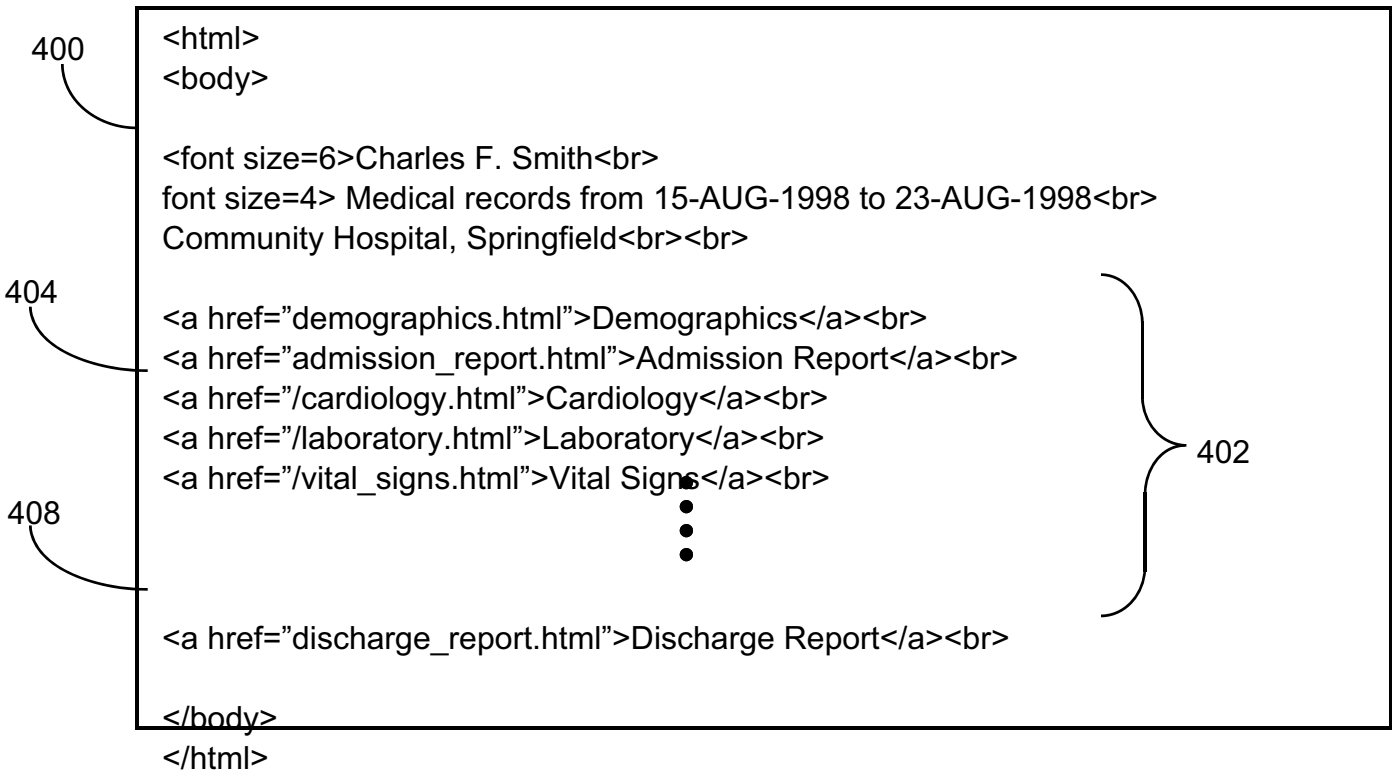


Figure 6A

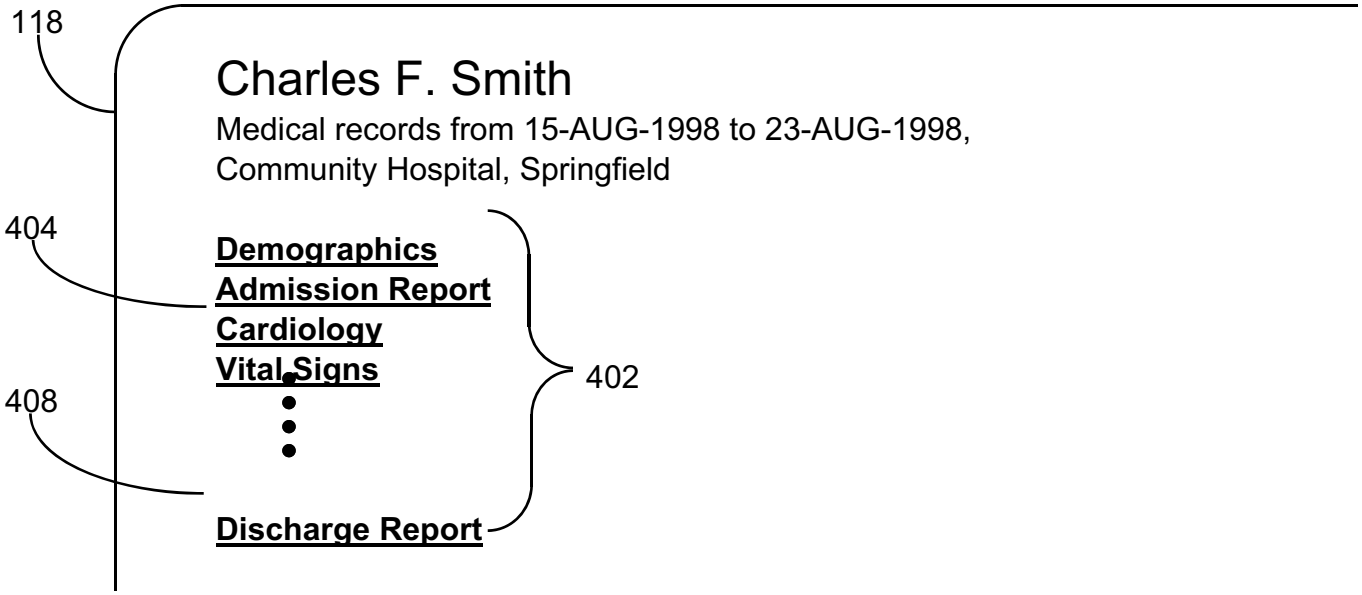


Figure 6B

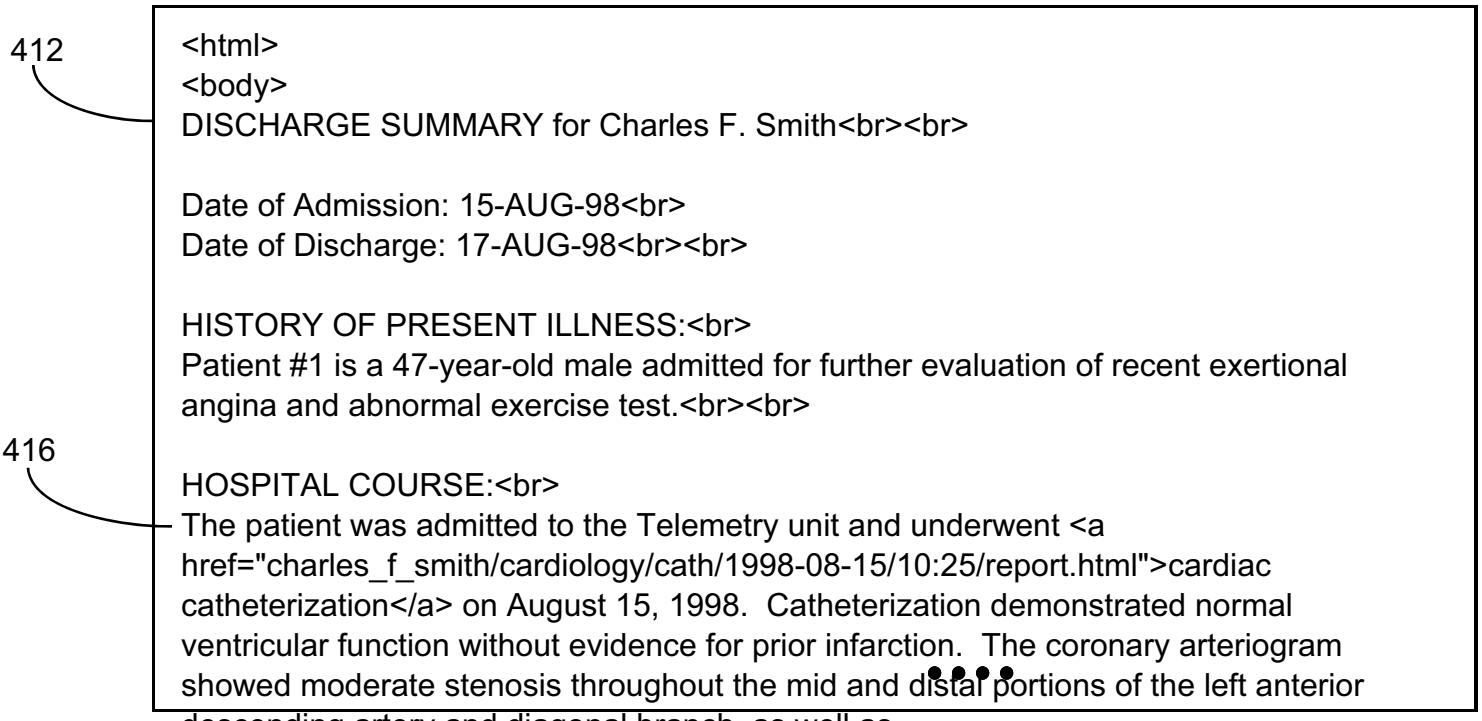


Figure 7A

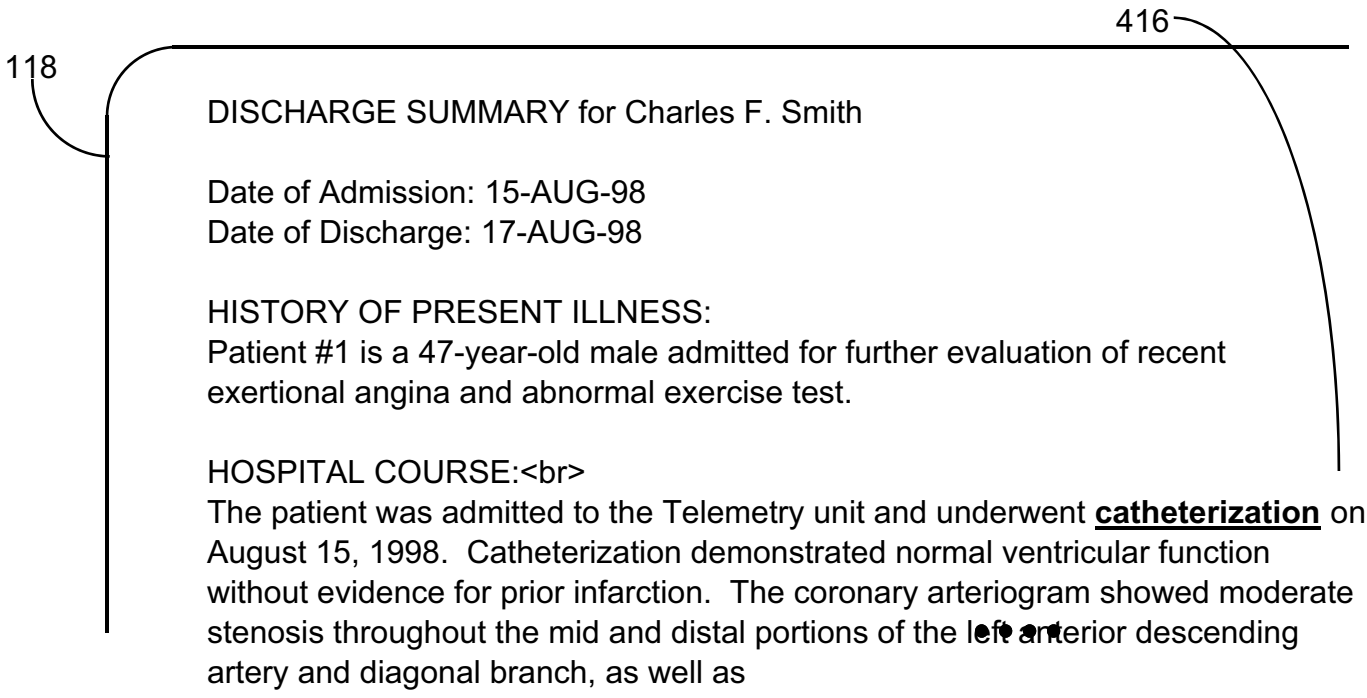


Figure 7B

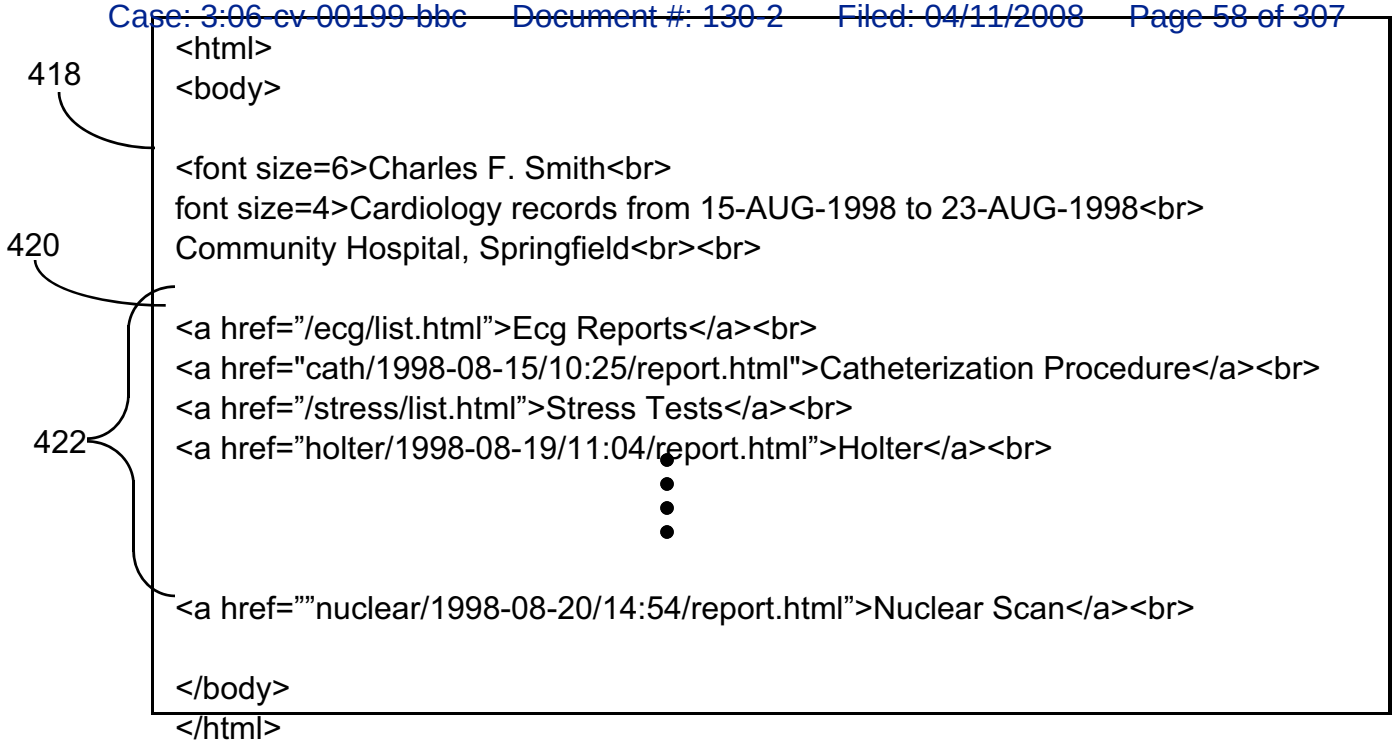


Figure 8A

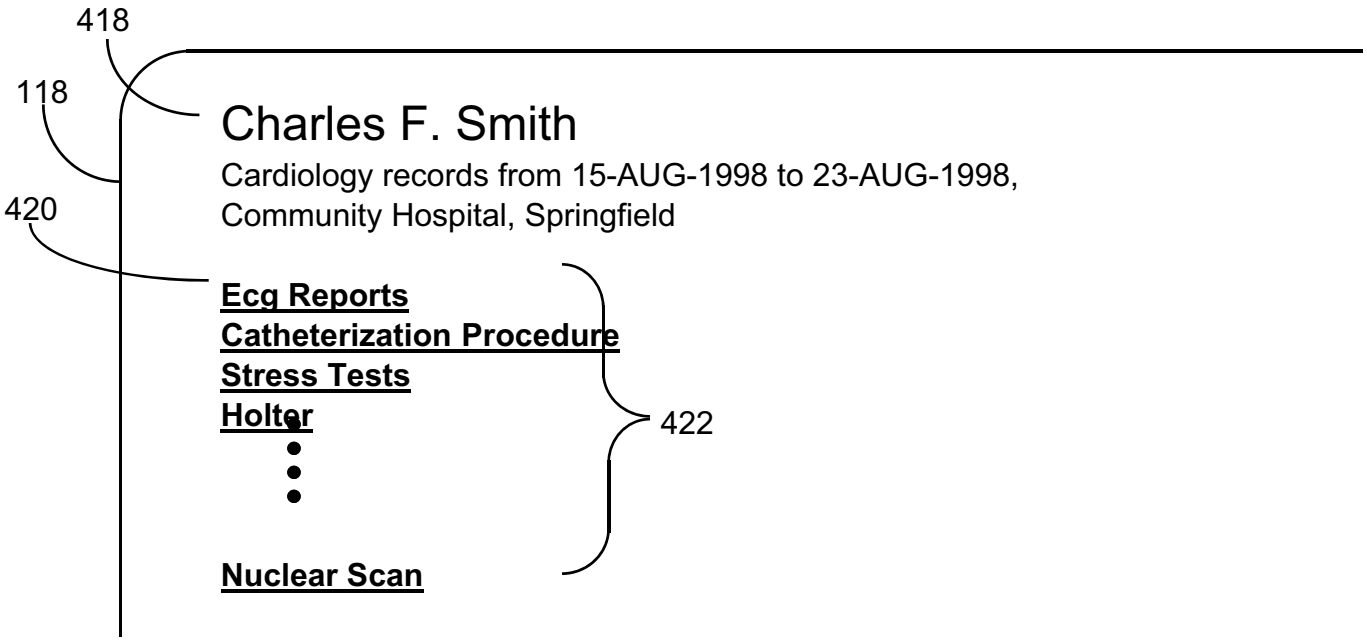


Figure 8B

424

```
<html>
<body>

<font size=6>Charles F. Smith<br>
font size=4>ECG records from 15-AUG-1998 to 23-AUG-1998<br>
Community Hospital, Springfield<br><br>

<a href="1998-08-15/09:15/report.html">15-AUG-1998 09:15</a><br>
<a href="1998-08-15/16:40/report.html">15-AUG-1998 14:40</a><br>
<a href="1998-08-17/11:03/report.html">17-AUG-1998 11:03</a><br>
<a href="1998-08-19/10:25/report.html">19-AUG-1998 09:15</a><br>
                                        •
                                        •
                                        •

<a href="ecg/1998-08-23/08:14/report.html">23-AUG-1998 08:14</a><br>

</body>
</html>
```

426

Figure 9A

118

Charles F. Smith

Ecg records from 15-AUG-1998 to 23-AUG-1998,
Community Hospital, Springfield

15-AUG-1998 09:15
15-AUG-1998 14:40
17-AUG-1998 11:03
19-AUG-1998 09:15
•
•
•

23-AUG-1998 08:14

426

Figure 9B

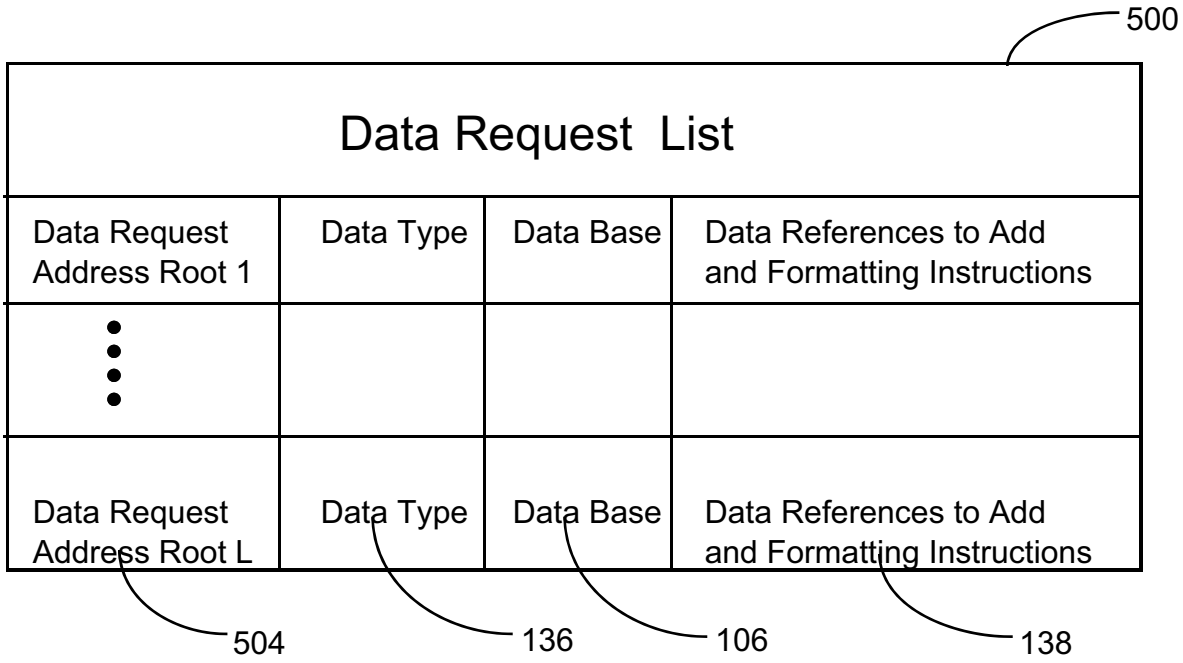

500
Data Request List
Data Request Address Root 1
Data Type
Data Base
Data References to Add and Formatting Instructions
Data Request Address Root L
Data Type
Data Base
Data References to Add and Formatting Instructions
504
136
106
138

Figure 10

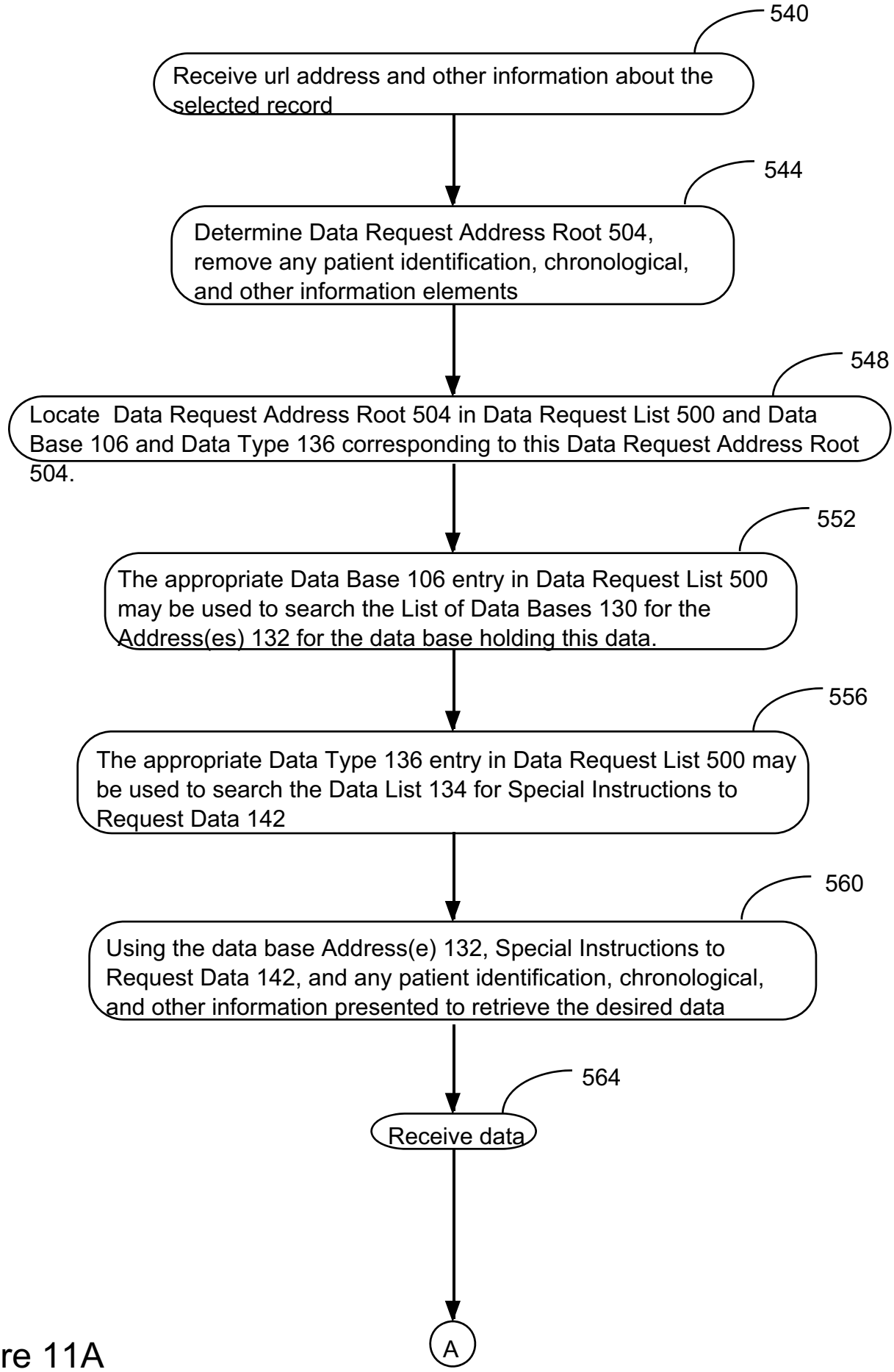

540
Receive url address and other information about the selected record
544
Determine Data Request Address Root 504, remove any patient identification, chronological, and other information elements
548
Locate Data Request Address Root 504 in Data Request List 500 and Data Base 106 and Data Type 136 corresponding to this Data Request Address Root 504.
552
The appropriate Data Base 106 entry in Data Request List 500 may be used to search the List of Data Bases 130 for the Address(es) 132 for the data base holding this data.
556
The appropriate Data Type 136 entry in Data Request List 500 may be used to search the Data List 134 for Special Instructions to Request Data 142
560
Using the data base Address(e) 132, Special Instructions to Request Data 142, and any patient identification, chronological, and other information presented to retrieve the desired data
564
Receive data
A

Figure 11A

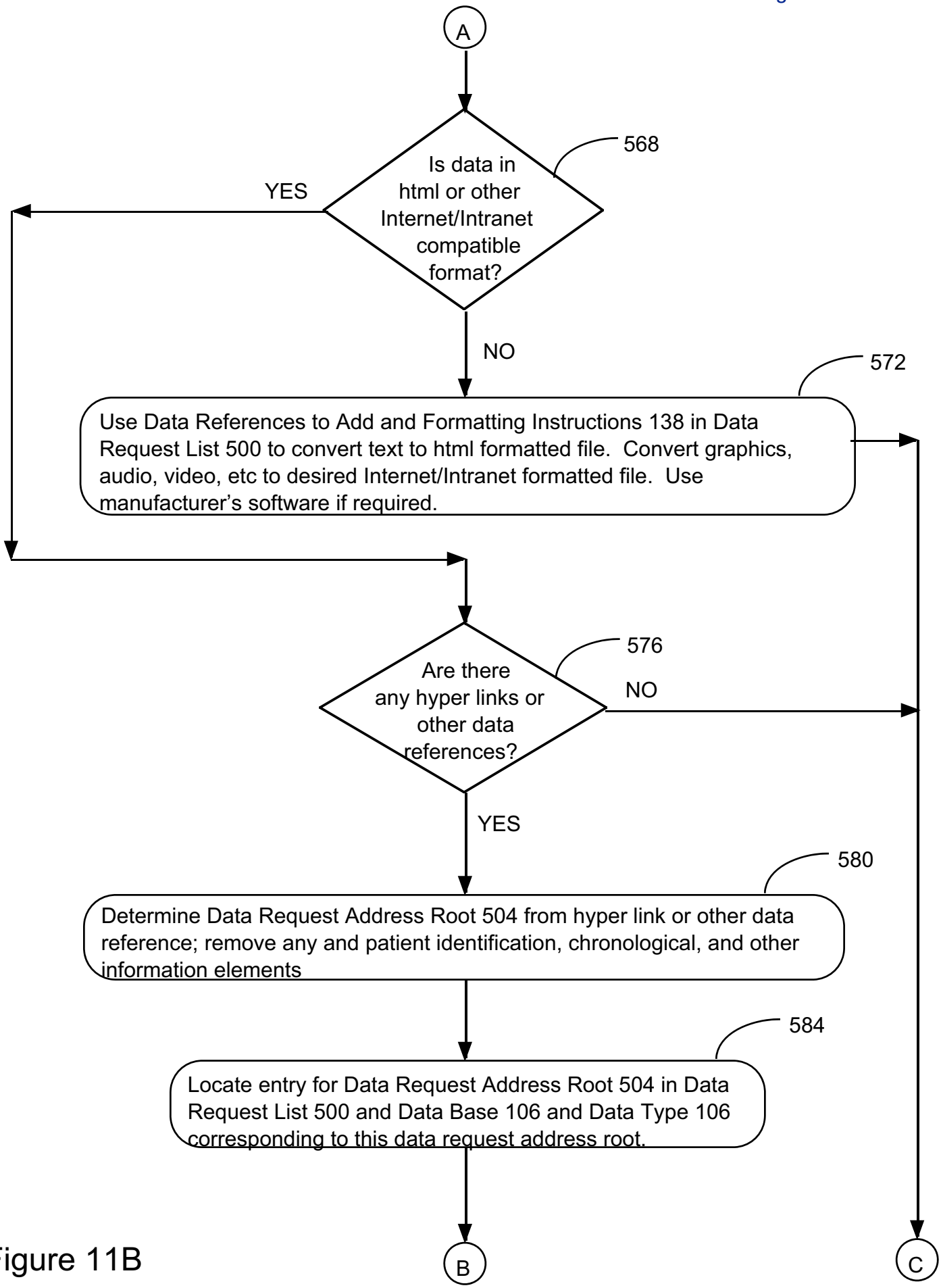

A
Is data in html or other Internet/Intranet compatible format?
568
YES
NO
572
Use Data References to Add and Formatting Instructions 138 in Data Request List 500 to convert text to html formatted file. Convert graphics, audio, video, etc to desired Internet/Intranet formatted file. Use manufacturer's software if required.
Are there any hyper links or other data references?
576
NO
YES
580
Determine Data Request Address Root 504 from hyper link or other data reference; remove any and patient identification, chronological, and other information elements
584
Locate entry for Data Request Address Root 504 in Data Request List 500 and Data Base 106 and Data Type 106 corresponding to this data request address root.
B
C

Figure 11B

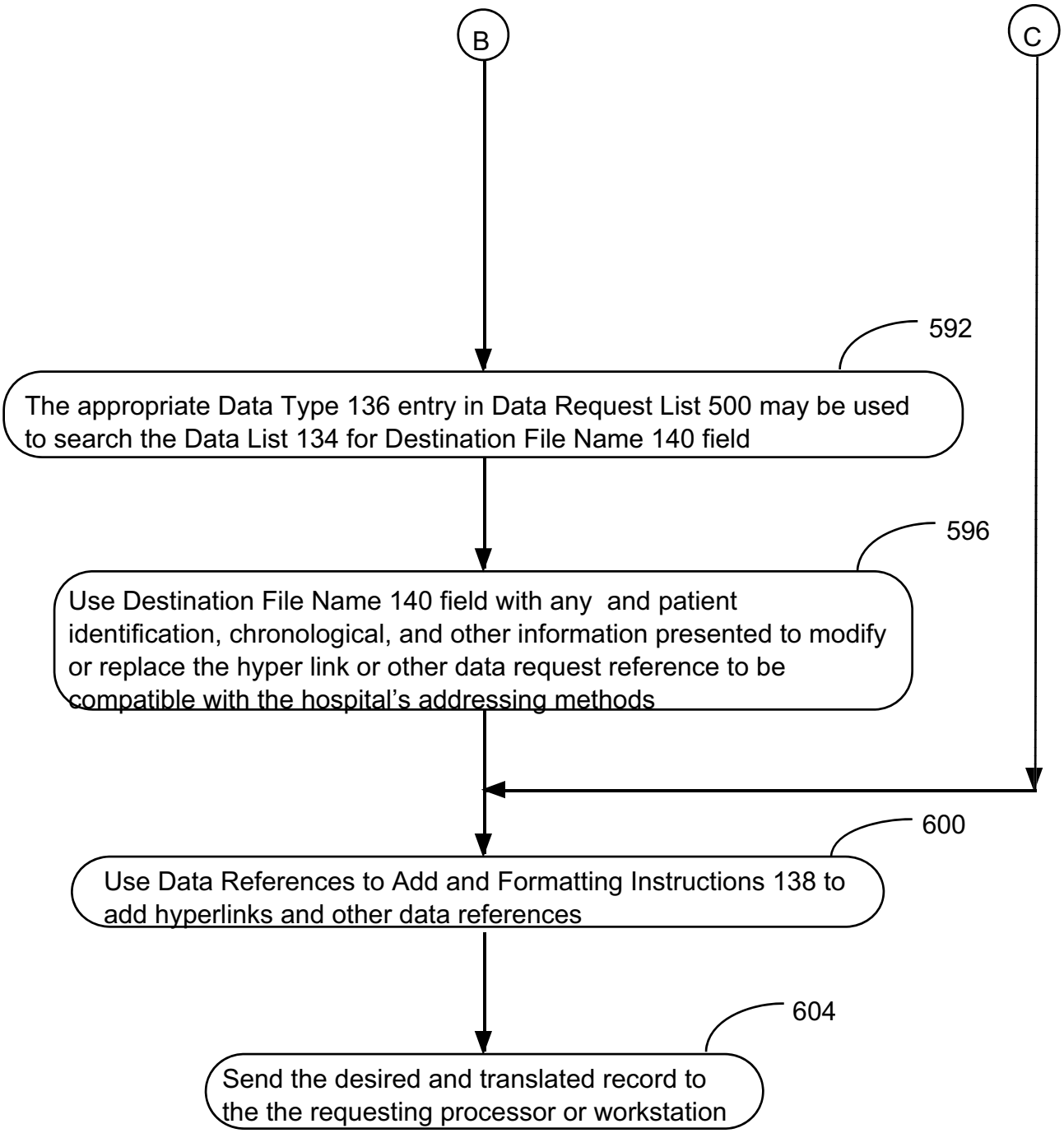

B
C
592
The appropriate Data Type 136 entry in Data Request List 500 may be used to search the Data List 134 for Destination File Name 140 field
596
Use Destination File Name 140 field with any and patient identification, chronological, and other information presented to modify or replace the hyper link or other data request reference to be compatible with the hospital's addressing methods
600
Use Data References to Add and Formatting Instructions 138 to add hyperlinks and other data references
604
Send the desired and translated record to the the requesting processor or workstation

Figure 11C

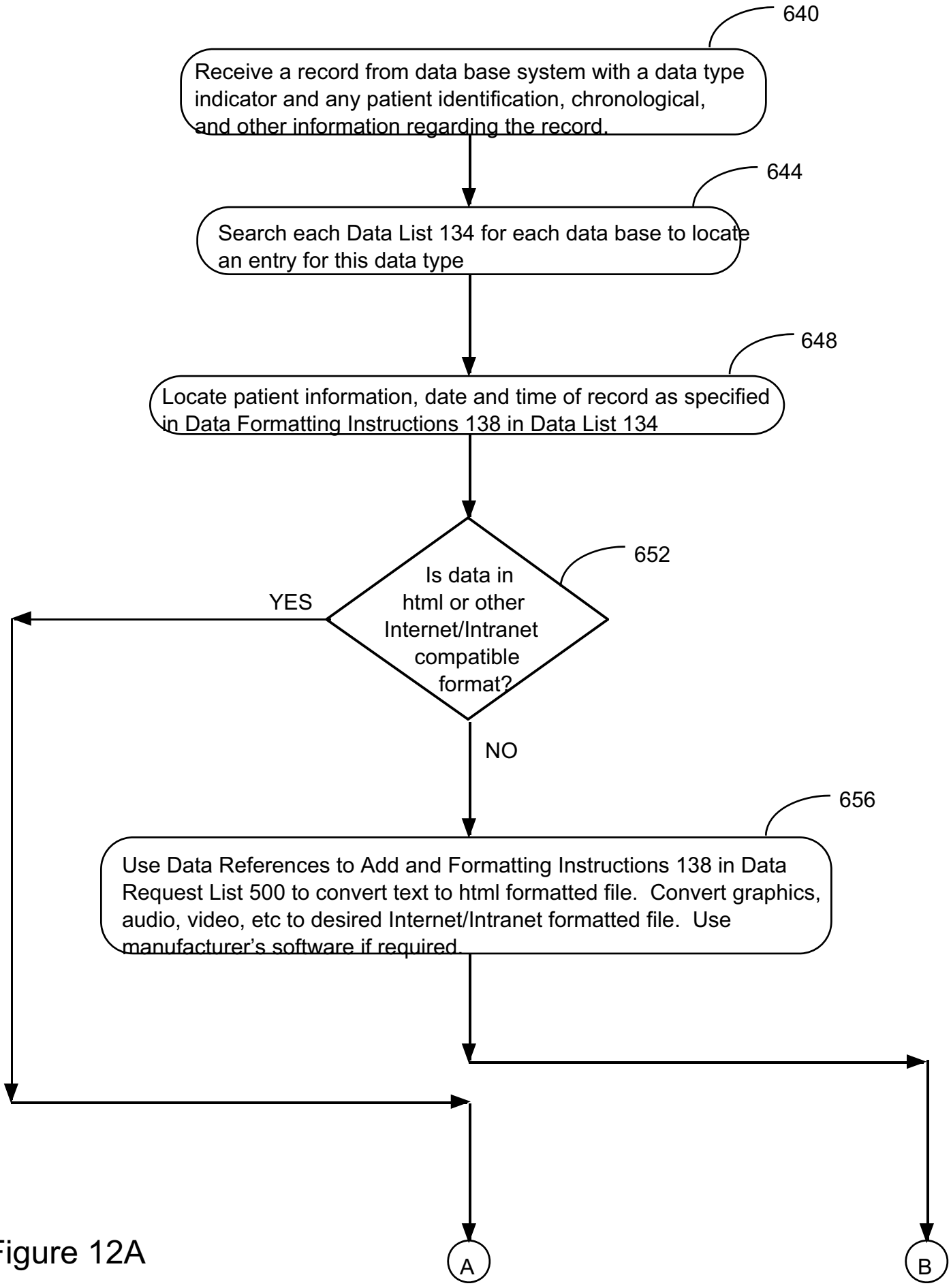

640
Receive a record from data base system with a data type indicator and any patient identification, chronological, and other information regarding the record.
644
Search each Data List 134 for each data base to locate an entry for this data type
648
Locate patient information, date and time of record as specified in Data Formatting Instructions 138 in Data List 134
652
Is data in html or other Internet/Intranet compatible format?
YES
NO
656
Use Data References to Add and Formatting Instructions 138 in Data Request List 500 to convert text to html formatted file. Convert graphics, audio, video, etc to desired Internet/Intranet formatted file. Use manufacturer's software if required.
A
B

Figure 12A

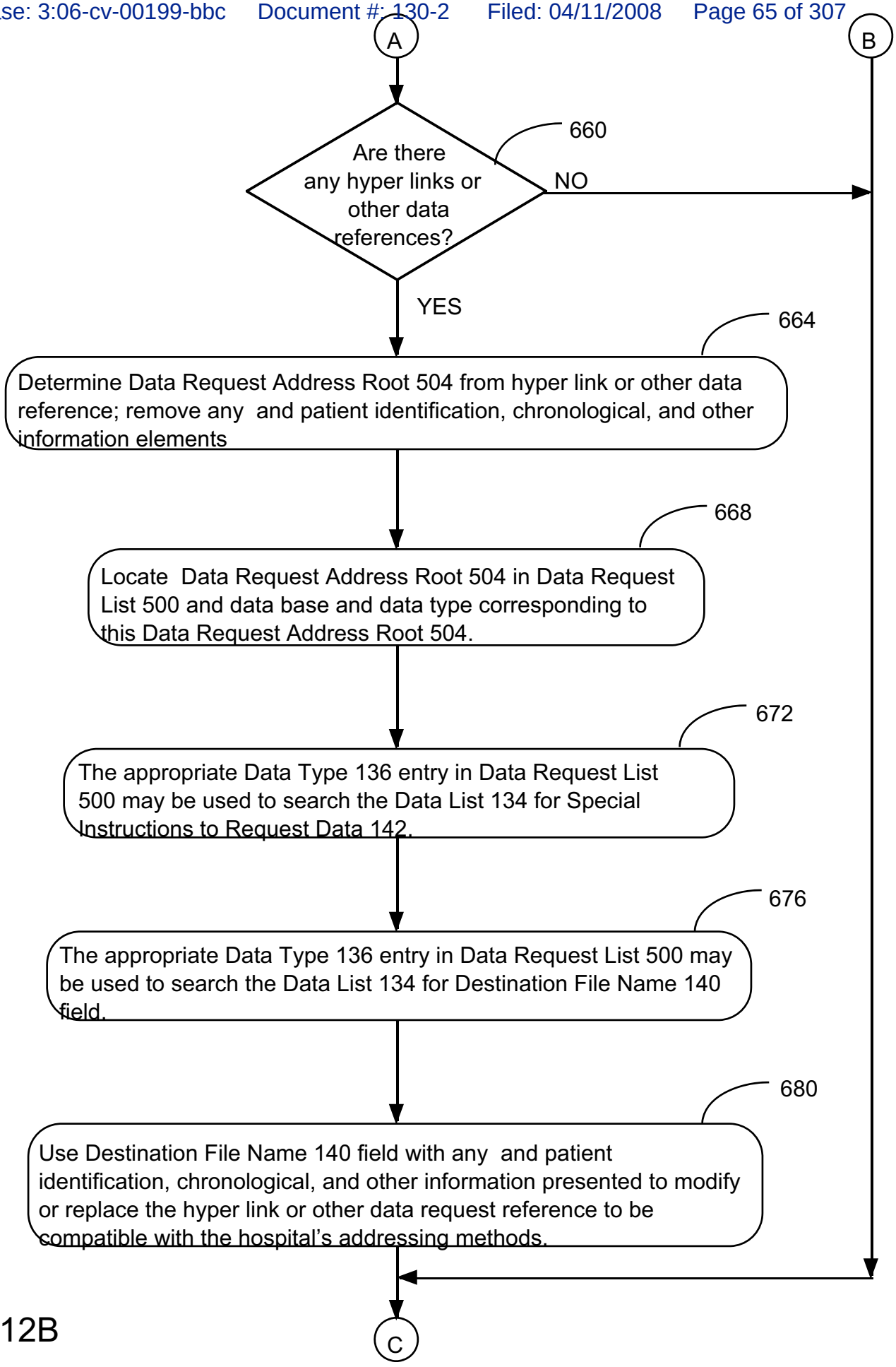

A
B
660
Are there any hyper links or other data references?
NO
YES
664
Determine Data Request Address Root 504 from hyper link or other data reference; remove any and patient identification, chronological, and other information elements
668
Locate Data Request Address Root 504 in Data Request List 500 and data base and data type corresponding to this Data Request Address Root 504.
672
The appropriate Data Type 136 entry in Data Request List 500 may be used to search the Data List 134 for Special Instructions to Request Data 142.
676
The appropriate Data Type 136 entry in Data Request List 500 may be used to search the Data List 134 for Destination File Name 140 field.
680
Use Destination File Name 140 field with any and patient identification, chronological, and other information presented to modify or replace the hyper link or other data request reference to be compatible with the hospital's addressing methods.
C

Figure 12B

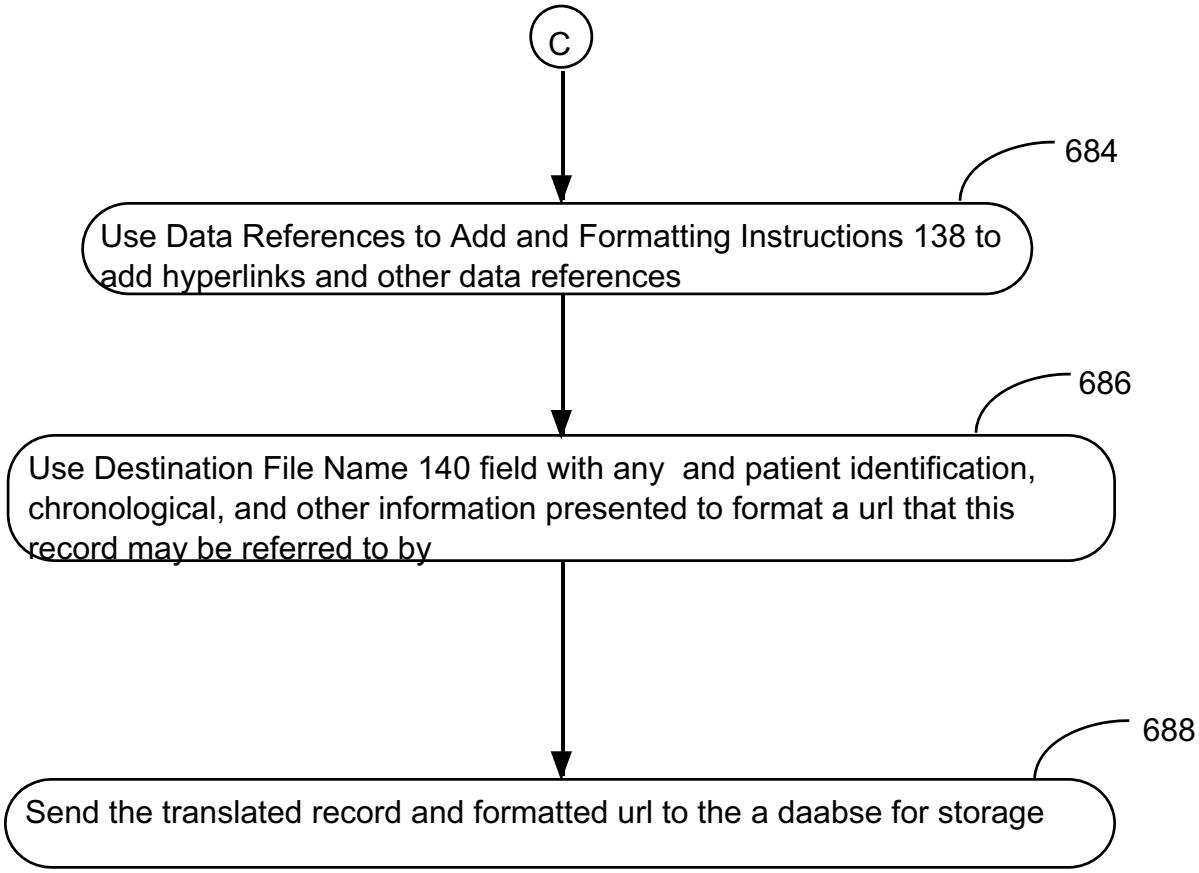

C
684
Use Data References to Add and Formatting Instructions 138 to add hyperlinks and other data references
686
Use Destination File Name 140 field with any and patient identification, chronological, and other information presented to format a url that this record may be referred to by
688
Send the translated record and formatted url to the a daabse for storage

Figure 12C

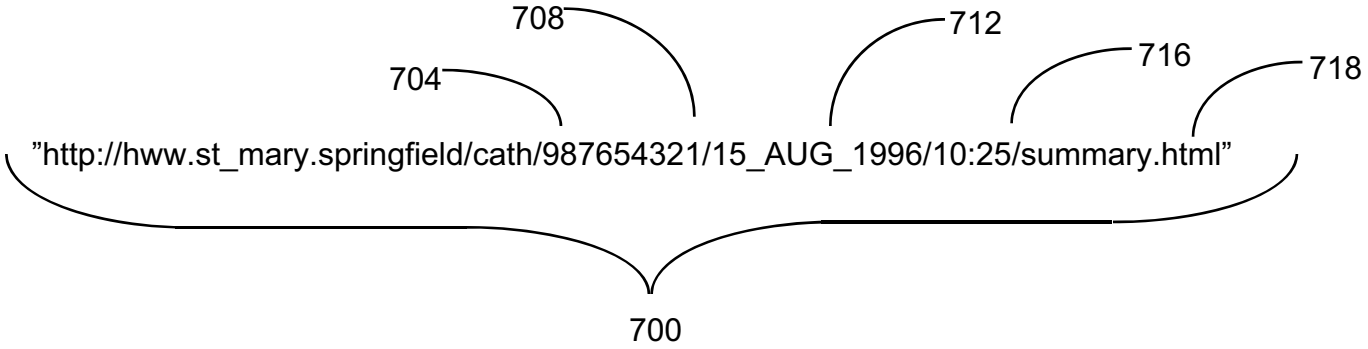


Figure 13A

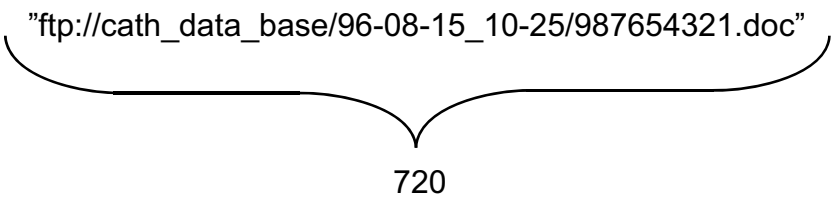


Figure 13B

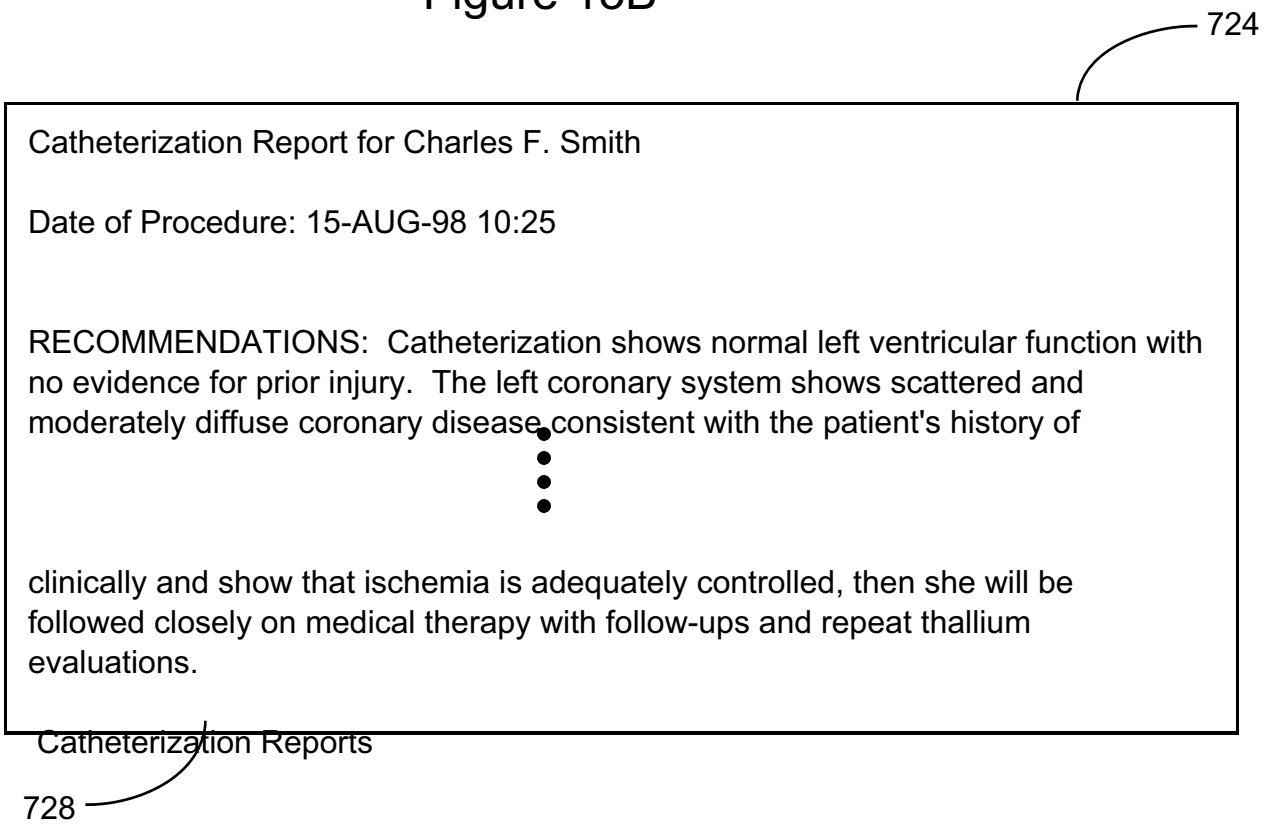
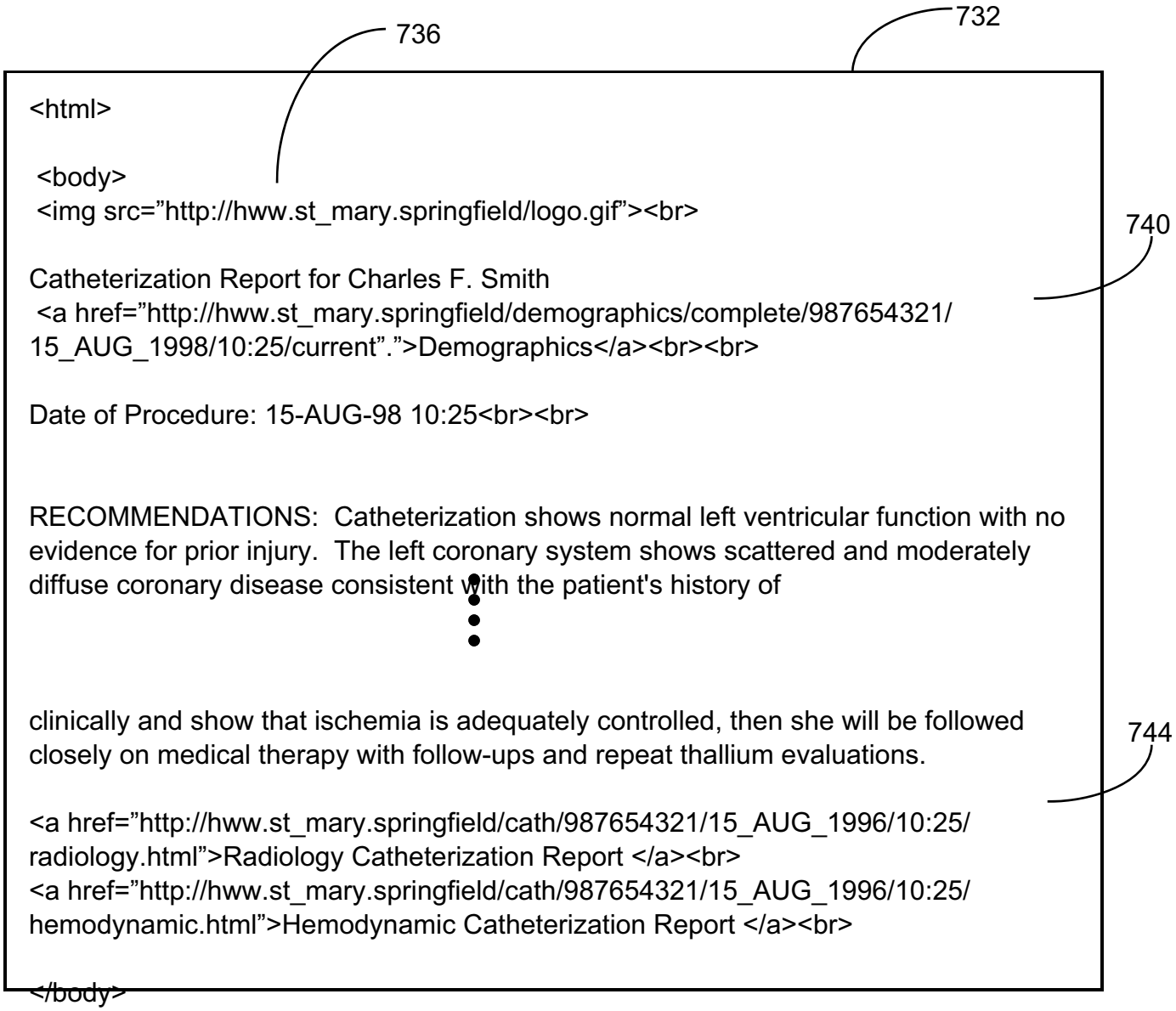


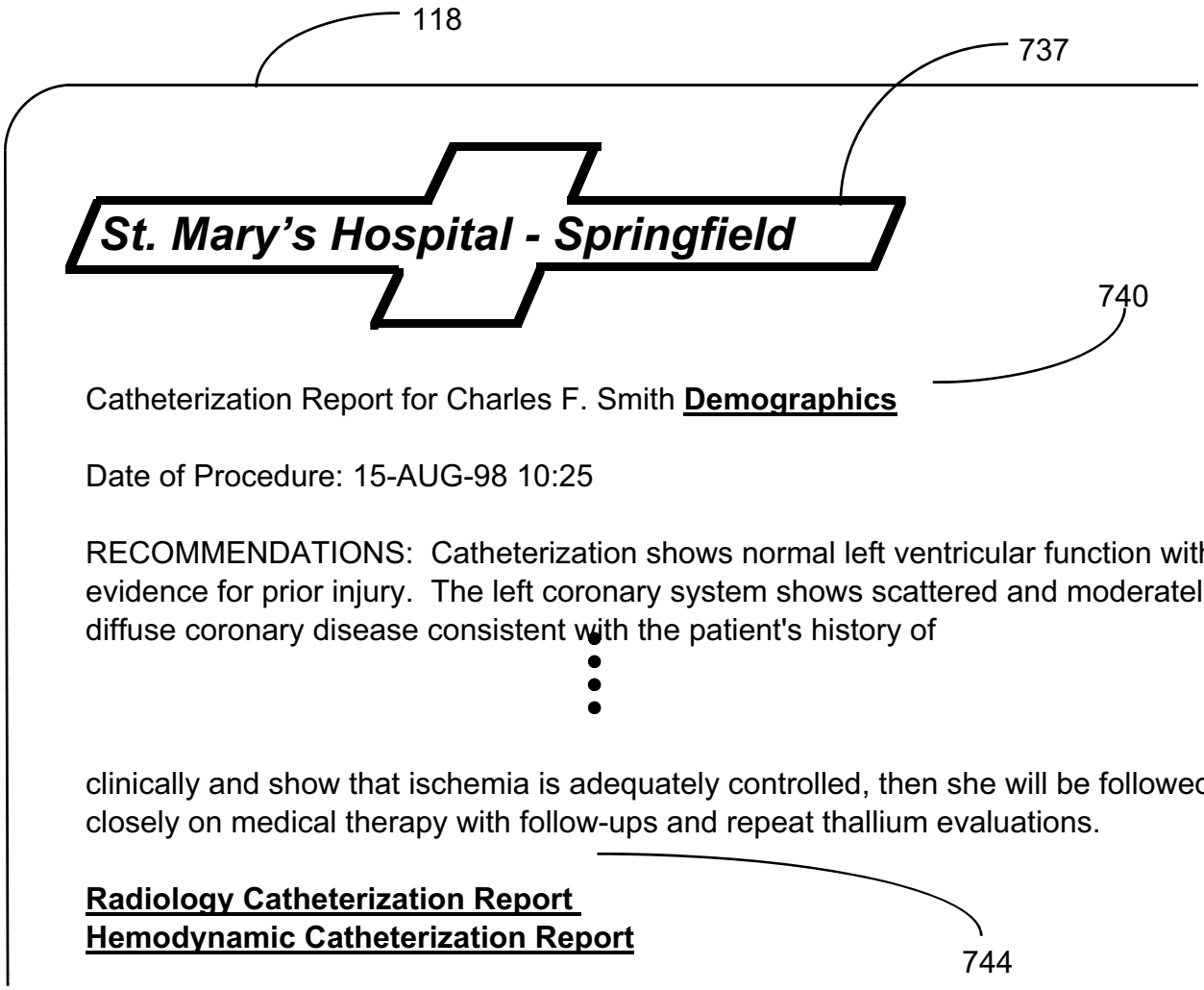
Figure 13C


736
732
740
744
<html>
<body>
<img src="http://hww.st_mary.springfield/logo.gif">
Catheterization Report for Charles F. Smith
Demographics

Date of Procedure: 15-AUG-98 10:25

RECOMMENDATIONS: Catheterization shows normal left ventricular function with no evidence for prior injury. The left coronary system shows scattered and moderately diffuse coronary disease consistent with the patient's history of
clinically and show that ischemia is adequately controlled, then she will be followed closely on medical therapy with follow-ups and repeat thallium evaluations.
Radiology Catheterization Report
Hemodynamic Catheterization Report
</body>
</html>

Figure 13C


118
737
St. Mary's Hospital - Springfield
740
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744

Figure 13D

A MEANS OF TRANSLATING, COLLECTING AND ARCHIVING PATIENT RECORDS

BACKGROUND OF THE INVENTION

This invention relates to the collecting and storing of medical data for patients.

When a patient is in a hospital, either as an in patient or an out patient, a variety of information is collected and recorded. This may be in the form of observations, measurements, lab results, vital sign indicators, procedure reports and associated graphics. If the patient is in the hospital for a long period of time this information when collected as a complete patient record may be hundreds of pages of paper.

In many hospitals when a patient is discharged, a paper copy of these records is made and sent to the admitting physician for his own record keeping purposes. The collecting of all of these records, coping them, and then returning them for storage is a very time consuming and labor intensive activity. Further, there is always the chance that some of the records may not be returned to the correct patient's file, or that an entire patient file may be stored incorrectly and thus effectively be lost. The physician is simultaneously confronted with the responsibility to file and store the paper copy in his own office.

Some hospitals have purchased laboratory or information systems capable of long term storage of various records. While this may assist the hospital in retrieving past records, it does not help the admitting physician in referring to them as the physician may not have access to the data directly or may not have the specific software required to retrieve the data. So with such advanced systems the physician is still be provided with a paper copy for his records.

Furthermore, these various laboratory and information systems record information in a variety of inconsistent formats. Some of these formats are proprietary to the manufacturer of the specific system. Each system may use a separate data base scheme to gain access to the data. Attempting to get these systems to communicate with each other has been a huge task which has not met with uniform success. For example the largest of systems may use complicated data exchange protocols, but simple, often portable instruments may not use these schemes as they would increase the cost of the device significantly.

Some reports may be created using a word processor. These may originate in a department of the hospital or in a physician's office. These reports, which may be kept in a conventional file cabinet, are not always included with the rest of the patient's reports. A comprehensive data record must make provisions for accepting these records automatically.

An effective alternative to creating paper records, that must be copied, is needed and it must be one that physicians can use to access the data economically and easily in their own offices.

BRIEF DESCRIPTION OF THE INVENTION

It is the object of this invention to provide a means to collect and record patient records to a mass storage device, such as a hard disk or CD-ROM. The records may be viewed using software that is extremely inexpensive and that is available from several vendors, such as an Internet/Intranet browser program.

A list is maintained by the hospital in a designated computer data translation and collection system, identifying each of the information processors or data bases used by a hospital to hold patient information and records. A similar list may be maintained identifying each workstation where word processor records may be held. These workstations may also receive data from medical devices that is not otherwise store by a data base.

The data translation and collection system may be instructed to retrieve data for patients from time to time. This may be initiated by communication with a hospital admit, discharge, transfer (ADT) system or hospital information system (HIS) when the patient is admitted and terminated when the patient is discharged. Alternately, this process may be started when a patient is discharged from the hospital. In either case a message may sent to a data collecting system specifying the patient's ID number. Other identification means may be used, but must be uniquely identify the patient.

The data collecting processor will in turn send a message to each of the data bases in the above mentioned list of data bases, requesting a that a copy of each record for the patient during the period the patient was in the hospital be sent to the data collecting processor. The methods used to retrieve these records may be contained in the list of of data bases. These methods may include access passwords, special software to request the data. The dates of the current admission may be entered manually or may be retrieved by communication with the hospital ADT system or HIS. With each record retrieved, additional information about it may be sent specifying the date and time of the record, the type of record, and special formatting considerations used to present it. Further if the record may be referenced by an Internet/Intranet browser, the universal resource locator (url) address used to reference the record may also be provided. A similar process may be initiated to retrieve records for the patient from the workstations.

Retrieved records that have been formatted using hyper text markup language (html) controls, common to the Internet/Intranet, a will be searched to detect additional records that are referenced. These additional records will be maintained in a list of records to be retrieved to complete the data collection process. Such records are addressed in the html codes using a distinct url address that specify the record as a file within a folder(s), residing on a disk drive, that may be retrieved from a specified server or data base. As each record is transferred to the data translation and collection system, it is checked to determine if was on the list of records to be retrieved to complete the data collection process. If it is, the record is removed from the list. When all records have been transferred from the referenced data bases, the list of records to be retrieved to complete the data collection process is checked. Any file not yet retrieved, remaining on the list, may now individually be addressed to be retrieved completing the data collection process.

If desired the data translation and collection system, may search from time to time the contents of a designated area of each workstation's disk for files. These workstations may be addressed using information maintained in the list workstations. If there are any files in the designated area, e.g. a special folder called "Collection", they may be transferred to the data translation and collection system. The file names may be used to identify the contents of the file, e.g. Cath987654321_19960930_1245 may identify a cath report for the patient whose identification number is 987654321, created on September 30, 1996 at 12:45. This information may, alternately be stored as part of the report in the file. In either case the data translation and collection system may retrieve these files and be able to interpret them. In this manner the reports created using a word processor may be retrieved. Similarly, reports transferred from a medical device by floppy disk, infrared link , or other communication means to the workstation may be retrieved. An alternate means of transferring the data is to equip each workstation with software that automatically transfers designated files or files in a designated folder to the data translation and collection system.

When the data collection server now has a complete set of records for the specified patent. The data may now be transferred to a device for long term storage, such as a removable hard disk or CD-ROM. However, merely making a copy of the data would require any person wishing to review the data to reference the data by what may be obscure file names, the viewer may have no idea from the file names as to the chronological order of the files, may require expensive and proprietary software to display or print the data. While this may make the data accessible to a computer programmer, it is not in a useful format for a physician or other care giver.

Instead the invention will take each record as it is retrieved and provide it with a distinctive name that is easily referenced. Such names may correspond to a set of url's. All the records not previously formatted using html commands may be converted to html format for text display purposes. Additional records either for graphics, video, audio, virtual reality may also be converted to a format compatible with an Internet/Intranet browser, compatible plug-in or Java programming language extension. This may be done by using manufacturers' proprietary software to decompress data into a common non-proprietary format. Records that are a mixture of text and graphics may be converted into separate html text and graphic files, that when displayed using an Internet/Intranet browser are assembled into the complete record by combining the separate files.

Furthermore, an additional step will be taken to organize the files in such a manner that appropriate lists of the records they contain may be presented to a user of an Internet/Intranet browser program so that the user may easily identify the records and view them by selecting a hyper link. Records that in turn reference other records will have had their references modified to comply with the file structure of the storage device. In this manner any previously html formatted records may have their hyper links and other data references modified in such a manner that they will still reference the desired data, even if it has a new name.

To view the data the user only need to use an Internet/Intranet browser program to open a single file name contained on the hard disk of the CD-ROM. This file name may always be the same if there is only one patient per CD-ROM, or may be

composed from the patient's name or identification number if the CD-ROM is used to hold multiple patient files. The user may see displayed an easy to understand list of medical data types, e.g. a cardiology section, a neurology section, a laboratory results section, physicians progress notes, nurses observations, vital sign measurements, etc. Each of these may be a hyperlink to display additional formatted lists or to view specific data items. The user however need not have, or know how to use any elaborate data base search programs or proprietary software. All the formatting and appropriate linking of the data has been done as part of the process of retrieving the records and copying them to the desired storage medium.

If the data translation and collection system receives data while the patient is in the hospital, the data may be reformatted as it is received into html compatible form and may be presented to any user who has access to the data translation and collection system for review.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of a medical computer network.

Figure 2 is a block diagram of a physician office workstation.

Figures 3A and 3B are lists of the contents of the files "List of Data Bases" and "Data List".

Figures 4A and 4B are lists of the contents of "List of Workstations" and "Report List".

Figures 5A to 5E are functional flow chart showing the steps used to collect data from various data bases and reformat them for permanent storage.

Figures 6A and 6B are a listing of a Master File used to organize data and its appearance when viewed by a browser program.

Figures 7A and 7B are a listing of a selected patient report as stored and its appearance when viewed by a browser program.

Figures 8A and 8B are a listing of a secondary control file used to organize a portion of a patients records and its appearance when viewed by a browser program.

Figures 9A and 9B are a listing of a tertiary control file used to organize a portion of a patients records and its appearance when viewed by a browser program.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 shows a medical computer network 100, composed of a plurality of hospital based workstations 102 which may be a personal computer, a plurality of physician office workstations 104 which may also be personal computers, a plurality of data bases 106 which may be provided by a multitude of vendors with separate data structures and data elements. Also shown is an Admit, Discharge, and Transfer (ADT) system 108, a data translation and collection system 110, and a Hospital Information Systems (HIS) 111. The data bases 106, computer systems 108, 110,

111, workstations 102, and physician office workstations 104 may communicate with each other via a communication network 112, which may be a combination of local and wide area networks, using ethernet, serial line, or other communication standards. The communication network may also be arranged in such a manner to be part of the Internet or as an individual Intranet.

The physician's workstation may include a display 118, a CD-ROM drive 117 or other means of mass storage which may be removable, and an optional printer 119.

In the preferred embodiment patient records will be collected by the data translation and collection system 110 and will be reformatted, if necessary, using html commands if it is a text report. If the report is a graphic image, an audio recording, a video recording, or other non-textual presentation, it will be converted to a format compatible with an Internet/Intranet browser program equipped with appropriate plug-ins. Other methods of formatting and presenting information may be used without changing the nature of the invention.

The data translation and collection system 110 may include a file referred to as the List of Data Bases 130, whose contents are partially seen in Figure 3A. For each data base 106 or other computer system part of the medical computer network 100, an entry is made in the List of Data Bases 130, indicating the address or address used to access the data base on the communication network 112, and a separate Data List 134. A partial list of the contents of the Data List 134 is seen in Figure 3B. For each type of data stored by the data base 106 there is an entry in the Data List 134 providing special instructions or programing used to format the data type which may include decompression algorithms. There is also in the Data List 134 destination file name formatting instructions 140 used by the data translation and collection system 110 to store this type of data, and special instructions or program code used to request the data type be sent from the appropriate data base 106 to the data translation and collection system 110.

The steps used by the data translation and collection system 110 to retrieve and format data are shown in Figures 5A to 5E. The patient identification number may be received 200 by the data translation and collection system 110. The identification number may be enter by a user of a workstation 102, or may be sent automatically by the ADT system 108 or HIS 111. This may be done when each patient is admitted or after they has been discharged. The data translation and collection system 110 may request the dates 204 the user desires to collect data for the patient or the data translation and collection system 110 may request the most recent admission dates from the ADT system 108 or HIS 111. If not previously created for this patient, a file to contain a list of received records will be opened 208. Similarly a file to contain a list of records to be retrieved is opened 212. The data translation and collection system 110 will now reference the list of data bases 130 to locate and retrieve the first data base and the first data type 216 in the data list 134.

An appropriate message 220 will be sent to the data base 106 specified, at the address(es) in the list of data bases 130 and formatted as specified by the special instructions to request data 142 for the specified patient during any specified dates. The data record(s) are received 228 by the data translation and collection system 110. For each record received the date and time 226 is derived from the contents of the

record as specified by the data formatting instructions 138. An entry 228 is made in the list of received records, so the record need only be retrieved once. A check is also made to determine if the record was in the list of records to retrieve 232, if so it is removed from the list 236.

The record is checked to see if it is formatted using html or similar codes 240. If not then there are no hyper link references or image references to be concerned about. The text portion of the record is converted to a browser compatible format, such as html format 248 and any graphics, audio, video, or other non-text recordings may be converted to a browser program or plug-in or Java program compatible format. If required the manufacturer's proprietary software may be used to decompress the data. This may be done on the manufacturer's data base 106 or other computer processing system.

If the record had been previously formatted in html or other similar format, a check is made to determine if any hyper links or other data requests are present in the record 252. If there is a hyper link or other data request a determination is made if the record so referenced is in the list of received records 256. If not the referenced record is placed in the list of record to retrieve 260. All hyper links and other data requests are reformatted 264 as required so that the url addresses are compatible with the structure of the data translation and collection system 110. The address to be used may be contained in the destination file name formatting instructions 140, part of the data list 134. By doing this when the retrieved record is later displayed, secondary files referenced by it will be included for display and the user will not be presented an incomplete record.

The data translation and collection system 110 will then create and open an appropriate file folder and file to store the converted retrieved record as specified by the destination file name formatting instructions 140 field, part of the data list 134. A check is made to determine if additional data types are to be retrieved or if additional data bases are to be interrogated 276. If so the above process is repeated 272.

Next the data translation and collection system 110 references the list of records to be retrieved. If there are no entries in the list, the data collection process is completed 284, if not the first specified record is retrieved 288. Since the list of records to retrieve is primarily composed of records that were referenced by other records as a hyper link or as a data request, the list will contain url addresses that may be used to directly request these records. A check is made to determine if the retrieved record is also html formatted 292. If not the record is reformatted using html codes if it is a text report. Non-textual data formats may be converted as mentioned above to a an Internet/Intranet browser or plug-in compatible format 296. If the record is html formatted a check is made to see if it contains any hyper links or other data requests. If so a check is made to determine if the specified record is in the list of records retrieved. If not the record is added to the list of records to the retrieved. In either case any hyper link or other data request addresses are reformatted 312 as required so that the url addresses are compatible with the structure of the data translation and collection system 110.

The data translation and collection system 110 will then create and open an appropriate file folder and file to store the converted retrieved record either as

specified by the destination file name formatting instructions 140 field, part of the data list 134 or a distinctive file name will be created for those records retrieved that may not be part of the patients file, but are referenced by a patient's file, e.g. a biographical background regarding one of the patient's physicians. The retrieved record is removed from the list of records to retrieve and the process is resumed, using the next record in the list of record to be retrieved.

A variation on this method is to have the data bases 106 send data for each patient to the data translation and collection system 110 either from time to time or after the patient is discharged. The records received in this manner may be checked for html formatting as above and a list of other records to be retrieved may be maintained for each patient.

Either as data records as received or when all the data records have been retrieved a master file 400, Figure 6A, is created. It may be named by using the patient's name or their identification number. In some cases it may be desirable to create the same file twice using the patient's name for the file name once and the patient's identification number for the other. Appropriate secondary, tertiary, etc. control files may be created 418, Figure 8A. Finally, the master and control files are written to the mass storage device along with the data records if they have not been previously been written to the mass storage device.

In the instance that the patient's data was written to a CD-ROM disk it may be given to appropriate physicians for their own storage and use. To view the contents of the CD-ROM, a physician need only insert it into the CD-ROM drive 117 of the physician workstation 104 and start their Internet/Intranet browser program. By using the File command the physician may refer to the CD-ROM drive 117, and the name of the master file 400 will be presented, which may be the same or similar to the patient's name.

An example of the contents of the master file 400 is shown in Figure 6A. Besides identifying the patient and the dates and source of the medical records, the master file has a series of hyper links 402 either to distinct reports, such as hyper link 408 or to secondary control files, such as hyper link 404. When presented on display 118, using a browser program, the master file may appear as seen in Figure 6B. Note the hyper links 402 are displayed in a differing font format as is common to browser programs. The user may select a hyper link by moving a pointing device such as a mouse over the text and pressing an activation button. The browser will automatically retrieve the file specified in the hyper link 402 from the CD-ROM and present it.

If the user selects the hyper link 408 specifying discharge report in the master file 400, the user will be presented with the patient's single discharge report. In Figure 7A the html codes used to format the discharge report 412 are shown in part. Note the hyper link 416 may be selected to retrieve the specified cath report from the CD-ROM. The hyper link url address has been modified as needed to make it compatible with the storage structure of the CD-ROM. When presented on display 118 by a browser program the discharge report may appear as seen in Figure 7B.

If the user had selected the hyper link 404 specifying cardiology data in the master file 400, the user will be presented with the contents of secondary control file 418. This

file presents the user with various types of cardiology reports to choose from in the form of hyper links 422. For those cardiology tests for which there is only one report available, the hyper link specifies the url address of the report. Those tests for which there are several reports available, the hyper link 420 may specify the url of a tertiary control file. When presented on display 118 by a browser program the secondary control file may appear as seen in Figure 8B.

If the user selects the hyper link 420 specifying ecg reports in the secondary control file 418, the user will be presented with the contents of tertiary control file 424. This file presents the user with a list of all the ecg reports, during the dates selected, to choose from in the form of hyper links 426. For each ecg report the hyper link specifies the url address of the report. When presented on display 118 by a browser program the list of ecg reports may appear as seen in Figure 9B.

Some reports that need to be stored may reside on workstation 102 or physician office workstation 104. These may be reports that are created using a word processor and should also be retrieved by the data translation and collection system 110. Any report that is to be retrieved by the data translation and collection system 110, may be placed in a special folder named “Collection”. A list of workstations 150, Figure 4A, may include the addresses of all workstations 102 and physician office workstations 104 and file access commands 154 or passwords used to gain access to files stored in the folder “Collection”, may be maintained by the data translation and collection system 110. Also maintained may be a report list 158 which includes for each report name, file name and data formatting instructions 162 and corresponding destination file name formatting instructions 166.

On a periodic basis or as instructed a program in the data translation and collection system 110 may determine if there are any files in the folder “Collection” in each workstation. If there are the file access commands 154 may be sent to the workstation so that the files may be transferred to the data translation and collection system 110. This may be done using the file transfer protocol, ftp, of the Internet/Intranet.

If the user of the workstation creates reports, that when stored use the a file name formatted according to file name and data formatting instructions 162, the file may be recognized as being a specific file for a patient, for example the file named “Cath987654321” may be assumed to correspond to a cath report for the patient whose identification number is 987654321. Appending the date and time to the file name may be used to further identify the report. Alternately, the date and time may be specified to be in a specific location within the report. Similarly, the report name and/or the patient’s identification information may be fixed in within the report as well. In either case when received, the file may be reformatted to be in html format, if it is not already. If the report is already in html format it will be checked for any hyper link or other data references. If there are any these may be entered in to the list of files to be retrieved. Furthermore, the file name for each recognized report may be changed as specified by destination file name formatting instructions 166. The report may now be stored by the data translation and collection system 110 and may be referenced by other reports or may be retrieved for display if desired by a user using the new file name.

For each patient file that is so collected, an entry will be made in the list of files received maintained by the data translation and collection system 110 for each patient. If no such files exists for the patient, one will be created.

It is also possible that a program may exist within each workstation, that detects files as they are stored in the folder “Collection” and automatically sends them to the data translation and collection system 110.

Instruments or medical devices whose reports are not stored as part of any data base 106, but that are capable of writing a data to a floppy disk or transmitting a information via a infrared or serial line connection to a workstation 106 may also store patient reports in the data translation and collection system 110. To do so the individual reports may be written to a floppy disk using any file name defined by the file name and data formatting instructions 162. The reports may be copied manually from the floppy in workstation 106 to the folder “Collection” which may be periodically checked to see if there is an data in it to the retrieved or the reports may be automatically read by the workstation and sent to the data translation and collection system 110. The reports so sent may be incorporated with any others received for this patient and may be provided with new destination file according to the destination file name formatting instructions 166.

In this manner reports from word processors or from non-data based medical devices may be collected for display and storage and may be assigned structured file names to assist in their retrieval whether on line or when placed on line as with a CD-ROM device 117.

BACKGROUND OF THE INVENTION

This invention relates to the collecting, storing, and retrieving of medical data for patients.

When a patient is in a hospital, either as an in patient or an out patient, a variety of information is collected and recorded. This may be in the form of observations, measurements, lab results, vital sign indicators, procedure reports and associated graphics. If the patient is in the hospital for a long period of time this information when collected as a complete patient record may be hundreds of pages of paper.

While the patient is in the hospital many different care givers, administrators, or insurance company employees may desire to view a part of the patient's record. The conventional paper chart is not always useful as there is only one copy of it and some laboratory tests may not be entered into the chart on a timely basis. To solve this problem hospitals have used a variety of hospital information systems (HIS), clinical information systems (CIS), and other data base systems to store and present patient information on computer displays. However, there is still a substantial amount of data that does not get recorded into these systems. This may be due to an incompatible communication protocol, incompatible formatting schemes, or that the device that creates data is too low cost to justify the expense of adding software to support advanced data exchange protocols. Many documents may be created using individual word processors, and these reports may never be collected by a data base system, although a paper copy of the document may inserted in the conventional chart.

While various standardization committees have been established, e.g. HL-7, DOCOM, IEEE, to develop common addressing schemes to for hospital data, none to this date has been able to define a consistent format to use for storing and retrieving data. Many manufacturers that use one or more of these standards choose, because of simplicity or limited resources, to use only a portion of them and their system remain only partially compatible

Further, even for reports that are stored on a data base system in a hospital there is a problem that reports that are related to each other are often stored separately. An example of this may be the radiology catheterization report and the hemodynamic catheterization reports that are created and stored in separate data bases, yet to the physician who performed the catheterization procedure these two reports are really just one procedure and should be associated with each other. Another example of the is may be an admission report that references laboratory tests or observations contemporaneous or previous to the patient arriving at the hospital. Should the physician decide to review these other records, he will have to perform additional searches to locate them. This may be an inconvenient process and in some cases has caused some care givers to refrain from making complete use of these systems.

In many hospitals when a patient is discharged, a paper copy of these records is made and sent to the admitting physician for his own record keeping purposes. The collecting of all of these records, coping them, and then returning them for storage is a very time consuming and labor intensive activity. Further, there is always the chance that some of the records may not be returned to the correct patient's file, or that an entire patient file may be stored incorrectly and thus effectively be lost. The physician

is simultaneously confronted with the responsibility to file and store the paper copy in his own office.

Some hospitals have purchased laboratory or information systems capable of long term storage of various records. While this may assist the hospital in retrieving past records, it does not help the admitting physician in referring to them as the he may not have access to the data directly or may not have the specific software required to retrieve the data. So with such advanced systems the physician is still be provided with a paper copy for his records.

Furthermore, these various laboratory and information systems record information in a variety of inconsistent formats. Some of these formats are proprietary to the manufacturer of the specific system. Each system may use a separate data base scheme to gain access to the data. Attempting to get these systems to communicate with each other has been a huge task which has not met with uniform success. For example the largest of systems may use complicated data exchange protocols, but simple, often portable instruments may not use these schemes as they would increase the cost of the device significantly.

Some reports may be created using a word processor. These may originate in a department of the hospital or in a physician's office. These reports, which may be kept in a conventional file cabinet, are not always included with the rest of the patient's reports. A comprehensive data record must make provisions for accepting these records automatically.

An effective alternative to creating paper records, that must be copied, is needed and it must be one that physicians can use to access the data economically and easily in their own offices.

BRIEF DESCRIPTION OF THE INVENTION

It is the object of this invention to provide a means to collect and store patient records to a mass storage device, such as a hard disk or CD-ROM and to retrieve and display this information. The records may be viewed using software that is extremely inexpensive and that is available from several vendors, such as an Internet/Intranet browser program or other universal data presentation programs. Another object of the invention is to provide a means of interpreting or converting data from one format to another and to implement references to additional information or reports if desired

Lists are maintained by the hospital in a designated computer data translation and collection system, identifying each of the information processors or data bases used by a hospital, a list of the patient information and records stored by them, and a list of data requests with entries to identify where the requested data may be located. A similar list may be maintained identifying each workstation where word processor records may be held. These workstations may also receive data from medical devices that is not otherwise stored by a data base.

Responding to Data Requests and Providing Translation

In one embodiment of the invention a care giver may be use an Internet/Intranet

browser and be presented with a list of one or more patient records to choose from in a document that is formatted using hyper text markup language (html) codes or other similar or subsequent formats. The user by selecting one of the records may cause a hyper link to be executed, retrieving the desired document. The hyper link may include or may be caused to be sent various information identifying the patient, a designator(s) about the desired document, any appropriate chronological information, and any other pertinent information about the data to be retrieved. However, should the hospital lack a consistent Internet/Intranet universal locator (url) address scheme among the various data base systems, the address may be received by the data translation and collection system. This system will refer to the above mentioned lists of data requests, data bases and patient information and data they contain to determine which data base has the desired data. The request for data may be translated in the instance that the specified data base would not recognize the address, either because the specified address is not Internet/Internet compatible or because the url addresses used by this system differ from that used by the hospital.

The data translation and collection system may simply reformat the information identifying the patient, the document designators, chronological identification, and other data sent when the hyper link was selected and send a request for the record to the correct data base system if this system is Internet/Intranet compatible. The data base system may send the requested information to the requesting care giver for display on their workstation or may send it to the translation system for additional translation services mentioned below. If the data base system that stores the desired patient record is not compatible with Internet/Intranet data requests, the translation system may take the received information identifying the patient, the document designators, chronological identification, and other data sent and convert it into a request for the desired data that is compatible with the the data base system, e.g. a SQL or Oracle. The record will then be retrieved from the data base system and sent to the translation system.

The data translation and collection may then perform additional translation services. If the received data is not compatible for being displayed with an Internet/Intranet browser, it may be converted to such a format. For example text may be converted to an html format, while graphics, video and audio recordings may be convert to an appropriate format. If the data received is compatible with an Internet/Intranet browser, it will be searched for hyper links or other data references it may contain. Any such references may be translated to the addressing scheme used by the hospital, so that if the care giver while viewing any patient record selects a hyper link the correct selected patient record will be retrieved. The translated address may be formatted so that when it is selected and executed as a hyper link or other data request, the address refers back to the translation system for further modification as needed.

Furthermore, the data translation and collection system may insert specific hyperlinks or other data references may be inserted into the record as desired by the hospital. For example the hospital may desire a hyperlink that references the patient's demographics and insurance information be inserted into each record presented for quick and easy referral. Another example would be to place a hyper link in a radiology catheterization report that references the hemodynamic catheterization report and visa

versa so they may each refer to the other.

In this manner a hospital may use Internet/Intranet compatible data bases with data bases that are not, and may choose to use url addresses of it's own choice independent of what the individual vendors have chosen. It may also have the ability to allow reports to linked together as appropriate, so the care givers may more quickly and directly refer to information they desire to reference. The translation process described here may be used on a dedicated system for this purpose or may be distributed among several processors including those of the data base systems.

Receiving Patient Records for
Translation and Address Formatting

A modification of this system would allow data base systems as they create or receive patient records for storage to reference a data translation and collection system. In this case each record may be translated into html formats as it is stored, if the manufacturer does not provide this service, an appropriate url address is created using the hospitals preferred addressing scheme that is to be associated with the stored record by the data base system, and additional hyper link or other data references may be inserted into the record as the hospital desires. The patient records may then be returned to a data base for storage.

In this case the records will be preformatted according to the hospital's specifications, allowing for quicker record retrieval when it is retrieved. The translation process described here may be used on a dedicated system for this purpose or may be distributed among several processors, including those of the data base systems.

Data Collection and Translation for Storage and Retrieval

A data translation and collection system may be instructed to retrieve data for patients from time to time. This may be initiated by communication with a hospital admit, discharge, transfer (ADT) system or hospital information system (HIS) when the patient is admitted and terminated when the patient is discharged. Alternately, this process may be started when a patient is discharged from the hospital. In either case a message may sent to a data translation and collection system specifying the patient's ID number. Other identification means may be used, but must be uniquely identify the patient.

The data translation and collection system will in turn send a message to each of the data bases in the above mentioned list of data bases, requesting a that a copy of each record for the patient during the period the patient was in the hospital be sent to the data collecting processor. The methods used to retrieve these records may be contained in the list of of data bases. These methods may include access passwords and special software to request the data. The dates of the current admission may be entered manually or may be retrieved by communication with the hospital ADT system or HIS. With each record retrieved, additional information about it may be sent specifying the date and time of the record, the type of record, and special formatting considerations used to present it. Further if the record may be referenced by an Internet/Intranet browser, the universal resource locator (url) address used to reference the record may also be provided. A similar process may

be initiated to retrieve records for the patient from the workstations.

If the received data is not compatible for being displayed with an Internet/Intranet browser, it may be converted to such a format. For example text may be converted to an html format, while graphics, video and audio recordings may be convert to an appropriate format.

Retrieved records that have been previously formatted using hyper text markup language (html) controls, common to the Internet/Intranet, a will be searched to detect additional records that are referenced. These additional records will be maintained in a list of records to be retrieved to complete the data collection process. Such records are addressed in the html codes using a distinct url address that specify the record as a file within a folder(s), residing on a disk drive, that may be retrieved from a specified server or data base. Each url may be changed to compatible with a universal hospital format for storage and retrieval purposes. As each record is transferred to the data translation and collection system, it is checked to determine if was on the list of records to be retrieved to complete the data collection process. If it is, the record is removed from the list.

The data translation and collection system may now insert specific hyperlinks or other data references may be inserted into the record as desired by the hospital.

When all records have been transferred from the referenced data bases, the list of records to be retrieved to complete the data collection process is checked. Any file not yet retrieved, remaining on the list, may now individually be addressed to be retrieved completing the data collection process.

If desired the data translation and collection system, may search from time to time the contents of a designated area of each workstation's disk for files. These workstations may be addressed using information maintained in the list workstations. If there are any files in the designated area, e.g. a special folder called "Collection", they may be transferred to the data translation and collection system. The file names may be used to identify the contents of the file, e.g. Cath987654321_19960930_1245 may identify a cath report for the patient whose identification number is 987654321, created on September 30, 1996 at 12:45. This information may, alternately be stored as part of the report in the file. In either case the data translation and collection system may retrieve these files and be able to interpret them. In this manner the reports created using a word processor may be retrieved. The files so acquired may be translated to an html or other appropriate Internet/Intranet browser format if not already in such a format and may have hyper links or other data references added to them as desired by the hospital. These files may now have a url associated with them and be stored by a data base system capable of retrieving the record when properly requested. An alternate means of transferring the data is to equip each workstation with software that automatically transfers such word processor files or files in a designated folder to the data translation and collection system. The data translation and collection system may now insert specific hyperlinks or other data references may be inserted into the record as desired by the hospital.

Similarly, reports transferred from a medical device by floppy disk, infrared link , or other communication means to the workstation may be retrieved, translated as

mentioned above and have additional hyper links or other data references added to them. An alternate means of transferring the data is to equip each workstation with software that automatically transfers designated files or files in a designated folder to the data translation and collection system.

When the data collection server now has a complete set of records for the specified patent. The data may now be transferred to a device for long term storage, such as a removable hard disk or CD-ROM. However, merely making a copy of the data would require any person wishing to review the data to reference the data by what may be obscure file names, the viewer may have no idea from the file names as to the chronological order of the files, may require expensive and proprietary software to display or print the data. While this may make the data accessible to a computer programmer, it is not in a useful format for a physician or other care giver.

Instead the invention will take each record as it is retrieved and provide it with a distinctive name that is easily referenced. Such names may correspond to a set of url's. All the records not previously formatted using html commands may be converted to html format for text display purposes. Additional records either for graphics, video, audio, virtual reality may also be converted to a format compatible with an Internet/Intranet browser, compatible plug-in or Java programming language extension. This may be done by using manufacturers' proprietary software to decompress data into a common non-proprietary format. Records that are a mixture of text and graphics may be converted into separate html text and graphic files, that when displayed using an Internet/Intranet browser are assembled into the complete record by combining the separate files.

Furthermore, an additional step will be taken to organize the files in such a manner that appropriate lists of the records they contain may be presented to a user of an Internet/Intranet browser program so that the user may easily identify the records and view them by selecting a hyper link. Records that in turn reference other records will have had their references modified to comply with the file structure of the storage device. In this manner any previously html formatted records may have their hyper links and other data references modified in such a manner that they will still reference the desired data, even if it has a new name.

To view the data the user only need to use an Internet/Intranet browser program to open a single file name contained on the hard disk of the CD-ROM. This file name may always be the same if there is only one patient per CD-ROM, or may be composed from the patient's name or identification number if the CD-ROM is used to hold multiple patient files. The user may see displayed an easy to understand list of medical data types, e.g. a cardiology section, a neurology section, a laboratory results section, physicians progress notes, nurses observations, vital sign measurements, etc. Each of these may be a hyperlink to display additional formatted lists or to view specific data items. The user however need not have, or know how to use any elaborate data base search programs or proprietary software. All the formatting and appropriate linking of the data has been done as part of the process of retrieving the records and copying them to the desired storage medium.

If the data translation and collection system receives data while the patient is in the hospital, the data may be reformatted as it is received into html compatible form and

may be presented to any user who has access to the data translation and collection system for review.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of a medical computer network.

Figure 2 is a block diagram of a physician office workstation.

Figures 3A and 3B are lists of the contents of the “List of Data Bases” and “Data List”.

Figures 4A and 4B are lists of the contents of “List of Workstations” and “Report List”.

Figures 5A to 5E are functional flow chart showing the steps used to collect data from various data bases and reformat them for permanent storage.

Figures 6A and 6B are a listing of a Master File used to organize data and its appearance when viewed by a browser program.

Figures 7A and 7B are a listing of a selected patient report as stored and its appearance when viewed by a browser program.

Figures 8A and 8B are a listing of a secondary control file used to organize a portion of a patients records and its appearance when viewed by a browser program.

Figures 9A and 9B are a listing of a tertiary control file used to organize a portion of a patients records and its appearance when viewed by a browser program.

Figure 10 is a list of the contents of the “Data Request List”

Figures 11A to 11C are a functional flow chart showing the steps used to receive requests for data, to translate those requests, to get the data, and to reformat the data prior to sending to the requesting person.

Figures 12A to 12C are a functional flow chart showing the steps used to relieve data from a data base system, reformat it as required and to send to to a data base with an additional compatible address.

Figures 13A to 13D show an example of a report request being received, an new address being created, the report as received from its data base, the report after being translated and reformatted, and how it would appear on a computer display.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 shows a medical computer network 100, composed of a plurality of hospital based workstations 102 which may be a personal computer, a plurality of physician office workstations 104 which may also be personal computers, a plurality of data bases 106 which may be provided by a multitude of vendors with separate data structures and data elements. Also shown is an Admit, Discharge, and Transfer

(ADT) system 108, a data translation and collection system 110, and a Hospital Information Systems (HIS) 111. The data bases 106, computer systems 108, 110, 111, workstations 102, and physician office workstations 104 may communicate with each other via a communication network 112, which may be a combination of local and wide area networks, using ethernet, serial line, or other communication standards. The communication network may also be arranged in such a manner to be part of the Internet or as an individual Intranet.

The physician's workstation may include a display 118, and a CD-ROM drive 117 or other means of mass storage which may be removable.

In one preferred embodiment an Internet/Intranet browser or similar data display, entry, and retrieval program requests a record to be retrieved. The address of the requested record may be received in a hospital standardized format and be reformatted and a new request sent to the appropriate data base. The data may be returned to the data translation and collection system 110 and may be reformatted, if necessary, using html commands if it is a text report. If the report is a graphic image, an audio recording, a video recording, or other non-textual presentation, it may be converted to a format compatible with an Internet/Intranet browser program equipped with appropriate plug-ins. Additional changes to the report may be made to the report as specified by the hospital. Other methods of formatting and presenting information may be used without changing the nature of the invention.

In another preferred embodiment patient records will be collected by the data translation and collection system 110 and will be reformatted, if necessary, using html commands if it is a text report. If the report is a graphic image, an audio recording, a video recording, or other non-textual presentation, it will be converted to a format compatible with an Internet/Intranet browser program equipped with appropriate plug-ins. Additional changes to the report may be made to the report as specified by the hospital. Other methods of formatting and presenting information may be used without changing the nature of the invention.

The data translation and collection system 110 may include a file referred to as the List of Data Bases 130, whose contents are partially seen in Figure 3A. For each data base 106 or other computer system part of the medical computer network 100, an entry is made in the List of Data Bases 130, indicating the address or address used to access the data base on the communication network 112, and a separate Data List 134. A partial list of the contents of the Data List 134 is seen in Figure 3B. For each data type 136 stored by the data base 106 there is an entry in the Data List 134 providing special instructions or programing used to add data references and to format the data type which may include decompression algorithms. There is also in the Data List 134 destination file name formatting instructions 140 used by the data translation and collection system 110 to store this type of data which may also be used by other systems to refer to the data, and special instructions or program code used to request the data type be sent from the appropriate data base 106 to the data translation and collection system 110. A partial list of the contents of the Data Request List 500 is seen in Figure 10, may be used when a request for data is received by the data translation and collection system 110 to recognize the data request address root 504 and to then determine which data base 106 it is on and what data type 136 it is.

Responding to Data Requests and Providing Translation

The data translation and collection system 110 may receive a data request, 540, Figure 11A, as issued by Internet/Intranet browser programs. These may be formatted in a manner which is uniform in use and format for all records stored by various hospital data bases. Alternately there may be several formats, but designed in such a manner to be distinctive from one another. The data requests may be in the form of a url with optional data fields sent with it to assist in identifying the record to be retrieved. The data request root address 504, Figure 10, may be determined 544 by removing any patient identification, chronological or other information from the received data request. A search 548 may be made of the data request list 500 to locate a match for the data request root address 504. When found the data type 136, the data base 106 used to store this data are available as is data references to add and formatting instruction 138. The data base 106 may be used with list of data bases 130 and data list 134 to determine 552 the address(es) 132 of the data base storing the data.

Similarly the data type 136 may be used with the appropriate data list 134 to locate 556 the special instruction to request data 142. By using the information received by the date request an appropriate message 560 may be sent to the data base 106 specified, at the address(es) in the list of data bases 130 and formatted as specified by the special instructions to request data 142 for the specified patient at the specified date or date range (if so required). The data record(s) may be received 564 by the data translation and collection system 110 for additional processing.

The record is checked to see if it is formatted using html or similar codes 568. If not then there are no hyper link references or image references to be concerned about. The text portion of the record is converted to a browser compatible format, such as html format 572 and any graphics, audio, video, or other non-text recordings may be converted to a browser program or plug-in or Java program compatible format. If required the manufacturer's proprietary software may be used to decompress the data. This may be done on the manufacturer's data base 106 or other computer processing system.

If the record had been previously formatted in html or other similar format, a check is made to determine if any hyper links or other data requests are present in the record 576. All hyper links and other data requests may be reformatted as required so that the url addresses are compatible with the structure of the addressing methods used by the hospital. For each such hyper link or other data request url address a process similar to the one used above may be performed to determine the data request address root 504 and from this locate its entry in the data request list 500 to determine the data base 106 and data type 136 of the record specified in the hyper link or other data reference 584. Using this information the appropriate data list 134 may be used to locate 592 the destination file name 140 for this data type 136. The destination file name may be joined with the patient's information, chronological data, and other data previously received to format a new url to be inserted 596 into the hyper link or other data request.

Finally the data references to add and formatting instructions 138 of data request list

500, may be used to add 600 additional hyper links or data requests to the record or to interpret the data for modification. The translated record may be sent 604 to the original requesting workstation or processor.

Receiving Patient Records for
Translation and Address Formatting

A similar process is shown in Figures 12A to 12C, but it is used to receive a record, translate it, as described below, and sent to a data base with the associated url address that may be used to retrieve that data.

The data translation and collection system 110 may receive a data record, 640, Figure 12A, from a data base 106 along with other information specifying patient identification, chronological, and other information regarding the record. A search is made of each data list 134 for each data base 106 to locate the data type 136 of the received record 644. The data formatting instructions 648 of data list 134 may be used to locate additional information within the record about it 648.

A check is made to determine if the record is in html or other Internet/Intranet compatible formats 652. If not the data references to add and formatting instructions 138 in data request list 500 for the data type 136 may be used to convert text to html formatted file 656. Graphics, audio, video, and other such format may be translated to an appropriate Internet/Intranet format. The manufactures's software may be used to reformat or decompress data as needed.

The record is checked to see if it is formatted using html or similar codes 652. If not then there are no hyper link references or image references to be concerned about. The text portion of the record is converted to a browser compatible format, such as html format 656 and any graphics, audio, video, or other non-text recordings may be converted to a browser program or plug-in or Java program compatible format. If required the manufacturer's proprietary software may be used to decompress the data. This may be done on the manufacturer's data base 106 or other computer processing system.

If the record had been previously formatted in html or other similar format, a check is made to determine if any hyper links or other data requests are present in the record 660. All hyper links and other data requests may be reformatted as required so that the url addresses are compatible with the structure of the addressing methods used by the hospital. For each such hyper link or other data request url address a process similar to the one used above is performed to determine 664 the data request address root 504 and from this locate its entry in the data request list 500 to determine 668 the data base 106 and data type 136 of the record specified in the hyper link or other data reference. Using this information the appropriate data list 134 may be used to locate 676 the destination file name 140 for this data type 136. The destination file name may be joined with the patient's information, chronological data, and other data previously received to format a new url to be inserted 680 into the hyper link or other data request.

Finally the data references to add and formatting instructions 138 of data request list 500, may be used to add 684 additional hyper links or data requests to the record or

to interpret the data for modification. The destination file name 140 for the data type 136 of the record received may be joined with the patient's information, chronological data, and other data previously received to format 686 a url that this record may be referred to by. The translated record and its formatted url may be sent 688 to a data base 106 for storage.

In Figure 13A an example of a url address 700 received by the data translation and collection system 110 is shown. The url address may be in a uniform format used by the hospital. Embedded in this example url is information regarding the type of data 704, the patients identification 708, the date 712 and time 716 of the data requested, and a report designator 718. The data translation and collection system 110 by following the steps in Figure 11A to 11C may reformat the data request into a new data request 720, Figure 13B, which is compatible with the data base system holding this data.

By requesting this data it may be returned as report 724, Figure 13C, a conventional text document. The report may be reformatted in to html format 732 by the data translation and collection system 110 and have data request 736 and hyper links 740 and 744 inserted according to the data references to add and formatting instructions 138. The hyper links 744 may be inserted based upon the recognition of phrases or special character sequences 726 in the report and may vary from report to report of the same data type depending on the each report's contents.

Figure 13D shows the text report 724 as displayed on computer display 118 using an Internet/Intranet browser software package after being translated and modified. If the viewer desires to have presented additional information regarding the patient's demographics they may select hyper link 740. If they desire to have presented either the radiology or hemodynamic report for this procedure they may select either of the hyper links 744.

Data Collection and Translation for Storage and Retrieval

The steps used by the data translation and collection system 110 to retrieve and format data are shown in Figures 5A to 5E. The patient identification number may be received 200 by the data translation and collection system 110. The identification number may be enter by a user of a workstation 102, or may be sent automatically by the ADT system 108 or HIS 111. This may be done when each patient is admitted or after they has been discharged. The data translation and collection system 110 may request the dates 204 the user desires to collect data for the patient or the data translation and collection system 110 may request the most recent admission dates from the ADT system 108 or HIS 111. If not previously created for this patient, a file to contain a list of received records will be opened 208. Similarly a file to contain a list of records to be retrieved is opened 212. The data translation and collection system 110 will now reference the list of data bases 130 to locate and retrieve 216 the first data base and the first data type 136 in the data list 134.

An appropriate message 220 will be sent to the data base 106 specified, at the address(es) in the list of data bases 130 and formatted as specified by the special instructions to request data 142 for the specified patient during any specified dates. The data record(s) are received 228 by the data translation and collection system 110.

For each record received the date and time 226 is derived from the contents of the record as specified by the data formatting instructions 138. An entry 228 is made in the list of received records, so the record need only be retrieved once. A check is also made to determine if the record was in the list of records to retrieve 232, if so it is removed from the list 236.

The record is checked to see if it is formatted using html or similar codes 240. If not then there are no hyper link references or image references to be concerned about. The text portion of the record is converted to a browser compatible format, such as html format 248 and any graphics, audio, video, or other non-text recordings may be converted to a browser program or plug-in or Java program compatible format. If required the manufacturer's proprietary software may be used to decompress the data. This may be done on the manufacturer's data base 106 or other computer processing system.

If the record had been previously formatted in html or other similar format, a check is made to determine if any hyper links or other data requests are present in the record 252. If there is a hyper link or other data request a determination is made if the record so referenced is already in the list of received records 256. If not the referenced record is placed in the list of record to retrieve 260. All hyper links and other data requests are reformatted 264 as required so that the url addresses are compatible with the structure of the data translation and collection system 110. The address to be used may be contained in the destination file name formatting instructions 140, part of the data list 134. By doing this when the retrieved record is later displayed, secondary files referenced by it will be included for display and the user will not be presented an incomplete record. Finally the data references to add and formatting instructions 138 of data request list 500, may be used to add 684 additional hyper links or data requests to the record or to interpret the data for modification.

The data translation and collection system 110 will then create and open an appropriate file folder and file to store the converted retrieved record as specified by the destination file name formatting instructions 140 field, part of the data list 134. A check is made to determine if additional data types are to be retrieved or if additional data bases are to be interrogated 276. If so the above process is repeated 272.

Next the data translation and collection system 110 references the list of records to be retrieved. If there are no entries in the list, the data collection process is completed 284, if not the first specified record is retrieved 288. Since the list of records to retrieve is primarily composed of records that were referenced by other records as a hyper link or as a data request, the list will contain url addresses that may be used to directly request these records. A check is made to determine if the retrieved record is also html formatted 292. If not the record is reformatted using html codes if it is a text report. Non-textual data formats may be converted as mentioned above to a an Internet/Intranet browser or plug-in compatible format 296. If the record is html formatted a check is made to see if it contains any hyper links or other data requests. If so a check is made to determine if the specified record is in the list of records retrieved. If not the record is added to the list of records to the retrieved. In either case any hyper link or other data request addresses are reformatted 312 as required so that the url addresses are compatible with the structure of the data translation and collection system 110.

The data translation and collection system 110 will then create and open an appropriate file folder and file to store the converted retrieved record either as specified by the destination file name formatting instructions 140 field, part of the data list 134 or a distinctive file name will be created for those records retrieved that may not be part of the patients file, but are referenced by a patient's file, e.g. a biographical background regarding one of the patient's physicians. The retrieved record is removed from the list of records to retrieve and the process is resumed, using the next record in the list of record to be retrieved.

Data Reception and Translation for Storage and Retrieval

A variation on this method is to have the data bases 106 send data for each patient to the data translation and collection system 110 either from time to time or after the patient is discharged. The records received in this manner may be checked for html formatting as above and a list of other records to be retrieved may be maintained for each patient.

Some reports that need to be stored may reside on workstation 102 or physician office workstation 104. These may be reports that are created using a word processor and should also be retrieved by the data translation and collection system 110. Any report that is to be retrieved by the data translation and collection system 110, may be placed in a special folder named "Collection". A list of workstations 150, Figure 4A, may include the addresses of all workstations 102 and physician office workstations 104 and file access commands 154 or passwords used to gain access to files stored in the folder "Collection", may be maintained by the data translation and collection system 110. Also maintained may be a report list 158 which includes for each report name, file name and data formatting instructions 162 and corresponding destination file name formatting instructions 166.

On a periodic basis or as instructed a program in the data translation and collection system 110 may determine if there are any files in a special folder, e.g. "Collection", in each workstation. If there are the file access commands 154 may be sent to the workstation so that the files may be transferred to the data translation and collection system 110. This may be done using the file transfer protocol, ftp, of the Internet/Intranet or by other data transfer methods.

If the user of the workstation creates reports, that when stored use the a file name formatted according to file name and data formatting instructions 162, the file may be recognized as being a specific file for a patient, for example the file named "Cath987654321" may correspond to a cath report for the patient whose identification number is 987654321. Appending the date and time to the file name may be used to further identify the report. Alternately, the date and time may be specified to be in a specific location within the report as specified by file name and formatting instructions 162. Similarly, the report name and/or the patient's identification information may be fixed in within the report as well. In either case when received, the file may be reformatted to be in html format, if it is not already. If the report is already in html format it will be checked for any hyper link or other data references. If there are any these may be entered in to the list of files to be retrieved. Furthermore, the file name for each recognized report may be changed as specified by destination file name

formatting instructions 166. The report may now be stored by the data translation and collection system 110 and may be referenced by other reports or may be retrieved for display if desired by a user using the new file name.

For each patient file that is so collected, an entry will be made in the list of files received maintained by the data translation and collection system 110 for each patient. If no such files exists for the patient, one will be created.

It is also possible that a program may exist within each workstation, that detects files as they are stored in the folder “Collection” and automatically sends them to the data translation and collection system 110.

Instruments or medical devices whose reports are not stored as part of any data base 106, but that are capable of writing a data to a floppy disk or transmitting a information via a infrared or serial line connection to a workstation 106 may also store patient reports in the data translation and collection system 110. To do so the individual reports may be written to a floppy disk using any file name defined by the file name and data formatting instructions 162. The reports may be copied manually or automatically from the floppy in workstation 106 to the folder “Collection” which may be periodically checked to see if there is an data in it to the retrieved or the reports may be automatically read by the workstation and sent to the data translation and collection system 110. The reports so sent may be incorporated with any others received for this patient and may be provided with new destination file according to the destination file name formatting instructions 166.

Finally the data references to add and formatting instructions 138 of data request list 500, may be used to add 684 additional hyper links or data requests to the record or to interpret the data for modification. In this manner reports from word processors or from non-data based medical devices may be collected for display and storage and may be assigned structured file names to assist in their retrieval whether on line or when placed on line as with a CD-ROM device 117.

Either as data records as received or when all the data records have been retrieved a master file 400, Figure 6A, is created. It may be named by using the patient’s name or their identification number. In some cases it may be desirable to create the same file twice using the patient’s name for the file name once and the patient’s identification number for the other. Appropriate secondary, tertiary, etc. control files may be created 418, Figure 8A. Finally, the master and control files are written to the mass storage device along with the data records if they have not been previously been written to the mass storage device.

In the instance that the patient’s data was written to a CD-ROM disk it may be given to appropriate physicians for their own storage and use. To view the contents of the CD-ROM, a physician need only insert it into the CD-ROM drive 117 of the physician workstation 104 and start their Internet/Intranet browser program. By using the File command the physician may refer to the CD-ROM drive 117, and the name of the master file 400 will be presented, which may be the same or similar to the patient’s name.

An example of the contents of the master file 400 is shown in Figure 6A. Besides

identifying the patient and the dates and source of the medical records, the master file has a series of hyper links 402 either to distinct reports, such as hyper link 408 or to secondary control files, such as hyper link 404. When presented on display 118, using a browser program, the master file may appear as seen in Figure 6B. Note the hyper links 402 are displayed in a differing font format as is common to browser programs. The user may select a hyper link by moving a pointing device such as a mouse over the text and pressing an activation button. The browser will automatically retrieve the file specified in the hyper link 402 from the CD-ROM and present it.

If the user selects the hyper link 408 specifying discharge report in the master file 400, the user will be presented with the patient's single discharge report. In Figure 7A the html codes used to format the discharge report 412 are shown in part. Note the hyper link 416 may be selected to retrieve the specified cath report from the CD-ROM. The hyper link url address has been modified as needed to make it compatible with the storage structure of the CD-ROM. When presented on display 118 by a browser program the discharge report may appear as seen in Figure 7B.

If the user had selected the hyper link 404 specifying cardiology data in the master file 400, the user will be presented with the contents of secondary control file 418. This file presents the user with various types of cardiology reports to choose from in the form of hyper links 422. For those cardiology tests for which there is only one report available, the hyper link specifies the url address of the report. Those tests for which there are several reports available, the hyper link 420 may specify the url of a tertiary control file. When presented on display 118 by a browser program the secondary control file may appear as seen in Figure 8B.

If the user selects the hyper link 420 specifying ecg reports in the secondary control file 418, the user will be presented with the contents of tertiary control file 424. This file presents the user with a list of all the ecg reports, during the dates selected, to choose from in the form of hyper links 426. For each ecg report the hyper link specifies the url address of the report. When presented on display 118 by a browser program the list of ecg reports may appear as seen in Figure 9B.

Some reports that need to be stored may reside on workstation 102 or physician office workstation 104. These may be reports that are created using a word processor and should also be retrieved by the data translation and collection system 110. Any report that is to be retrieved by the data translation and collection system 110, may be placed in a special folder named "Collection". A list of workstations 150, Figure 4A, may include the addresses of all workstations 102 and physician office workstations 104 and file access commands 154 or passwords used to gain access to files stored in the folder "Collection", may be maintained by the data translation and collection system 110. Also maintained may be a report list 158 which includes for each report name, file name and data formatting instructions 162 and corresponding destination file name formatting instructions 166.

On a periodic basis or as instructed a program in the data translation and collection system 110 may determine if there are any files in a special folder, e.g. "Collection", in each workstation. If there are the file access commands 154 may be sent to the workstation so that the files may be transferred to the data translation and collection system 110. This may be done using the file transfer protocol, ftp, of the

Internet/Intranet or by other data transfer methods.

If the user of the workstation creates reports, that when stored use the a file name formatted according to file name and data formatting instructions 162, the file may be recognized as being a specific file for a patient, for example the file named "Cath987654321" may correspond to a cath report for the patient whose identification number is 987654321. Appending the date and time to the file name may be used to further identify the report. Alternately, the date and time may be specified to be in a specific location within the report as specified by file name and formatting instructions 162. Similarly, the report name and/or the patient's identification information may be fixed in within the report as well. In either case when received, the file may be reformatted to be in html format, if it is not already. If the report is already in html format it will be checked for any hyper link or other data references. If there are any these may be entered in to the list of files to be retrieved. Furthermore, the file name for each recognized report may be changed as specified by destination file name formatting instructions 166. The report may now be stored by the data translation and collection system 110 and may be referenced by other reports or may be retrieved for display if desired by a user using the new file name.

For each patient file that is so collected, an entry will be made in the list of files received maintained by the data translation and collection system 110 for each patient. If no such files exists for the patient, one will be created.

It is also possible that a program may exist within each workstation, that detects files as they are stored in the folder "Collection" and automatically sends them to the data translation and collection system 110.

Instruments or medical devices whose reports are not stored as part of any data base 106, but that are capable of writing a data to a floppy disk or transmitting a information via a infrared or serial line connection to a workstation 106 may also store patient reports in the data translation and collection system 110. To do so the individual reports may be written to a floppy disk using any file name defined by the file name and data formatting instructions 162. The reports may be copied manually or automatically from the floppy in workstation 106 to the folder "Collection" which may be periodically checked to see if there is an data in it to the retrieved or the reports may be automatically read by the workstation and sent to the data translation and collection system 110. The reports so sent may be incorporated with any others received for this patient and may be provided with new destination file according to the destination file name formatting instructions 166.

In this manner reports from word processors or from non-data based medical devices may be collected for display and storage and may be assigned structured file names to assist in their retrieval whether on line or when placed on line as with a CD-ROM device 117.

APPENDIX A-2

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

Appendix A-2

Regarding the ‘321 patent priority date, all of the elements of claims 1, 24, 27 and 86 of the ‘321 patent are supported by the provisional patent application Ser. No. 60/023,126 provisional patent application filed on July 30, 1996. There are drafts of this ‘126 provisional patent application specification and drawings which extend the date of invention to **April 10, 1996.**

This provisional patent application and U.S. Patent No. 5,895,461 are one and the same except that the ‘126 application did not contain the claims.

U.S. Patent No. 6,516,321 depends from:

- U.S. Patent No. 6,434,567, Serial No. 09/326,177
  - Depends from U.S. Patent No. 7,013,298, Serial No. 09/247,349
  - Depends from U.S. Patent No. 5,895,461, Serial No. 08/727,293
  - Depends from U.S. Patent No. 7,013,298, Serial No. 09/247,349
  - Depends from U.S. Patent No. 6,345,268, Serial No. 09/130,934
- U.S. Patent No. 7,013,298, Serial No. 09/247,349
  - Depends from U.S. Patent 5,903,889 Serial No. 08/871,818
- U.S. Patent No. 5,896,461, Serial No. 08/727,293 which claims priority from Provisional Application Ser. No. 60/023,126
- U.S. Patent No. 6,345,268, Serial No. 09/130,934
  - Depends from U.S. Patent No. 5,903,889, Serial No. 08/871,818
- U.S. Patent No. 6,272,505, Serial No. 09/112,062

The three most antecedent patents in the list are:

6,272,505 (filed on Jul. 17, 1998),
5,903,889 (filed on Jun. 9, 1997), and
5,896,461 (filed Oct. 9, 1996 based on provisional patent application Ser. No. 60,023,126 filed on Jul. 30, 1996).

The priority caption from U.S. Patent No. 6,516,321 reads as follows:
This application is a continuation-in-part of a U.S. patent application Ser. No. 09/326,177 which is titled "Method for Specifying Enterprise-wide Database Address Formats" which was filed on Jun. 4, 1999 by the present inventor which was a continuation-in-part of U.S. pat. appln. Ser. No. 09/247,349 which was filed on Feb. 10, 1999 and is entitled "Method and System for Automated Data

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Storage and Retrieval" which claimed priority from U.S. pat. appln. Ser. No. 08/727,293 which was filed on Oct. 9, 1996 and is entitled "Method and System for Automated Data Storage and Retrieval With Uniform Address Scheme" which in turn claims priority from provisional Appln. Ser. No. 60/023,126 which was filed on Jul. 30, 1996, the 09/247,349 application also claiming priority from U.S. pat. appln. Ser. No. 08/871,818 which was filed on Jun. 9, 1997 and is entitled "System and Method for Translating, Collecting and Archiving Patient Records". This application is also a continuation-in-part of U.S. pat. appln. Ser. No. 09/130,934 which was filed on Aug. 7, 1998 and is entitled "Method and System for Resolving Temporal Descriptions of Data Records in a Computer System". This application is also a continuation-in-part of U.S. pat. appln. Ser. No. 09/112,062 which was filed on Jul. 17, 1998 and is entitled "Word Processor With Hyperlink limitation".

There are drafts of the ‘126 provisional patent application specification and drawings which extend the date of invention to April 10, 1996. In particular, there are two files that will be referenced below. They are “Word Processing Draft 1996-04-10”, abbreviated in the claim chart below as WPD-1996, and “Word Processing Example Drawings June 4, 1996,” abbreviated in the claim chart below as WPDR-1996.

The documents in existence are:

Problem Description March 18, 1996
Word Processing Draft April 10, 1996
Using a Word Processor to Create Medical Records June 4, 1996
Word Processor Example Drawings June 4, 1996
Word Processor Example Drawings June 20, 1996
Fax of Word Processor Example Drawings June 26, 1996
Word Processor Example Drawings July 1, 1996 (3 pages)
Word Processor Example Drawings July 4, 1996
Word Processor Example Drawings July 5, 1996 (2 documents)
Word Processor Example Drawings July 7, 1996
Word Processor Example Drawings July 11, 1996
Word Processor Example Drawings July 28, 1996
Word Processor Specification July 28, 1996
Various undated patent drafts of the specification

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and the Provisional Patent Application Ser. No. 60/023,126.

There are two files related to drafts of the '889 patent in September 1996 that will be relied on:
"Old CD-ROM Patent File.cwk" dated September 30, 1996. It will be abbreviated as "PD-1996" for Patent Draft 1996, and
"CD-ROM Patent Files DR.cwk" also dated September 30, 1996. It will be abbreviated as "DR-1996" for Drawings 1996.

All references to the '889 Patent are marked clearly and are in blue text.

U. S. Patent No. 6,516,321	**Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996**
1. A method for identifying a referenced record referenced in a referencing record wherein the referenced record is referenced in the referencing record by at least a combination including a data reference (DR) and a modifier reference (MR), the method comprising the steps of:	In the '126 Application maturing into the '461 patent, Figs. 7 and 8 show a referencing record that references several referenced records, for example, the "admission ecg", the "current ecg", the "previous discharge ecg", and the "admission CK enzyme". Each of these is referenced by a combination of a data reference (the text shown in the record) and a modifier reference (the patient identification number (987654321) in the report text and record date (14_May_1996). WPD-1996 states on page 6: "When a report is stored that references the admission ecg the text "admission ecg" is recognized and a hyperlink is created to the specified report. In this case the URL would be: "http://hww.comm.gen.ecg/admission//12_MAR_1996/123456789", where the beginning part of the URL specifies the hospital and the name used to describe the computer used to store ecg's. The last part of the URL is constructed form the patient

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	ID number and today's date (if this is for the current admission) parsed from the beginning of the report and the specification that the first report after admission is requested and not time is specified (the "//" characters indicating no time)." WPD-1996 clearly describes the process to reference a record using a combination of a data reference ("admission ecg") and a modifier reference (the patient ID number "123456789"). Also shown in WPDR-1996 on page 3 is a processing step where the text "ecg report" in a document will be cause a hyperlink to be created using the address "hww.st_mary.springfield/ecg/report/987654321/14_May_1996/14:35". This WPDR-1996 example shows a data reference "ecg report" using in combination with a modifier reference (the patient ID number (987654321) in the report text and record date (14_May_1996).
(i) receiving the referencing record;	See '126 Application maturing into the '461 patent, col. 3, ll. 44-50 noting that a referencing record is received as it is "…entered by a user who is either creating and storing a data record …" WPD-1996 describes a record that is entered into a word processor. A person of ordinary skill in the art would recognize that the record is being received as it is typed into the word processor. WPDR-1996 on page 3 shows two boxes showing the text "The user may now start typing the report using the word processor" and "User enters or modifies a word". Both show the step of receiving a referencing record. A person of ordinary skill in the art would recognize that the

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	record is being received as it is typed into the word processor. Related to the '889 patent drafts: See also, DR-1996 Step 640 Fig. 12A "Receive a record from a database …"
(ii) analyzing the referencing record to identify a DR, when a DR is identified:	In the '126 application maturing into the '461 patent, col. 4, ll. 37-44, "The word processor included in the invention contains a monitoring function which monitors free text entered by the user to determine whether the user is creating a hypertext reference at a place in the data record other than in a specified keyword field. This monitoring function continuously surveys text/data being input by the user so that hypertext links in a data record or report can be created by the user at will." See also, Steps 148 & 154 in Fig. 2D "Does the word complete a recognized phrase" [YES] "… a hypertext link will be created be created for the referenced test or report…" The word "reference" as interpreted by the Federal Circuit is defined to be the same as "data reference": We begin with the parties' agreement, and the district court's holding, that the terms "data reference," record reference," "specifying reference,", and "reference," as used throughout the Patents-In-Suit, are interchangeable and have the same meaning. We agree. WPD-1996 states on page 6:

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	"When a report is stored that references the admission ecg the text "admission ecg" is recognized and a hyperlink is created to the specified report. In WPD-1996 the process of recognition would be known to a person of ordinary skill in the art as analyzing the record to identity a data reference (DR). WPDR-1996 on page 3 there is a box with the text (that became Fig. 2D of the '126 application) "Does the word complete a recognized phrase" [YES] "… a hypertext link will be created for the referenced test or report…" In WPDR-1996 the process of recognition would be known to a person of ordinary skill in the art as analyzing the record to identity a data reference (DR).
(a) identifying an MR rule set (MRRS) specifying the relationship between an MR and the DR;	In the '126 Application maturing into the '461 patent, there is a processor 12 (Fig. 1) receiving the record which invokes a modifier reference rule set as shown in use at Fig. 2D Step 154. "A sample address for a the most current complete ecg report for patient 9876543212 recorded previous to today's date [the date of the current record or document see Step 120 Fig 2B and Date 602 Fig. 7] and time of 19-May-1996 at 13:42 is: "hww.st_mary.springfield/ecg/report/9876543231/19_May_1996/13:42/current"…" A rule set that requires the modifier reference of the patient ID number (987654321) to be used to create a hyperlink address. Similarly, the document date (19-May-1996) may also be required to

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	create an address. WPD-1996 states on page 6: "When a report is stored that references the admission ecg the text "admission ecg" is recognized and a hyperlink is created to the specified report. In this case the URL would be: "http://hww.comm.gen.ecg/admission//12_MAR_1996/123456789", where the beginning part of the URL specifies the hospital and the name used to describe the computer used to store ecg's. The last part of the URL is constructed form the patient ID number and today's date (if this is for the current admission) parsed from the beginning of the report and the specification that the first report after admission is requested and not time is specified (the "//" characters indicating no time)." WPD-1996 clearly describes the use of a rule set specifying a relationship between a data reference ("admission ecg") and a modifier reference (the patient ID number "123456789"). In WPD-1996, the process of identifying a rule set would be known to a person of ordinary skill in the art as specifying a relationship between a data reference and a patient ID number. Also shown in WPDR-1996 on page 3 is a processing step where the text "ecg report" in a document will be cause a hyperlink to be created using the address: "hww.st_mary.springfield/ecg/report/987654321/14_May_1996/14:35".

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	This WPDR-1996 example shows a rule set where the data reference ("ecg report") has a relationship with a modifier reference (the patient ID number (987654321) in the report text and record date (14_May_1996). In WPDR-1996, the process of recognizing a data reference that has a relationship with a patient ID number would be recognized and would be known to a person of ordinary skill in the art as analyzing the record to identity a data reference (DR). In WPDR-1996, the process of identifying a rule set would be known to a person of ordinary skill in the art as specifying a relationship between a data reference and a patient ID number. Related to the '889 drafts: Also consider DR-1996 Figs. 13C & 13D, showing that when a data reference such as "Catheterization Reports" is found a hyperlink is formatted using Data References to Add and Formatting Instructions 138 (DR-1996 Fig. 3B) which comprises rules to match the data reference text "Catheterization Reports" with a modifier reference the patient identification number (987654321) to create the hyperlink address in DR-1996 Fig. 8: "http://hww.st_mary.springfield/cath/987654321/15_Aug_1996/10:25/radiology.htm" Which can only be formed by use of the "Date of Procedure (modifier reference) of "15-Aug-1996 10:25"
(b) analyzing the referencing record in accordance with the	In the '126 Application maturing into the '461 patent, there is a processor 12 (Fig. 1) receiving the record invokes a modifier reference rule set as shown in use at Fig. 2D Step 154.

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U. S. Patent No. 6,516,321	**Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996**
MRRS to identify the existence of the MR and, when the MR is identified;	"A sample address for a the most current complete ecg report for patient 9876543212 recorded previous to todays date [the date of the current record or document see Step 120 Fig 2B and Date 602 Fig. 7] and time of 19-May-1996 at 13:42 is: "hww.st_mary.springfield/ecg/report/9876543231/14_May_1996/14:35/current"…" A rule set that requires the modifier reference of the patient ID number (987654321) to be used to create a hyperlink address. Similarly, the document date (19-May-1996) may also be required to create an address. WPD-1996 states on page 6: "When a report is stored that references the admission ecg the text "admission ecg" is recognized and a hyperlink is created to the specified report. In this case the URL would be: "http://hww.comm.gen.ecg/admission//12_MAR_1996/123456789", where the beginning part of the URL specifies the hospital and the name used to describe the computer used to store ecg's. The last part of the URL is constructed form the patient ID number and today's date (if this is for the current admission) parsed from the beginning of the report and the specification that the first report after admission is requested and not time is specified (the "//" characters indicating no time)." WPD-1996 clearly describes that the referencing record is analyzed to identify the modifier reference (the patient ID number "123456789") and one of ordinary skill in the art would

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	understand that lacking the patient ID number, the link URL cannot be properly constructed. Also shown in WPDR-1996 on page 3 is a processing step stating: "… a hyperlink will be created for the referenced test or report, when this report is published. A hyperlink will point to the file containing the referenced report. A sample address for the most complete ecg report for patient 987654321 recorded prior to today date and time of 14_May_1996 at 14:35 is: "hww.st_mary.springfield/ecg/report/987654321/14_May_1996/14:35". This WPDR-1996 example would be understood by a person of ordinary skill in the art to require the existence of the modifier reference (MR) in the form of a patient ID number in order to complete the URL and to create a hyperlink to the correct record for that patient. Related to the '889 drafts: Also consider DR-1996 Figs. 13C & 13D, showing that when a data reference such as "Catheterization Reports" is found a hyperlink is formatted using Data References to Add and Formatting Instructions 138 (DR-1996 Fig. 3B) which comprises rules to match the data reference text "Catheterization Reports" with a modifier reference the patient identification number (987654321) to create the hyperlink address in DR-1996 Fig. 8: "http://hww.st_mary.springfield/cath/987654321/15_Aug_1996/10:25/radiology.htm"

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U. S. Patent No. 6,516,321	**Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996**
	Which can only be formed by use of the "Date of Procedure (modifier reference) of "15-Aug-1996 10:25"
(c) identifying the referenced record associated with the DR/MR combination.	In the '126 Application maturing into the '461 patent, there is a processor 12 (Fig. 1) receiving the record invokes a modifier reference rule set as shown in use at Fig. 2D Step 154. There "A sample address for a the most current complete ecg report for patient 9876543212 recorded previous to todays date [the date of the current record or document see Step 120 Fig 2B and Date 602 Fig. 7] and time of 19-May-1996 at 13:42 is: "hww.st_mary.springfield/ecg/report/9876543231/19_May_1996/13:42/current"…" A rule set that requires the modifier reference of the patient ID number (987654321) to be used to create a hyperlink address. Similarly the document date (19-May-1996) may also be required to create an address. In the above example from the '126 Application, when both a data reference and patient identification number (a modifier reference) are identified, the referenced record associated with the DR/MR is identified by creating a hyperlink using an address created to retrieve that record, for example: hww.st_mary.springfield/ecg/report/9876543231/19_May_1996/13:42/current" WPD-1996 states on page 6: "When a report is stored that references the admission ecg the text "admission ecg" is recognized and a hyperlink is created to the specified report. In this case the URL would be: "http://hww.comm.gen.ecg/admission//12_MAR_1996/123456789",

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	where the beginning part of the URL specifies the hospital and the name used to describe the computer used to store ecg's. The last part of the URL is constructed form the patient ID number and today's date (if this is for the current admission) parsed from the beginning of the report and the specification that the first report after admission is requested and not time is specified (the "//" characters indicating no time)." WPD-1996 clearly describes identifying the referenced record associated with the DR/MR combination as the URL address is formatted to retrieve the admission ecg for patient ID number 123456789. Also shown in WPDR-1996 on page 3 is a processing step stating: "… a hyperlink will be created for the referenced test or report, when this report is published. A hyperlink will point to the file containing the referenced report. A sample address for the most complete ecg report for patient 987654321 recorded prior to today date and time of 14_May_1996 at 14:35 is: "hww.st_mary.springfield/ecg/report/987654321/14_May_1996/14:42". This WPDR-1996 example describes identifying the referenced record associated with the DR/MR combination as the URL address is formatted to retrieve the ecg for patient ID number 987654321. Related to the '889 drafts:

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	Also consider DR-1996 Figs. 13C & 13D, showing that when a data reference such as "Catheterization Reports" is found a hyperlink is formatted using Data References to Add and Formatting Instructions 138 (DR-1996 Fig. 3B) which comprises rules to match the data reference text "Catheterization Reports" with a modifier reference the patient identification number (987654321) to create the hyperlink address in DR-1996 Fig. 13C: "http://hww.st_mary.springfield/cath/987654321/15_Aug_1996/10:25/radiology.htm" Which can only be formed by use of the "Date of Procedure (modifier reference) of "15-Aug-1996 10:25" In the above example from the PD-1996 and DR when both a data reference and date of procedure (a modifier reference) are identified, the referenced record associated with the DR/MR is identified by creating a hyperlink using an address created to retrieve that record, for example: "http://hww.st_mary.springfield/cath/987654321/15_Aug_1996/10:25/radiology.htm"
24. The method of claim 1 further including the step of linking the record reference to the referenced record.	In the '126 Application maturing into the '461 patent, when the text "current ecg" (data reference/DR 608 in Fig. 7) and patient identification number (modifier reference/MR 600 in Fig. 7) the record reference is associated by a hyperlink is created linking the referenced record 13D to the referenced record, for example a Radiology Catheterization Report. WPD-1996 states on page 6: "When a report is stored that references the admission ecg the text "admission ecg" is

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	recognized and a hyperlink is created to the specified report. In this case the URL would be: "http://hww.comm.gen.ecg/admission//12_MAR_1996/123456789", where the beginning part of the URL specifies the hospital and the name used to describe the computer used to store ecg's. The last part of the URL is constructed form the patient ID number and today's date (if this is for the current admission) parsed from the beginning of the report and the specification that the first report after admission is requested and not time is specified (the "//" characters indicating no time)." WPD-1996 clearly describes linking the record reference (DR) to the referenced record by creating a hyperlink using the above URL address. Also shown in WPDR-1996 on page 3 is a processing step stating: "… a hyperlink will be created for the referenced test or report, when this report is published. A hyperlink will point to the file containing the referenced report. A sample address for the most complete ecg report for patient 987654321 recorded prior to today date and time of 14_May_1996 at 14:35 is: "hww.st_mary.springfield/ecg/report/987654321/14_May_1996/14:35". This WPDR-1996 example says the hyperlink will link the recognized text to the referenced record. Related to the '889 patent drafts:

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	In the PD-1996 and DR-1996 when the text "Catheterization Reports" (data reference/DR in 728 of DR-1996 Fig. 13C) and the procedure date (modifier reference/MR in 728 of DR-1996 Fig. 13C) the record reference is associated by a hyperlink created linking the referenced record 13D to the referenced record, for example a Radiology Catheterization Report.
27. A method to be used with a rule set including subject matter specific tag pairs and corresponding search rules, a separate tag pair for each of a plurality of different information types and a separate search rule for each pair, each pair including a begin tag and an end tag, the method comprising the steps of:	The '126 Application, maturing into the '461 patent, describes a method to be used with a rule set (searching for specific keywords) including subject matter specific tags pairs (for example "<A href="http://hww.st_mary.springfied/demographics/#########/DD-MMM-YYYY">" and "</A>" for a patient ID number where ######### is replaced by a 9 digit patient ID number; other examples are shown in Fig. 8). There are separate tag pairs for each of a plurality of different types, see Fig. 8 showing different tag pairs corresponding to the different types related to patient ID number, physician "Dr. S.E. Markelson", "admission ecg" and others. There is a different search rule for each pair, for example, a search rule that searches for the text "admission ecg", another for "previous discharge cath", and another one that searches for "admission CK enzyme" Each tag pair consists of a start tag (for example, starting with the text ") and an end tag (for example ""). WPD-1996 states on page 6:

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	”To establish a hyperlink to another test result, procedure summary, graphic, or other document stored for this patient, the person using the word processor only has to enter text that is used to commonly describe that item. An example would be “admission ecg”. When a report is stored that references the admission ecg the text “admission ecg” is recognized and a hyperlink is created to the specified report. In this case the URL would be: “http://hww.comm.gen.ecg/admission//12_MAR_1996/123456789”, where the beginning part of the URL specifies the hospital and the name used to describe the computer used to store ecg’s. The last part of the URL is constructed form the patient ID number and today’s date (if this is for the current admission) parsed from the beginning of the report and the specification that the first report after admission is requested and not time is specified (the “//” characters indicating no time).” WPD-1996 clearly describes a rule set where a hyperlink anchor which has a subject matter tag pair and a subject matter search rule is to search for text that is used to commonly describe that item (a test result, procedure summary, graphic, or other document). There will be a separate tag pair for each plurality of different information types, one for ecg and clearly a different one for non-ecg records, and obviously, from the example, a different tag pair for a patient with a differing ID number. The tag pair having a begin tag, for example “”, and an end tag, for example “” common to hyperlinks in the HTML markup language. Also shown in WPDR-1996 on page 3 is a processing step stating: “… a hyperlink will be created for the referenced test or report, when this report is published. A hyperlink will point to the file containing the referenced report. A sample address for the most complete ecg report for patient 987654321 recorded prior to today

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	date and time of 14_May_1996 at 14:35 is: "hww.st_mary.springfield/ecg/report/987654321/14_May_1996/14:35". This WPDR-1996 example and earlier steps show the use of subject matter specific tag pairs used to create hyperlinks for an ecg record. For each tag pair, there is a corresponding search rule, for example a hyperlink corresponds to a begin tag, for example "" and an end tag, for example "". There are a plurality of information types, see also page 12 for an image request for a heart occlusion brochure with a different tag pair, in this case, an image request, for example "img src=" followed by the URL and ">" and an ending tag of </img>. Related to the '889 patent drafts: The PD-1996 describes a method to be used with a rule set (searching for specific keywords) including subject matter specific tags pairs (for example "<a href="http://hww.st_mary.springfield/demographics/complete/987654321/15_AUG_1998/10:25/current">" and "</A>" for a patient ID number where ######### is replaced by a 9 digit patient ID number corresponding to a patient; other examples are shown in DR-1996 Fig. 13C, page 21). In DR 13C (page 21): There are separate tag pairs for each of a plurality of different types, see DR-1996 Fig. 13C, page 21, showing different tag pairs corresponding to the different types related to patient name and

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	"Catheterization Reports". There is a different search rule for each pair, for example, a search rule that searches for the patient name and another "Catheterization Reports". Each tag pair consists of a start tag (for example starting with the text ") and an end tag (for example "").
(a) receiving a record;	The '126 application maturing into the '461 patent discusses receiving a record as it is entered in a word processor or similar program. See '126 Application maturing into the '461 patent, col. 3, ll. 44-50, which states that a referencing record is received as it is "…entered by a user who is either creating and storing a data record …" WPD-1996 describes a record that is entered into a word processor. A person of ordinary skill in the art would recognize that the record is being received as it is typed into the word processor. WPDR-1996 on page 3 shows two boxes showing the text "The user may now start typing the report using the word processor" and "User enters or modifies a word". Both show the step of receiving a referencing record. Related to the '889 patent drafts: See also DR-1996 Step 640 Fig. 12A "Receive a record from a database …"\
(b) examining the record	The '126 Application maturing into the '461 patent describes the process of examining text to

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according to the search rules to identify record segments including information of each of the information types;	determine if it completes a recognized phrase "Does this word complete a recognized phrase?" Fig. 2D Step 148. WPD-1996 states on page 6: "To establish a hyperlink to another test result, procedure summary, graphic, or other document stored for this patient, the person using the word processor only has to enter text that is used to commonly describe that item. An example would be "admission ecg". When a report is stored that references the admission ecg the text "admission ecg" is recognized and a hyperlink is created to the specified report. In this case the URL would be: "http://hww.comm.gen.ecg/admission//12_MAR_1996/123456789", where the beginning part of the URL specifies the hospital and the name used to describe the computer used to store ecg's. The last part of the URL is constructed form the patient ID number and today's date (if this is for the current admission) parsed from the beginning of the report and the specification that the first report after admission is requested and not time is specified (the "//" characters indicating no time)." WPD-1996 states that the record is examined according to a search rule to find the text (a record segment) that commonly describes an item of a particular information type. See, for example, the ecg example on Page 6. Also shown in WPDR-1996 on page 3 is a processing step stating:

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	"… a hyperlink will be created for the referenced test or report, when this report is published. A hyperlink will point to the file containing the referenced report. A sample address for the most complete ecg report for patient 987654321 recorded prior to today date and time of 14_May_1996 at 14:35 is: "hww.st_mary.springfield/ecg/report/987654321/14_May_1996/14:35". This WPDR-1996 example and the earlier steps "Does this word complete a recognized phrase" shows the record being examined using the search rules to identify records segments including information of each information type, for example, a "ecg report" of Page 3 and a heart occlusion image on page 8. Related to the '889 patent drafts: In DR-1996, Fig. 12C, Step 684 uses Data References and Formatting Instructions 138 to add detect data references corresponding to text, for example a patient name or "Catheterization Reports."
(c) when a record segment is identified which is of a particular information type:	The '126 Application which matured into the '461 patent uses the following method step when a phrase is recognized. WPD-1996 states on page 6:

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	"To establish a hyperlink to another test result, procedure summary, graphic, or other document stored for this patient, the person using the word processor only has to enter text that is used to commonly describe that item. An example would be "admission ecg". When a report is stored that references the admission ecg the text "admission ecg" is recognized and a hyperlink is created to the specified report. In this case the URL would be: "http://hww.comm.gen.ecg/admission//12_MAR_1996/123456789", where the beginning part of the URL specifies the hospital and the name used to describe the computer used to store ecg's. The last part of the URL is constructed form the patient ID number and today's date (if this is for the current admission) parsed from the beginning of the report and the specification that the first report after admission is requested and not time is specified (the "//" characters indicating no time)." When a record segment corresponding to text that commonly describes an item then a byperlink is created. WPD-1996 clearly describes that when a record segment is identified of a particular information type, for example, "current ecg," a hyperlink is created. Related to the '889 patent drafts: In DR-1996 Fig. 12C Step 684 uses Data References and Formatting Instructions 138 to add detect

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	data references corresponding to text, for example a patient name or "Catheterization Reports".
accessing the tag pair associated with the information type; inserting the begin tag before the identified segment and inserting the end tag after the identified segment.	The '126 Application maturing into the '461 patent states at Step 154, Fig. 2D that when a phrase match has been recognized a "… hyperlink will point to the file containing the referenced report. A sample address for a the most current complete ecg report for patient 9876543212 recorded previous to todays date [the date of the current record or document see Step 120 Fig 2B and Date 602 Fig. 7] and time of 19-May-1996 at 13:42 is: "hww.st_mary.springfield/ecg/report/9876543231/19_May_1996/13:42/current"…" Which will later be inserted along with the characters "" as a begin tag prior to phrase "current ecg" (see Item 606 of Fig. 7 and Fig. 8. Following the phrase "current ecg" will be placed the end tag "". WPD-1996 states on page 6: "To establish a hyperlink to another test result, procedure summary, graphic, or other document stored for this patient, the person using the word processor only has to enter text that is used to commonly describe that item. An example would be "admission ecg". When a report is stored that references the admission ecg the text "admission ecg" is recognized and a hyperlink is created to the specified report. In this case the URL would be: "http://hww.comm.gen.ecg/admission//12_MAR_1996/123456789", where the beginning part of the URL specifies the hospital and the name used to describe the computer used to store ecg's. The last part of the URL is constructed form the patient ID number and today's date (if this is for the current admission) parsed from the beginning

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
	of the report and the specification that the first report after admission is requested and not time is specified (the "//" characters indicating no time)." WPD-1996 describes the creation of a hyperlink corresponding to a begin tag and an end tag that are inserted before and after the recognized text (record segment) Also shown in WPDR-1996 on page 3 is a processing step stating: "… a hyperlink will be created for the referenced test or report, when this report is published. A hyperlink will point to the file containing the referenced report. A sample address for the most complete ecg report for patient 987654321 recorded prior to today date and time of 14_May_1996 at 14:35 is: "hww.st_mary.springfield/ecg/report/987654321/14_May_1996/14:35". This WPDR-1996 example and earlier steps show the use of subject matter specific tag pairs used to create hyperlinks for an ecg record on page 3 and for a heart occlusion brochure on page 8. The begin tag with the specified URL is inserted into the record before the record segment corresponding to the text/record segment ("Does this word complete a recognized phrase," for example, "ecg") and an end tag is inserted after the recognized phrase. Related to the '889 patent drafts:

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	In the DR-1996, Fig 13C, page 20 we can see the reference "Catheterization Reports" has been replaced by "Radiology Catheterization Report" and "Hemodynamic Catheterization Report" each of which becomes an information type for the later has a begin tag inserted ahead of it which in Fig. 13C on page 21 is shown by the begin tag: "" And the end tag "" is inserted after it. A similar process is performed for the text "Hemodynamic Catheterization Report"
86. [i] A method for use with an application wherein specifying references (SRs) in one record to other records which are selectable to access the other records are visually distinguished from other record information so as to indicate selectability,	The '461 patent discloses methods used with a word processor, which is an application, where a specifying reference, for example consider the text "admission", in one record is modified to create a hyperlink to other records, for example the text "admission" to one of several admission tests or reports, the hyperlink can be selected to activate Internet Explorer and hyperlinks are visually distinguished by underlining, a different font color or preceded by a special character so as to indicate a hyperlink is present. See col. 6, ll. 55 – 61, Fig. 5B, Steps 422 and 424 and col. 11, ll. 20 – 30. Se also Fig. 5A at Step 408: "User starts to type the name of the item to be referenced. Characters may be changed in color to another distinctive format" So the text is shown as visually distinguished for other record information.

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	In WPDR-1996 on page 6 and 7 are shown the processing steps of: "User enters a special character, not used for ordinary word processing, e.g. "[" "User starts to type the name of the item to be referenced" "Do characters entered match the start of a defined phrase? [YES] "Do characters match fewer that 10* defined phrases?" [YES] "Present to the user a list of possible matches to select from" The entry of a special character makes the text following it visually distinguished from other record information. The user is entering a data reference (a form of specifying reference (SR)) which can be selected to access other records.
[ii] the method also for use with a system which enables a user to designate and also select SRs where designation comprises pointing to an SR without selection and,	The '461 patent discusses a method where as text is entered in a word processor the active mouse cursor is repositioned as text is entered so that it always adjacent to entered text, this is a designation of text and is not the same as selection, for example also activating a mouse left or right button. In WPDR-1996, the cursor follows text as it is entered which allows the user to designate and also select the data reference, where designating comprises pointing at the data reference without selection.
[iii] wherein a seemingly	When a seemingly general SR, for example, the text "admission" is modified by other record

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U. S. Patent No. 6,516,321	Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996
general SR is modified by other record information which renders the SR relatively specific,	information, for example, the text "admission" can be followed by a space and then, which can trigger the feature described. See, col. 6, ll. 55 – 61, Fig. 5B, Steps 422 and 424, and col. 11, ll. 20-30, when combined with a previously recognized keyword reference, for example, the SR keyword reference "admission" followed by the other record information of the user typing "e" renders the SR relatively more specific as the "e" can trigger the type down display of "admission ecg" and "admission emg" being displayed. In WPDR-1996, on page 6 and 7, are shown the processing steps of: "User enters a special character, not used for ordinary word processing, e.g. "[" "User starts to type the name of the item to be referenced" "Do characters entered match the start of a defined phrase? [YES] "Do characters match fewer that 10* defined phrases?" [YES] "Present to the user a list of possible matches to select from" "User may continue to type letters until an exact match is found" "User may erase letter and respell phrase as needed" "User selects one the possible matches" These steps in WPDR-1996 allow a user to type in a data reference, for example, "ecg" and to type in additional text such as " r". The user is then shown a list of choices where the data reference "ecg" is modified by the following text " r" and can be shown possible data reference and modifier

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U. S. Patent No. 6,516,321	**Elements Disclosed By Carlos de la Huerga in U.S. Provisional Patent Application 60/023,126 Filed July 30, 1996 which matured as U.S. Patent 5,895,461 on April 20, 1999, and in earlier patent application drafts dating back to April 10, 1996**
	reference combinations such as "ecg report", "ecg recent", and "ecg R-R interval". The text " r" renders the seemingly general SR "ecg" relatively specific by showing potential modifier reference matches starting with the letter "r".
[iv] the method for indicating the specific nature of an SR prior to selection and comprising the steps of:	The '461 patent shows the method for indicating the specific nature of an SR prior to selection using the step of:
(a) when an SR is designated, indicating the specific nature of the SR.	As the text is entered and the cursor is moved to follow the text entry, a recognized sequence of letters triggers a type down display of the specific nature of the SR, for example, the list of "admission ecg" and "admission emg." In WPDR-1996, on pages 6 and 7, are shown the processing steps of: "User enters a special character, not used for ordinary word processing, e.g. "[" "User starts to type the name of the item to be referenced" "Do characters entered match the start of a defined phrase? [YES] "Do characters match fewer that 10* defined phrases?" [YES] "Present to the user a list of possible matches to select from" "User may continue to type letters until an exact match is found" "User may erase letter and respell phrase as needed"

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	"User selects one the possible matches" These steps in WPDR-1996 allow a user to type in a data reference, for example "ecg" and to type in additional text such as " r". The user is then shown a list of choices where the data reference "ecg" is modified by the following text " r" and can be shown possible data reference and modifier reference combinations such as "ecg report", "ecg recent", and "ecg R-R interval". The text " r" renders the seemingly general SR "ecg" relatively specific by showing potential modifier reference matches starting with the letter "r".

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Problem

A considerable amount of information is collected for each patient in a hospital or visiting the outpatient center of a hospital. Each test, procedure, observation, laboratory result, progress note, prescription, etc. must be recorded and stored. This data may be written on paper and then filed or captured electronically and held on computer disk or tape media. This data is in turn referenced by a variety of medical care givers. Physicians use this information when making diagnoses, creating care plans, and writing admission and discharge reports. Nurses use the information recorded on a patient to adjust medication levels, administer or terminate treatments, and to make themselves aware of a patient's status during the prior work shift or during previous days.

While it is clear that hospitals are constantly creating new information on each patient, effectively organizing this data in a has proven to be very elusive and expensive. Paper records, whether generated by a word processor in the hospital or at the admitting doctors office, are difficult to organize. They can be manually inserted to the patient's paper file, but then can not be reviewed away from the patient's room or nearby nursing station. Paper records are also difficult to include in the preparation of future documents without manual transcription and present a greater challenge to ensure proper patient billing, both for the correct test and for the correct patient.

Some patient records are created using computer systems with long term databases. A hospital usually has many disparate computer systems. Each may perform a valuable, specialized function, but many of these do not communicate with each other. Those that do often use complex structures for sharing data that is difficult to support. Where some computers are interfaced to each other, the result is valuable information that is available to a physician only if they are willing to learn the unique command structures of several different systems. A frequently used alternate, even in computerized hospitals, is for physicians to walk from department to department or to call specific laboratories to get the latest information. This is often very frustrating and can result in physicians spending too much time retrieving the data they need. By the end of a day it can be difficult to keep the data for each patient separate.

Current Hospital Technologies

The above mentioned problems have not gone unnoticed. Many companies and researchers have tried to create solutions, but none have succeeded. Often the approach is to combine all the data in a single computer system. A difficulty with this scheme is there are so many sources of data in a hospital and that no one hospital or chain of hospitals has had the influence to make all the data creators provide the data in a unified format for a single system. Further, hospitals have been properly concerned that these solutions use expensive software designed for a narrow market.

Existing Standards

Another solution has called for a common set of interface commands, such as found in HL-7 (Health Level 7) or the ACR-NEMA DICOM standards, to share data. While well conceived these standards require very complex interfaces to be written. Few manufactures are willing to invest the effort to support these standards even after years of being available. Smaller devices are not likely to ever use these standards, as the complexity overwhelms the purpose of the device itself. Many manufacturers have also added private or proprietary variations to these schemes that make their products only partially standardized. Once again cost becomes a problem, as a great deal of development must be done to meet the needs of the somewhat narrow medical market.

Further these standards do not make provision for including reports generated using common word processors. While word processors do not create records that are easily incorporated into databases, they are very common, inexpensive, and provide many tools including the ability to check spelling and correct English grammar.

New General Purpose Technologies

During the past decade a completely new computer technology has evolved, referred to as the Internet or the World Wide Web (WWW). While not exactly a radical departure in technology, it has become a radical influence on the lives of many people and certainly on the computer industry. The Internet works because of a common agreement between those who provide software that resides in a user's workstation (the client), those who provide software to extract and sent to the client information stored in a computer library or database (the server), and a communication system that links the millions of clients to the 240,000 public servers world wide (as of 1996).

Browser Software

In the past 4 years the software used by the client has matured into a package often referred to as an Internet browser. These software programs are now available from several developers (Netscape, Microsoft, Sun Microsystems and others). Prices for such software has been less than $50.00. In spite of such low prices, these tools allow users to have text, tables, audio, graphics, and video data to be presented on their workstation. Each document, picture, table, audio strip, or video segment that is sent to a browser, is encoded using one of several standards that the browser software can decode and display. The key to getting this data from any of the thousands of servers is the common addressing scheme of the Internet, the Uniform Resource Locator (URL).

When a user is presented with any information from the Internet by a browser program, portions of the display (text or graphics) may appear in a different color or with a border around them. These areas are referred to a hyperlinks. By moving a cursor over a hyperlink and pressing a mouse or other activation key, the browser

sends a URL address to the Internet to retrieve what ever new information is stored at that address. The URL being sent was associated with this area of the screen when the document being viewed was created.

URL Formatting

The URL is made of two equally important parts. The first part is a descriptor indicating how the data is to be retrieved. For most data found on the Internet this is represented by the text "http://". The next component of a URL is the name of the computer the desired data is stored. While some control has been used to limit the format of these names, these controls have been loosened and almost any name may now be possible. The last part of the URL is found after the first instance of the "/" character. Text thereafter is used to be used to indicated the file folder(s) to be opened to eventually find a specific file. The file name is found after the last "/". While the naming structure is primarily oriented to specific folder and file names, it can also be used to represent data that is stored within a database in which case the folder names are now just keywords to the database software. While not material to the discussions here the terminal part of the URL can also refer to a question being posed by the user to a server to either locate some data or to search for matches to some specified words.

URL's and the document formatting standards make the Internet work very effectively to present data from anywhere in the world. One key issue is that each hyperlink and associated URL a user is presented with, comes from one of two sources. The most common source is that hyperlinks and their URL's are embedded amongst text or graphics at the time a document is created. The author knew, when creating the document, that the URL embedded was the address of information he wanted to make available to users so they could find additional information on the Internet that he felt was relevant. The other means that URL's are presented is the result of using a software tool to search one or more databases for information. In this case, the results of a search are presented and the user may select any of the displayed hyperlinks; using the associated URL to retrieve the desired information.

Intranet

A new use of browser, server and the document formatting tools is the creation of Intranets. An Intranet is essentially an Internet that is for private use by a company and uses the company's own communication or network lines to carry data. This scheme allows the organization to use low cost software and hardware tools to disseminate information, while ensuring that it is kept private. In Intranet designs, control of the how information is organized, labeled, and referenced is the responsibility of the individual company creating the Intranet for its own use.

A Hospital Intranet Solution

It is recommended that the standards of using the Internet/Intranet be applied to the problem discussed earlier regarding the sharing of patient information within a

hospital. An Intranet is well suited to the needs of a hospital, as the standard browser software packages can present text, tables, graphs, drawings, pictures, audio, and video information in a unified, easy to learn package. Furthermore, the greater control over the communication lines helps to ensure data privacy.

However there is a problem in using the Intranet technology. The information to be reviewed comes from many separate systems and some of it should to refer to other pieces to make a complete report, e.g. a discharge summary that makes reference to the last laboratory data, ecg , and patient observations prior to discharge. Furthermore, new information is constantly created every day for each patient that uses the hospital's services.

For a hospital to use an Intranet solution, a scheme must be implemented that can create a label or address for each patient data item that is created. These addresses are URL's that can be in turn used to create hyperlinks between documents. This scheme must have a predictable set of rules for classifying each data item so duplicates are not created, one patient's data is not mixed with that of another, and the information can be retrieved across many separate computer systems. Unlike other uses of the Internet/Intranet this scheme also must allow one document to reference another that has not yet been published. All current authoring tools for the Internet (HTML editors) verify each URL address by searching the network to successfully locate it or rely on a previously specified URL in an address book before a link can be created.

A Uniform URL Addressing Scheme

A scheme for creating predictable URL's for any patient data stored on computer systems in the hospital is described here. First, most of the data to be displayed by a browser will use the standard hyper text transport protocol, so URL's will start with "http://". The next part of the URL can be virtually any text, but for the examples above we will use the hospital wide web (hww) of a fictitious hospital called Community General (comm.gen) to get data from the radiology and hemodynamic systems in the cardiac catheterization laboratory (rad.cath and hemo.cath). The start of the URL for each respective report will then be formatted as:

"http://hww.comm.gen.rad.cath" and
"http://hww.comm.gen.hemo.cath".

To complete the address we will have to specify which patient's data we want and the date and time of the procedure. To specify which patient's data is to located we can use the unique ID number given by the hospital to each patient (e.g. 123456789). The date and time can be presented in many ways, but we will use 14_45 to represent the military time for 2:45 PM and 01_JAN_1996 for the date. Note that some standard punctuation marks are not allowed in forming URL addresses. To create a reference to the radiology report from the catheterization laboratory a document only needs to specify a hyperlink with an associated URL address of:

"http://hww.comm.gen.rad.cath/14_45/01_JAN_1996/1234567879".

Having created this structure, all reports in the hospital can be uniformly referenced with appropriate changes for the name of the test, procedure, observation, or notation, each patient's identification, and the date and time. Every report type will

be given a name, such as rad.cath, and an appropriate list will be maintained at the hospital of these names. Reports that need to reference another report can easily specify the appropriate name of the referenced information, the identification for each patient and the specific time and date in question. This can be done knowing the appropriate information will be linked to even if it has not been created or published. The addressing scheme prevents errors in identification of the wrong patient or of tests that will not exist.

As a further extension of this, the date and time fields can be modified to utilize timing conventions common to medical data. In the previous example the date and time were specified to be "14_45/01_JAN_1996", with the additional text "prev" concatenated to it we can now specify "prev/14_45/01_JAN_1996" to get the first previous test to the one specified. Similar constructions can be used to get the next report in a sequence, the first one at admission, the report at discharge of the patient, or even the report within a time period if the exact time is not known. Each of these extensions makes the URL addressing scheme meet the dynamic needs of a hospital trying to use Internet/Intranet technologies. If desired information about the user who is using the hospital net can be incorporated as part of the URL and sent to each computer database. This way each system can check the security clearance of the person requesting data referenced by a URL.

Usage of a Word Processor to Create Hospital Internet/Intranet Documents

This technique can also be applied to the reports that are created using ordinary word processors. As previously mentioned, these reports when printed can go in the patient's chart or doctor's own files, but are difficult to share on computer networks due to a lack of any ability to organize the data from a word processor into a comprehensive data base. Furthermore, such reports can only refer to test results or other reports by transcribing those items. With an organized Intranet labeling system referred to above and the addition of a modification to an existing word processor, key words or symbols when typed can automatically generate links to have this report be able to be referenced by the Intranet throughout the hospital and to also reference other reports, drawings, graphics, or video information.

Converting the output of a word processor into a format compatible with the Internet/Intranet requires only the reformatting of the text using the commands of what is called Hyper Text Markup Language (HTML) and to store the text to a disk file in a format known as TEXT, as opposed to Microsoft Word or WordPerfect formats. The HTML commands can be thought of an alternate set of formatting to describe where text lines are to be broken, how information is to be indented, the size and color of characters, where graphics are to be placed, etc. Recently, Microsoft has released a product that converts completed Word documents into HTML formatted text files for use on the Internet/Intranet. However, to allow other documents to reference this one, requires the user to specify a particular file name to store this data. This file name must then be made available to any other person or computer system creating another report that wants to include this one as a hyperlink and associated URL. For a hospital where data constantly is being created, any manual system of file labeling would be impossible to administer.

Further, when the extension to the word processor mentioned above is used to create a hyperlink to another document or graphic, the user is asked to specify the URL address to be used. This URL is either checked to verify it exists or comes from a personalized address book of valid URL's. Failing to locate the referenced data because the URL has not been established results in an error message that gives the user the option to force its use with the consequence that no checking for its validity can be made. This is not an acceptable option for a hospital trying to manage medical data on thousands of patient's.

Being able to use a predictable addressing scheme as previously outlined, allows a word processor to generate documents that can be referenced by others and in turn can have hyperlinks embedded that reference the contents of still other documents. To allow a word processor document to be referenced by others when it is saved it must follow the uniform addressing scheme. This can be achieved by the user when creating the document to specify the patient's ID number and the type of report (catherization, exercise, physician note, etc.) at the start of the text. The date and time can automatically be entered by the word processor or manually entered. This is the typical manner used for formatting medical reports, even where no networked computer system is available. When the document is to be stored these key items are scanned to create the appropriate Internet/Intranet address as previously specified and the file is, if needed, moved to the appropriate computer system to act as a server for this type of data. Now the document can be properly referenced by any other document on the hospital network.

To establish a hyperlink to another test result, procedure summary, graphic, or other document stored for this patient, the person using the word processor only has to enter text that is used to commonly describe that item. An example would be the text "admission ecg". When a report is stored that references the admission ecg the text "admission ecg" is recognized and a hyperlink is created to the specified report. In this case the URL would be:

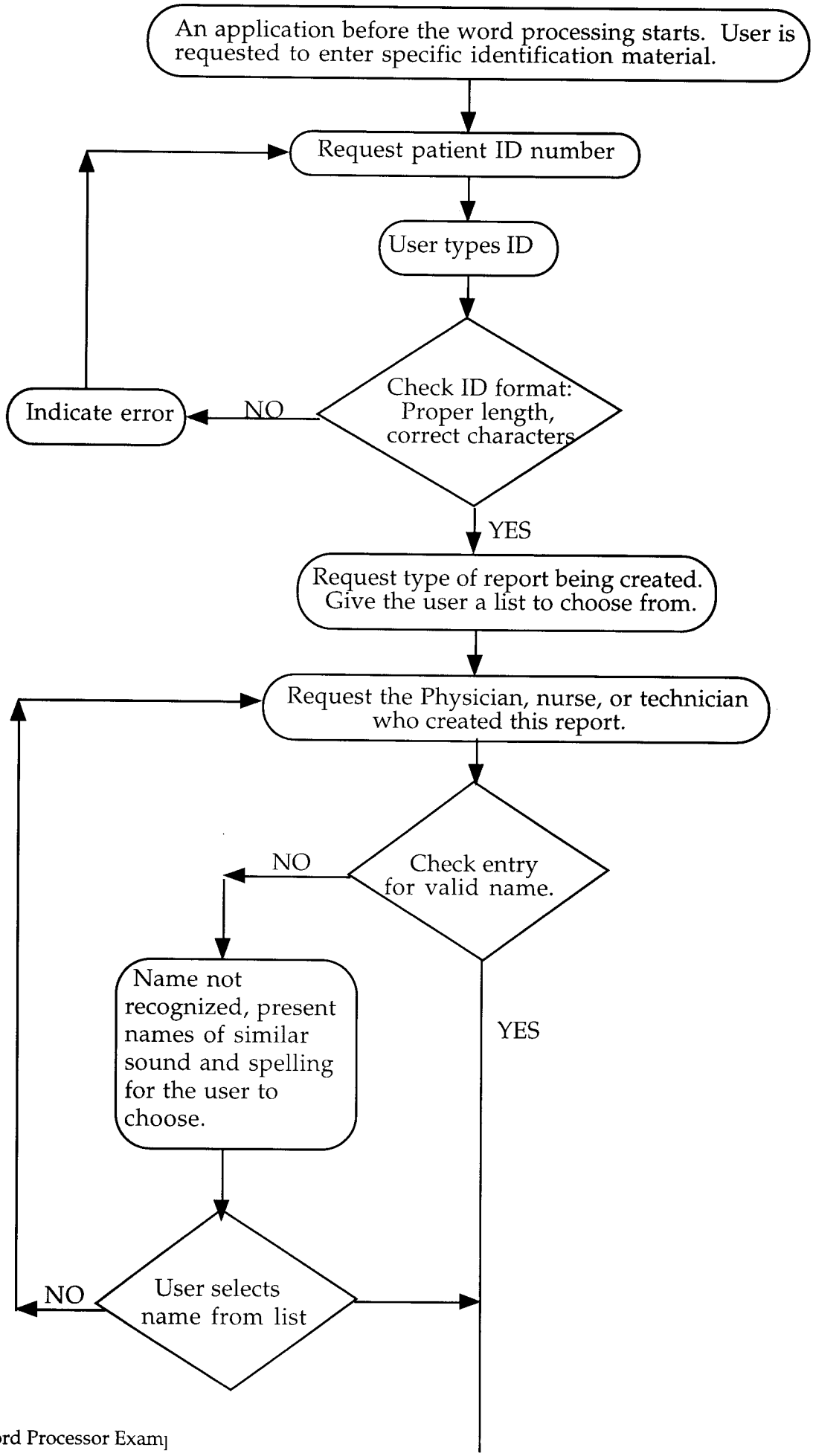
"http://hww.comm.gen.ecg/admission//12_MAR_1996/123456789",

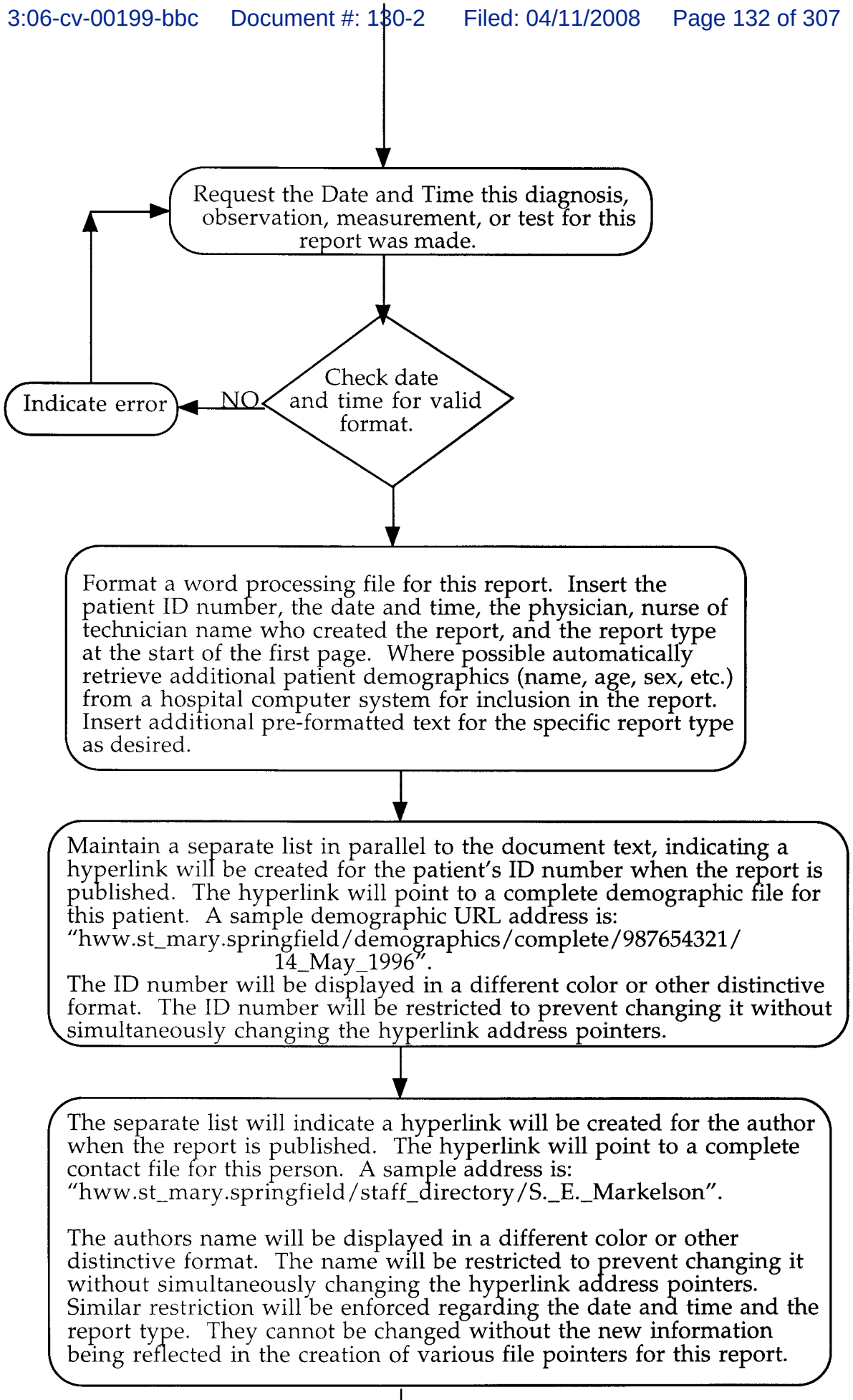
where the beginning part of the URL specifies the hospital and the name used to describe the computer used to store ecg's. The last part of the URL is constructed from the patient ID number and today's date (if this is for the current admission) parsed from the beginning of the report and the specification that the first report after admission is requested and no time is specified (the "//" characters indicating no time). As a convenience the text "admission ecg" can be scanned while being entered for proper spelling of the key words to prevent the user from having to correct a misspelled hyperlink reference after the document is created. To prevent links from being created unintentionally, the user may specify that only text preceded by a special character (e.g. "^" or "~" or other unused character) of their choice be used to construct hyperlinks. Using this scheme will ensure that only data for this patient can be referenced and that documents that have not been published can be referenced knowing that when they are available on the network they will be properly referenced. When the document is referenced by a browser, the hyperlinks to other information on this patient will be shown and can be activated by the user pressing the mouse button or other activation key.

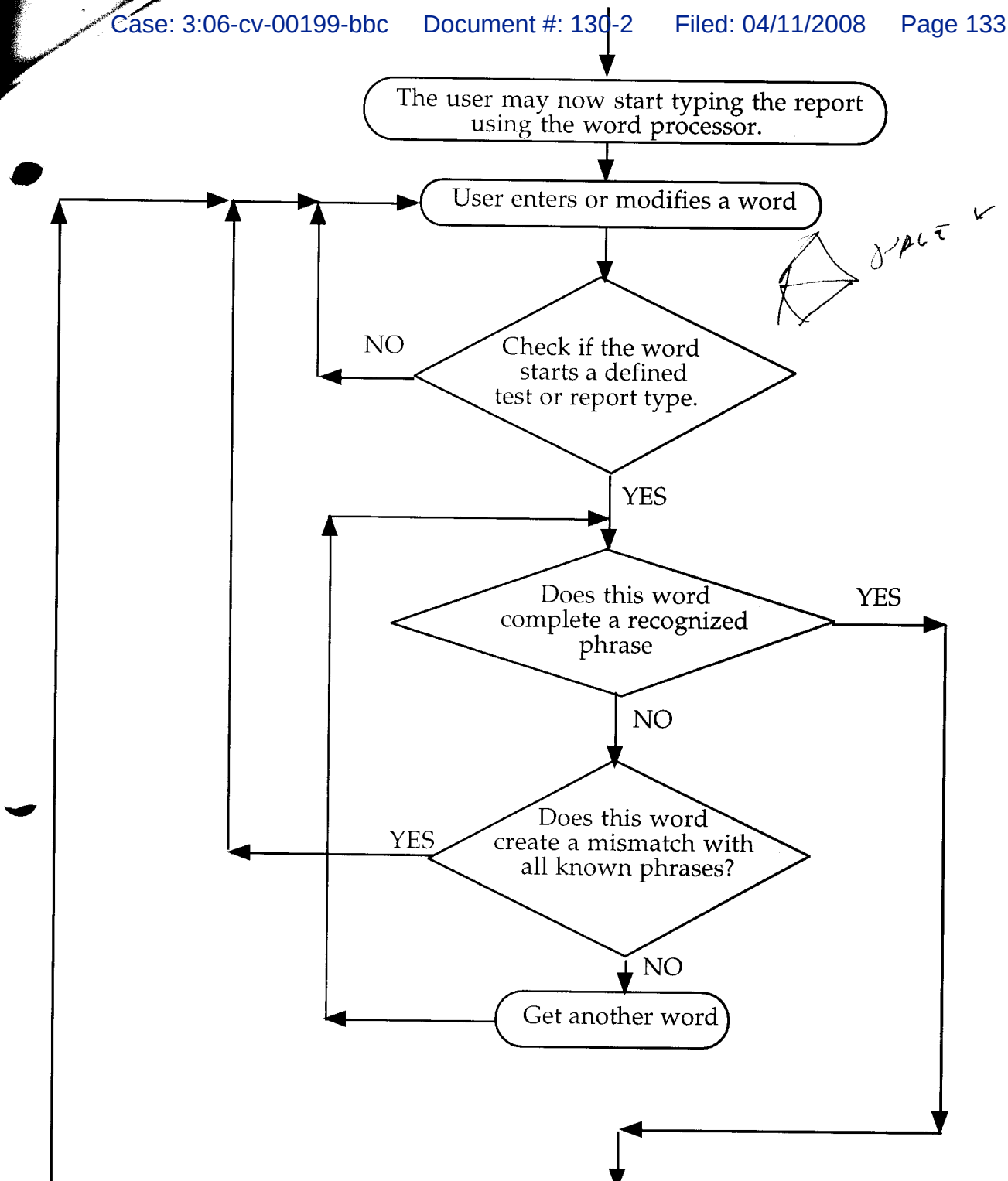
Convienent Patient Access to Their Records Using a Uniform Addressing Scheme

A feature of a hospital Intranet system is the ability to create a variety of customized reports for each patient. For example, patient's are often given preprinted pamphlets or other reading material regarding various diseases. These often include generic drawings or pictures illustrative of a typical patient that has this disease. Too often the patient does not make a connection between themselves and this typical patient. Having a uniform Intranet labeling system each such pamphlet can be printed in a customized manner that uses drawings or graphic images directly from their own records. Doing this requires no extra effort than using the generic information. Customizing pamphlets will give the patient a greater sense of connection between them, their disease, and treatment.

Using this idea, a customized report for each patient can be created to track the course of their treatment. This report can be made available for a patient to review at their home or in the doctor's office using standard browser software. The graphics, numeric values, or observations can easily be collected together to create reports for each patient due to the establishment of a uniform labeling system as previously described.


An application before the word processing starts. User is requested to enter specific identification material.
Request patient ID number
User types ID
Check ID format: Proper length, correct characters
NO
Indicate error
YES
Request type of report being created. Give the user a list to choose from.
Request the Physician, nurse, or technician who created this report.
Check entry for valid name.
NO
Name not recognized, present names of similar sound and spelling for the user to choose.
YES
User selects name from list
NO

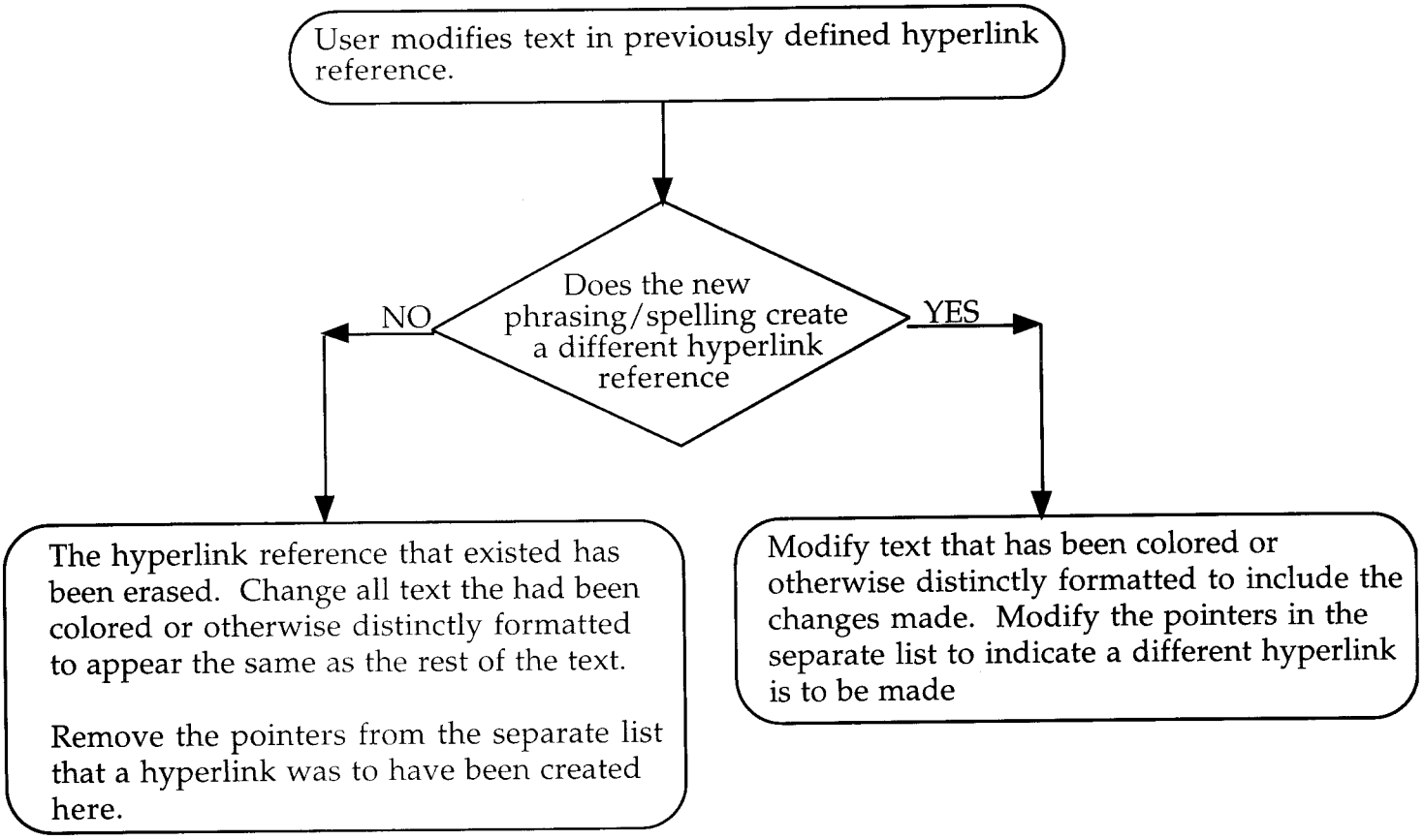

Request the Date and Time this diagnosis, observation, measurement, or test for this report was made.
Check date and time for valid format.
NO
Indicate error
Format a word processing file for this report. Insert the patient ID number, the date and time, the physician, nurse of technician name who created the report, and the report type at the start of the first page. Where possible automatically retrieve additional patient demographics (name, age, sex, etc.) from a hospital computer system for inclusion in the report. Insert additional pre-formatted text for the specific report type as desired.
Maintain a separate list in parallel to the document text, indicating a hyperlink will be created for the patient's ID number when the report is published. The hyperlink will point to a complete demographic file for this patient. A sample demographic URL address is: "hww.st_mary.springfield/demographics/complete/987654321/ 14_May_1996".
The ID number will be displayed in a different color or other distinctive format. The ID number will be restricted to prevent changing it without simultaneously changing the hyperlink address pointers.
The separate list will indicate a hyperlink will be created for the author when the report is published. The hyperlink will point to a complete contact file for this person. A sample address is: "hww.st_mary.springfield/staff_directory/S._E._Markelson".
The authors name will be displayed in a different color or other distinctive format. The name will be restricted to prevent changing it without simultaneously changing the hyperlink address pointers. Similar restriction will be enforced regarding the date and time and the report type. They cannot be changed without the new information being reflected in the creation of various file pointers for this report.

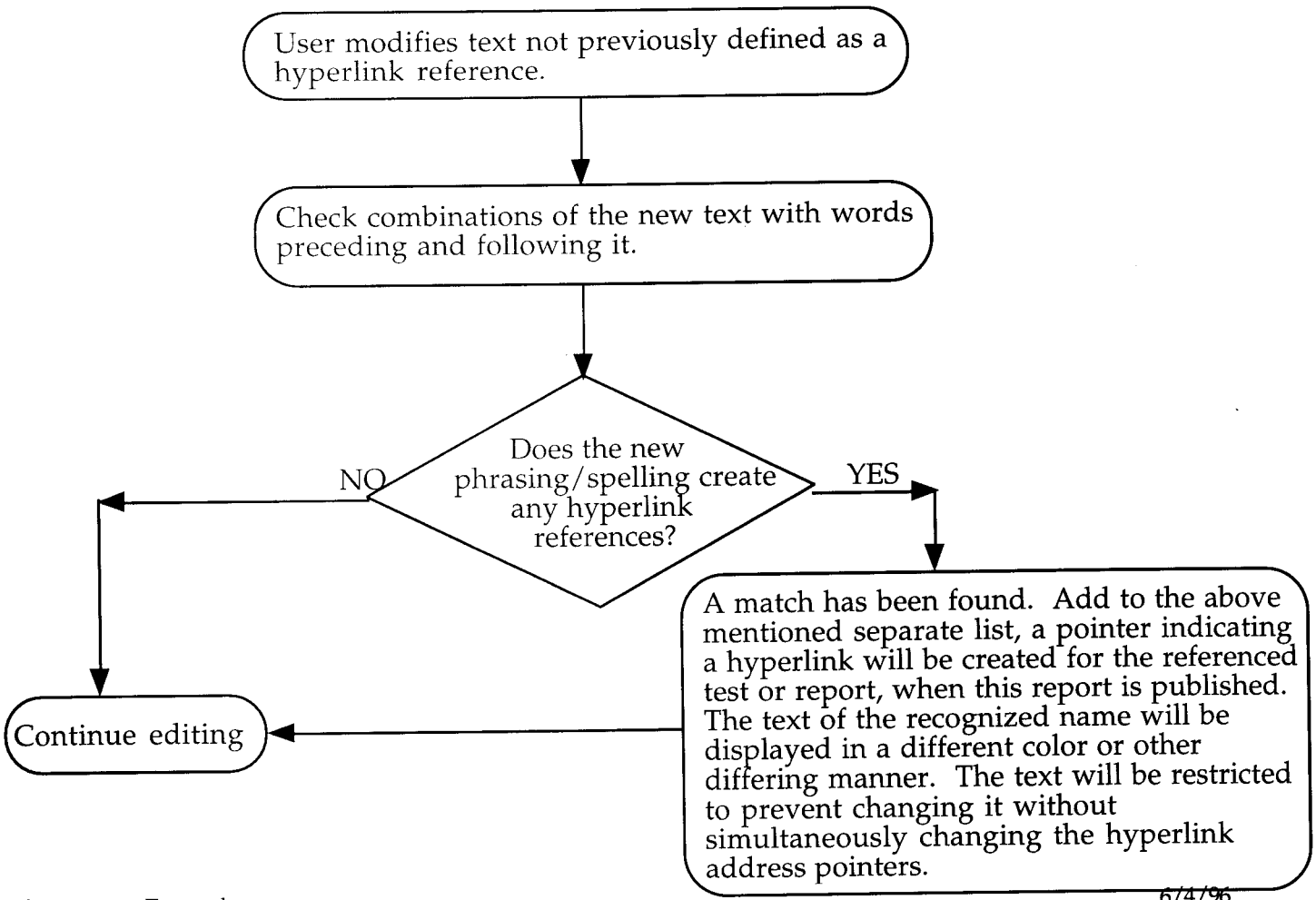


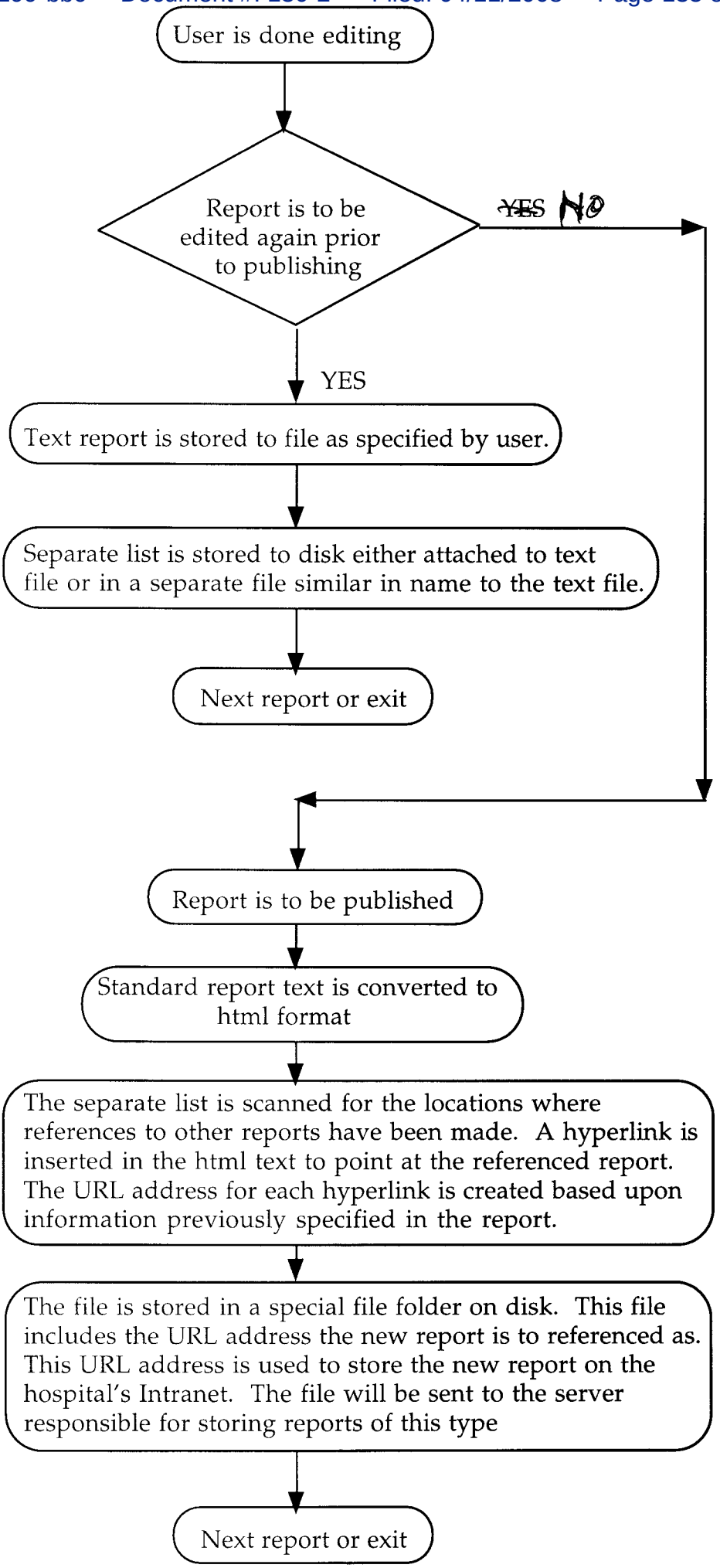
A match has been found. Add to the above mentioned separate list, a pointer indicating a hyperlink will be created for the referenced test or report, when this report is published. The hyperlink will point to the file containing the referenced report. A sample address for a complete ecg report recorded on 14-May-96 at 2:35 pm is:

"hww.st_mary.springfield/ecg/report/987654321/
14_May_1996/14:35".

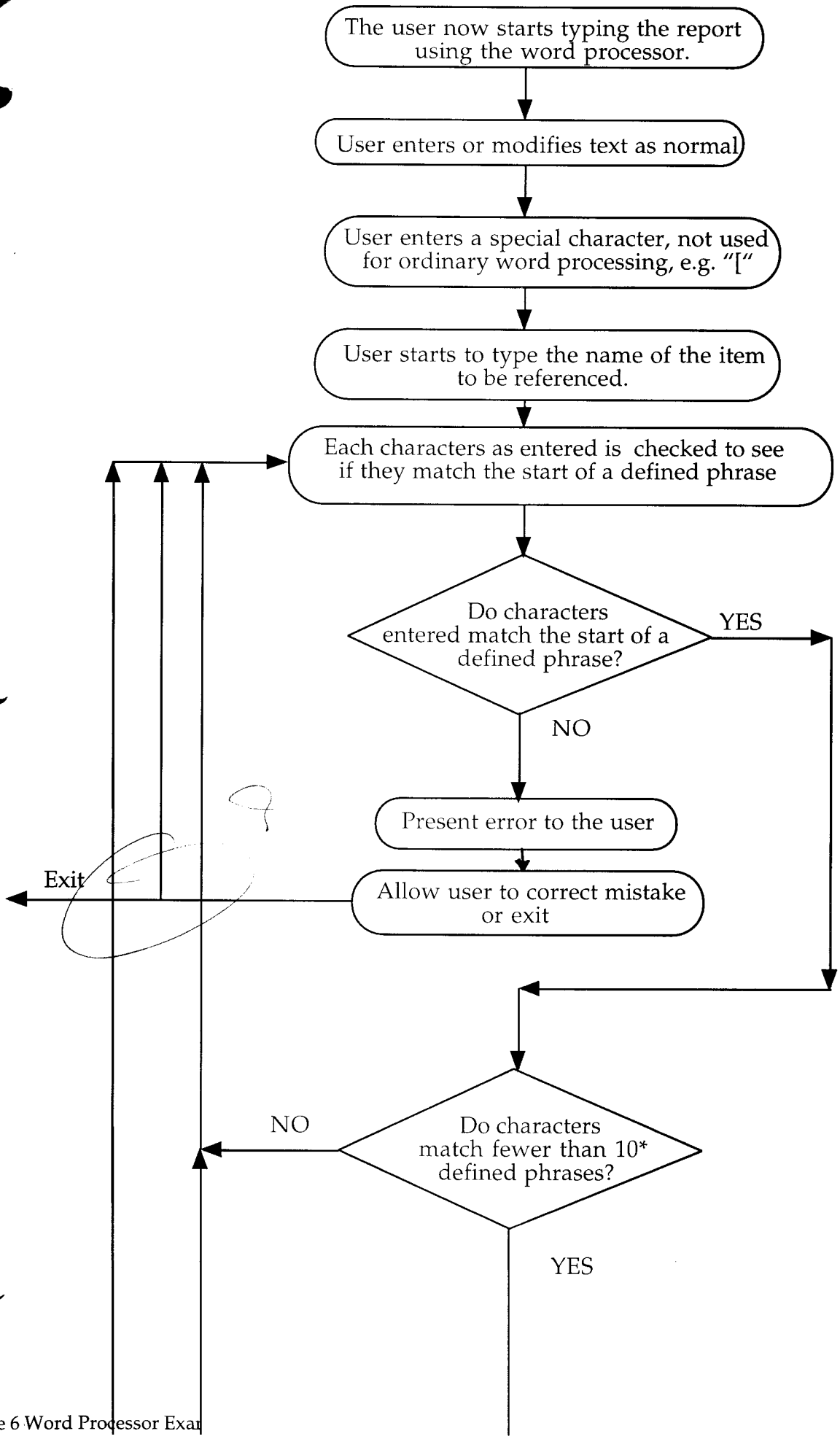
The text of the recognized name will be displayed in a different color or other differing manner. The text will be restricted to prevent changing it without simultaneously changing the hyperlink address pointers.


User modifies text in previously defined hyperlink reference.
Does the new phrasing/spelling create a different hyperlink reference
NO
YES
The hyperlink reference that existed has been erased. Change all text the had been colored or otherwise distinctly formatted to appear the same as the rest of the text.
Remove the pointers from the separate list that a hyperlink was to have been created here.
Modify text that has been colored or otherwise distinctly formatted to include the changes made. Modify the pointers in the separate list to indicate a different hyperlink is to be made

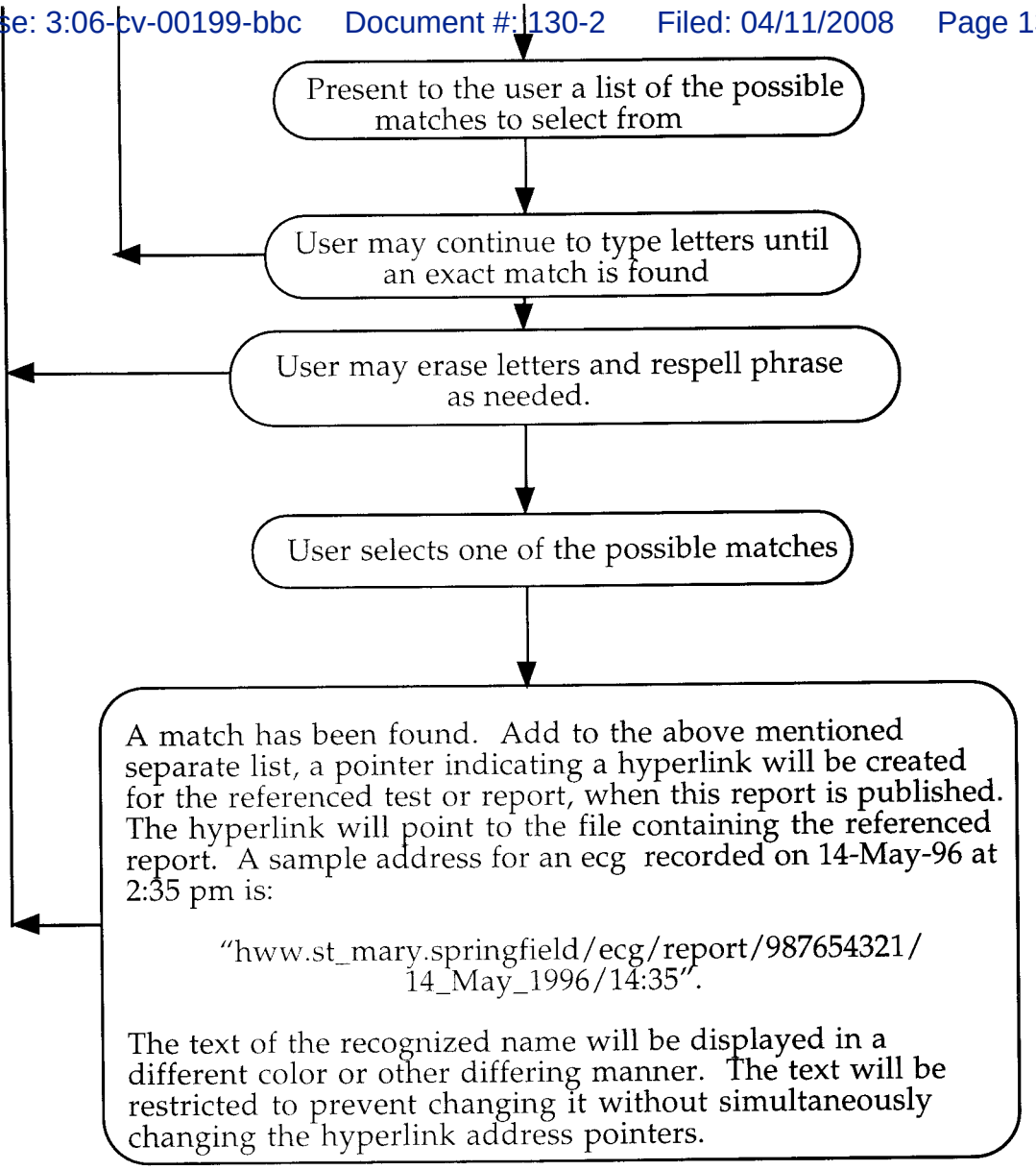

User modifies text not previously defined as a hyperlink reference.
Check combinations of the new text with words preceding and following it.
Does the new phrasing/spelling create any hyperlink references?
NO
YES
Continue editing
A match has been found. Add to the above mentioned separate list, a pointer indicating a hyperlink will be created for the referenced test or report, when this report is published. The text of the recognized name will be displayed in a different color or other differing manner. The text will be restricted to prevent changing it without simultaneously changing the hyperlink address pointers.


User is done editing
Report is to be edited again prior to publishing
YES NO
YES
Text report is stored to file as specified by user.
Separate list is stored to disk either attached to text file or in a separate file similar in name to the text file.
Next report or exit
Report is to be published
Standard report text is converted to html format
The separate list is scanned for the locations where references to other reports have been made. A hyperlink is inserted in the html text to point at the referenced report. The URL address for each hyperlink is created based upon information previously specified in the report.
The file is stored in a special file folder on disk. This file includes the URL address the new report is to referenced as. This URL address is used to store the new report on the hospital's Intranet. The file will be sent to the server responsible for storing reports of this type
Next report or exit

Example using a special leading character



* user selectable limit


Present to the user a list of the possible matches to select from
User may continue to type letters until an exact match is found
User may erase letters and respell phrase as needed.
User selects one of the possible matches
A match has been found. Add to the above mentioned separate list, a pointer indicating a hyperlink will be created for the referenced test or report, when this report is published. The hyperlink will point to the file containing the referenced report. A sample address for an ecg recorded on 14-May-96 at 2:35 pm is:
"hww.st_mary.springfield/ecg/report/987654321/14_May_1996/14:35".
The text of the recognized name will be displayed in a different color or other differing manner. The text will be restricted to prevent changing it without simultaneously changing the hyperlink address pointers.

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Example of a general purpose brochure customized for each patient using an hospital Intranet and standardized URL addressing

Preliminary Formatting:

The text of standard printed brochure relating to patient care is converted to html format.

Each diagram, picture, or graphic is converted to a jpeg, gif, or other format compatible with being displayed by a software browser.

Graphics that are unique to the brochure are given a network URL address. They will be retrieved when the brochure is displayed from a hospital Intranet. A sample URL would be:

"hww.st_mary.springfield/brochures/heart_occlusion/clogged_artery.jpeg"

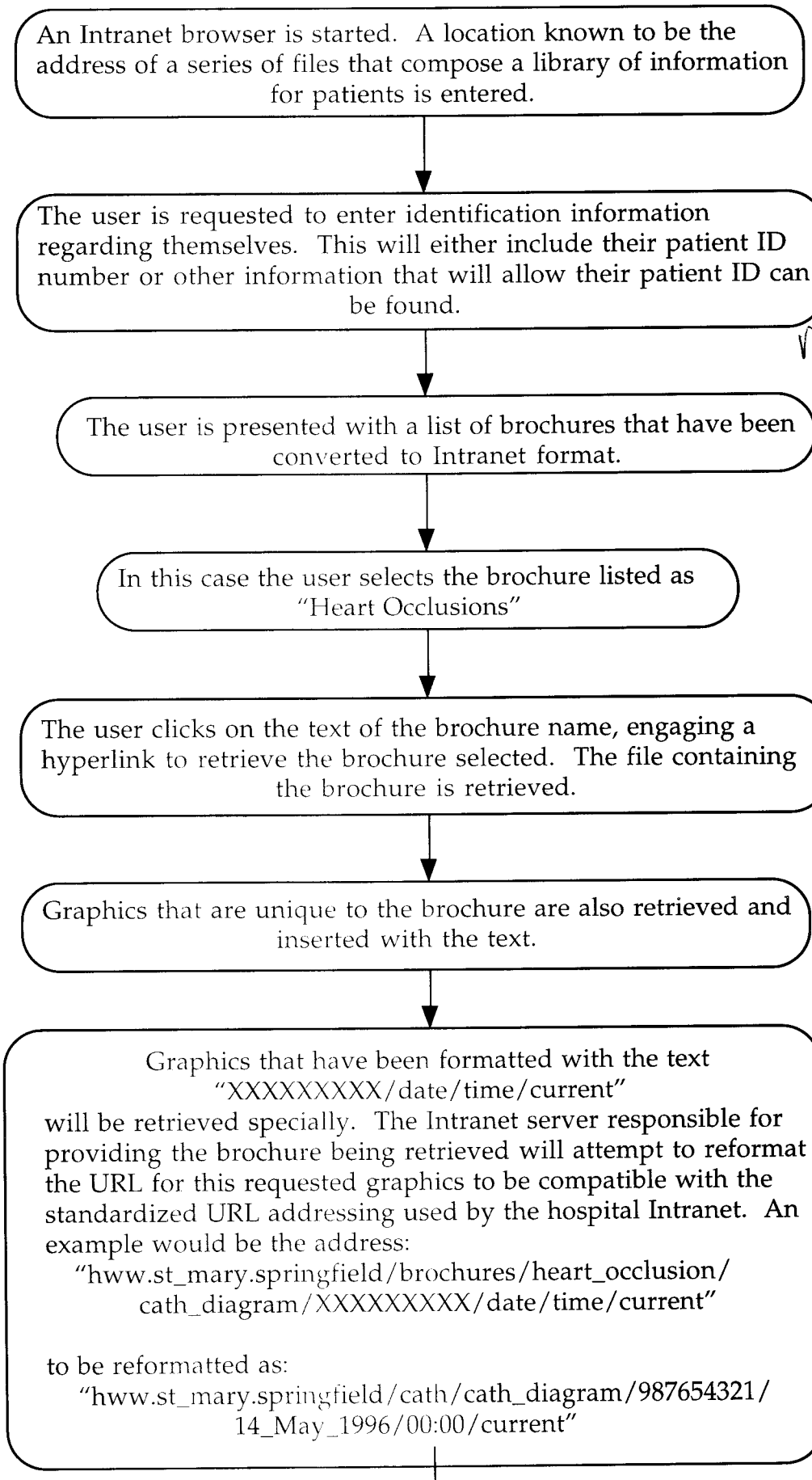
for a drawing of a clogged artery in a brochure relating to coronary artery occlusions.

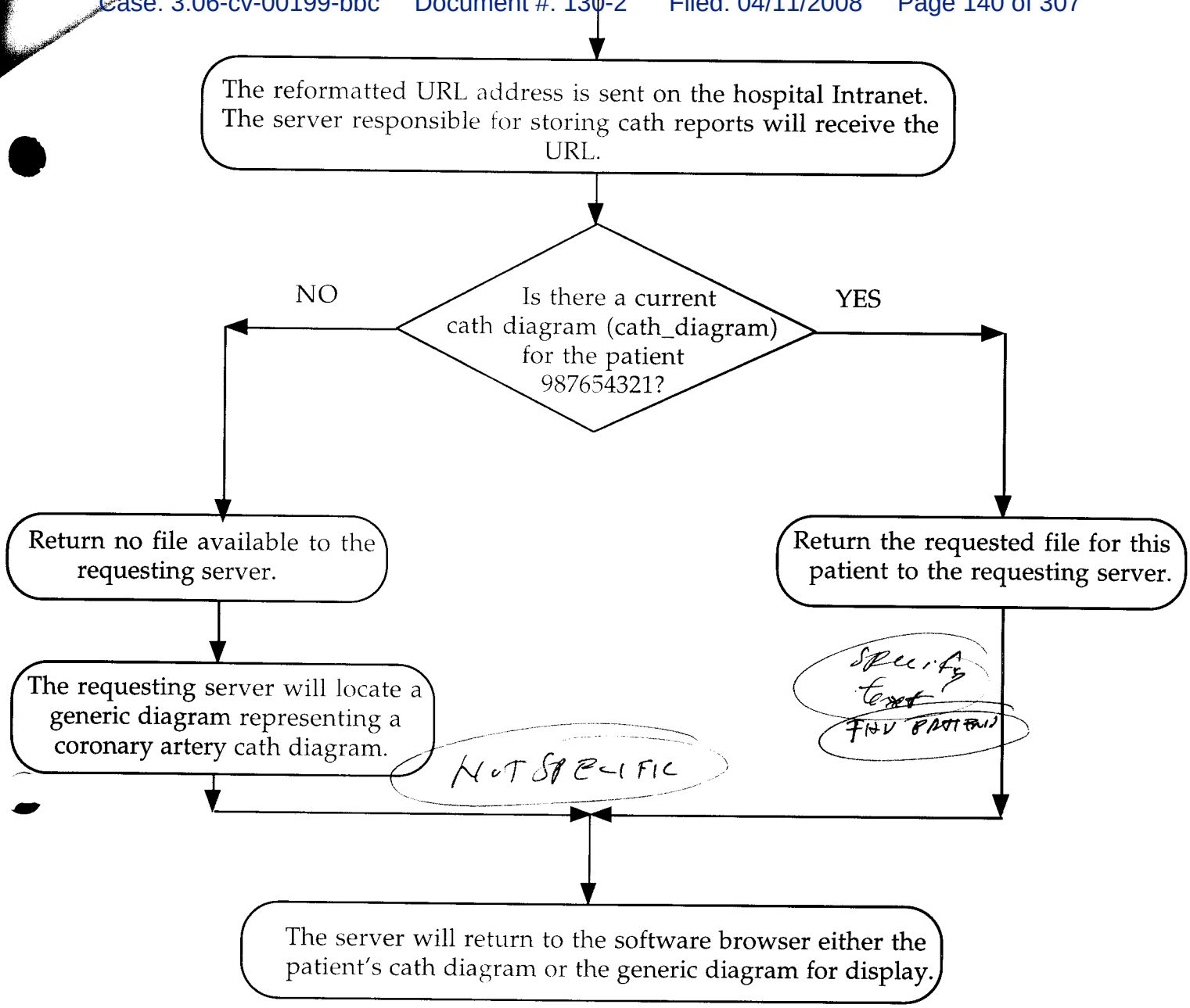
Graphics that can be replaced with the similar graphics from each patient's file will be given a special URL. An example would be:

"hww.st_mary.springfield/brochures/heart_occlusion/cath_diagram/XXXXXXXXX/date/time/current"

The text XXXXXXXXX is to be replaced by the patient's ID number. The date and time would be replaced by the current date and time whenever this brochure is viewed.

...iewing Brochure with a Browser:




The reformatted URL address is sent on the hospital Intranet. The server responsible for storing cath reports will receive the URL.
Is there a current cath diagram (cath_diagram) for the patient 987654321?
NO
YES
Return no file available to the requesting server.
Return the requested file for this patient to the requesting server.
The requesting server will locate a generic diagram representing a coronary artery cath diagram.
The server will return to the software browser either the patient's cath diagram or the generic diagram for display.

APPENDIX A-3

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

Appendix A-3

U. S. Patent No. 5,903,889	**Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference**
1. A computer system with a plurality of data records on a plurality of databases, and a standardized format for addressing said data records, said computer system comprising:	It is my understanding that it is incorrect to combine references in an anticipation argument. Here, Croft is attempting to combine Graham with other references such as the Thistlewaite and Hall references. As such, this is not an anticipation argument. In addition, even if taken in combination, these references do not render the claims of the '889 patent invalid.
(a) a user interface having an interactive display program for requesting one of said data records and displaying a plurality of interface supported data formats;	
(b) means for receiving a reference to a first data record from said interactive display program;	
(c) means for retrieving said first data record;	
(d) means for parsing said first data record to identify a reference to a second data record;	Graham is a series of definitions and grammatical structures for a programming language called HTML. As such, Graham does not describe parsing a first data record to identify a reference to a second data record.

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U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	Assuming that a hyperlink reference, as presented in Graham can be used to retrieve another record, there is no indication that either the textual representation of a first data record or the html coded version of the first data record is parsed for any purpose. Graham does not indicate that any parsing is done to locate a reference to a second record. Croft incorrectly ascribes a parsing feature to Graham. The statement that Croft quotes from Graham is as follows: "You can write simple HTML documents and view them with a WWW browser, such as Mosaic, MacWeb, lynx, Cello, or Netscape . . . . ***Browsers understand HTML hypertext anchors and the URLs they contain*** . . . ." [HTML Sourcebook at xii (emphasis added).] "Within this document there is a hypertext reference containing a partial URL: `<A HREF="stuff.html"> anchor text </A>` Graham does not discuss parsing a first data record to recognize a reference to a second record. In fact, Graham is completely silent regarding the word parsing or anything like parsing. To the extent that Croft is implying that a browser (as opposed to Graham) parses the underlying HTML program codes to locate an existing anchor hyperlink reference starting with the text "<a href=…" this is not clearly not "parsing a first data record to identify a

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U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	reference to a second record" in accordance with the '889 patent. The Federal Circuit in its Dec. 26, 2007, ruling stated that a "data reference" is: "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Furthermore, Section G of the '889 patent titled "Parsing to Locate Data References" states at col. 16, ll. 37-43, that one can "… search for data references in the form of key words or key phrases (step 820). A key word or phrase is a recognized text string that is to be converted into a hypertext link. As an example, the data reference indicated by the phrase, "Admission ECG," can be converted (steps 828, 830) into the following hypertext link: Admission ECG." This clearly specifies that a "data reference" which is parsed must be in the form of keywords or key phrases in the text of a record. In accordance with the Federal Circuit's ruling, we also know that a data reference is the same concept as a unique phrase or word. It follows that what a keyword or phrase is not is a hidden tag, hidden markup language codes, or hidden programming codes. The Federal Circuit did not construe a "data reference" to encompass hidden codes. Every discussion of "data reference" employed by the Federal Circuit refers to text that an ordinary person is intended to read when viewing a record on a browser screen. For example, the

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U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	Federal Circuit referred to Fig. 14C as "a conventional text document" and identifies the text "Catheterization Reports". The Federal Circuit did not refer to the hyperlink anchor tags "<a href=…" shown in Fig. 14D as a "data reference." If the Federal Circuit had wanted to conclude that hidden programming tags were a data reference, it had the opportunity to do so. Croft errs in trying to combine Graham with the operation of a browser and he cannot demonstrate that either of them taken individually or in combination parses a first data record to identify a reference to a second data record because the reference must be in "conventional text," i.e., text that is intended to read by a viewer of the first record. In none of these descriptions are hidden programming codes analyzed or to be analyzed. In fact, the patent teaches *away* from using such hidden programming codes as it can be detrimental for a physician to see the text DR "ECG" and then not have any idea what modifier reference information is used in a hidden programming code. For example, the physician would not know what date is being associated with the "ECG," if it were hidden. Inherently, the physician would not trust such a system and from a printed copy of a medical report that included with the DR "ECG," the reader would have not the context to determine why the DR "ECG" was being identified. Regarding Enablement and Definiteness for Parsing Means: In Croft's Supplemental Expert Report, Appendix C-2, p. 3, he states: "The corresponding structure for this element [for claim element (d)] is a generic, black box program that parses incoming data records. *See* '889 patent, col. 8, ll. 37-40. The details of the parser are not adequately disclosed in the specification." Figure 1 shows hospital computer network 100, including Data Translation and Collection

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U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	System 110. Data Translation and Collection System 110 is used throughout the patent to perform various software steps as shown in Figs. 5A – 5F, Figs. 12A – 12 C, Figs. 13A – 13C, and Figs. 15A – 15B. The Brief Description of the Drawings section states, for example, at col. 5, l. 66 to col. 6, l. 4: "FIGS. 13A-13C are a functional flow chart showing the steps by which the data translation and collection system processes a data record received or retrieved from a workstation or database system on the medical computer network, reformat the data record, assign it a URL address, and deliver it to a database for storage." (emphasis added) The '889 patent also states in col. 9, ll. 19 – 23: "FIGS. 13A-13C set forth an alternate embodiment of the operation of the data translation and collection system 110 (FIG. 1) with particular reference to receiving, translating, and formatting data records to facilitate access through browsers and hypertext links for future users." Step 654 of Fig. 13A refers to the action of "PARSE Record" which is performed for example by data translation and collection system 110. The exact steps to parse a record are shown in Figs. 15A – 15B and in col. 16, ll. 27-36: FIG. **15**A illustrates how a data record is parsed. A data record is parsed to locate data references by searching it for text corresponding to a hypertext link or a multimedia data request. If one is found, the URL is located after the initial control sequence and will be saved (step **812**) for use after the parsing is completed. If none are found, or when the record has been completely parsed, another pass can be made to search for data references in the form of key words or key phrases (step **820**). The means for parsing is the data translation and collection system 110 performing a series

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U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	of comparisons and matches steps as is well-known to one of ordinary skill in the art. Croft has failed to reference sub-section G. Parsing to Locate Data references at col. 16, ll. 27-59 and Figs. 15A and 15B (the entire figures) of the '889 patent, which explains how text (not computer code) in a data record is parsed. Col. 16, ll. 27-36 of the '889 patent states: FIG. **15**A illustrates how a data record is parsed. A data record is parsed to locate data references by searching it for text corresponding to a hypertext link or a multimedia data request. If one is found, the URL is located after the initial control sequence and will be saved (step **812**) for use after the parsing is completed. If none are found, or when the record has been completely parsed, another pass can be made to search for data references in the form of key words or key phrases (step **820**). This section explains how text is recognized in a first data record and how it can be converted into a hyperlink to be used to retrieve a second data record. This section shows a sample address computed to retrieve an "Admission ECG" and the corresponding HTML programming codes that are added to the first record according to Step 600 of Fig 12C as described in col. 9, ll. 7-11. Parsing a data record is also discussed in Figs. 13A and 13B of the '889 patent. In addition, as is well-known to one of ordinary skill in the art, parsing was a well-known concept in the 1995 time frame. The Federal Circuit had no difficulty with the concept of parsing a record. They frequently referred to Fig. 14C-E, identifying in the decision that the text "Catheterization Reports" is recognized. For example, an initial record is shown in Fig. 14C prior to modification. As discussed, this record example is a conventional text document that is without additional program codes. In short, Croft is completely wrong when he states that the '889 patent uses a generic, black

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U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	box program that parses incoming data records and that details of this parser are not adequately disclosed in the specification. To the extent that any component is missing from the specification, which is not the case, a person of ordinary skill in the art would be able to understand from the '889 patent what is needed to implement this invention. If there is any lack of clarity, it has to be in Croft's presuming to show that Graham teaches this element of the claim with or without combining the secondary reference, Netscape Navigator. No description has been provided by Croft other than vague and misleading screen shots that provide no details whatsoever as to the intent or operation related to them.
(e) means for modifying said reference to said second data record to create an address, said address being operable to retrieve said second data record; and	The Graham reference does not teach "modifying said reference to a second record to create an address". Graham does not discuss the modification of an existing record after it has been retrieved from a database. Instead, Graham merely provides HTML programming code definitions and grammar. Page 21 of Graham states: "Anchors The third paragraph in ex2a.thml shows a hypertext link. The form is straightforward: <A HREF="ex2a.thml"> hypertext links </A> The element marking a hypertext link is call an A, or anchor, element, and the marked text is referred to as a *hypertext anchor*. The area between the beginning <A> and the ending </A> tags becomes a *hot* part of the text. Within Mosaic or MacWeb, this section of text is displayed with an underline and usually in a different color (often blue), while with lynx, this region of text is displayed in bold characters. Placing the mouse over the region and clicking the mouse button, or, with lynx, using

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	the tab key to move the reverse-video region to lie over the hot part and pressing the return, causes the client to access the indicated document or other Internet resource." Completely absent from Graham is any discussion of modifying a record to create an address. It only indicates that a hyperlink reference anchor can be distinguished on a screen presentation and if activated by pressing a return button causes "the client to access the indicated document or other Internet resource." It is completely silent on the subject of computing any address and *teaches away* from modifying any address. The address of the indicated document must already exist, in this case "ex2a.html," which Graham says is a partial URL, as further explained on Page 22: "Partial URLs The *target* of the *hypertext* link is indicated by the *anchor* attribute HREF, which takes as its value the URL of the target document or resource. AS mentioned in the Introduction, a URL is a text string that indicates the server protocol (HTTP, FTP, WAIS, etc.) to use in accessing the resource, the Internet Domain Name of the server, and the location and name of the resource on that particular server. Obviously, the HREF attributes in Figure 1.4 do not contain all this information! These URLs are examples of *partial* URLs, which are a shorthand way of referring to files or other resources *relative* to files or other resources relative to the URL of the document being currently viewed." Croft refers to the concept of a partial URL. However, the partial URL is merely a shorthand or an abbreviation for a complete URL, which is an address that has been fully defined by the HTML programmer prior to sending the initial record so it can be retrieved. The programmer is merely stating for the portions of the address he has abbreviated that one can

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	substitute either the implied base address of the source of the initial record or use the implied base address he has already provided in the HTML code. The section that Croft quotes from Graham *teaches away* from any record modification. He quotes from Chapter 3 Uniform Resource Locators (URLs) which is primarily discussing the correct syntax for a URL, as opposed to forming a hyperlink reference. It states: Where is this file? From inside **file.html**, any information not present in a URL reference is considered the *same* as that used to access the current document. Thus, the partial URL `stuff.html` is transformed into a full URL by appropriating the missing information from the URL used to access file.html. The completed URL is then: `http://www.stuff.edu/main/docs/stuff.html` which indicates, as expected, that **stuff.html** is on the same server and in the same directory as file.html." [HTML Sourcebook at 167-68.] This text specifically states that a partial address is "transformed" (using Graham's phrasing) from an abbreviated address to the full address. Graham is completely silent on when this transformation should occur. However, what is exceptionally clear is that Graham never discusses any change or modification to the initial record to create an address to retrieve a second record, as required by this claim element. Croft while studying Graham has overlooked Chapter 1, "Introduction to the Hypertext Markup Language." In this chapter, we find another pertinent and much longer section titled

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	Partial URLs on Pages 22 to 26. In no part of this section do we find any evidence that Graham discusses or even intends that the initial record be modified in any way. This section states, in part, on Page 23: **As mentioned, the anchor** **<A HREF="ex2a.thml"> hypertext links </A>** **Uses a partial URL, which refers to locations relative to the URL of the document itself. This partial URL idea is great news, because it means that you need not specify entire URLs for simple relative links between files on the same computer. Instead, you need only specify their position on the file system relative to each other, as was in Figure 1.4"** The partial URL merely makes the programmer's job much easier, especially in the early days of HTML programming where many programmers coded HTML using a simple HTML editor, such as Microsoft NotePad or the like. Having to type long file or resource names is cumbersome to accomplish without typographical errors. Abbreviated names were much easier to ensure that they were entered correctly. Also, partial URLs allowed a programmer to move folders with multiple HTML files to different disks or web sites without concern for having to change every URL to include the name of the new computer, disk, or server. Croft cannot show any example in Graham where a first data record is to be modified by a browser. Lacking this, the elements of this claim section where an address is created are also missing. Additional discussion of this is provided below.

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	It is clear that, even if Graham indicates that the initial record is modified, which it does not, no address is created. The partial URL is only an abbreviation for the complete address which must be completely specified by the HTML programmer in order for the programmer-inserted hyperlink reference to operate properly, according to Graham. In Croft's Supplemental Expert Report, he shows an example of a web page ("file.htm") as shown when displayed by a browser: **Croft example showing the HTML web page "file.html" as displayed by a browser** [Netscape Navigator Ver. 1.22 – Viewing **file.html**.] He also shows the same web page, but with all the HTML codes visible using the simple HTML programming editor Notepad:

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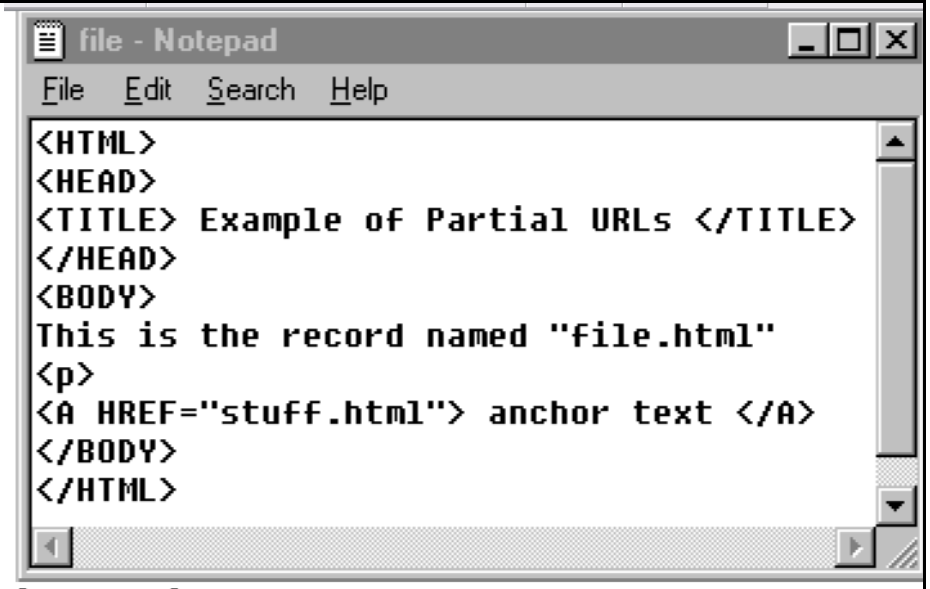
Croft example showing the HTML web page "file.html"as displayed by a simple HTML editor



[**File.html**.]

It should be noticed that Croft cannot show any change to the initial record, in this case, the file named "file.html", because it is not changed.

Instead, Croft shows the web page when a cursor is placed over the text "anchor text". He attempts to construe the text box in the lower portion of the web browser window showing the unabbreviated address as an example of an address that has been created, when, in fact, the address was created by the programmer *before* the web page was sent to the browser. What we see in the lower text box is at most the transformed version of the abbreviated address to a complete address for display. In fact, there has been absolutely no change to the

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U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	initial record (the web page). Graham's HTML Sourcebook is 416 pages long with multiple figures showing at least 10 different browsers (including Lynx, Cello, MacMosaic, Air Mosaic, Mosaic for X-Windows, MidasWWW, MacWeb, WinWeb, WinMosaic, and MosaicWindows) in use. Graham never discusses the presentation of the "transformed" abbreviated address into the complete address. Croft's inclusion of information related to a Netscape browser is beyond the Graham reference and is a disguised attempt to argue obviousness and not anticipation. Furthermore, there is no indication that, even if the Netscape browser is considered individually or in combination, there is any change to the initial record. I have conducted the same experiment where Croft purports to show the initial record is modified with an address that is created. I have created the same web page that Croft presented using the following text:

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U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	<HTML> <HEAD> <TITLE> Example of Partial URLs </TITLE> </HEAD> <BODY> This is the record named "file.htm" <p> <A HREF="stuff.htm"> anchor text </A> </BODY> </HTML> by employing the simple HTML program editor Notepad. A screen shot of the text in Notepad is shown below:

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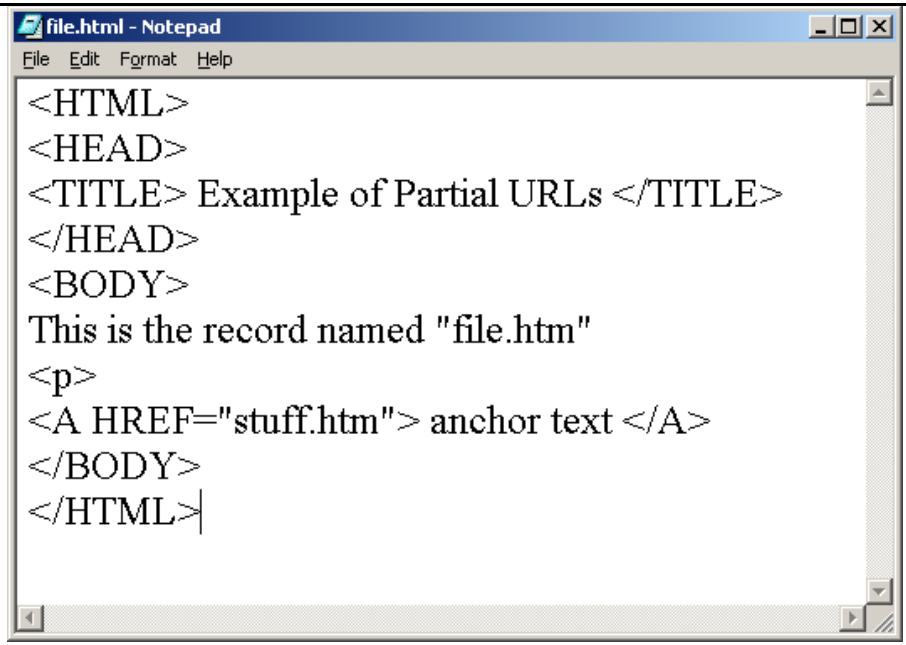
U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	Croft example showing the HTML web page "file.html"as displayed by a simple HTML editor  The text was then stored using the name "file.html" and retrieved using the *same* Netscape Navigator Ver. 1.22 that Croft used. This revealed the following screen display:

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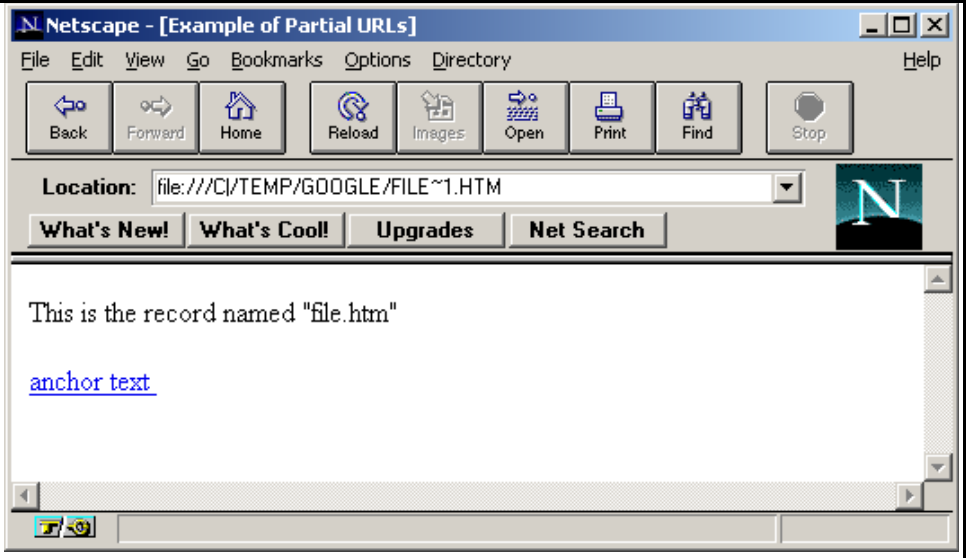
U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	Croft example showing the HTML web page "file.html" as displayed by a browser  I then used the "View" and "Source" menu selections of the Netscape Navigator browser

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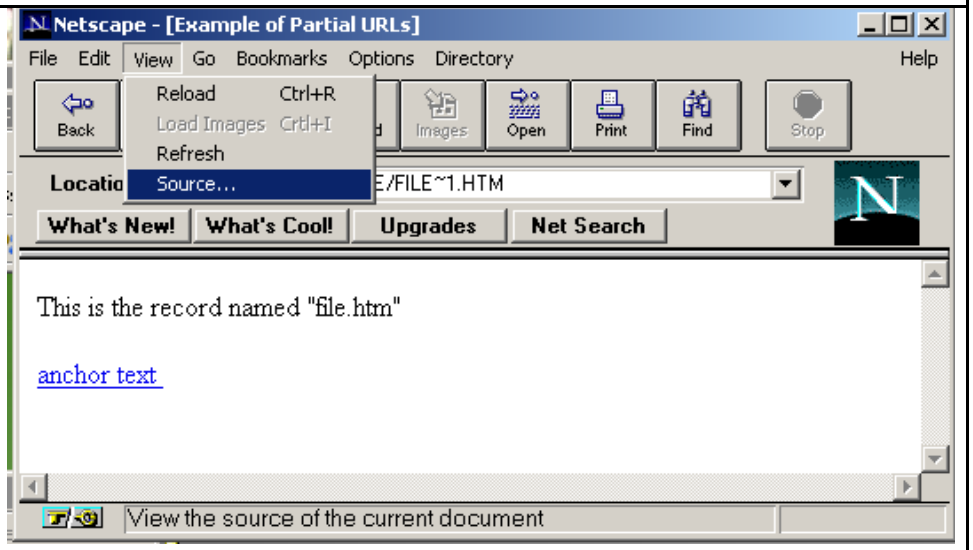
U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	Activating the Netscape browser "View" and "Source" menu selections  to reveal the source code as loaded by the browser which revealed exactly the same text as provided to the browser – *without any modifications or changes.*

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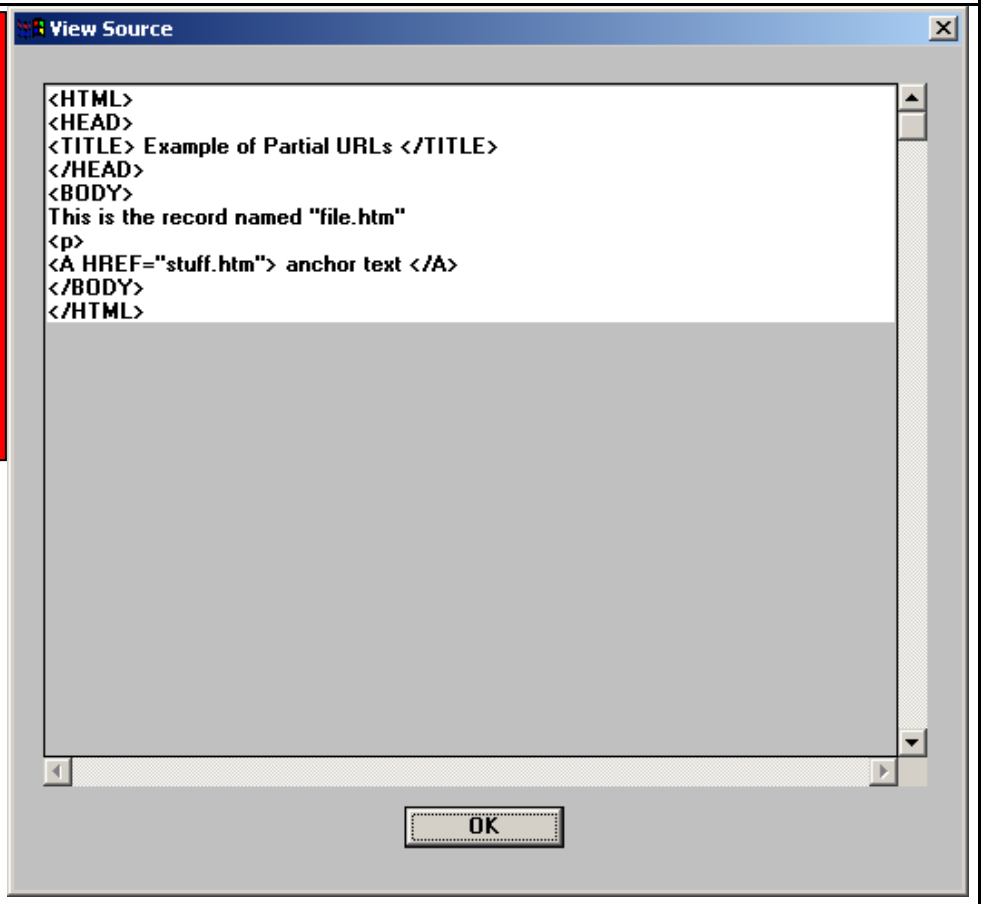
U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	Netscape browser revealing html code the browser used to present the page with no changes from the original text of "file.html"  I also tried the same experiment using a more modern browser, the Microsoft Internet

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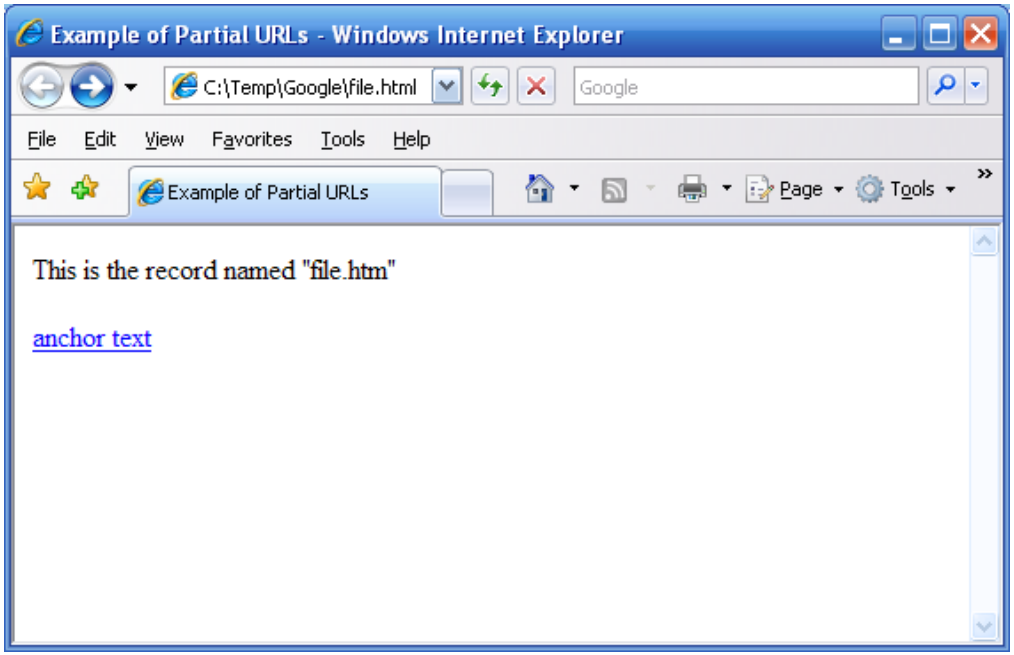
U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	Explorer Ver. 7.0.5730.11. While this Browser version was not available in 1996, portions of its operation are still illustrative of how a browser worked even in the 1995-1996 era. Below is a screen shot of "file.html" as displayed by Internet Explorer  Next the "View" and "Source" menus are selected:

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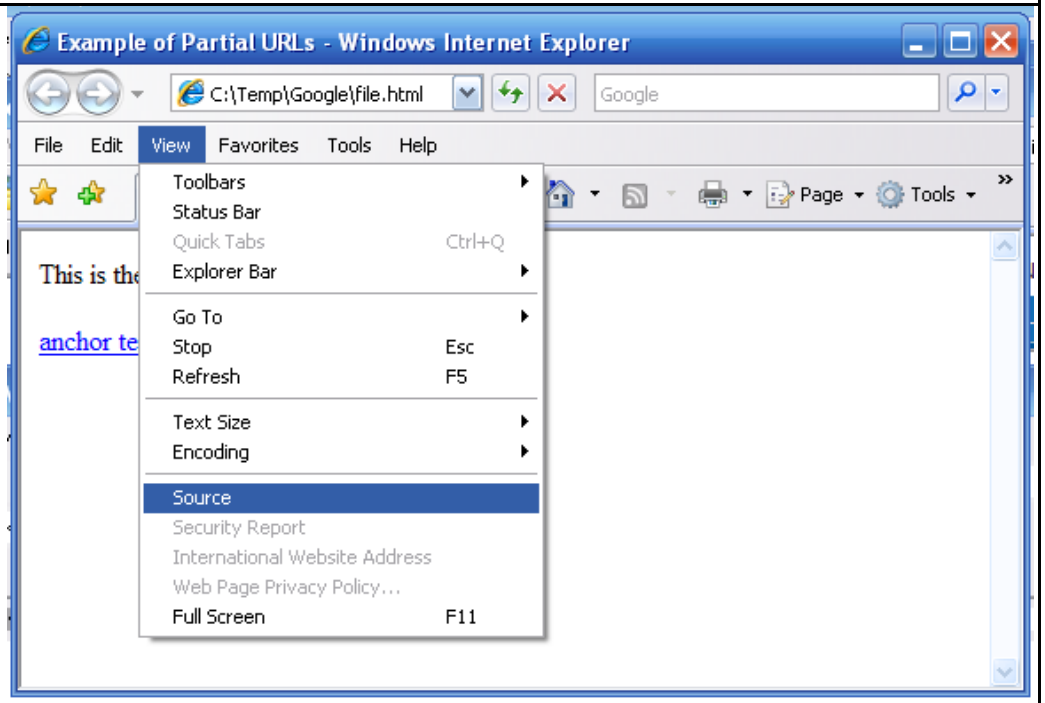
U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	 Which reveals the HTML programming codes in the simple HTML programming editor Notepad:

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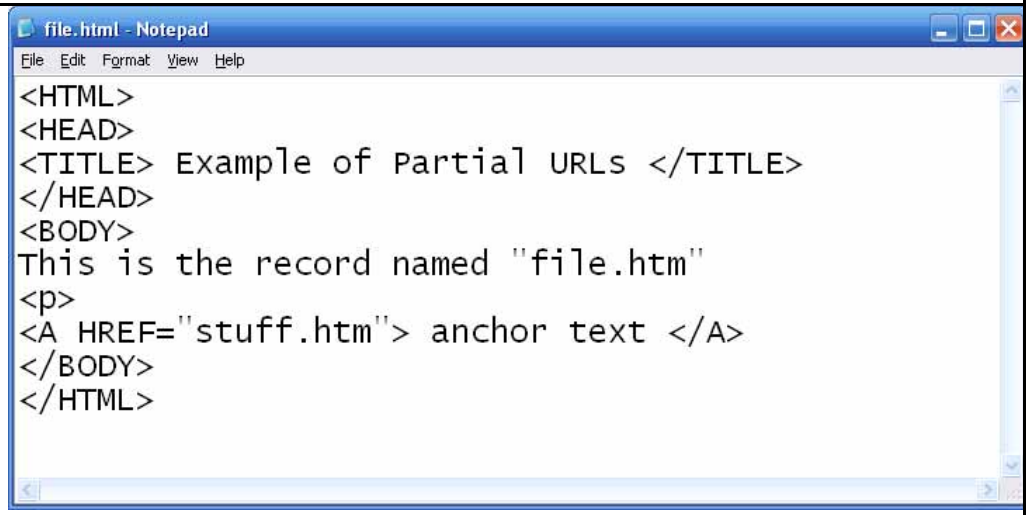
U. S. Patent No. 5,903,889	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	 However, Croft has alleged that the HTML code may have been modified by the browser after it was loaded. To research this, I have used an Internet Explorer add-on program called Instant Source V. 1.46 from Blazing Tools Software. This add-on reveals the HTML code that a browser actually uses after it may have been modified by other add-on programs or further interactions with the Internet, using techniques *not* described in Graham. For example, HTML code can be modified by cascading style sheets (CSS) by external javascript files that are loaded after the original html coded web page has been loaded or by calls to remote server services. When Instant Source is activated, the following information is presented in the web page. :

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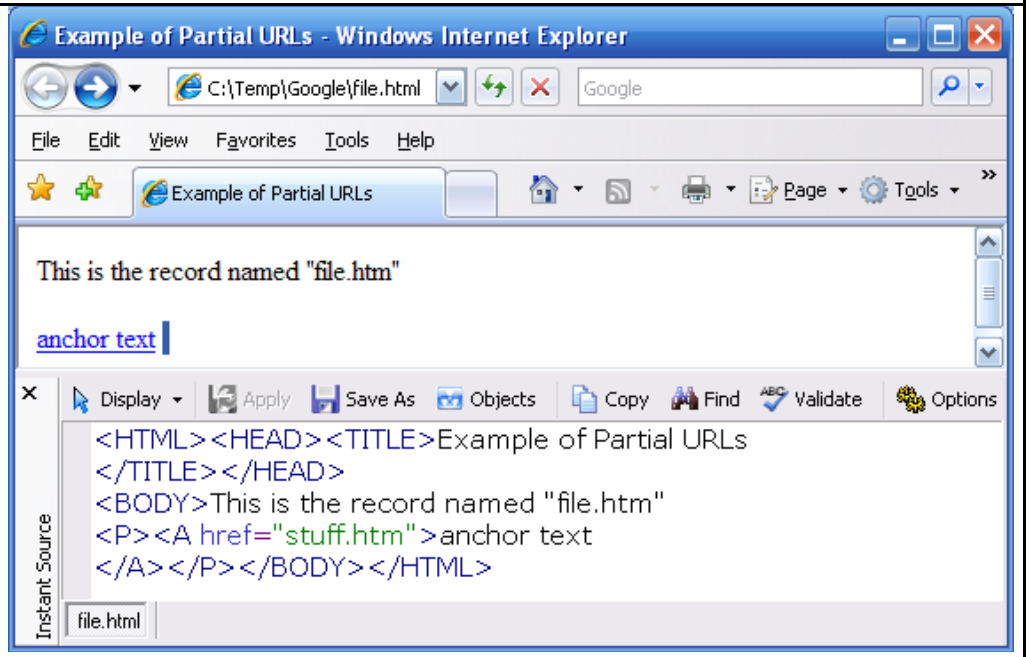

As shown here, the original HTML code has not been modified in any way.

The Instant Source add-on also has a mode of operation called “Selected Text”, which when activated selectively shows the current state of text that has been selected by passing the cursor over it. When the texts “anchor text” has been selected, the “Selected Text” feature displays:

<P><A href="stuff.htm">anchor text </A></P>

This is exactly the same text as provide by the original file “filt.html” because Graham does

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	not teach modification of data records and Netscape Ver. 1.22 did not do it either. In addition, the Federal Circuit has ruled that a "data reference" (DR) is "… a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Hence, it is my understanding that in order to show anticipation, Croft must also show that Graham intended the target of a hyperlink to be capable of referring to not just a single record, but "to refer to more than one record". Again, Graham is completely silent on this issue. We can see from Croft's own example that when the hyperlink "anchor text" is activated, the target file is retrieved.

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	 [Navigator – After user has traversed hyperlink to file stuff.html.] Clearly, the retrieved file is a single record only with no capability to refer to more records, as required by the Federal Circuit when it ruled "… that a data reference may refer to one or more than one record." It is my understanding that any anticipation argument needs to show all the elements of the claim at issue which implies that the any prior art example must show not only a data reference that refers to a single second data record, but also teach a data reference that could refer to multiple data records. Regarding Enablement and Definiteness for Modifying Means:

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	In Croft's Supplemental Expert Report, Appendix C-2, p. 4, he states: "The corresponding structure [for claim element (e)] is a generic, black box program that modifies the reference in the first record. *See* '889 patent, col. 9, ll. 1-11. The details of this program are not adequately disclosed in the specification." Figure 1 shows hospital computer network 100, including Data Translation and Collection System 110. Data Translation and Collection System 110 is used throughout the patent to perform various software steps as shown in Figs. 5A – 5F, Figs. 12A – 12 C, Figs. 13A – 13C, and Figs. 15A – 15B. The Brief Description of the Drawings section states, for example, at col. 5 l. 66 to col. 6, l. 4: "FIGS. 13A-13C are a functional flow chart showing the steps by which the data translation and collection system processes a data record received or retrieved from a workstation or database system on the medical computer network, reformat the data record, assign it a URL address, and deliver it to a database for storage." (emphasis added) The '889 patent also states in col. 9, ll. 19 – 23: "FIGS. 13A-13C set forth an alternate embodiment of the operation of the data translation and collection system 110 (FIG. 1) with particular reference to receiving, translating, and formatting data records to facilitate access through browsers and hypertext links for future users." Step 684 of Fig. 13A refers to the action of "Use Hypertext Cipher 138 to add hypertext links and other data references". This action results in the text record of Fig. 14C being modified to become the HTML tagged version shown in Fig. 14D and displayed by a browser in Fig. 14E.

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	The means for modifying is the data translation and collection system 110 which in response to a series of comparisons and matches steps adds hyperlink anchor start and end tags to modify the record so that it becomes HTML tagged as is well-known to one of ordinary skill in the art. Croft has failed to reference sub-section G. Parsing to Locate Data references at col. 16, ll. 27-59 and Figs. 15A and 15B of the '889 patent, which explains how text is recognized in a first data record and can be converted into a hyperlink to be used to retrieve a second data record. This section shows a sample address computed to retrieve an "Admission ECG" and the corresponding HTML programming codes that are added to the first record according to Step 600 of Fig 12C as described in col. 9, ll. 7-11. The Federal Circuit had no difficulty with the concept of parsing a record. They frequently referred to Fig. 14C-E, identifying in the decision that the text "Catheterization Reports" is recognized. For example, an initial record is shown in Fig. 14C prior to modification. As discussed, this record example is a conventional text document that is without additional program codes. In Fig. 14D, the same initial record is shown in a HTML programming environment after basic HTML formatting codes have been added to it (for example "<html>", "</html>", "<body>", or "</body>"). Furthermore, specific text (for example the patient name "Charles F. Smith" and "Catheterization Reports") has been found in the initial record and converted into hyperlinks that can retrieve a demographic report for patient Charles F. Smith and Radiology and Homodynamic Catheterization Reports for the patient.

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	Specifically, the links are in the form of HTML anchor hyperlink references ("<a href"…"). The record has been modified to include the hyperlink program codes using the created addresses (for example "hww.st_mary.springfield/ecg/987654321/ 03may1997/ecg/admission.html") to retrieve the related information for the patient. In col. 16, ll. 37-59, the '889 patent states: A key word or phrase is a recognized text string that is to be converted into a hypertext link. As an example, the data reference indicated by the phrase, "Admission ECG," can be converted (steps 828, 830) into the following hypertext link: Admission ECG. The expression "03may1997" is the date the data record being parsed was created. The patient ID (987654321), the date, and other descriptors are available from steps 200 and 226, or from steps 544 or 560. A wide variety of medical expressions can be recognized as key words or phrases, and appropriate hypertext links created from them. The URL of the hyperlink is saved for later use (step 832). When the entire record has been searched (step 836), the URLs of the located data references are returned to the section of the flow chart that requested the record to be parsed (step 840). In col. 9, ll. 7-11, the '889 patent states: In step 600, the data translation and collection system 110 inserts hypertext links or other references to the selected record in accordance with the hypertext cipher 138 identified in step 548. If directed by the hypertext cipher 138, the record may also be interpreted and modified or reformatted.

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	In short, Croft is completely wrong when he states that the '889 patent uses a generic, black box program that modifies the reference and that this program is not adequately disclosed in the specification. To the extent that any component is missing from the specification, which is not the case, a person of ordinary skill in the art would be able to understand from the '889 patent what is needed to implement this invention. If there is any lack of clarity, it has to be in Croft's presuming to show that Graham teaches this element of the claim with or without combining the secondary reference, Netscape Navigator. No description has been provided by Croft other than vague and misleading screen shots that provide no details whatsoever as to the intent or operation related to them.
(f) means for sending said modified first data record to said interactive display program.	Graham does not discuss sending a *modified* first data record to an interactive display program. Graham only assumes that the original HTML file is sent from a server to a browser with no intervening modification. Croft is at a loss to explain any element of this claim limitation. He can only recite Page 21 of Graham: "The element marking a hypertext link is call an A, or anchor, element, and the marked text is referred to as a *hypertext anchor*. The area between the beginning <A> and the ending </A> tags becomes a *hot* part of the text. Within Mosaic or MacWeb, this section of text is displayed with an underline and usually in a different color (often blue), while with lynx, this region of text is displayed in bold characters. Placing the mouse over the region and clicking the mouse button, or, with lynx, using the tab key to move the reverse-video region to lie over the hot part and pressing the return, causes the client to access the indicated document or other Internet resource."

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	At no point in this text is there any discussion of sending a modified HTML record to an interactive display program. It only recites the well-known practice of a browser allowing a user to click on an identified hyperlink to retrieve a file or Internet resource. Graham is silent on sending modified first data records to a browser. Regarding Enablement and Definiteness for Sending Means: In Croft's Supplemental Expert Report, Appendix C-2, p. 5, he states: "The corresponding structure for this element [for claim element (f)] is a generic, black-box program that sends the modified first data record to the browser. *See* '889 patent, col. 9, ll. 12-15. The details of this program are not adequately disclosed in the specification." Figure 1 shows hospital computer network 100, including Data Translation and Collection System 110. Data Translation and Collection System 110 is used throughout the patent to perform various software steps as shown in Figs. 5A – 5F, Figs. 12A – 12 C, Figs. 13A – 13C, and Figs. 15A – 15B. The Brief Description of the Drawings section states, for example, at col. 5, l. 66 to col. 6, l. 4: "FIGS. 13A-13C are a functional flow chart showing the steps by which the data translation and collection system processes a data record received or retrieved from a workstation or database system on the medical computer network, reformat the data record, assign it a URL address, and deliver it to a database for storage." (emphasis added) Any of the actions specified in the functional flowcharts can be performed by data translation and collection system 110. For example, Step 604 of Fig. 12C states: "Send the desired and translated report to the requesting processor or workstation.

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	The means for sending is the data translation and collection system 110 which after modifying a record sends to another processor or workstation using communication network 112, for example, in response to a web browser request for a record as is well-known to one of ordinary skill in the art. Croft has failed to reference sub-section Figs. 12A through 12C in the '889 patent which explain the steps to be executed by the sending means. As noted in the '899 patent, col. 5, ll. 62-65, the sending means execute the steps described in the Fig. 12A-C: FIGS. 12A-12C are a functional flow chart showing the steps used to receive a request for a data record, translate the request, retrieve the data record, and reformat the data record prior to sending it to its requested destination. In short, Croft is completely wrong when he states that the '889 patent uses a generic, black box program that sends the modified first data record to the browser. To the extent that any component is missing from the specification, which is not the case, a person of ordinary skill in the art would be able to understand from the '889 patent what is needed to implement this invention. If there is any lack of clarity, it has to be in Croft's presuming to show that Graham teaches this element of the claim with or without combining the secondary reference, Netscape Navigator.
7. The computer system of claim 1, wherein said reference to said second data record comprises a keyword phrase.	Claim 7 specifically states that the reference to a second data record must be a keyword phrase. The '889 patent, col. 16, ll. 37-38, states that "A key word or phrase is a recognized text string that is to be converted into a hypertext link."

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	This and the examples shown in Figs. 14C and 7B make clear that the reference to a second data record is a keyword phrase which appears in the text of the record, not in HTML programming codes, i.e., the keyword phrase is text that is presented by the browser and is intended for the user to read. Graham does not discuss a reference to a second record that is a keyword phrase. In fact, Graham is silent regarding data references. The Federal Circuit in its Dec. 26, 2007, ruling stated that a data reference is: "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Furthermore, Section G. of the '889 patent titled "Parsing to Locate Data References" also states in col. 16, ll. 37-43 that the "… search for data references in the form of key words or key phrases (step 820). A key word or phrase is a recognized text string that is to be converted into a hypertext link. As an example, the data reference indicated by the phrase, "Admission ECG," can be converted (steps 828, 830) into the following hypertext link: Admission ECG." This clearly specifies that a "data reference" which is parsed must be in the form of keywords or key phrases in the text of a record. In addition, as the Federal Circuit has ruled,

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	we also know that a data reference is the same as a unique phrase or word. It follows that what a keyword or phrase is not is a hidden tag, hidden markup language codes, or hidden programming codes. The Federal Circuit did not construe a "data reference" to encompass hidden codes. Every discussion of a data reference used by that Court refers to text that an ordinary person is intended to read when viewing a record on a browser screen. For example, the Federal Circuit used Fig. 14C as "a conventional text document" and identifies the text "Catheterization Reports." It did not refer to the hyperlink anchor tags "<a href=…" shown in Fig. 14D as a data reference. If the Federal Circuit had wanted to discuss hidden programming tags as a data reference, it had the opportunity to do so. Croft is incorrect to ascribe to Graham that a keyword phrase is part of the programming codes of a first data record. Even if it were to be considered as a data reference, which it is not, as previously mentioned, it is not modified nor is a modified version with a created address sent to the interactive display program. In none of the descriptions in the ''889 patent are hidden programming codes analyzed or to be analyzed. In fact the '889 patent teaches away from using such hidden programming codes as it can be detrimental for a user, such as a physician, to see the text DR "ECG" and then not have any idea what modifier reference (MR) information is used by accepting a hidden programming code as a MR. For example the physician would not know what date is being associated with the "ECG" if hidden MRs were accepted or for that matter which patient ID number to use to find an ECG. Inherently, the physician *cannot* trust such a system, as any such records shown by a browser could not be legal medical records without clear identification. Similarly a printed copy of a medical report from a browser that included the DR "ECG" would leave the reader without any context to determine why the

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Appendix A-3

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	DR "ECG" was identified, for which patient, or for what time.

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1. A method for identifying a referenced record referenced in a referencing record wherein the referenced record is referenced in the referencing record by at least a combination including a data reference (DR) and a modifier reference (MR), the method comprising the steps of:	Graham does not teach a referencing record having a combination of at least a data reference and a modifier reference. The Graham reference cited by Croft is a series of definitions and grammatical structures for a programming language called HTML. As such, Graham does not describe parsing a first data record to identify a reference to a second data record. Croft merely quotes from Graham the following: "You write simple HTML documents and view them with a WWW browser, such as Mosaic, MacWeb, lynx, Cello, for Netscape . . . . Browsers understand HTML, hypertext anchors and the URLs they contain . . . ." Croft fails to provide any indication that there is a data reference (DR) or a modifier reference (MR) in Graham because it is not present in Graham. Croft goes on to quote text from Graham's section tiled "Partial URLs" in Chapter 3. However, again no where does Croft attempt to match any of this text to the elements of the claimed elements, i.e., a data reference or a modifier reference. Instead, we learn that HTML programmers can use shorthand or an abbreviation in referring to file or resource names as more completely explained by Graham in the larger section in Chapter 1 also titled "Partial URLs." Graham, HTML Sourcebook, pp. 22 to 26. For example, on p. 22, we see: "Partial URLs The *target* of the *hypertext* link is indicated by the *anchor* attribute HREF, which takes as its value the URL of the target document or resource. AS mentioned in the Introduction, a

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	URL is a text string that indicates the server protocol (HTTP, FTP, WAIS, etc.) to use in accessing the resource, the Internet Domain Name of the server, and the location and name of the resource on that particular server. Obviously, the HREF attributes in Figure 1.4 do not contain all this information! These URLs are examples of *partial* URLs, which are a shorthand way of referring to files or other resources *relative* to files or other resources relative to the URL of the document being currently viewed." However, the partial URL is merely a shorthand or an abbreviation for a complete URL that is an address that has already been fully defined by the HTML programmer *prior* to sending the initial record so it can be retrieved. The programmer is merely seeking, for the portions of the address he has abbreviated, to substitute either the implied base address of the source of the initial record or the implied base address he has already provided in the HTML code. Once again, no part of Graham speaks to the need for there to be a DR and a MR used in combination.
(i) receiving the referencing record;	
(ii) analyzing the referencing record to identify a DR, when a DR is identified:	Graham does not discuss analyzing a referencing record to identify a DR (data reference). The Federal Circuit in its December 26, 2007, ruling (p. 10) has defined a "data reference" as follows: "…"a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record."

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	quoting in part from the '321 patent at col. 8, ll. 29-31. Furthermore, Section G in the '889 patent (from which the '321 patent is a continuation-in-part) titled, "Parsing to Locate Data references," states at col. 16, ll. 37-43: "… search for data references in the form of key words or key phrases (step 820). A key word or phrase is a recognized text string that is to be converted into a hypertext link. As an example, the data reference indicated by the phrase, "Admission ECG," can be converted (steps 828, 830) into the following hypertext link: Admission ECG." The '321 patent is a continuation-in-part of U.S. Patent 5,895,461, filed in Aug. 13, 1996 and a continuation-in-part of provisional patent application 60/023,126, filed on Jul. 30, 1996. Examining it also shows uses of the phrases "keyword" and "hypertext link reference" as being synonymous and reinforces the Federal Circuit decision (p. 7) that: "…the terms "data reference," record reference," "specifying reference,", and "reference," as used throughout the Patents-In-Suit, are interchangeable and have the same meaning." For example, in the '321 patent, examples are presented showing how the inventive method can be used to augment the user's (in this example, the physician) productivity. It is not sensible to contemplate that users, such as physicians, (who are one set of target users, but not the only ones) are interested in seeing underlying programming codes or formatting codes, such as HTML. The Federal Circuit agreed that a "data reference" is "a unique phrase or word" which is meant to be

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	read to understand the record. This clearly specifies that a "data reference" which is parsed must be in the form of keywords or key phrases in the text of a record. From the Federal Circuit's ruling, we know that a "data reference" is the same as a phrase or word. It follows that what a keyword or phrase is not is a hidden tag, hidden markup language codes; or hidden programming codes. The Federal Circuit did not construe a "data reference" to encompass hidden programming codes. Every discussion of a data reference used by the Federal Circuit in its opinion refers to text that an ordinary person is intended to read when viewing a record on a browser screen. For example, the Federal Circuit (p. 9) used Fig. 14C to depict a "conventional text document" and identifies the text "Catheterization Reports" in Fig. 14C. The Federal Circuit did not refer to the hidden programming tags (e.g., hyperlink anchor tags) "<a href=…" which are shown in Fig. 14D as a data reference. Croft errs in trying to combine Graham with the operation of a browser and cannot demonstrate that either of them individually or in combination parses a first data record to identify a reference to a second data record because the reference must be in the "conventional text" which is the text intended to be read by a viewer of the first record. Note in every instance in the '321 patent and the 6 patents it depends from, the use of a data reference or its equivalent is a string of text in a document that is intended for a reader to view when presented by a wordprocessor or a browser. Examples of a "data reference" noted by the Federal Circuit (pp. 9 and 12) include a patient's name and "Catheterization Reports." In addition, there are many other examples in the '321 and '889 patents that correspond to ordinary text (key words and/or key phrases) that anyone conversant with ordinary English records or documents can recognize and read.

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	Data references are not hidden program codes used to format the text, for example, to describe text as bold, 16 point Arial font. While such information is present within the file structure of a record, it is not meant for a reader to see, as Croft implies in his report. For example, Croft may be referring to programming codes "<a href ="http://www.stuff.html">" as though it is a data reference, contrary to the Federal Circuit's decision that governs the construction of this claim and others. That said, a reader of Croft's report is left to imagine this as he never states what if anything in Graham is a data reference.
(a) identifying an MR rule set (MRRS) specifying the relationship between an MR and the DR;	This claim element states there is a modifier reference rule set (MRRS) that identifies a relationship between an MR and a DR. For a DR like "ECG" (which matches the Federal Circuit's definition of a "data reference"), the MRs can be a date, the text "report", or "image." The MRRS specifies rules that can be used to determine, for example, that the DR key word "ECG" can be combined with the MR "report" provided that when the DR/MR combination "ECG report" is found in a record, there is a relationship between the two which is different than another DR/MR combination of "ECG image". In col. 12, ll. 36-40, the '321 patent states: Column 210 lists a separate MRRS corresponding to each MR in column 208. For example, where MR1-1A is "previous", MRRS1-1A may indicate that, for MR1-1A to modify DR-1, the term "previous" must appear within five words before or after DR-1 within the examined document. In col. 12, ll., 52-57, the '321 patent states: "In addition, the MRRS range may be any range including a text fragment, a sentence segment in which a DR appears, a sentence in which a DR appears, a paragraph in which a DR appears, a table cell in which a DR appears or an entire record (e.g. a patient ID#

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	which appears once at the top of a record may modify every DR in the record)." Both of these selections from the '321 patent indicate that the MR is similar to a DR, i.e., it is a key word or key phrase in the portion of a record that is intended for a user/physician to read. Croft, once again, promotes Graham to imply the existence of a MR (modifier reference) by reciting exactly the same section, "Partial URLs" in Chapter 3 of Graham that we are provided in section (ii) of this claim. Once again, there is no evidence of a modifier reference in Graham and Croft does not declare that any text in Graham corresponds to a modifier reference as would be required in order to establish an invalidation argument. If we attempt to impute from Croft, which we should not, that the implied address of a disk or server from which a record has been retrieved or a programmer-created hidden meta tag is a modifier, then we would be wrong. The '321 patent is replete with examples of modifier references, each one is a example of text that is intended to be read by the normal user/reader, for example a physician. The examples shown in the '321 patent of modifier references include dates near a data reference, "previous", "admission", "report", "record", "image", or a patient ID number. None of these are hidden programming codes. Completely missing from Graham is any reference to the word or concept of a modifier reference or a modifier reference rule set. Graham cannot teach these concepts because it is entirely foreign to his purpose of providing HTML programming code definitions and grammar.
(b) analyzing the referencing	Croft states that Graham discloses a web browser that analyzes the record with the set of rules to

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record in accordance with the MRRS to identify the existence of the MR and, when the MR is identified;	find a programming code corresponding to a "BASE URL". However, programming codes or computer addresses do not correspond to data references or modifier references, in accordance with the Federal Circuit's ruling. Also completely missing from Graham is any reference to the word or concept of a modifier reference or a modifier reference rule set. Graham cannot teach these concepts because it is entirely foreign to his purpose of providing HTML programming code definitions and grammar. This claim element describes that the record text where the data reference (DR) is found is also searched for the presence of a modifier reference (MR) using a modifier reference rule set (MRRS). For example, as described in col. 12, ll. 36-40, the '321 patent states: Column 210 lists a separate MRRS corresponding to each MR in column 208. For example, where MR1-1A is "previous", MRRS1-1A may indicate that, for MR1-1A to modify DR-1, the term "previous" must appear within five words before or after DR-1 within the examined document. In col. 16, ll. 52-57, the '321 patent states: "In addition, the MRRS range may be any range including a text fragment, a sentence segment in which a DR appears, a sentence in which a DR appears, a paragraph in which a DR appears, a table cell in which a DR appears or an entire record (e.g. a patient ID# which appears once at the top of a record may modify every DR in the record)."
(c) identifying the referenced record associated with the DR/MR combination.	Graham does not identify a referenced record that is associated with a DR/MR combination. Croft, in order to support his faulty analysis, is forced to re-state for the 3rd time the same section titled "Partial URLs" in Chapter 3 and yet we cannot identify a single data reference in that section that is in accordance with the Federal Circuit's ruling nor is there any identification of an MR

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	leaving us to imagine the presence of these essential claim elements in this reference. Furthermore, the Federal Circuit has ruled that a "data reference (DR)" is: "… a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." It is clear that Croft must also show that Graham intended the target of a hyperlink to be capable of referring to not just a single record, but "to refer to more than one record". Again, Graham is entirely silent on this matter. However, we can see from Croft's own example showing "file.html" being presented by a browser that when the hyperlink "anchor text" is activated the target file" stuff.html" is retrieved.

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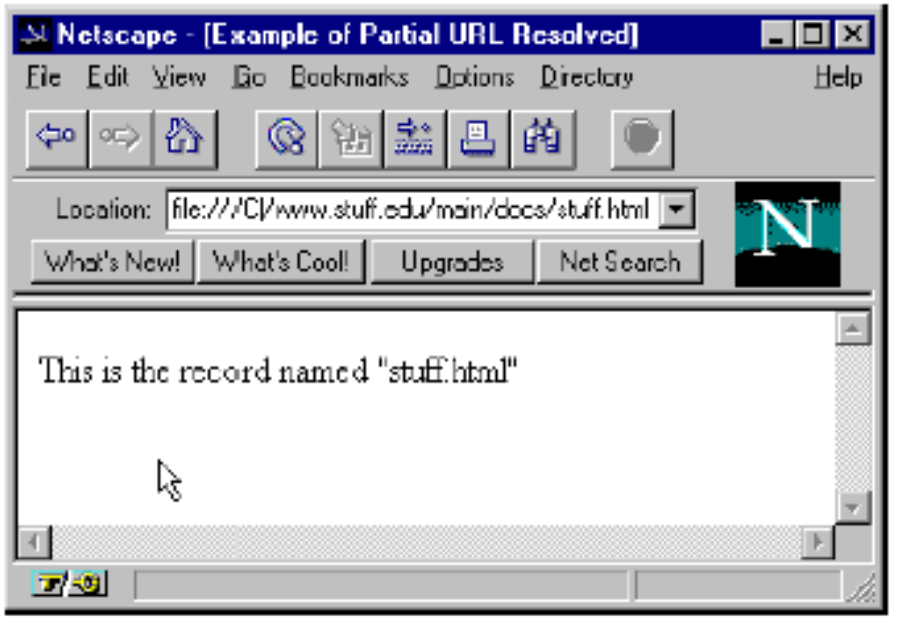
	Croft example showing the HTML web page "file.html" as displayed by a browser  [Navigator – After user has traversed hyperlink to file stuff.html.] Clearly, the retrieved file is a single record only, not two, three, or more, and this example does not meet the definition of "data reference" in the Federal Circuit's ruling (p. 10) that "… that a data reference may refer to one or more than one record." It is my understanding that any potential invalidating reference needs to show all the elements of a particular claim, which implies that any prior art example must show not only a data reference that refers to a single second data record, but must also teach a data reference that refers to multiple data records.

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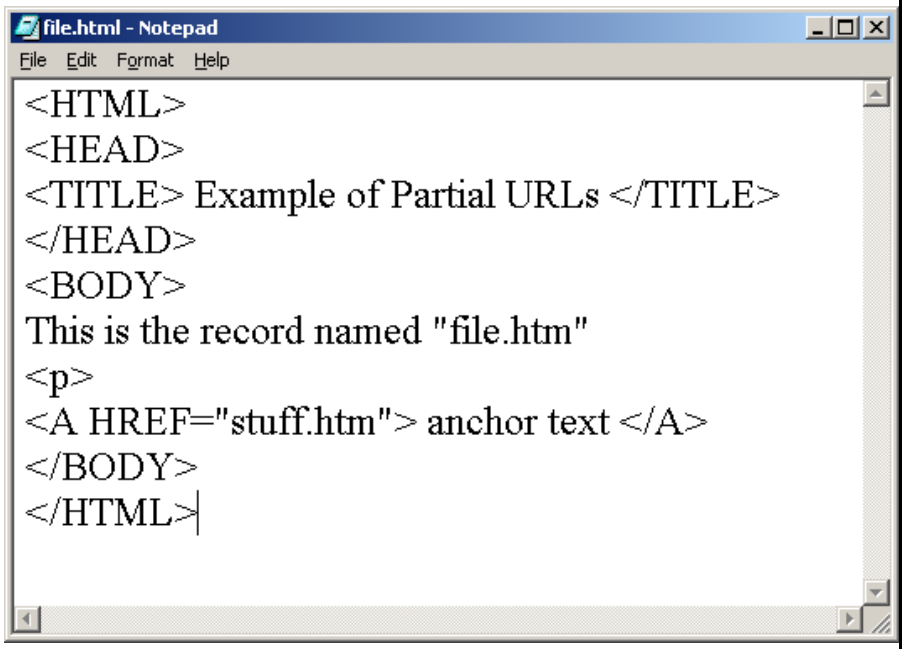
	Croft offers, instead, to display the file "file.html" using the simple programming editor Notepad, which also now reveals the hidden programming codes for this file. **Croft example showing the HTML web page "file.html"as displayed by a simple HTML editor**  Croft's argument, if we accept it, which we should not, appears to be that the text "<A HREF=" followed by an abbreviated address is a DR. Again, this is contrary to the Federal Circuit's ruling (p. 10) that a DR is: "… a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record."

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	This clearly specifies that a "data reference" which is parsed must be in the form of keywords or key phrases in the text of a record. In accordance with the Federal Circuit's decision, we also know that a data reference is the same concept as a phrase or word. It follows that what a keyword or phrase is not is a hidden tag, hidden markup language codes, or hidden programming codes. The Federal Circuit did not construe a "data reference" to encompass hidden codes. Every discussion of a data reference used by the Federal Circuit refers to text that an ordinary person is intended to read when viewing a record on a browser screen. For example, the Federal Circuit refers to Fig. 14C as depicting a "conventional text document" and identifies the text "Catheterization Reports" as a data reference. It did not refer to the hyperlink anchor tags "<a href=…" shown in Fig. 14D as a data reference. If the Federal Circuit wanted to discuss hidden programming tags as a data reference, it had the opportunity to do so. In Croft's example, he incorrectly appears to imply that "<A HREF=…" is a DR. We are then left to read Graham, without guidance, that the text "stuff.html" is an abbreviated address and that the process where the address is "transformed" (Graham's phrasing in Chapter 3, Section "Partial URLs" and text omitted by Croft) into a complete address by using hidden HTML programming codes is the same as "identifying the referenced record" as recited in this claim element. Croft, while examining Graham, has overlooked Chapter 1, "Introduction to the Hypertext Markup Language." In this chapter, we find another pertinent and much longer section titled, Partial URLs, in Pages 22 to 26 of Graham. In no part of this section, do we find any evidence that Graham discusses or intends that there be an "identifying" step as recited in this claim. This section states, in part, in Page 23: As mentioned, the anchor

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	<A HREF="ex2a.thml"> hypertext links </A> Uses a partial URL, which refers to locations relative to the URL of the document itself. This partial URL idea is great news, because it means that you need not specify entire URLs for simple relative links between files on the same computer. Instead, you need only specify their position on the file system relative to each other, as was in Figure 1.4" The partial URL merely makes the programmer's job much easier, especially in the early days of HTML programming where many programmers coded HTML using a simple HTML editor, such as Microsoft NotePad or the like. Having to type long files of resource names is difficult to accomplish without typographical errors. Abbreviated names were much easier and they ensured that path names were entered correctly. Also, partial URLs allowed a programmer to move a folder with multiple HTML files to different disks or web sites without concern for having to change every URL to include the name of the new computer, disk, or server. In Graham, the completely formed address has already been specified by the programmer of the file "file.html", who then uses abbreviations to make his job somewhat simpler and more accurate. This is not the "identifying" step as recited in this claim. In none of the descriptions in the '321 patent (or the patents from which it depends) are hidden programming codes analyzed or to be analyzed. In fact, the '321 patent teaches *away* from using such hidden programming codes as it can be detrimental for a user, such as a physician to see the text DR "ECG" and then not have any idea what modifier reference (MR) information is being used by accepting a hidden programming code as an MR. For example the physician would not know what date is being associated with the "ECG" if hidden MRs were accepted or for that matter which patient ID number to use to find an ECG. Inherently, the physician *cannot* trust such a system, as any such records shown by a browser could not be legal medical records, without

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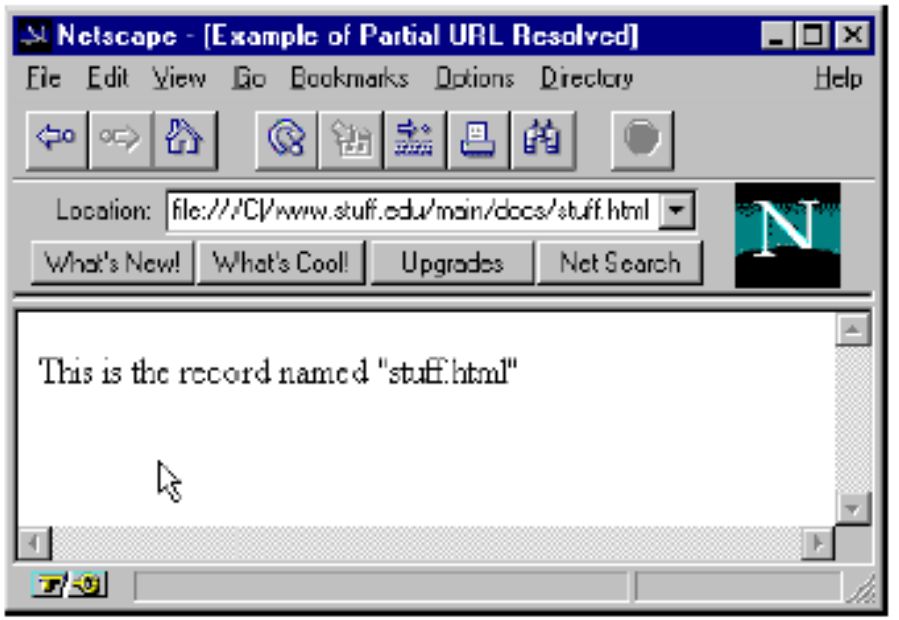
	clear identification. Similarly, a printed copy of a medical report from a browser that included the DR "ECG" would leave the reader without any context to determine why the DR "ECG" was identified, for which patient, or for what time.
24. The method of claim 1 further including the step of linking the record reference to the referenced record.	Croft shows us only two screen shots of "file.html" **Croft example showing the HTML web page "file.html" as displayed by a browser**  [Navigator – After user has traversed hyperlink to file stuff.html.] and the other file "stuff.html"

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[Navigator – After user has traversed hyperlink to file stuff.html.]

and comments that:

> "When a partial URL is displayed the referenced record is hypertext linked to the referencing record. This is shown, for example, in the file.html file when viewed in a web browser. The underlined "anchor text" is a hypertext link to the referenced record."

Croft does not show the step of "linking the record reference to the referenced record". This is simply because whatever links are present have already been placed there by a programmer who selected the text "anchor text" and inserted hidden hyperlink anchor programming codes around it

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	using a programming editor. Furthermore, none of Croft's arguments are supported by Graham. Graham does not include the steps of Claim 1 such as "analyzing a record to identify a DR" or "identifying an MR rule set (MRRS) specifying a relationship between an MR and the DR" In the '321 patent, the referencing record (a combination of a DR and an MR of Claim 1 sections (a) and (b) and not shown in Graham) can be linked to a referenced record. For example the combination of a "data reference" (DR) "ECG" and the "modifier reference" (MR) "January 16, 1996" can be linked to one or more ECGs (in accordance with the Federal Circuit's ruling) recorded for the patient on that date. While linking could arguably be construed to just include the insertion of hidden HTML program codes into the document, the '321 patent teaches otherwise. It can include other provisions for linking, for example, storing a character offset to identify where in the document the DR is located and a retrieval address in a separate table for the document, so the original document is not altered. Linking might also be a character offset for the DR and MR that is combined with a search engine process to retrieve the record. In accordance with the Federal Circuit's definition of "data reference" (p. 10), Croft must also show that Graham intended the step of linking to be capable of linking to not just a single record, but "to refer to more than one record". But Croft cannot do so as Graham is silent on this matter. In the example that Croft provides, the retrieved file is a single record only, not two, three, or more and this example does not meet the definition of "data reference" in the Federal Circuit's ruling (p. 10) that "… that a data reference may refer to one or more than one record."
27. A method to be used with a rule set including subject matter specific tag pairs and	The Graham reference is a series of definitions and grammatical structures for a programming language called HTML. Graham does not disclose a rule set for including subject matter specific tag pairs. Instead, Graham only indicates valid formatting for tags that can be placed in a

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corresponding search rules, a separate tag pair for each of a plurality of different information types and a separate search rule for each pair, each pair including a begin tag and an end tag, the method comprising the steps of:	document by a programmer. Graham does not teach the concept of "subject matter," which, in accordance to the '321 patent, refers to text in a simple text record that has a specific purpose in that record. Graham only discloses in the abstract that a programmer can at will identify any string of characters and use HTML codes to set them to be 16 point Arial font to be displayed in red. Other functions can be performed with the HTML programming codes to achieve additional formatting or linking goals. Nowhere does Graham discuss "subject matter." In fact, in describing a programming language, Graham teaches away from that concept. It is counterproductive and contrary to the teachings of Graham to limit HTML programming codes so that they can only be used with limited recognized text strings and not on any others. Unlike the '321 patent, Graham instead allows any HTML programming tags to be associated with *any* sequence of text in a record. Croft has merely copied a selection of paragraphs from Graham on Page 2, 3, 4,12,76, 77, xii, and 167-168 as well as including the entirety of Graham from Pages 76 to 159 without any specific indication of where we might find "subject matter". There is no presence of the claim element "subject matter" in Graham. Croft can only state that: "The HTML Sourcebook provides an extensive description of rules to parse an HTML document using different rule sets to insert subject matter specific tag pairs for different types of information (e.g. header tags, anchor tags, body tags, etc…)" However, Croft is incorrect when he converts or extends Graham's definitions and grammatical structures into satisfy the claim element "a rule set including subject matter specific tag pairs" because there is no teaching or indication of different subject matters in Graham.

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	When Graham writes about a record text, he approaches it as a new canvas, with no predetermined concepts of how it should look or what its meaning is. This is clearly left to a programmer who decides even at whim, how he wants a document to look and what the meaning of any segment of a document is and if that should be reflected by adding tags pairs or not. At the most in Graham, only after a programmer has placed HTML tags do we get any indication of the subject matter of a record. For example, a programmer can identify a text segment to be centered in a page and be in a 24 point font, indicating to a reader that it might be the record title. The same text in a 6 point font right justified, might be ignored by a reader as background information or little importance. This is simply not the same as "subject matter" as taught in the '321 patent.
(a) receiving a record;	
(b) examining the record according to the search rules to identify record segments including information of each of the information types;	Croft can only point to over 80 pages of generic information in Graham with no specificity as how a record is to be examined using "search rules to identify record segments" of this claim. Croft attempts to wrongly impute that the claim describes a process to examine a previously provided tags in a record "to identify record segments including information". Claim 27 discusses examining the text of a record, similar to what a user such as a physician expects to read. When a person reads a record on a browser or a word processor, they do not look at hidden programming codes, even though they may be present. Every example in the patent shows the examination of a record for text that is displayed for a reader, without concern for any hidden programming codes that may be placed to enhance the formatting of the text. Croft is simply wrong when he examines hidden programming codes for "identifying record segments" or "information types" or "subject matter."

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	The patent is clear about the term "record segments," stating in col. 21, l. 31-32 that they can be created "…where a physician is entering a record via a word processor, by receiving record segments in real time" In other words, "record segments" are text entered by a person using a word processor, not hidden programming codes. In a patent document, "record segments" can the section titled "Brief Description of the Drawings", the individual claims, or the patent title. There are other examples for "record segments" in the '321 patent. Among the medical examples provided are record segments such as an abstract, a prescription, a diagnosis, and others. In addition, a "data reference (DR)" can be a "record segment," and a DR has been defined by the Federal Circuit as "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." In every case, this is text that the average reader of a record expects to see when displayed or printed, not programming codes that are foreign to them, overwhelming, and confusing.
(c) when a record segment is identified which is of a particular information type:	
accessing the tag pair associated with the information type; inserting the begin tag before the identified segment and inserting the end tag after the identified	Croft is at a loss to explain how tag pairs are inserted prior to a record segment which was identified by a search rule. Instead, he simply points to the entirety of pages 76 to 159 of Graham. While being overly general, a reader will only find details of the definition and grammar regarding a programmer's use of various HTML tags. Graham does not discuss record segments, because Graham is unaware of any in a document.

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
segment.	Graham has to be document independent because that is not his purpose. Nor does Graham discuss record segments found using any search rule because Graham's work is not specific or anticipating a specific record's content, for example, a medical record or a U.S. patent text. Graham only discuses that an HTML programmer can at will or whim use some defined tags to format a document in a particular manner. Croft offers no example of how a record is modified by any of the text in Graham, because Graham simply does not discuss this.
86. [i] A method for use with an application wherein specifying references (SRs) in one record to other records which are selectable to access the other records are visually distinguished from other record information so as to indicate selectability,	The Graham reference cited by Croft is a series of definitions and grammatical structures for a programming language called HTML. Graham does not disclose "specifying references" as defined in the '321 patent at col. 4, ll. 33-36 as follows: "…"specifying reference" (SR) will be used to refer generically to each of a DR and a DR/MR combination or a DR/MR/MR combination." The Federal Circuit, in its Dec. 26, 2007 ruling, stated that a data reference is "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." A modifier reference is record text (not programming codes), as defined in col. 3, l. 22-24 of the '321 patent, which states that "… modifier references (MRs) may be used to further specify a specific record or record segment when a DR is identified" Graham merely discusses in the abstract how any text can be formatted for display on a browser or how an HTML programmer can create links. Graham is entirely silent on specifying which text in a document is to be tagged and in any particular manner. That is left to the HTML programmer to

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	decide. Croft in his discussion now uses the text "anchor text", as opposed to the hidden HTML codes surrounding it, to urge that an SR in shown in Graham. This is in conflict with Croft's other assertions, for example, regarding Claim 1, where he argued instead that hidden HTML programming codes comprise a data reference. The claim preamble clearly states that the SR is "visually distinguished from other record information so as to indicate selectability." It also specifies that other record information that are not SRs are not visually distinguished, yet must otherwise be visible to the user or reader of the document, like a physician or other reader.
[ii] the method also for use with a system which enables a user to designate and also select SRs where designation comprises pointing to an SR without selection and,	Graham does not disclose a system where a user is allowed to designate an SR without selection. It is also my understanding that combining Graham with features of Netscape Navigator is an obviousness argument that is inappropriate to show anticipation by the Graham reference. Graham only discusses, as related to anchors on Page 21, that "Placing a mouse over this region and clicking the mouse button … causes the client to access the indicated document of other Internet resource." He does not indicate what happens when the anchor text is designated but not selected, for example, by simply placing a cursor over the anchor text. Graham does not contemplate a function of designation without selection. Croft is wrong in stating that Graham discusses what is to occur when a user simply places a mouse cursor over the text "anchor text". There is simply no such discussion in Graham.

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Appendix A-3

U. S. Patent No. 6,516,321	**Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference**
[iii] wherein a seemingly general SR is modified by other record information which renders the SR relatively specific,	Graham does not disclose a system where a general SR is modified by other record information which renders the SR relatively specific. Graham only discusses, as related to anchors on Page 21, that "Placing a mouse over this region and clicking the mouse button … causes the client to access the indicated document of other Internet resource." He does not indicate what happens when the anchor text is designated but not selected, for example, by simply placing a cursor over the anchor text. Croft instead shows us screen shots from the Netscape Navigator to identify elements that are simply not discussed in Graham. Even if Croft is allowed to introduce elements of a different reference in an anticipation inquiry, it is nevertheless inadequate, as shown below: The first screen shot shows the file "file.html" being displayed.

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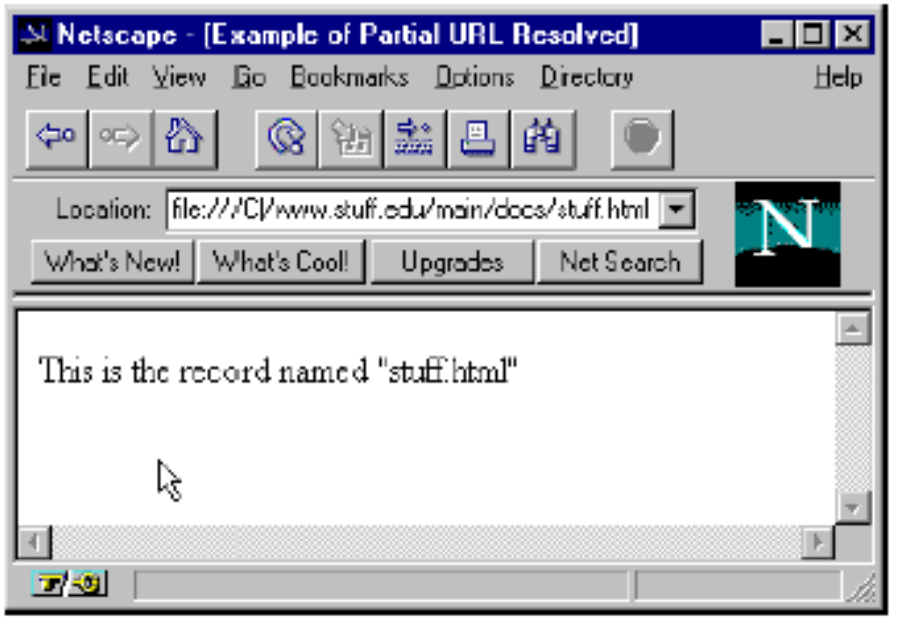
U. S. Patent No. 6,516,321	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	Croft example showing the HTML web page "file.html" as displayed by a browser  [Navigator – After user has traversed hyperlink to file stuff.html.] Then Croft shows the same screen when the cursor is placed over the text "anchor text"

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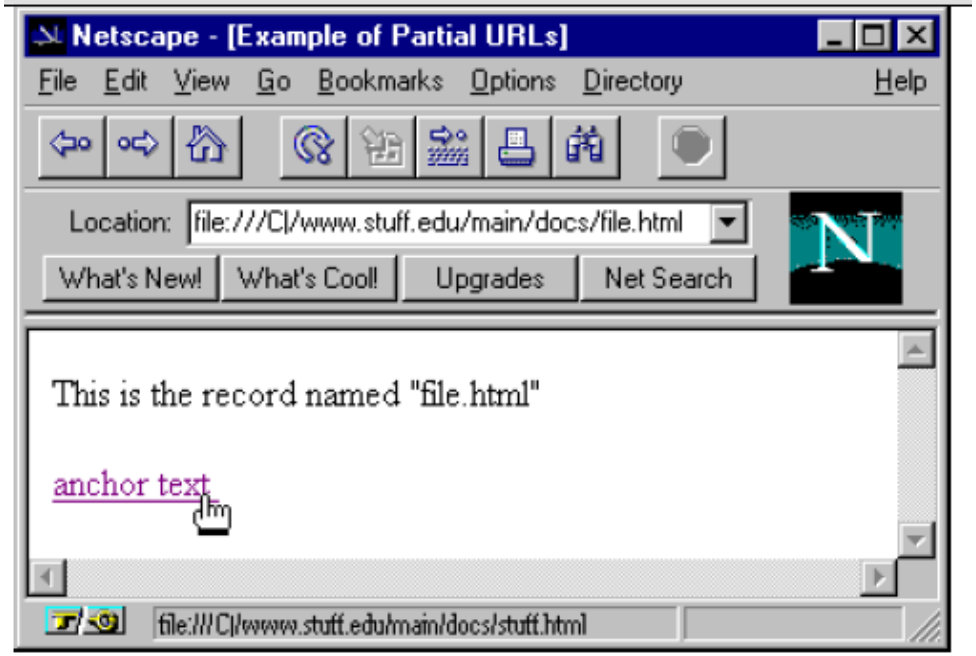
U. S. Patent No. 6,516,321	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	 [Navigator – Hovering cursor over hyperlink in **file.html**.] Croft is interested in showing that a file name is shown in a text box at the bottom of the screen. Croft, however, is not been able to demonstrate that the SR, in this case, a single DR (data reference) has been modified by other record information to make it more specific. All that Croft has shown is the underlying address already computed by an HTML programmer (even if in combination with other hidden programming codes). The SR "anchor text" has not been modified in any way to make it more specific.

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference**
	Recall that the preamble in this claim clearly states that the SR is "visually distinguished from other record information so as to indicate selectability." It also specifies that other record information that are not SRs are not visually distinguished, yet must otherwise be visible to the reader of the document, like a user or a physician or other reader. Whatever record information is being discussed by Croft (perhaps HTML programming codes that are hidden, such as the BASE element), they are clearly not visible to the reader of the document and do not comport with the term "record information" in this claim.
[iv] the method for indicating the specific nature of an SR prior to selection and comprising the steps of:	Graham does not and cannot indicate the specific nature of a SR prior to selection because he merely discusses on Page 21 that "Placing a mouse over this region and clicking the mouse button … causes the client to access the indicated document of other Internet resource." Graham does not contemplate a function of designation without selection.
(a) when an SR is designated, indicating the specific nature of the SR.	Graham does not describe a feature that when a SR is designated, the specific nature of the SR is indicated. He only discusses on Page 21 that "Placing a mouse over this region and clicking the mouse button … causes the client to access the indicated document of other Internet resource." Graham does not contemplate a function of designation without selection. Setting aside Croft's introduction of other elements of a different reference, which I understand is not permitted in an anticipation argument, it only shows a complicated address which does not indicate the specific nature of the SR. Most web page addresses are often hundreds of characters long, of which only the first few might be displayed in Croft's specified text box, making the

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Graham - HTML Sourcebook ©1995 Reference
	specific nature of the SR impossible to ascertain. The Federal Circuit in its recent ruling stated that a "data reference" is: "…"a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Any invalidity argument needs to show all the elements of the claim, which implies that the any prior art example must show not only a SR (specifying reference, for example, a data reference, DR) that refers to a single second data record, but also exhibits a SR that refers to multiple data records. Graham does not refer to more than one record as being related to a SR.

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APPENDIX A-4

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

Appendix A-4

The reference referred to as "PasTime" by Croft, Paul Thistlewaite, "Automatic Constructions and Management of Large Open Webs," *Info. Proc. & Mgmt.,* vol. 33, no. 2, pp. 161-173 (March 1997), is *not prior art* for either the '889 patent or the '321 patent.

Since this Thistlewaite reference has a publication date of March 1997, it is not prior art to the '889 patent, which has a priority date of at least Sept. 30, 1996, and therefore, Thistlewaite should not be considered as part of any invalidation argument.

Since this Thistlewaite reference has a publication date of March 1997, it is not prior art to the '321 patent, which has a priority date of at least April 10, 1996, and therefore, Thistlewaite should not be considered as part of any invalidation argument.

Nevertheless, I will now proceed to compare the elements of the claims at issue in the '889 and '321 patents to the Thistlewaite reference, but this is not in any way intended to imply that the Thistlewaite reference is prior art.

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U. S. Patent No. 5,903,889	**Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference**
1. A computer system with a plurality of data records on a plurality of databases, and a standardized format for addressing said data records, said computer system comprising:	Croft states that Thistlewaite "… discloses a computer system comprised of a multitude of databases described as a Hyperbase". However, Croft is wrong as Thistlewaite does not ever use the word "database" in reference to the term "hyperbase" in his article, and Thistlewaite cannot be implied to have a database. Instead, Thistlewaite employs the term "hyperbase" which has a number of different definitions in the computer field. One definition used by P. Lopisteguy et al. in their 1996 article "Experiences and Reflection on the Use of a Hypermedia Framework for Hypermedia Functionality Integration" available at http://www.cs.nott.ac.uk/~hla/HTF/HTFII/Lopisteguy.html is that: "The Hyperbase stores hyperspace topological information by means of components (nodes and links), anchors and specifiers as described in the Dexter's Storage Layer." In this case, if a Hyperbase is a database, it is only to store information about documents, but not the documents themselves. Another definition is provided by Luiz Fernando G. Soares et al. in their undated article "Nested Composite Nodes and Version Control in Hypermedia Systems " available at http://cs-people.bu.edu/dgd/workshop/soares.html: "We define the public hyperbase, denoted by HB, as a special type of context node that groups together sets of terminal nodes and user context nodes. All nodes in HB must be committed or obsolete and, as in all hyperbases, if a composite node C is in HB, then all nodes in C must also belong to HB. The public hyperbase contains information which is public and stable." The Encyclopedia of Microcomputers, vol. 24, 1999, by Allen Kent states on page 7: "The tool for disclosing a set of documents is a hypermedia-based information-

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U. S. Patent No. 5,903,889	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
	retrieval system. The frame of reference in this article is a two-level hypermedia architecture (18). This describes how a hypermedia can be formed by creating two level: the document level or hyperbase, and the index level or hyperindex." Other sources such as Webopedia (www.webopedia.com), www.computer-dictionary-online.org, the IEEE Computer Society (search3.computer.org), and the Microsoft Development Network (www.msdn.com) when searched all report "no results" when a search for the term "hyperbase" is made. We are, therefore, left without any clear understanding as to what a "hyperbase" is, and it is certainly not a term in common use. From Thistlewaite, we are left to assume that a "hyperbase" stores HTML modified documents in a file system. Thistlewaite's use of database on Page 166 relates to: "In the persistent open strategy, separate link database is kept in which the source and target information for a link are represented as a couple …" Hence, the terms "hyperbase" and database are not one and the same in Thistlewaite. Furthermore, Croft states Thistlewaite "discloses …. multitude of databases." Again, this is not correct. Thistlewaite never uses the term "database" in reference to the term, "hyperbase." And, even if it is assumed that a hyperbase is a database, Thistlewaite makes it abundantly clear there is one and only one hyperbase to which he refers. In the Thistlewaite's 12 page paper, he mentions either "A hyperbase" or "The hyperbase" no less than 29 times in referring to his work. Not once does he use the plural version of the word

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U. S. Patent No. 5,903,889	**Elements Not Disclosed In <u>Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997</u> Reference**
	"hyperbase" in discussing his work.
(a) a user interface having an interactive display program for requesting one of said data records and displaying a plurality of interface supported data formats;	
(b) means for receiving a reference to a first data record from said interactive display program;	The Federal Circuit in its Dec. 26, 2007, ruling stated that a data reference is: "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Thistlewaite does not discuss the use of links to refer to more than one data record. Thistlewaite is precise that any link is to point to a specific record only, and not to more than one record. In addition, the Federal Circuit stated (p. 7) that the terms "data reference," "record reference," "specifying reference," and "reference" are used throughout the Patents-In-Suit interchangeably and have the same meaning. As such, Thistlewaite does not contain a "reference" in a data record as defined by the Federal Circuit.
(c) means for retrieving said first data record;	
(d) means for parsing said first data record to identify a reference to a second data record;	The Federal Circuit in its Dec. 26, 2007, ruling stated that a data reference is: "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record."

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U. S. Patent No. 5,903,889	**Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference**
	Thistlewaite does not discuss the use of links to refer to more than one data record. Thistlewaite is precise that any link is to point to a specific record only, and not to more than one record. In addition, the Federal Circuit stated (p. 7) that the terms "data reference," "record reference," "specifying reference," and "reference" are used throughout the Patents-In-Suit interchangeably and have the same meaning. As such, Thistlewaite does not contain a "reference" in a data record as defined by the Federal Circuit.
(e) means for modifying said reference to said second data record to create an address, said address being operable to retrieve said second data record; and	
(f) means for sending said modified first data record to said interactive display program.	
7. The computer system of claim 1, wherein said reference to said second data record comprises a keyword phrase.	Same reasons as noted above for claim 1.

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Appendix A-4

U. S. Patent No. 6,516,321	**Elements Not Disclosed In <u>Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997</u> Reference**
1. A method for identifying a referenced record referenced in a referencing record wherein the referenced record is referenced in the referencing record by at least a combination including a data reference (DR) and a modifier reference (MR), the method comprising the steps of:	The Federal Circuit in its Dec. 26, 2007, ruling stated that a data reference is: "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Thistlewaite does not discuss the use of links to refer to more than one data record. Thistlewaite is precise that any link is to point to a specific record only, and not to more than one record. Hence, Thistlewaite does not teach a "data reference (DR)" as defined by the Federal Circuit.
(i) receiving the referencing record;	
(ii) analyzing the referencing record to identify a DR, when a DR is identified:	The Federal Circuit in its Dec. 26, 2007, ruling stated that a data reference is: "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Thistlewaite does not discuss the use of links to refer to more than one data record. Thistlewaite is precise that any link is to point to a specific record only, and not to more than one record. Hence, Thistlewaite does not teach a "data reference (DR)" as defined by the Federal Circuit.
(a) identifying an MR rule set (MRRS) specifying the relationship between an MR and the DR;	

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference**
(b) analyzing the referencing record in accordance with the MRRS to identify the existence of the MR and, when the MR is identified;	
(c) identifying the referenced record associated with the DR/MR combination.	The Federal Circuit in its Dec. 26, 2007, ruling stated that a data reference is: "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Thistlewaite does not discuss the use of links to refer to more than one data record. Thistlewaite is precise that any link is to point to a specific record only, and not to more than one record. Hence, Thistlewaite does not teach a "data reference" as defined by the Federal Circuit.
24. The method of claim 1 further including the step of linking the record reference to the referenced record.	Same reasons as noted above for claim 1.
27. A method to be used with a rule set including subject matter specific tag pairs and corresponding search rules, a separate tag pair for each of a plurality of different information types and a separate search rule for each	This claim preamble makes it very clear that this claim deals with "subject matter specific tag pairs and corresponding search rules" which means there are both "subject matter" tag pairs and "subject matter" corresponding rule sets. The patent is quite clear that the tags referred to are markup language tags, such as HTML or XML tags. Such tags are typically paired sets, a begin tag and an end tag that are placed around a specific text segment. The '321 patent text and this claim refers to tagging in either of two ways, either:

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
pair, each pair including a begin tag and an end tag, the method comprising the steps of:	1. the recognition of a data reference (subject matter) and the provision of markup language tags to retrieve a related data record or record segment thereof, or 2. the unambiguous recognition of text that identifies and corresponds to a specific record segment (subject matter) and the provision of related markup language labeling that can be used by a tag enabled application to locate the specific segment in the record. The '321 patent also introduces new examples regarding the placement of tags (XMT tags) not seen in the provisional patent application Ser. No. 60/023,126 that need to be considered. This section referred to as "Tag Enabling" in the patent discusses the placement of begin tags at the start of a distinct segment of a record and an end tag at the end of the record segment. One purpose of the tags is to ensure that the segment can be retrieved when a corresponding data reference refers to that segment. For example, the record segment of a comprehensive ecg record may include a segment "diagnosis" which when appropriately recognized using a rule set can be appropriately tagged with a beginning tag and an ending tag to identify it as the diagnosis segment and to retrieve this section from the larger record. When another medical record includes the data reference "ecg diagnosis," a link can be created that uses a tag-enabled application to retrieve just the ecg diagnosis segment. The tag-enabled application can search the ecg record for the record segment marked by the beginning and ending tags specifying that it is the "diagnosis" segment. The '321 patent is precise in that segments of a record are unambiguously recognized in order to be tagged to identify that segment. Once tagged, the segment can then be linked to by a subsequent data reference (DR).

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
	The patent is replete with example of record segments that can be tagged, these examples include: Abstract (in a medical report) Diagnosis (in a medical report) Prescription (in a medical report) Heart rate (in a medical report) Title (in a U.S. patent) Cross Reference (segment in a U.S. patent) Background (in a U.S. patent) Fig. 1 description (in a U.S. patent) Claims (a section in a U.S. patent) Claim 1 (in a U.S. patent) and others. To proceed further with a review of the claim, we have to also understand the nature of the expression "subject matter tags" and "subject matter corresponding search rules". In the '321 patent, "subject matter" only refers a data reference (DR) or to text that identifies a record segment. In the case of a DR, the tag pair can be the beginning and ending tags surrounding the DR to create a hyperlink. The search rules used to identify the data reference and possibly any related modifier references that are required prior to a hyperlink being formed are shown in Figs. 3, 6, 7, and 11. In the case of a record segment identifier, the tag pair placed at the beginning of a record segment

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	and at the end of the record segment and the search rules used to identify a record segment are shown in Figs. 12 and 16. Additional discussion about record segments can be found at col. 2, ll. 34–46 which states: "Recently another method and tool for accessing/manipulating data within a specific record has been developed which specifies universal "tags" which can be used within a record to earmark specific data types. An exemplary "tagging" language is the extensible markup language (XML). The tags are to be used by processor applications which are familiar with the tags to identify specific information types. Applications which are capable of recognizing tags are referred to hereinafter as "tag enabled" and records which include such tags are likewise referred to as tag enabled. Tags are typically paired including a "begin" tag and an "end" tag identifying the beginning and the end of a specific data type within a corresponding record." In col. 5, ll. 13–24, the '321 patent states: "Another object of the invention is to automatically determine whether or not tags (e.g. may suitably be added to a record to identify specific record segments and information types therein and, when appropriate, to automatically add the tags to render the record tag enabled so that a tag enabled application can identify specific information within the record." (emphasis added) In col. 5, ll. 28-35, the '321 patent states: "Another object of the invention is to automatically determine whether or not tags (e.g. may suitably be added to a record to identify specific record segments and information

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	types therein and, when appropriate, to automatically add the tags to render the record tag enabled so that a tag enabled application can identify specific information within the record." (emphasis added). In col. 8, ll. 30-41, the '321 patent states: "DR column 30 includes a list of DRs. A DR is a unique phrase or word which may be used in a record to refer to another record or record segment. In the context of a medical facility an exemplary DR may be as simple as "medication given", "ECG report", or "Admission NMR heartbeat". As explained in more detail below, when a processor linking feature is selected, processor 14 searches for DRs in a specified record and, when a DR is identified, links the DR to a record or record segment associated with the DR via a hyperlink or other mechanism. In the preferred embodiment of the invention the longest DRs in a DR list include more than one word." In col. 10, ll. 24-29, the '321 patent states: "When a DR is identified, processor 14 accesses table 5 and identifies the ARS which corresponds to the identified DR. Thereafter, processor 14 uses the ARS to identify information required to construct an address for the record or record segment associated with the identified DR." In col. 13, ll. 10-17, the '321 patent states: "Systems are also contemplated which support both DRs and DR/MR combinations. For example, where DR-1 is term "ECG" and MR1-1A is term "previous", a specification like specification 4 in FIG. 3 and a specification like specification 200 in FIG. 6 may both be

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	supported. In this case, where DR-1 is identified in a record and MR1-1A is not identified, a link to the record or segment associated with DR-1 may still be made. Similarly, when the DR-1/MR1-1A combination is identified, a link to the record or segment associated therewith can be made." In col. 20, ll. 12-16, the '321 patent states: "To this end, generally, processor 14 is equipped to recognize characteristic sets which correspond to different record segments and, when a specific segment is identified, can place tags around the segment which are recognizable by other applications." In col. 20, ll. 34-49, the '321 patent states: "For example, in the case of XML type patient ID 300, referring also to FIG. 13, XMLRS 312 includes a variable character string 314 which has a form recognizable as a patient ID. In the present case it is assumed that each patient at a medical facility is identified by an unambiguous and distinct character string including two numbers followed by two letters which are in turn followed by five numbers. In XMLRS 314 a "#" character indicates a digit from 0 through 9 while an "X" character indicates a letter. The first two characters are reserved for a year indication (e.g., 99 for 1999, etc.) The third and fourth characters are reserved for first and last name initials (e.g., Mary Jones would be M J). The final five characters indicate a unique consecutively assigned number provided via an admit, discharge, transfer (ADT) system (not illustrated) when a patient is admitted to the facility." Thistlewaite does not discuss the detection of record segments that can be used by a tag enabled

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	application to retrieve a specific record segment, for example, one referenced by a data reference in another record. Thistlewaite does discuss retrieving an atomic document from a larger document, but this is not a record segment identified as subject matter. Instead, as stated on P. 171: "As new files become available, Parliament uses the FTP protocol to transfer the file into a special directory on our server, which is automatically monitored. Whew a new file is detected, the following automatics processes are applied: 1. the file is examined to determine which sub-collection it belongs to (e.g. Senate Hansard, Standing Orders, etc.) 2. a document identifier index is generated listing the stare byte location and byte extent of each atomic component document in the file together with a canonical identifier dor that component, such as "Hansard/Senate/1996/May/22/article_10" (but the file is not physically partitioned into separate smaller files)." So, while Thistlewaite may find atomic documents, they do not have beginning and ending tags added to them, as required by this claim. Furthermore, Thistlewaite does not teach the use of subject matter search rules to find record segments as he does not disclose how atomic documents are determined. Croft quotes from Thistlewaite, P. 166: "The method most familiar to authors using HTML to create a hyperbase for the web is to take the original document, add HTML markers for formatting the document presentationally , and add link information into documents which contain link source. Fn: if the target of a link is not a whole document but rather some point in a document, than

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	additional markup (a named tag) must be added to the target document." However, Croft has neglected to produce important text from the same paragraph: "Such a hyperbase is subject to all the problems described in Section 2" In fact, Croft has quoted a portion of Thistlewaite where he describes existing manual methods to add markup tags to a document to format the text and to manually ad hyperlink tags and addresses. Thistlewaite acknowledges that such methods are problematic due to errors in any manual process to add programming codes to a document. Croft quotes from Thistlewaite, P. 171: "In response to a request for a particular atomic document, the relevant CGI program will automatically undertake the following tasks: 1. extract the component document from the original file, and depending on the sub-collection that it belongs to, convert it to a base HTML document containing HTML formatting tags (this conversion is done using routines specifically developed for each collection" However, once again, Croft has not identified where subject matter search rules have been used to identify a record segment, either a data reference or a record segment that can be retrieved by a tag enabled application. Adding formatting tags is not contemplated by the '321 patent and even if it were, Thistlewaite does not disclose any search subject matter search rules to locate where in a document formatting tags should be placed. Croft goes back to P. 166 of Thistlewaite to tell us:

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	"A request from a client, in the form of a URL, can specify which original document is being sought, and the CGI program indicated in the URL can then: … (ii) add appropriate HTML markers to achieve the desired presentational format for the client's browser." But, once again, Croft is pointing to formatting HTML programming codes that are not record segments as the term is defined in the '321 patent and by the Federal Circuit. Even if formatting tags were to be used around text, Thistlewaite does not provide any subject matter search rules to locate where in a document formatting tags should be placed. Continuing further, Croft quotes from PP. 166-167: "In the persistent open strategy, a separate link database is kept in which the source and target information for a link are represented as a couple, consisting of two anchors, each of which records the document in which the anchor resides and the identifier for the tag in the document which indicates where the anchor is to be sited" Here, we have clear evidence that Thistlewaite has defined a separate database for links to hold information that indicates where in a document a link is to be placed (probably a character count from the start of the document) and a target address. To insert these links into a document only requires that a program count the number of bytes from the start of a document, and place a link with the corresponding address. This is not using a "subject matter search rule" to identify a record segment. There is not a search being performed, only the rote counting of characters in the document. Croft continues quoting from P. 164: "Detection of microscopic structural links relies on either having an explicit representation

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
	of the document in each collection and the subcollection, or on deriving such a representation from the hierarchical file system directory structure in which the documents are stored. Detection of microscopic structural links usually relies on being able to unpack individual documents internal structure, either using existing markup associated with the document (e.g. SGML DTDs) or using the extant techniques for table-of-content creation." Once again Croft has not presented us with subject matter search rules to locate record segments. Instead, Thistlewaite is directing us to use file system information to unpack document internal structures, perhaps by using existing SGML hidden mark up codes. The '321 patent does not use file system information in its subject matter search rules to identify record segments. It also does not unpack internal structures or use hidden programming codes in a subject matter search rule to identify a record segment. Croft next introduces web browsers, Internet Explorer 1.0 and Netscape Navigator 1.22 as two, new and separate references. In his analysis of Thistlewaite, Croft appears to concede that Thistlewaite does not discuss these ideas requiring him to add additional references to meet the limitations of this claim. However, related to HTML, Croft atates: "Specifically, A person of skill in the are would understand that • Web browsers (e.g. Netscape or Explorer) container methods to be used with HTML • HTML specifies "a rule set including subject matter specific tag pairs" (e.g. <A> & </A> and >BODY> & </BODY>)

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
	• HTML specifies a "separate tag pair for each of a plurality of different information types (e.g. <a> & </A> for an "anchor" information type) • HTML specifies a separate search rule for the <=A> & </A> pair that directs the browser to check for the partial URLs." Croft is in error by trying to imply in bullet 2 that HTML "specifies a rule set". It is true that HTML is a programming language with a grammar associated with it, but the grammar is not a rule. Regarding bullet 3, HTML does not have subject matter tag pairs that are inserted in a document when a record segment is identified (Claim 27 Elements (b) and (c)). Finally, bullet 4 does not specify separate tag pairs for each of a plurality of different information types, where according the Claim 27, a record segment is identified to be of a particular information type by using a subject matter search rule. Hidden programming codes do not meet the definition for a "record segment" as it is described in the '321 patent. The remaining paragraphs that Croft quotes from only identify that a browser can request documents, that the World Wide Web has had a rapid growth, and the parliament provides data in text format. None of these paragraphs identify elements of Claim 27 from the preamble or from individual elements. Thistlewaite *teaches away* from Claim 27 in that Thistlewaite has a requirement that before a link can be created a check is made to determine that the document it points to exists and when it does not exist, a link is not created. The '321 patent and this claim do not have any such limitation. In

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference**
	fact, in U.S. Patent No. 5,895,461 from which the '321 patent is a continuation-in-part, explicitly describes circumstances where making links to documents that do not exist is desirable. To create a link, Thistlewaite has to verify that the target exists, see Thistlewaite, P. 168: "Consequently, at the time of serving a document to a client, a link is only embedded into the byte stream by the CGI program doing the pattern detection and link resolution if (i) an expression matches one of the source anchor patterns applicable to that document, and (ii) the corresponding target document exists." (emphasis added) and also on P. 168: "Representing referential links using Form (4) is not only frugal in terms of space, but achieves greater link functionality in that a new document, say recoding the debate in the Australian Parliament concerning a new piece of legislation, can be placed in the file system with it original form and is immediately available for access across the Web, and any references to the new piece of legislation in it will be automatically linked to the document containing the legislation (assuming it is available also)." (emphasis added)
(a) receiving a record;	Croft quotes again from Thistlewaite, P. 171: "In response to a request for a particular index page, the relevant CGI program will dynamically generate a HTML page containing the HTML page containing the index information, by examining the appropriate document indemnifier index and attribute information. For efficiency, index pages are cached on the server-side, and are regenerated in response to changes in the hyperbase. If an item is deleted from the hyperbase or is modified, or if new material is added to the hyperbase, the index pages affected are tagged for regeneration, and are regenerated when the index page is next requested by a client.

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
	In response to a request for a particular atomic document, the relevant CGI program will automatically undertake the following tasks: 1. extract the component document from the original file, and depending on the sub-collection that it belongs to, convert it to a base HTML document containing HTML formatting tags (this conversion is done using routines specifically developed for each sub-collection)" 2. the attribute information for the document, and the document identifier index, are then examined to compute the structural links for this document, and these are then added at the appropriate places to the base html DOCUMENT 3. finally, the link detection and instantiation routines are employed to embed any referential links into the base HTML document, and resulting byte stream is dispatched to the client" Thistlewaite, writes in 1. that the original document is converted to a base HTML document, but this is not in response to any subject matter search rules used to identify a record segment, which are not provided. In 2. Thistlewaite explains as he has before that attribute information (a sub-collection type, date, or name of speaker which is stored separately from the file, see Thistlewaite P. 171, Section 5.1 Data Capture) about the document is used to compute structural links. In this section, Thistlewaite is using information stored external to the document to determine where to place links. Claim 27 does not use external document information. Instead it only uses subject matter search rules to search for record segments in a record.

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
	In 3. Thistlewaite may create links but they are subject to the requirement that the target document of any link must exist or no link is formed. See Thistlewaite, P. 168: "Consequently, at the time of serving a document to a client, a link is only embedded into the byte stream by the CGI program doing the pattern detection and link resolution if (i) an expression matches one of the source anchor patterns applicable to that document, and (ii) the corresponding target document exists." (emphasis added) and also on P. 168: "Representing referential links using Form (4) is not only frugal in terms of space, but achieves greater link functionality in that a new document, say recoding the debate in the Australian Parliament concerning a new piece of legislation, can be placed in the file system with it original form and is immediately available for access across the Web, and any references to the new piece of legislation in it will be automatically linked to the document containing the legislation (assuming it is available also)." (emphasis added)
(b) examining the record according to the search rules to identify record segments including information of each of the information types;	Croft now introduces additional material regarding Internet Explorer, Netscape Navigator, and the HTML Sourcebook as three additional references outside of Thistlewaite and these references are not discussed by Thistlewaite. Croft states: "A person of skill in the art understands that when Internet Explorer or Netscape Navigator opens a web page, the web browser parses the page to see if any HTML elements are

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
	present, as the browser renders the web page for display to the user. Such browser will identify different types of information, such as anchor tags, headers, etc… By way of further example, a listing of many types of information looked for an be found in the HTML Sourcebook by Ian Graham (1995) which a person of ordinary skill in the art would know." Croft again fails to refer to the claim text, which says subject matter search rules are used to identify record segments in a record, and when a record segment is located, subject matter specific tag pairs are inserted into the document. A record segment is text that the typical reader would see on a display and not hidden programming codes. Even if hidden record programming codes were to constitute a record segment, which they are not, Croft cannot identify where a browser inserted subject matter specific tag pairs. Browsers only process existing markup language tag pairs, they do not insert tags. A person of skill in the art would not be able to use a browser to perform the elements of this claim.
(c) when a record segment is identified which is of a particular information type:	Croft quotes from Thistlewaite, P. 166: "A request from a client, in the form of a URL, can specify which original document is being sought, and the CGI program indicated in the URL can then: … (ii) add appropriate HTML markers to achieve the desired presentational format for the client's browser." Once again, we find that this section does not explain how formatting HTML codes are added. There are no subject matter search rules to find where these codes are to be placed or how record segments can be retrieved by a tag enabled application, for example, in response to a data

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	reference being activated in another record.
accessing the tag pair associated with the information type; inserting the begin tag before the identified segment and inserting the end tag after the identified segment.	Croft states further that: "A person of skill in the art understands that when particular types of information are recognized by a web browser as it renders the page for display for viewing, the browser inserts begin and end tags specific to the information type into the web page being displayed to the user." Croft has not provided an example in Thistlewaite of this novel feature where browsers insert tags into documents. Beside the fact that browsers do not do this, it is also counterproductive for a browser, which is a general purpose program with no relationship to any database, documents, or records, to interpret content in records or even record segments. Browsers do not use subject matter specific search rules to search a record for record segments, for example, a data reference or a record segment that can be retrieved by a tag enabled application (for example, by activating a data reference in another record to retrieve the record segment) and to then insert subject matter specific tags where there were no tags. A person of skill in the art would not be able to use a browser to perform the elements of this claim.
86. [i] A method for use with an application wherein specifying references (SRs) in one record to other records which are selectable to access the other records are visually distinguished from other	Here, Croft attempts to combine two references, the Thistlewaite reference with a second reference, the Microsoft Internet Explorer Version 4.40.308 to perhaps make an obviousness argument. Thistlewaite does not discuss the Internet Explorer browser or its features.

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference**
record information so as to indicate selectability,	Croft discloses the use of partial URLs, but this is a concept that is never mentioned by Thistlewaite. In fact, Thistlewaite never even provides a single sample address for consideration. Croft quotes from Thistlewaite, page 171: "Alternately, the Web client might issue a search request against a hyperbase, or some sub-collection within the hyperbase. All such requests are mediated by a suite of CGI programs in the server. In response to a request for a particular index page, the relevant CGI program will dynamically generate a HTML page containing the index information." It is very clear from this discussion that whatever will be shown in the lower window of the browser is not a file address or even a partial file address, but will be a complex CGI request. Thistlewaite is silent on the format of the CGI request, but we can be certain that it will be a similarly complex notation.
[ii] the method also for use with a system which enables a user to designate and also select SRs where designation comprises pointing to an SR without selection and,	Thistlewaite never discusses the concept or designation without selection. Croft attempts to show a feature of the unrelated Internet Explorer browser, never discussed by Thistlewaite, in the following screen shot:

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	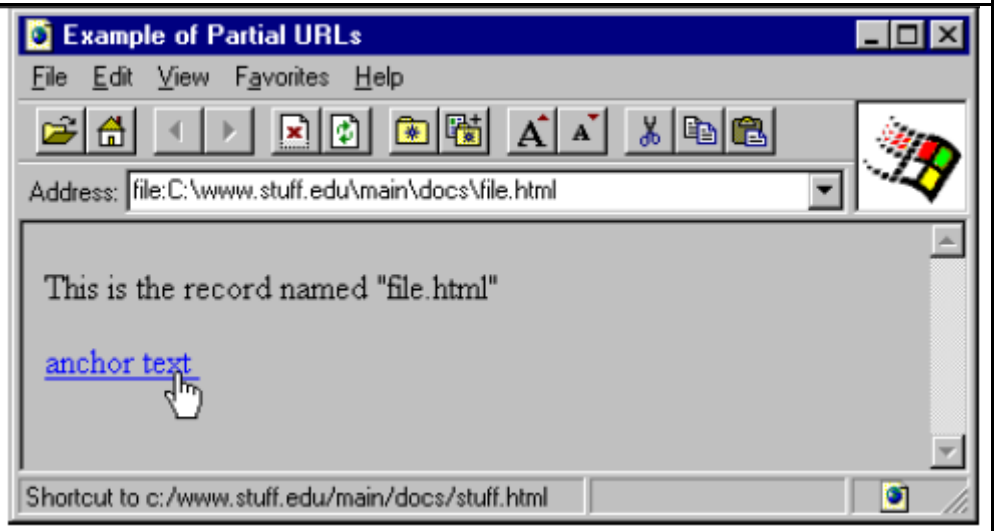 in order to attempt to show that in the lower text box is displayed an address of the file: "c:/www/stuff.edu/main/docs/stuff.html" as a cursor is placed near the text "anchor text", attempting to confuse us with the inference that a file name is to constitute other "record information" which it is not (see below) or that the address shown in the lower text box is used in some way to render the text "anchor text" more specific.
[iii] wherein a seemingly general SR is modified by other record information which renders the SR relatively	Thistlewaite does not discuss a general SR modified by other record information.

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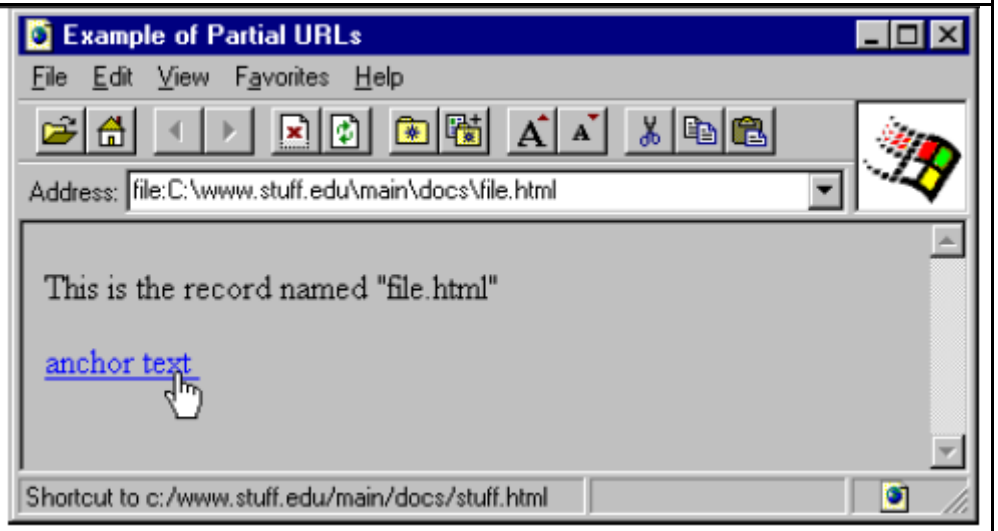
specific,	 The example Croft offers fails to be relevant to claim 86 because there is nothing any reader of the text segment that is presented: "This is the record named "file.html" anchor text" that anyone would understand as anything more than gibberish, and no amount of information can be provided to make the text "anchor text" (presumably the SR) in this example relatively specific. Furthermore, because Thistlewaite does not discuss partial URLs, if that were to be a other record

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
	information, which it is not, Croft has failed to show that the text "anchor text" is modified by any other record information. Other record information in the '889 patent does not include hidden programming codes to be analyzed. In fact, the '889 patent teaches away from using such hidden programming codes as it can be detrimental for a physician to see the text SR "ECG" and then not have any idea what modifier reference (MR) information is used in hidden programming codes. For example, the physician would not know what date is being associated with the "ECG" if it were hidden. Inherently, the physician cannot trust such a system and from a printed copy of a medical report that included the DR "ECG", the reader would not have the context to determine why the DR "ECG" was identified.
[iv] the method for indicating the specific nature of an SR prior to selection and comprising the steps of:	Thistlewaite does not discuss indicating the specific nature of any SR prior to selection and does not provide any steps between displaying text and prior to selection.
(a) when an SR is designated, indicating the specific nature of the SR.	Thistlewaite does not designate SRs. Croft introduces a second reference, the Internet Explorer, in the example below:

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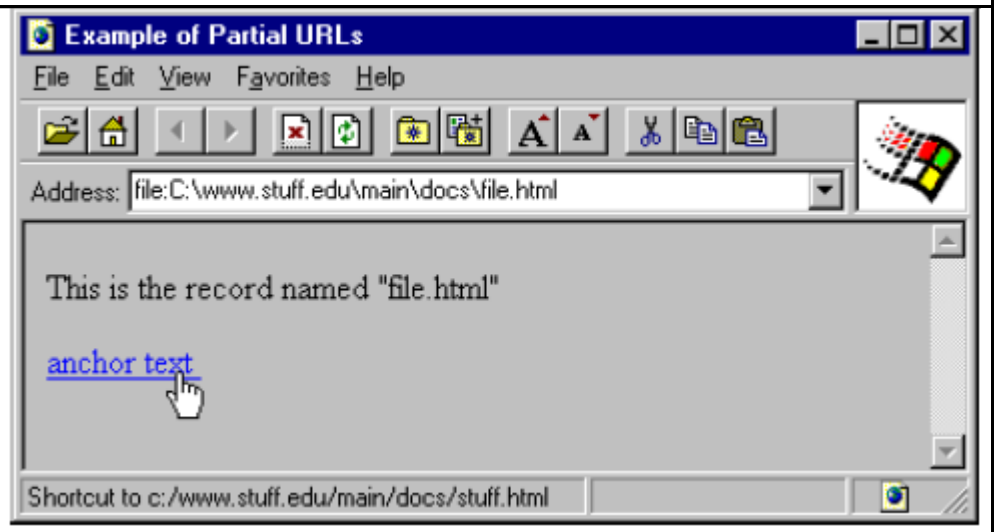
U. S. Patent No. 6,516,321	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
	 However, the specific nature of the SR (assumed to be "anchor text") is not revealed by the overcomplicated address. Once again, the '889 patent teaches away from using such hidden programming codes as it can be detrimental for a physician to see the text SR "ECG" and then not have any idea what modifier reference (MR) information is used in hidden programming codes. For example the physician would not know what date is being associated with the "ECG" if it were hidden. Inherently, the physician would not trust such a system and from a printed copy of a medical report that included with the DR "ECG", the reader would not have the context to determine why the DR "ECG" was identified. The example Croft offers fails to be relevant to claim 86 because there is nothing that any reader of the text segment presented

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Paul Thistlewaite Automatic Constructions and Management of Large Open Webs - March 1997 Reference
	"This is the record named "file.html" anchor text" would understand as anything more than gibberish, and no amount of information can be provided to make the text "anchor text" in this example more specific. The Federal Circuit in its Dec. 26, 2007 ruling stated that a data reference is: "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Thistlewaite does not discuss the use of links to refer to more than one data record. Thistlewaite is precise that any link is to point to a specific record only, and not to more than one record. Furthermore, the example provided by Croft shows only a single hyperlink as the address in the lower text box, and it identifies only a single file and is not capable of referencing more than one record.

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APPENDIX A-5

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

Appendix A-5

The Mills reference, Todd Mills, "Providing World Wide Access to Historical Source, April 7-11 1997, is *not* prior art to U.S. Patent No. 6,516,321 patent which has a priority date of at least April 10, 1996.

Assuming the Mills reference is prior art (which it is not), the following analysis is presented.

U. S. Patent No. 6,516,321	**Elements Not Disclosed In Mills "Providing World Wide Access to Historical Source" Reference**
27. A method to be used with a rule set including subject matter specific tag pairs and corresponding search rules, a separate tag pair for each of a plurality of different information types and a separate search rule for each pair, each pair including a begin tag and an end tag, the method comprising the steps of:	This claim preamble makes it very clear that the claim deals with "subject matter specific tag pairs and corresponding search rules" which means there are both "subject matter" tag pairs and "subject matter" corresponding rule sets. The '321 patent is quite clear that the tags referred to are markup language tags, such as HTML or XML tags. Such tags are typically paired sets, a begin tag and an end tag that are placed around a specific text segment. The '321 patent text and this claim refers to tagging in either of two ways, either: 1. the recognition of a data reference (subject matter) and the provision of markup language tags to retrieve a related data record or record segment thereof, or 2. the unambiguous recognition of text that identifies and corresponds to a specific record segment (subject matter) and the provision of related markup language labeling that can be used by a tag enabled application to locate the specific segment in the record. Mills fails to demonstrate either of the above two tagging mechanisms. Mills states the data had record links already determined, albeit not stored directly in the text (P. 2): "The original form of the data was inconvenient for processing, since it contained duplicate information and the results of the nominal record linkage were separated from

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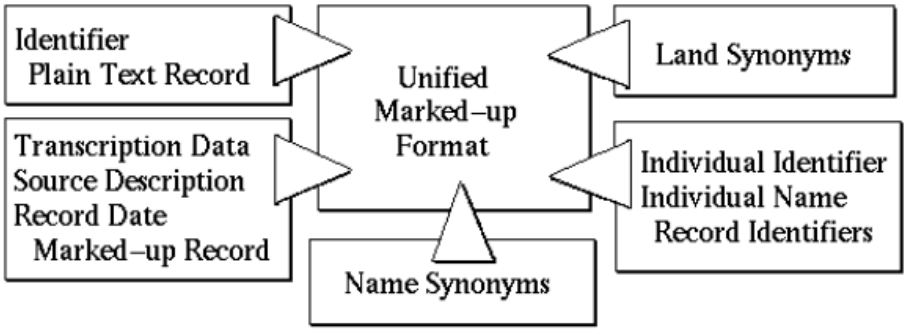
U. S. Patent No. 6,516,321	Elements Not Disclosed In Mills "Providing World Wide Access to Historical Source" Reference
	the main text." So, while Mills is concerned that the links are stored separately, they nonetheless already exist and only needed to be merged into predefined sections of the records. On the next page, Mills shows Figure 1 and then states relating this Figure 1 (P. 2):  "This process resulted in a single file for each of the historical sources, from which other formats could easily be generated. This unified format is stored as records in the OODB and HTML is generated automatically at query time. An example record is given below" The process in Figure 1 shows exactly what Mills intended and it is not what Croft has proposed. The results of the "of the nominal record linkage" were incorporated into a single file. This text is followed by the following example record. <DOCUMENT>

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Mills "Providing World Wide Access to Historical Source" Reference
	<IDENTIFIER>0140.00552</IDENTIFER> <TYPE>PRO STAC8/289/30 in ERO transcript</TYPE> <DATE date=25.11.1606>26.11.1606</DATE> <TEXT> <NAME identify=H206 name="Richard Harlakenden"> Richard Harlakenden</NAME> forced to enter a bill for forcible detainment of <NAME identify-F314 name="Wm Ford"> Wm Ford</NAME> and others <NAME identify-F314 name="Wm Ford">Wm Ford </NAME> found guilty of forcible detainment of <LAND identity=152 name="Chalkney Mill"> Chalkney Mill</LAND> and <NAME identify=H206 name="Richard Harlakenden"> Harlakenden</NAME> was put in possession by the sheriff through a writ of restitution </TEXT> </DOCUMENT> This is a markup language tagged document. To be clear, it has been marked-up prior to storage or use by Mills by a person. Only from this already-tagged document, can a HTML tagged document be generated. Mills goes on to state on P. 3 that: "Manual indexing of the references to these individuals has allowed this domain specific information to be encoded in the file format …" (emphasis added) Croft cannot insinuate an automated or manual method using subject matter search rules where there is none. Claim 27 of the '321 patent makes clear that there are "subject matter tags" and "subject matter

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Mills "Providing World Wide Access to Historical Source" Reference
	search rules". According to the patent, the tags are used when the search rules have a match with either a data reference or a data reference/modifier reference. The tags are also used when a record segment, for example, a segment of a record, can be retrieved by a tag-enabled application when it is requested by a data reference from another record. Croft quotes from P. 3: "Two individuals may share the same name, and one individual may have more that one name, or a name may have a number of possible spellings. Thus within the text, people's name are marled up with a unique identifier and the normal form of the name." The problems that Mills has with identifying people is made clear on P. 5: "Notes are provided to guide browsers, stressing particularly the difficulty of identifying individuals from names reliably." (emphasis added) and on P. 6: "This is important, since the problem of deciding how to map names to individuals has no self-evident solution." (emphasis added) Note, Croft has not shown any "subject matter search rules" that Mills has used to resolve how identical names can be differentiated into separate subject matter and to "subject matter specific tag pairs". His comment above identifies the unreliability to be expected from the human indexers that he relies upon. Mills is also *teaching away* from attempting to construct "subject matter search rules" as there is "no self-evident solution" to be encapsulated in a rule. Similarly, Mills states on P. 3: "Since land boundaries change over time, land names are identified by a series of numbers

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In Mills "Providing World Wide Access to Historical Source" Reference**
	which refer to land regions, each identifier having a llifetime in much the same way as a reference to a person." Again, Croft cannot show a "subject matter search rule" to determine what is a land name and what "subject matter specific tag pairs" correspond to it. Croft injects misleading text to confuse the issue at hand. His quotation of Mills on P. 8 states: "The interface currently supports full-text querying, including phrases. Due to the special markup of Earls Colne data, we can also allow the user to explicitily search dates, names, or lands. Currently this involves specifying an attribute-value pair in the query, such as "land:Chalkey" This quote from the portion of Mills titled "The Search Interface" describes a search engine or database search feature that is unrelated to claim 27. It does describe a process that on face value located information in a database based on a manually entered search text, but it is not related to "subject matter search rules" of the patent that when satisfied results in the modification of a record with the insertion of "subject matter tag pairs".
(a) receiving a record;	
(b) examining the record according to the search rules to identify record segments including information of each of the information types;	Croft has not shown that the record is examined. The text is the portion that a person intending to read the record would be shown. In Mills (P. 1), this is as follows: "Since the expected readership of the documents ranges from schoolchildren to experienced researchers …" Clearly, Mills is not expecting schoolchildren to read complex and confusing mark up tags when the record when presented.

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In Mills "Providing World Wide Access to Historical Source" Reference**
	The '321 patent is precise that the search rules are searching text segments in a record to find subject matter in the form of data references (the Federal Circuit has ruled that "data references" are unique words or phrases, i.e., text), and data segments can be retrieved by a tag-enabled application, for example, when referenced by a data reference in another record. See, the '321 patent, Col. 2, ll. 52–56: "Using a URL scheme a record can be retrieved by a tag enabled application. Thereafter, the application parses the record to identify specific data types required by the application and uses the identified data types." Instead, Mills implies that the hidden and manually provided markup tags are searched for various purposes.
(c) when a record segment is identified which is of a particular information type:	Mills does not discuss record segments (text) being identified to be of a particular information type. Mills refers to a manual process to tag text.
accessing the tag pair associated with the information type; inserting the begin tag before the identified segment and inserting the end tag after the identified segment.	Mills shows an existing record that has been marked up with tags manually. The tags are already inserted before and after text segments.

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APPENDIX A-6

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

U. S. Patent No. 6,516,321	**Elements Not Disclosed In Andreas Myka *et al.*, Automatic Hypertext Conversion of Paper Document Collections Reference**
86. [i] A method for use with an application wherein specifying references (SRs) in one record to other records which are selectable to access the other records are visually distinguished from other record information so as to indicate selectability,	Myka discloses a system where "scanned raster images" of text are presented (Myka, P. 69) for a user to read. He is tying to "… preserve the look and feel of the original documents with regard to display of library objects (Myka P. 85), which he believes to be of paramount importance. He apparently wants to ensure the reader sees exactly what had previously been written in its original formatting, fonts, and decoration. To achieve this, Myka resorted to a non-standard process (P. 86): "In order to be able to combine rater image representation with hyperlink navigation, the common hypertext model had to be modified. By modification he means that books and other paper documents are scanned, the scanned image is processed (with multiple pages discussing the existing limitations of dealing with scanned images of text, for example see Pages 69, 70, 80, and others) to determine where in the scanned image should a link be placed. However, and importantly, the links that Myka creates are hot spots in a raster image of a document, as opposed to creating hyperlinks in the text of a document. The hot spots are created by superimposing the graphic image of a box over the raster image of a document, see P. 89: "… these boxes have to be inserted into the clickable image before the image is transferred from the server to the client. " In Claim 86, the term "specifying references (SRs)" are the same as a "data reference (DR)" or a "data reference (DR)/modifier reference (MR)" in the text of a record. Specifically, the Federal Circuit ruled that a "specifying reference" is defined as:

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Andreas Myka *et al.*, Automatic Hypertext Conversion of Paper Document Collections Reference
	"…"a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Clearly, the Federal Circuit did not include a raster image or a portion of a raster image as a "specifying reference." Hence, Myka does not disclose "specifying references." It is worthwhile to explore the difference between Myka and this claim. The following screenshot is a web browser display with a sample medical report as shown in the 5,895,461 patent, the earliest patent from which the '321 patent is a continuation-in-part.

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	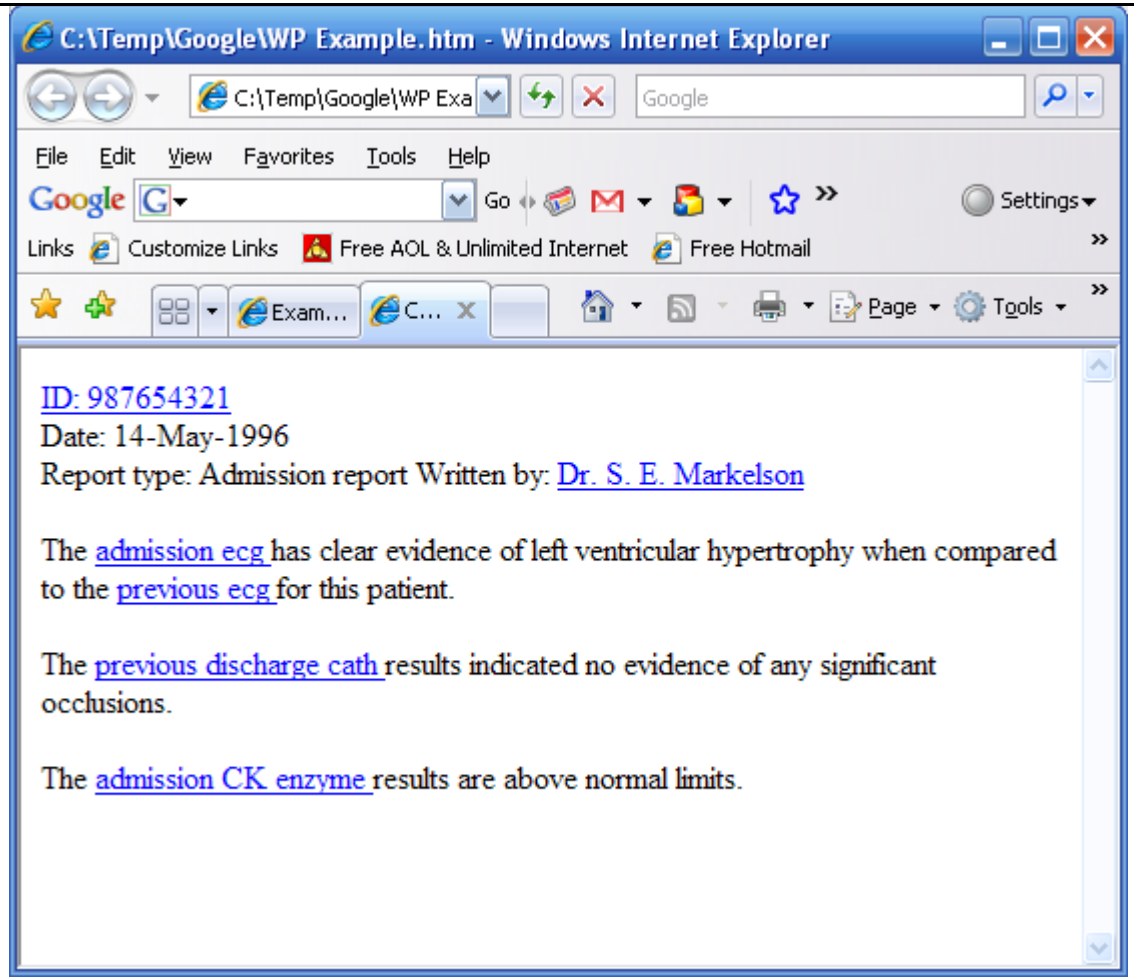

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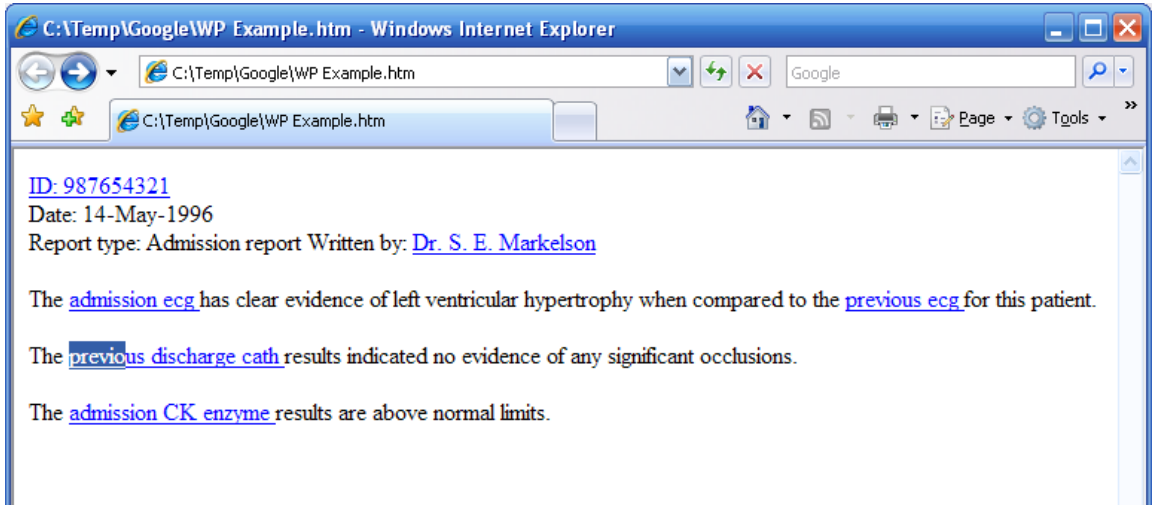
	Clearly shown are the ASCII text sequences that a person can read as well as certain ASCII text indicating that they are selectable by being underlined and in blue text. Note that if a mouse button is depressed while the cursor is dragged across some of the text the specific text region is highlighted on a character-by-character basis  This allows users to perform useful functions like copying text from a web page to a word processor for any purpose or to allow an add-on program to provide the user with a definition of the selected word.

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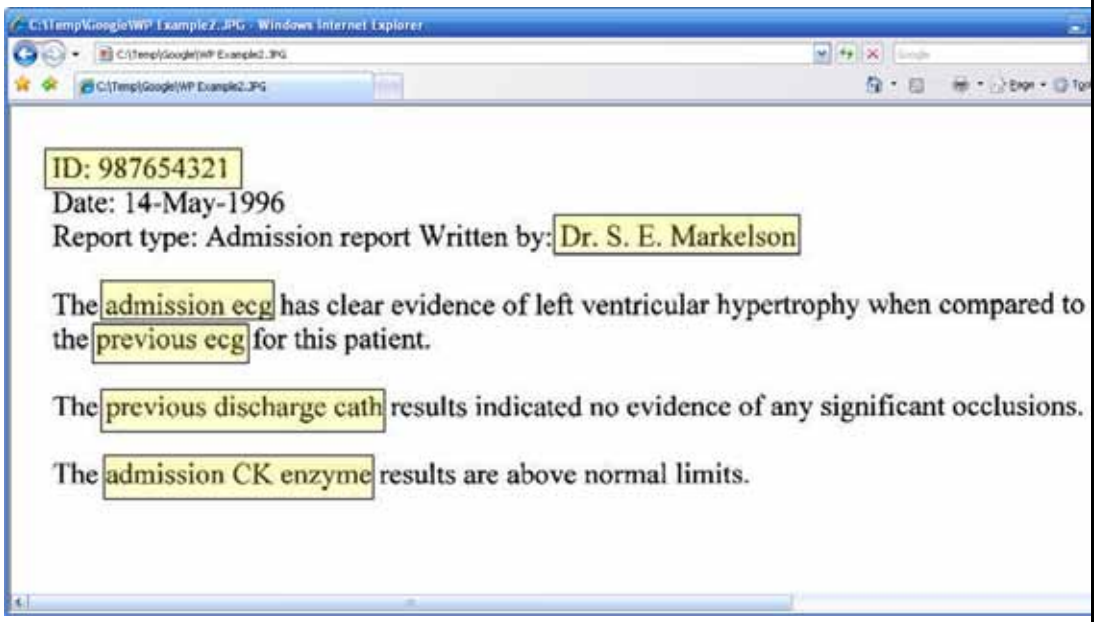
	However, in the Myka reference, the user is presented with a raster image of the document. Using the previous example, we see the scanned image now presented with hot spot boxes superimposed using a graphics package similar to what Myka describes:  The link areas are distinguished by overlaid colored boxes that are merged to be part of the raster image. Each box corresponds to a pixel offset from the top left corner and is distinguished by a height and length. Conventional hyperlinks in text documents are marked as a sequence of program codes that precede and follow the text they relate to in the HTML hidden programming of

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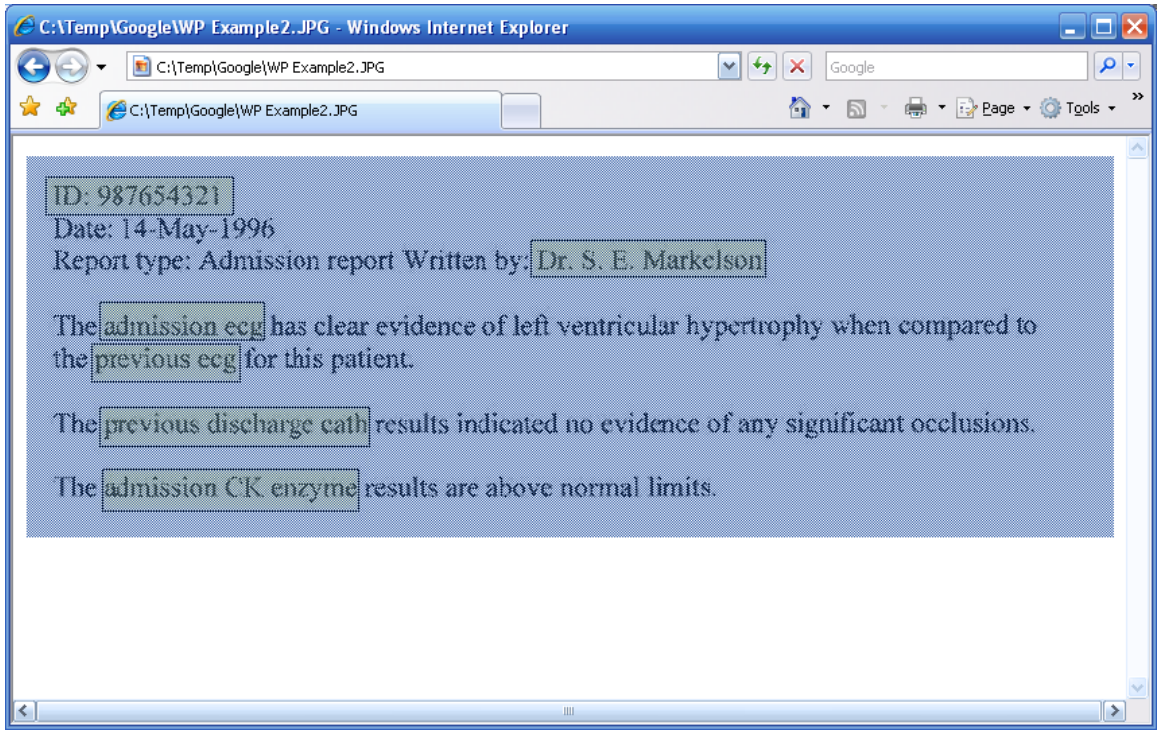
U. S. Patent No. 6,516,321	Elements Not Disclosed In Andreas Myka *et al.*, Automatic Hypertext Conversion of Paper Document Collections Reference
	the web page. As can be seen below, a raster image of the above web page *cannot* be selected with a cursor on a character-by-character basis. Instead, only the entire raster image can be selected.  When the raster image is copied and pasted into a word processor, such as Microsoft Word, it

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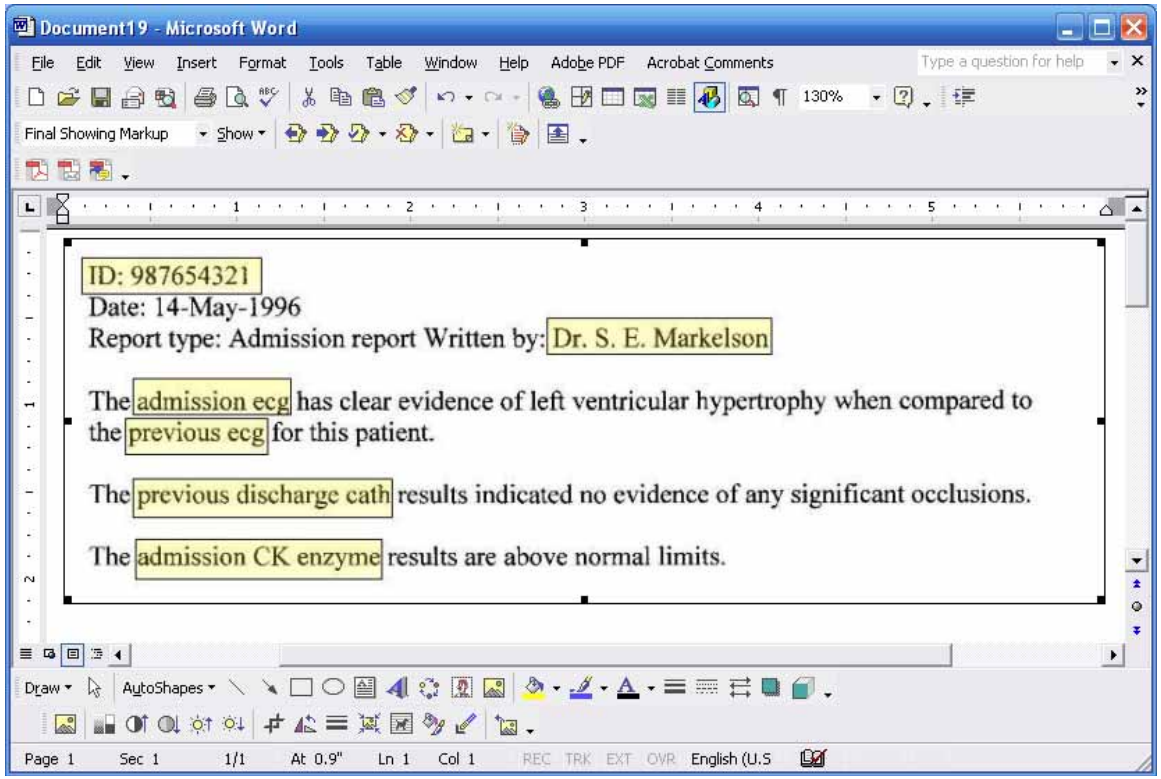
	cannot be edited as a text document because it is really only a picture of the words, not text.  Attempting to click with the picture of the text produces Word's Format Picture feature, because it is *not* text.

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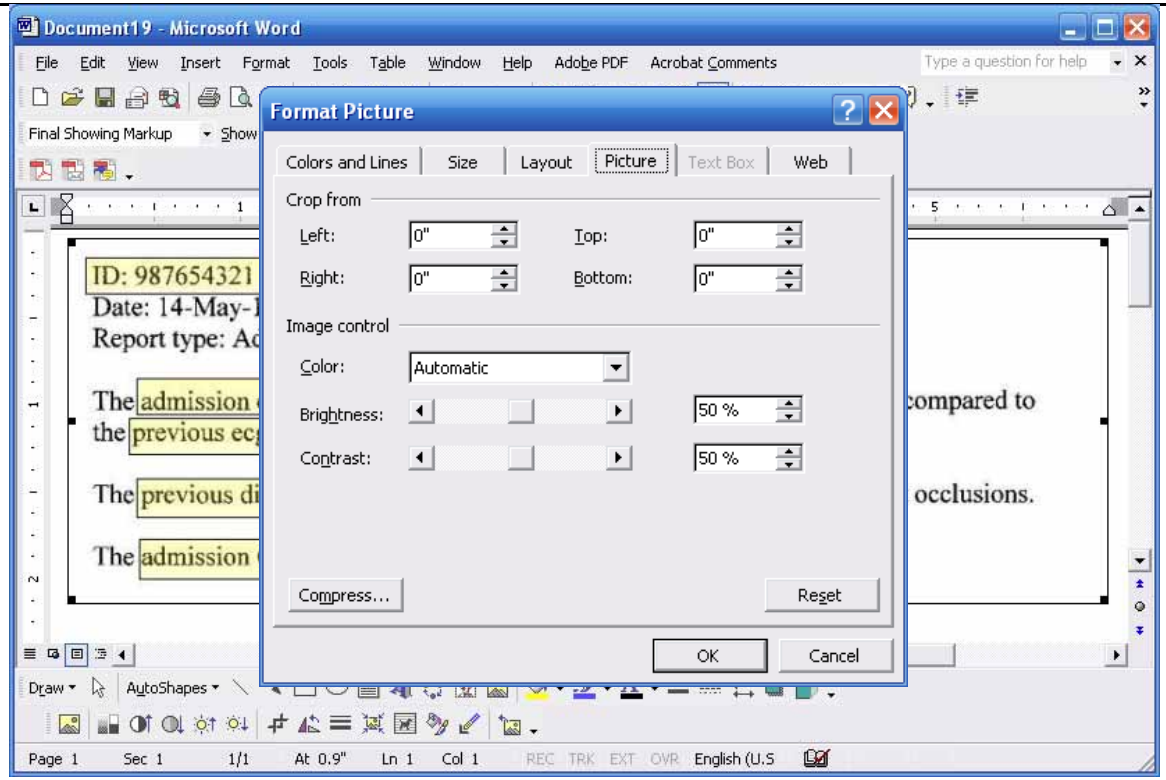
U. S. Patent No. 6,516,321	Elements Not Disclosed In Andreas Myka *et al.*, Automatic Hypertext Conversion of Paper Document Collections Reference



As also stated on P. 89

> "Because the browser has been specifically tailored to representation of raster images in connection with hypertext links, the hypertext functionality is completely integrated into the imaging system …"

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In <u>Andreas Myka *et al.*, Automatic Hypertext Conversion of Paper Document Collections</u> Reference**
	Another distinguishing factor that makes text different than a rater image is the ability of the user to change the font and size of the text in a browser. In most browsers, there is a setting that allows the user to make the text a larger or smaller font or to even change the font. Since a raster image is a fixed item the font of a text image cannot be changed any more than the picture of a flower can be changed in a browser to a different color. Myka does not use subject matter specific search rules to find information in a record. He states on P. 80: "This expression is modified by means of the confusion matrix (cf [2206]) and tagging patterns. The confusion matrix is created by means of specifying the most common confusions of characters of character patterns with regard to the OCR software under concern. Because errors of an OCR package may as well depend on the fonts that are used, the global confusion matrix has to be evaluated and modified one for every document type in order to achieve optimal results." Myka also presents us with concepts quite foreign to the '321 patent, the element of confusion and confusion matrices which apparently allow a zero "0" to be considered as an "O" or an "o".
[ii] the method also for use with a system which enables a user to designate and also select SRs where designation comprises pointing to an SR without selection and,	As discussed above, Myka does not provide for a "specifying reference," since he only displays a raster image.

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In Andreas Myka *et al.*, Automatic Hypertext Conversion of Paper Document Collections Reference**
[iii] wherein a seemingly general SR is modified by other record information which renders the SR relatively specific,	Myka des not disclose a general "specifying reference" being modified by other record information. Croft offers us this quotation from Myka (P. 79): "How the evaluation of the processed document with regard to a link's parts (anchor and destination) is done, depends on the type of information: character pattern (section 6.3.2) or layout information (section 6.3.2). The final generation of links depends ion the fact whether linking is done locally (section 6.3.2) or globally (section 6.3.2)." and from P. 80: "Furthermore. specific types of information are encoded using specific character patterns as cues. In printed documents, these cues may be based on (additional) layout characteristics as well. The automatic detection of such cues within the original electronic documents can be solved in a straightforward way by means of matching two fixed pattern exactly, thereby ignoring only typing errors. However, even locating the occurrences of character patterns only within an optically scanned document is more difficult. This is due to the fact that today's character recognition systems cannot provide for completely correct output [205]. (emphasis added) Myka examines the font size or layout position in the document to make certain judgments about the contents of the document. Based on this, he attempts to determine the presence of a linkable portion of the raster image.

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	However, Myka is quite clear about the limitations involved, on PP. 81–82: "The treatment of layout information, to a certain extent, is even more difficult than the treatment of information concerning character patterns. This is due to the fact that certain types of layout information are more vague. With regard to the ScnaWorX software this is especially true for information about fonts and zoning. Other software packages (like e.g. Omnipage) may perform better with regard to recognition of basic printing modes such as bold face, italics, and ordinary mode, but do not provide for information on font families. Therefore, the relevance of this kind of information, today, has to be estimated and handled appropriately." (emphasis added) Hence, we see that, at best, layout information is only a partially reliable means to a best infer that text may correspond to a reference to other data. However, none of this has any meaning on how "a seemingly general SR is modified by other record information". A document zone or a specific font is not other record information. Record information is text in a document that allows the typical reader to read and understand a document. The mere altering of the font appearance does not qualify. In the instance of a physician looking at a medical report for patient ID 987654321, the text "egg" is modified by the patient ID number so only an egg for that patient can be retrieved, as a physician would expect. The changing of the text "egg" to a bold font, while distracting, would not change the physician's expectations in reading the report. Furthermore, while Myka's scanned document preserves the image of the document formatting,

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	the equivalents in a text document are hidden HTML programming codes that the typical reader does not read or print. These codes describe a font to be used, the color of the text, the size of text, and its formatting. There is an identical analogy for text documents in a word processor, albeit somewhat more difficult to locate. Croft is suggests that the general "specifying reference" has to be modified by hidden programming codes that the intended reader will never see, and that is not a part of the claim.
[iv] the method for indicating the specific nature of an SR prior to selection and comprising the steps of:	Myka does not have a specifying reference.
(a) when an SR is designated, indicating the specific nature of the SR.	Myka does not have a specifying reference and does not indicate the specific nature of the specifying reference as no record information is used to render the specifying reference more specific.

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APPENDIX A-7

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

U. S. Patent No. 6,516,321	**Elements Not Disclosed In George Krupka, SRA, Description of the SRA System as Used for MUC-6 Reference**
27. A method to be used with a rule set including subject matter specific tag pairs and corresponding search rules, a separate tag pair for each of a plurality of different information types and a separate search rule for each pair, each pair including a begin tag and an end tag, the method comprising the steps of:	Krupka describes a system that attempts to discern the meaning of a sentence by examining words in the sentence and comparing them to previously defined grammatical structures. It is a highly experimental system with both a manual training aspect, see sections "Training and Parameterization" and "Extraction Bias" on P. 224 and "Test Results" on PP. 228-234. The latter shows various levels of precision, from 40% to 85%, that were achieved in testing the Hasten system using various parameters. Hasten is not capable of a 100% precision because it is devoted to inferring the meaning of a sentence in the English language which, even for people, is impossible to always be correct. Kyupka discusses both Hasten (an experimental text extraction system) and NameTag (a commercial software product). Documentation for these are products are *not* provided and *cannot* be inferred from the Krupka reference. Krupka states on P. 221: "As illustrated in Figure 2, the user annotates examples of what to extract, labeling the important regions of text with their relationship (e.g. the successee) to the expressed concepts (e.g. management succession)." (emphasis added)

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U. S. Patent No. 6,516,321	Elements Not Disclosed In George Krupka, SRA, Description of the SRA System as Used for MUC-6 Reference

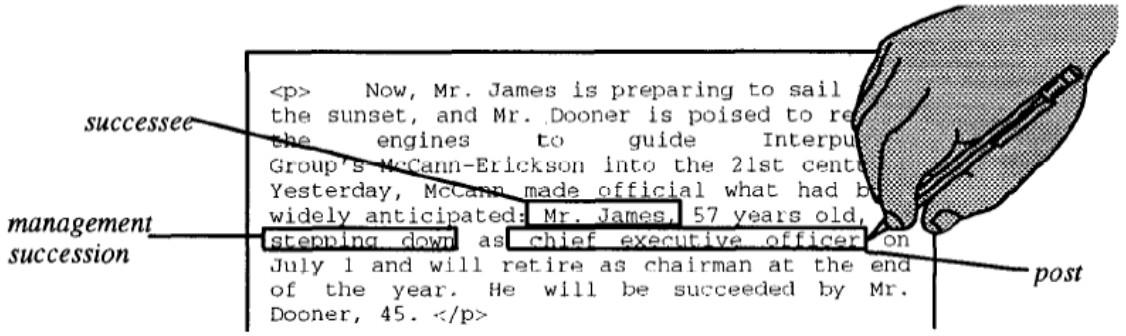

Figure 2: HASTEN's Extraction Vision

and on P. 222:

> "Hasten uses that example to analyze subsequent text, Hasten computes the similarity between an annotated example and the subsequent text and uses that computation to decide how to analyze it. As more examples are encoded Hasten's coverage and accuracy improve." (emphasis added)

Also, on P. 222:

> "The key module of HASTEN is the Analyzer, which matches the extraction examples to incoming text and decides what to extract. The Analyzer has two components, as shown in Fig. 4. The Matcher computes the similarity between them. The Matcher also produces an annotated sentence by transferring the extraction annotation from the Example in the incoming sentence.

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U. S. Patent No. 6,516,321	Elements Not Disclosed In George Krupka, SRA, Description of the SRA System as Used for MUC-6 Reference

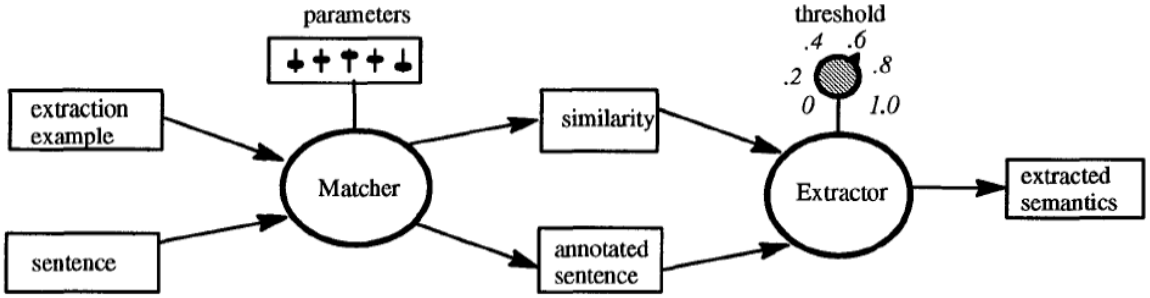

Figure 4: Extraction by Example

The Extractor compares the similarity values of all extraction examples, selects the most similar examples that exceeds the threshold, and then converts the maximal annotated sentence into a semantic representation."

Krupka teaches *away* from using subject matter search rules, instead, he uses heuristic computing to decide what matches are similar to a previously manually annotated text. The parameter sliders and the threshold dial allow the Hasten system to be adjusted to tolerate similarities as opposed to the exact matches taught by the '321 patent.

In an example from U.S. Patent No. 5,895,461 (the earliest patent from which the '321 is a continuation-in-part), the text "ecg" is recognized as a data reference (with a modifier it can be "current ecg" or "admission ecg" of Fig. 9 in the '461 patent). However, if instead similarities are tolerated, the text "emg", if not already defined, can be found to be similar to and identified as equivalent to "ecg". No physician, who is one type of typical reader of records in the '321 patent,

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U. S. Patent No. 6,516,321	Elements Not Disclosed In George Krupka, SRA, Description of the SRA System as Used for MUC-6 Reference
	could ever trust or use a system that delivers similar, but different and mistaken results. Krupka does not have subject matter specific tag pairs. Krupka does not show an example of tag pairs. Croft relies on text from Krupka on P. 232: "NameTag uses its own specification that classifies names and other key phrases, and can either generate SGML annotated text or a table of extracted entities." But this does not tell us that there are "subject matter specific tag pairs". Only information about a sentence is inferred and then markers describing the sentence structure are maintained. Even the text "SGML annotated text" does not reveal if the text is annotated with pairs of tags, single tags, or if the tags are maintained in a separate markup language file. This claim preamble makes it very clear that the claim deals with "subject matter specific tag pairs and corresponding search rules" which means there are both "subject matter" tag pairs and "subject matter" corresponding rule sets. The '321 patent is quite clear that the tags referred to are markup language tags such as HTML or XML tags. Such tags are typically paired sets, a begin tag and an end tag that are placed around a specific text segment. The '321 patent text and this claim refers to "tagging" in either of two ways, either: 1. the recognition of a data reference (subject matter) and the provision of markup language tags to retrieve a related data record or record segment thereof, or 2. the unambiguous recognition of text that identifies and corresponds to a specific record segment (subject matter) and the provision of related markup language labeling that can be used by a tag enabled application to locate the specific segment in the record.

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U. S. Patent No. 6,516,321	Elements Not Disclosed In George Krupka, SRA, Description of the SRA System as Used for MUC-6 Reference
	Regarding the provision of tag pairs to create a hyperlink, Krupka is completely silent on this issue. He has no reason to discuss hyperlinking, when he is only attempting to infer the meaning of a sentence. The '321 patent is quite clear on the steps of locating data references and in some cases modifier references combined with data references to create links (by inserting tags before and after) the data reference. The '321 patent is a continuation-in-part of 6 other patents that relay similar discussions going back to the 60/023,126 provisional application filed on July 30, 1996. This patent also introduces new examples regarding the placement of tags (XMT tags), not seen in the 60/023,126 provisional application, that need to be considered. This section referred to as "Tag Enabling" in the '321 patent discusses the placement of begin tags at the start of a distinct segment of a record and an end tag at the end of the record segment. One purpose of the tags to ensure that the segment can be retrieved when a corresponding data reference refers to the segment. For example, the record segment of a comprehensive ecg record may include a segment "diagnosis" which when appropriately recognized using a rule set can be appropriately tagged with a beginning tag and an ending tag to identify it as the diagnosis segment and to retrieve this section from the larger record. When another medical record includes the data reference "ecg diagnosis," a link can be created that uses a tag enabled application to retrieve just the ecg diagnosis segment. The tag enabled application can search the ecg record for the record segment marked by the beginning and ending tags specifying it as the "diagnosis" segment. The '321 patent is precise that segments of a record are unambiguously recognized in order to be

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U. S. Patent No. 6,516,321	Elements Not Disclosed In George Krupka, SRA, Description of the SRA System as Used for MUC-6 Reference
	tagged to identify that segment. Once tagged, the segment can then be linked to by a subsequent data reference (DR). The '321 patent is replete with examples of record segments that can be tagged, these examples include: Abstract (in a medical report) Diagnosis (in a medical report) Prescription (in a medical report) Heart rate (in a medical report) Title (in a U.S. patent) Cross Reference (segment in a U.S. patent) Background (in a U.S. patent) Fig. 1 description (in a U.S. patent) Claims (a section in a U.S. patent) Claim 1 (in a U.S. patent) and others. To proceed further with a review of the claim, we have to also understand the nature of the expression "subject matter tags" and "subject matter corresponding search rules". In the '321 patent, "subject matter" only refers a data reference (DR) or to text that identifies a record segment. In the case of a DR, the tag pair can be the beginning and ending tags surrounding the DR to create a hyperlink. The search rules used to identify the data reference and possibly any related modifier references that are required prior to a hyperlink being formed are

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	shown in Figs. 3, 6, 7, and 11. In the case of a record segment identifier, the tag pair placed at the beginning of a record segment and at the end of the record segment, and the search rules used to identify a record segment are shown in Figs. 12 and 16. Additional discussion about record segments can be found at col. 2, ll. 34–46 which states: "Recently another method and tool for accessing/manipulating data within a specific record has been developed which specifies universal "tags" which can be used within a record to earmark specific data types. An exemplary "tagging" language is the extensible markup language (XML). The tags are to be used by processor applications which are familiar with the tags to identify specific information types. Applications which are capable of recognizing tags are referred to hereinafter as "tag enabled" and records which include such tags are likewise referred to as tag enabled. Tags are typically paired including a "begin" tag and an "end" tag identifying the beginning and the end of a specific data type within a corresponding record." In col. 5, ll. 13–24, the '321 patent states: "Another object of the invention is to automatically determine whether or not tags (e.g. may suitably be added to a record to identify specific record segments and information types therein and, when appropriate, to automatically add the tags to render the record tag enabled so that a tag enabled application can identify specific information within the record." (emphasis added) In col. 5, ll. 28–35, the '321 patent states:

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U. S. Patent No. 6,516,321	Elements Not Disclosed In George Krupka, SRA, Description of the SRA System as Used for MUC-6 Reference
	"Another object of the invention is to automatically determine whether or not tags (e.g. may suitably be added to a record to identify specific record segments and information types therein and, when appropriate, to automatically add the tags to render the record tag enabled so that a tag enabled application can identify specific information within the record." (emphasis added). In col. 8, ll. 30–41, the '321 patent states: "DR column 30 includes a list of DRs. A DR is a unique phrase or word which may be used in a record to refer to another record or record segment. In the context of a medical facility an exemplary DR may be as simple as "medication given", "ECG report", or "Admission NMR heartbeat". As explained in more detail below, when a processor linking feature is selected, processor 14 searches for DRs in a specified record and, when a DR is identified, links the DR to a record or record segment associated with the DR via a hyperlink or other mechanism. In the preferred embodiment of the invention the longest DRs in a DR list include more than one word." In col. 10, ll. 24–29, the '321 patent states: "When a DR is identified, processor 14 accesses table 5 and identifies the ARS which corresponds to the identified DR. Thereafter, processor 14 uses the ARS to identify information required to construct an address for the record or record segment associated with the identified DR." In col. 13, ll. 10-17, the '321 patent states: "Systems are also contemplated which support both DRs and DR/MR combinations. For

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	example, where DR-1 is term "ECG" and MR1-1A is term "previous", a specification like specification 4 in FIG. 3 and a specification like specification 200 in FIG. 6 may both be supported. In this case, where DR-1 is identified in a record and MR1-1A is not identified, a link to the record or segment associated with DR-1 may still be made. Similarly, when the DR-1/MR1-1A combination is identified, a link to the record or segment associated therewith can be made." In col. 20, ll. 12-16, the '321 patent states: "To this end, generally, processor 14 is equipped to recognize characteristic sets which correspond to different record segments and, when a specific segment is identified, can place tags around the segment which are recognizable by other applications." In col. 20, ll. 34 49, the '321 patent states: "For example, in the case of XML type patient ID 300, referring also to FIG. 13, XMLRS 312 includes a variable character string 314 which has a form recognizable as a patient ID. In the present case it is assumed that each patient at a medical facility is identified by an unambiguous and distinct character string including two numbers followed by two letters which are in turn followed by five numbers. In XMLRS 314 a "#" character indicates a digit from 0 through 9 while an "X" character indicates a letter. The first two characters are reserved for a year indication (e.g., 99 for 1999, etc.) The third and fourth characters are reserved for first and last name initials (e.g., Mary Jones would be M J). The final five characters indicate a unique consecutively assigned number provided via an admit, discharge, transfer (ADT) system (not illustrated) when a patient is admitted to the facility."

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	Croft uses the example on P. 225 of Krupka: INPUT: ”Marketing & Media – Advertising : John Dooner Will Succeed James At Helm of McCann- Erickson” EXAMPLE: 930219-0013.B (similarity 1.0) “He succeeds Lance R. Primis” COLLECT: “<SEM :SUCCESSION 747> :IN #<SEM :PERSON 2442 :NAME “John Dooner”> :OUT #<SEM :Person 2442 :NAME “James”> The Analyzer had created the semantic PERSON representation during a previous processing phrase, and linked them to the originating text. The Analyzer accesses these representations and fills the :IN and :OUT slots. The next match occurred in sentence 2, resulting in the additional extraction of the organization and post: INPUT: “Yesterday, McCann made official what had been widely anticipated: Mr. James, 57 years old, is stepping down as chief executive officer on July 1 and will reture as chairman at the end of the year.” EXAMPLE: 940128-002 (similarity .86) “E-System Inc. said E. Gene Keiffer stepped sown as chief executive officer” COLLECT: #<SEM :SUCCESSION 744> :ORG #<SEM :ORGANIZATION 2351 :NAME “McCann”> :OUT #<SEM :PERSON 2391 :NAME “James”>

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In George Krupka, SRA, Description of the SRA System as Used for MUC-6 Reference**
	:POST "chief executive officer" While this lengthy section may show some interesting abilities of the Hasten software to infer various meanings to the document, if fails to show a single tag pair that is inserted before and after a record segment, as discussed in element (c) below.
(a) receiving a record;	
(b) examining the record according to the search rules to identify record segments including information of each of the information types;	Krupka does not examine a record to identify record segments: a data reference, a data reference and modifier reference combination or a record segment. Instead, at most, he looks for parts-of-speech and he can combine them to infer a meaning to a sentence. The '321 patent uses the phrase record segment to describe text with a data reference, see, col. 13, ll. 53 - 58: "For example, assume a first combination including the MR "report" within two terms of the DR "ECG", a second DR/MR combination includes the MR "post-op" within five terms of the DR "X-ray image" and a record segment includes the phrase "The ECG post-op report and the X-ray image"." and to describe a distinct portion of a record, see col. 22, ll. 14-19 : "For example, in the case of a United States patent specification, it is known that each patent generally includes several different sections or segments such as an abstract, a background, a summary, a brief description of drawings, a detailed description, a set of

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Appendix A-7

U. S. Patent No. 6,516,321	**Elements Not Disclosed In <u>George Krupka, SRA, Description of the SRA System as Used for MUC-6</u> Reference**
	claims, figures and so on."
(c) when a record segment is identified which is of a particular information type:	Krupka does not discuss a record segment which is a data reference, data reference/modifier reference combination or a record segment that can be retrieved by a data reference in another record, and the record segment must be of a particular information type.
accessing the tag pair associated with the information type; inserting the begin tag before the identified segment and inserting the end tag after the identified segment.	Krupka does not identify record segments and does not show tag pairs that are inserted before and after an identified segment. Krupka does not show any tag pairs.

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Krupka, besides not describing the elements of claim 27 of the '321 patent, is also merely additive to the patents considered by the United States Patent and Trademark Office (PTO) in the course of examining the '321 patent.

For example, consider U.S. Patent No. 4,864,501 to Kucera who describes the tagging of words in a document. The abstract states:

> "A system for annotating digitally encoded text includes a dictionary of base forms. For each base form, a first set of tags represents possible grammatical and syntactic properties of the word, and may encode inflectional paradigms of the base form, or feature agreement behavior and special processing. … The morphological analyzer recognizes words formed by prefixation and suffixation, as well as proper nouns, ordinals, idiomatic expressions, and certain classes of character strings. The tagged words of a sentence are then processed to parse the sentence."

GRAMMATICAL ANNOTATION OF TEST SENTENCE

Loc.:	Word:	Tag String:
1:	John	NP
2:	wants	NNS (BF = want) VBZ (= BF)
3:	to	IN TO
4:	sell	VBI VBP
5:	the	AT
6:	new	JJ
7:	metropolitan	JJ
8:	zoo	NN
9:	all	ABN QL RB
10:	his	PP$ PP$$
11:	cleverly	RB
12:	trained	VBN (BF = train) VBD (= BF)
13:	and	CC
14:	brilliantly	QL RB
15:	plumaged	JJ
16:	parakeets	NNS (BF = parakeet)
17:	.	.

FIG. 5

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U.S. Patent No. 4,887,212 to Zamora also discusses tagging of words in a document. The Abstract states:

> "A system for annotating digitally encoded text includes a dictionary of base forms. For each base form, a first set of tags represents possible grammatical and syntactic properties of the word, …"

U.S. Patent No. 4,994,966 to Hutchins also discusses tagging words in a document. The Abstract states:

> "A system and method for parsing natural language is provided. The system comprises a plurality of computer program code modules which address a plurality of predetermined lookup tables. Strings of characters, such as words, assigned one or more syntactical tags identifying the grammatical roles the strings can play are stored in a dictionary and retrieved as a system user inputs text to be processed. The tags are manipulated by a phrase parsing program module and translated into phrases according to grammatical rules stored in a lookup table. …"

Figure 2 also shows the logic used to use tags with words.

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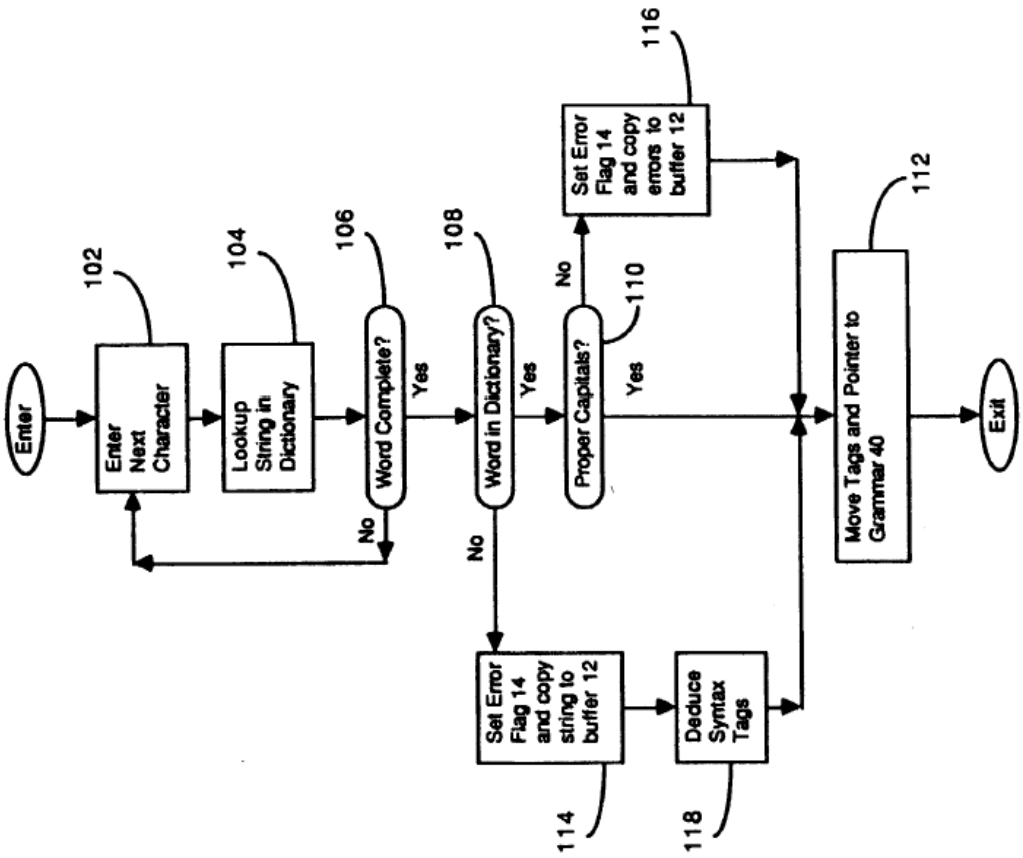

Enter
Enter Next Character
102
Lookup String in Dictionary
104
Word Complete?
106
Yes
No
Word in Dictionary?
108
Yes
No
Proper Capitals?
110
Yes
No
Set Error Flag 14 and copy errors to buffer 12
116
Set Error Flag 14 and copy string to buffer 12
114
Deduce Syntax Tags
118
Move Tags and Pointer to Grammar 40
112
Exit

Figure 2

U.S. Patent No. 6,128,635 to Ikeno discusses the placement of tags in a document to retrieve dictionary definition of words in a document. Consider Figures 5 and 6.

FIG.5

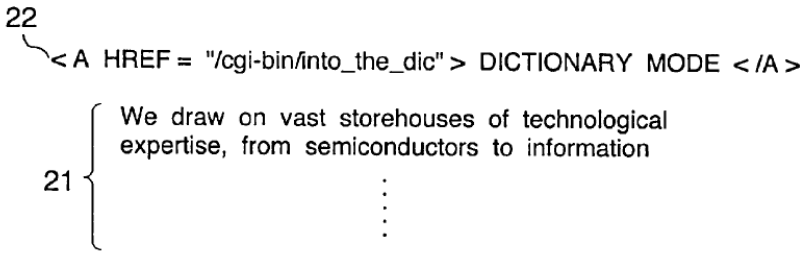
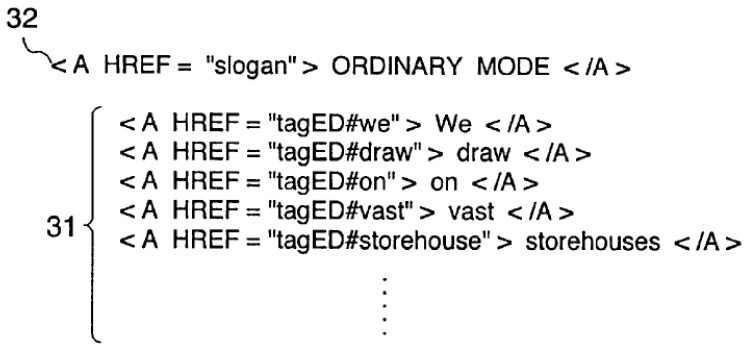


FIG.6



Clearly shown here are words, as in Krupka, that are recognized and tags are placed around them, although Ikeno does not try to infer a meaning to the sentence that is so tagged, as Krupka does.

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APPENDIX A-8

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

U. S. Patent No. 6,516,321	Elements Not Disclosed In MUC-6 Named Entity Task Definition Task Overview Reference
27. A method to be used with a rule set including subject matter specific tag pairs and corresponding search rules, a separate tag pair for each of a plurality of different information types and a separate search rule for each pair, each pair including a begin tag and an end tag, the method comprising the steps of:	Croft reproduces the entirety of the Task Overview reference in his comments without providing any guiding analysis on how we are to interpret this reference or what sections of it apply to the '321 patent. This claim preamble makes it very clear that the claim deals with "subject matter specific tag pairs and corresponding search rules" which means there are both "subject matter" tag pairs and "subject matter" corresponding rule sets. The '321 patent is quite clear that the tags referred to are markup language tags such as HTML or XML tags. Such tags are typically paired sets, a begin tag and an end tag that are placed around a specific text segment. The '321 patent text and this claim refers to tagging in either of two ways, either: 1. the recognition of a data reference (subject matter) and the provision of markup language tags to retrieve a related data record or record segment thereof, or 2. the unambiguous recognition of text that identifies and corresponds to a specific record segment (subject matter) and the provision of related markup language labeling that can be used by a tag enabled application to locate the specific segment in the record. Regarding the provision of tag pairs to create a hyperlink, Task Overview is completely silent on this matter. He has no reason to discuss hyperlinking, when he is only attempting to infer the meaning of a sentence. The '321 patent is quite clear on the steps of locating data references and in some cases modifier references combined with data references to create links (by inserting tags before and after the data reference). The '321 patent is a continuation-in-part of 6 other patents can relay similar discussions going back to the provisional patent application Ser. No. 60/023,126 filed on July 30, 1996. The '321 patent also introduces new examples regarding the placement of tags (XMT tags) not

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U. S. Patent No. 6,516,321	Elements Not Disclosed In MUC-6 Named Entity Task Definition Task Overview Reference
	seen in the 60/023,126 provisional application, that need to be considered. This section referred to as "Tag Enabling" in the patent discusses the placement of begin tags at the start of a distinct segment of a record and an end tag at the end of the record segment. One purpose of the tags to ensure that the segment can be retrieved when a corresponding data reference refers to the segment. For example the record segment of a comprehensive ecg record may include a segment "diagnosis" which when appropriately recognized using a rule set can be appropriately tagged with a beginning tag and an ending tag to identify it as the diagnosis segment and to retrieve this section from the larger record. When another medical record includes the data reference, "ecg diagnosis," a link can be created that uses a tag enabled application to retrieve just the ecg diagnosis segment. The tag enabled application can search the ecg record for the record segment marked by the beginning and ending tags specifying it as the "diagnosis" segment. The '321 patent is precise that segments of a record are unambiguously recognized in order to be tagged to identify that segment. Once tagged, the segment can then be linked to by a subsequent data reference (DR). The patent is replete with example of record segments that can be tagged, these examples include: Abstract (in a medical report) Diagnosis (in a medical report) Prescription (in a medical report) Heart rate (in a medical report) Title (in a U.S. patent) Cross Reference (segment in a U.S. patent) Background (in a U.S. patent)

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U. S. Patent No. 6,516,321	Elements Not Disclosed In MUC-6 Named Entity Task Definition Task Overview Reference
	Fig. 1 description (in a U.S. patent) Claims (a section in a U.S. patent) Claim 1 (in a U.S. patent) and others. To proceed further with a review of the claim, we have to also understand the nature of the expression "subject matter tags" and "subject matter corresponding search rules". In the '321 patent, "subject matter" only refers a data reference (DR) or to text that identifies a record segment. In the case of a DR, the tag pair can be the beginning and ending tags surrounding the DR to create a hyperlink. The search rules used to identify the data reference and possibly any related modifier references that are required prior to a hyperlink being formed are shown in Figs. 3, 6, 7, and 11. In the case of a record segment identifier, the tag pair, placed at the beginning of a record segment and at the end of the record segment, and the search rules used to identify a record segment are shown in Figs. 12 and 16. Additional discussion about record segments can be found at col. 2, ll. 34–46, which states: "Recently another method and tool for accessing/manipulating data within a specific record has been developed which specifies universal "tags" which can be used within a record to earmark specific data types. An exemplary "tagging" language is the extensible markup language (XML). The tags are to be used by processor applications which are familiar with the tags to identify specific information types. Applications which are capable of recognizing tags are referred to hereinafter as "tag enabled" and records which include such tags are likewise referred to as tag enabled. Tags are typically paired including a "begin" tag and an "end" tag identifying the beginning and the end of a specific

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U. S. Patent No. 6,516,321	Elements Not Disclosed In MUC-6 Named Entity Task Definition Task Overview Reference
	data type within a corresponding record." In col. 5, ll. 13–24, the '321 patent states: "Another object of the invention is to automatically determine whether or not tags (e.g. may suitably be added to a record to identify specific record segments and information types therein and, when appropriate, to automatically add the tags to render the record tag enabled so that a tag enabled application can identify specific information within the record." (emphasis added) In col. 5, ll. 28-35, the '321 patent states: "Another object of the invention is to automatically determine whether or not tags (e.g. may suitably be added to a record to identify specific record segments and information types therein and, when appropriate, to automatically add the tags to render the record tag enabled so that a tag enabled application can identify specific information within the record." (emphasis added). In col. 8, ll. 30-41, the '321 patent states: "DR column 30 includes a list of DRs. A DR is a unique phrase or word which may be used in a record to refer to another record or record segment. In the context of a medical facility an exemplary DR may be as simple as "medication given", "ECG report", or "Admission NMR heartbeat". As explained in more detail below, when a processor linking feature is selected, processor 14 searches for DRs in a specified record and, when a DR is identified, links the DR to a record or record segment associated with the DR via a hyperlink or other mechanism. In the preferred embodiment of the invention the longest DRs in a DR list include more than one word."

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U. S. Patent No. 6,516,321	Elements Not Disclosed In MUC-6 Named Entity Task Definition Task Overview Reference
	In col. 10, ll. 24 – 29, the '321 patent states: "When a DR is identified, processor 14 accesses table 5 and identifies the ARS which corresponds to the identified DR. Thereafter, processor 14 uses the ARS to identify information required to construct an address for the record or record segment associated with the identified DR." In col. 13, ll. 10-17, the '321 patent states: "Systems are also contemplated which support both DRs and DR/MR combinations. For example, where DR-1 is term "ECG" and MR1-1A is term "previous", a specification like specification 4 in FIG. 3 and a specification like specification 200 in FIG. 6 may both be supported. In this case, where DR-1 is identified in a record and MR1-1A is not identified, a link to the record or segment associated with DR-1 may still be made. Similarly, when the DR-1/MR1-1A combination is identified, a link to the record or segment associated therewith can be made." In col. 20, ll. 12-16, the '321 patent states: "To this end, generally, processor 14 is equipped to recognize characteristic sets which correspond to different record segments and, when a specific segment is identified, can place tags around the segment which are recognizable by other applications." In col. 20, ll. 34-49, the '321 patent states: "For example, in the case of XML type patient ID 300, referring also to FIG. 13, XMLRS 312 includes a variable character string 314 which has a form recognizable as a patient ID. In the present case it is assumed that each patient at a medical facility is identified by an unambiguous and distinct character string including two numbers followed by two letters which are in turn followed by five numbers. In XMLRS 314 a "#" character indicates a digit from 0 through 9 while an "X" character indicates a letter. The first two characters are

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U. S. Patent No. 6,516,321	Elements Not Disclosed In MUC-6 Named Entity Task Definition Task Overview Reference
	reserved for a year indication (e.g., 99 for 1999, etc.) The third and fourth characters are reserved for first and last name initials (e.g., Mary Jones would be M J). The final five characters indicate a unique consecutively assigned number provided via an admit, discharge, transfer (ADT) system (not illustrated) when a patient is admitted to the facility." Task Overview does show a single tag pair example for us to consider on P. 1: <ELEMENT-NAME ATTR-NAME="ATTR-VALUE" …>text-string</ELEMENT-NAME> Example: <ENAMEX TYPE="ORGANIZATION">Taga Co.</ENAMEX> In this example, we do not see a data reference to a record segment that can be retrieved by a tag enabled application, for example, by referring to it in a data reference in another record. All we are shown is text whose meaning in a larger sentence has inferred to correspond to an organization that has been manually labeled. Furthermore, Task Overview does not show a "subject matter search rules" to search for a record segment in a record as in element (b) of the claim. In fact, Task Overview does not show any search rules. This reference refers to MUC-6 software which no longer appears to be in existence and for which no detailed operational documentation is provided in the reference.
(a) receiving a record;	Croft states that Task Overview implements a system a method to receive a record and quotes the entire Task Overview reference without specific section to identify "receiving a record".

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In MUC-6 Named Entity Task Definition Task Overview Reference**
	I have not found a single reference to "receiving a record" in Task Overview.
(b) examining the record according to the search rules to identify record segments including information of each of the information types;	Task Overview does not examine a record to identify record segments: a data reference, a data reference and modifier reference combination or a record segment. Instead, Task Overview only shows an arbitrary text segment "Taga Co." Task Overview does not show any search rules. The '321 patent uses the phrase record segment to describe text with a data reference, see, col. 13, ll. 53-58: "For example, assume a first combination including the MR "report" within two terms of the DR "ECG", a second DR/MR combination includes the MR "post-op" within five terms of the DR "X-ray image" and a record segment includes the phrase "The ECG post-op report and the X-ray image"." and to describe a distinct portion of a record, see, col. 22, ll. 14-19: "For example, in the case of a United States patent specification, it is known that each patent generally includes several different sections or segments such as an abstract, a background, a summary, a brief description of drawings, a detailed description, a set of claims, figures and so on."
(c) when a record segment is identified which is of a particular information type:	Task Overview does not discuss a record segment which is a data reference, data reference/modifier reference combination or a record segment that can be retrieved by a data reference in another record, and the record segment must be of a particular information type.

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U. S. Patent No. 6,516,321	Elements Not Disclosed In MUC-6 Named Entity Task Definition Task Overview Reference
	Task Overview shows, at most, a single example of arbitrary text "Taga Co." with tags around it.
accessing the tag pair associated with the information type; inserting the begin tag before the identified segment and inserting the end tag after the identified segment.	Task Overview does not identify record segments. Task Overview at most is showing what may be manually placed tags around an arbitrary text segment, not "subject matter specific tag pairs," as required by the claim.

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Task Overview besides not describing the elements of claim 27 in the '321 patent is also merely additive to the patents considered by the United States Patent & Trademark Office (PTO) in the course of examining the '321 patent.

For example, consider U.S. Patent No. 4,864,501 to Kucera who describes the tagging of words in a document. The abstract states:

> "A system for annotating digitally encoded text includes a dictionary of base forms. For each base form, a first set of tags represents possible grammatical and syntactic properties of the word, and may encode inflectional paradigms of the base form, or feature agreement behavior and special processing. … The morphological analyzer recognizes words formed by prefixation and suffixation, as well as proper nouns, ordinals, idiomatic expressions, and certain classes of character strings. The tagged words of a sentence are then processed to parse the sentence."

GRAMMATICAL ANNOTATION OF TEST SENTENCE

Loc.:	Word:	Tag String:
1:	John	NP
2:	wants	NNS (BF = want) VBZ (= BF)
3:	to	IN TO
4:	sell	VBI VBP
5:	the	AT
6:	new	JJ
7:	metropolitan	JJ
8:	zoo	NN
9:	all	ABN QL RB
10:	his	PP$ PP$$
11:	cleverly	RB
12:	trained	VBN (BF = train) VBD (= BF)
13:	and	CC
14:	brilliantly	QL RB
15:	plumaged	JJ
16:	parakeets	NNS (BF = parakeet)
17:	.	.

FIG. 5

U.S. Patent No. 4,887,212 to Zamora also discusses tagging of words in a document. The Abstract states:

> "A system for annotating digitally encoded text includes a dictionary of base forms. For each base form, a first set of tags

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represents possible grammatical and syntactic properties of the word, …"

U.S. Patent No. 4,994,966 to Hutchins also discusses tagging words in a document. The Abstract states:

"A system and method for parsing natural language is provided. The system comprises a plurality of computer program code modules which address a plurality of predetermined lookup tables. Strings of characters, such as words, assigned one or more syntactical tags identifying the grammatical roles the strings can play are stored in a dictionary and retrieved as a system user inputs text to be processed. The tags are manipulated by a phrase parsing program module and translated into phrases according to grammatical rules stored in a lookup table. …"

Figure 2 shows the logic used to use tags with words.

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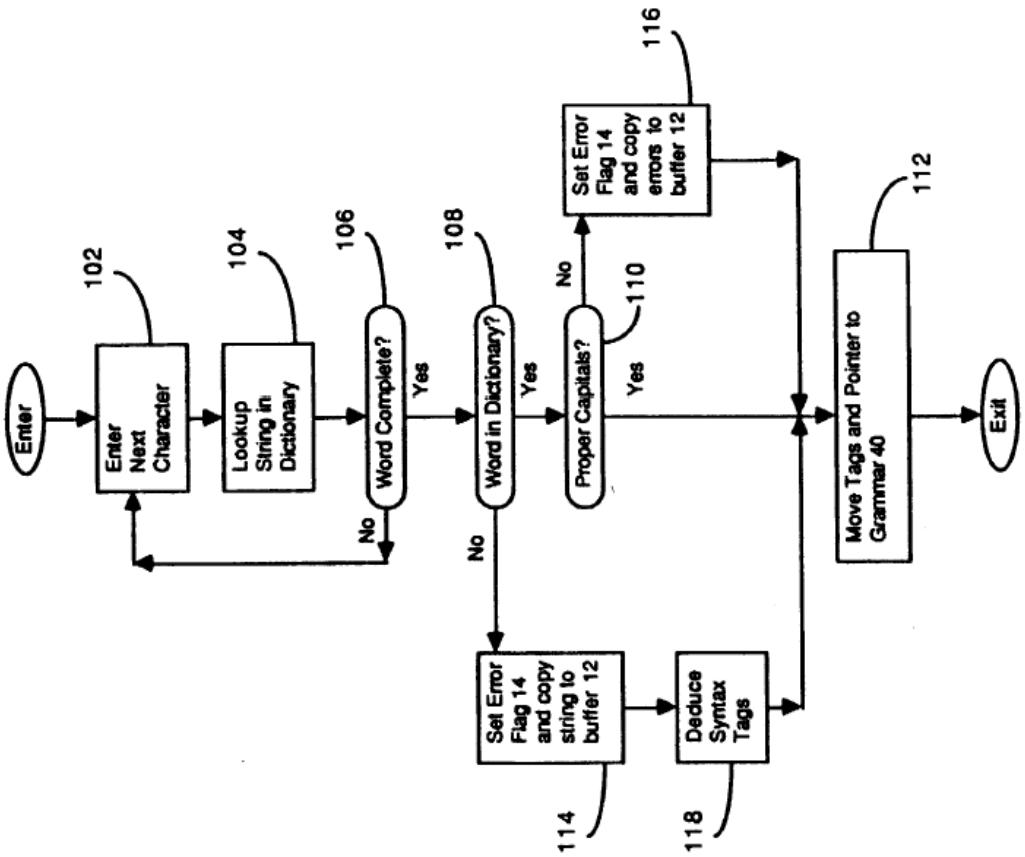

Enter
Enter Next Character
102
Lookup String in Dictionary
104
Word Complete?
106
Yes
No
Word in Dictionary?
108
Yes
No
Proper Capitals?
110
Yes
No
Set Error Flag 14 and copy errors to buffer 12
116
Move Tags and Pointer to Grammar 40
112
Exit
Set Error Flag 14 and copy string to buffer 12
114
Deduce Syntax Tags
118

Figure 2

U.S. Patent No. 6,128,635 to Ikeno discusses the placement of tags in a document to retrieve dictionary definition of words in a document. Consider Figures 5 and 6.

FIG.5

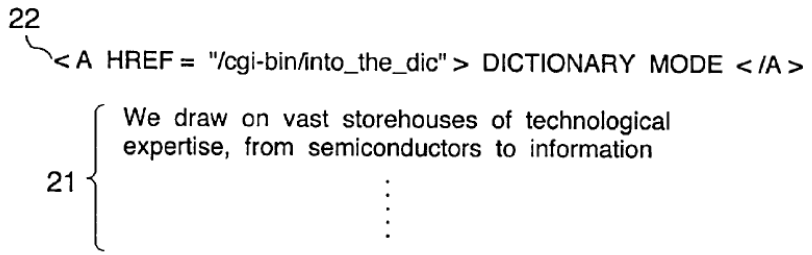
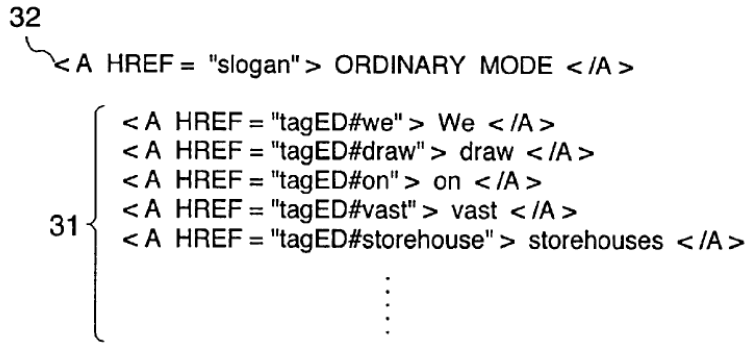


FIG.6



Clearly shown here are words, as in Task Overview, that are recognized and tags are placed around them, although Ikeno does not try to infer a meaning to the sentence that is so tagged, as Task Overview does.

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APPENDIX A-9

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

U. S. Patent No. 6,516,321	**Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference**
27. A method to be used with a rule set including subject matter specific tag pairs and corresponding search rules, a separate tag pair for each of a plurality of different information types and a separate search rule for each pair, each pair including a begin tag and an end tag, the method comprising the steps of:	This claim preamble makes it very clear that the claim deals with "subject matter specific tag pairs and corresponding search rules" which means there are both "subject matter" tag pairs and "subject matter" corresponding rule sets. The '321 patent is quite clear that the tags referred to are markup language tags, such as HTML or XML tags. Such tags are typically paired sets, a begin tag and an end tag that are placed around a specific text segment. The '321 patent text and this claim refers to tagging in either of two ways, either: 1. the recognition of a data reference (subject matter) and the provision of markup language tags to retrieve a related data record or record segment thereof, or 2. the unambiguous recognition of text that identifies and corresponds to a specific record segment (subject matter) and the provision of related markup language labeling that can be used by a tag enabled application to locate the specific segment in the record. Regarding the provision of tag pairs to create a hyperlink, Aberdeen is completely silent on this matter. He has no reason to discuss hyperlinking when he is only attempting to infer the meaning of a sentence. The '321 patent is quite clear on the steps of locating data references and, in some cases, modifier references combined with data references to create links (by inserting tags before and after) the data reference. The '321 patent is a continuation-in-part of 6 other patents can relay similar discussions going back to the provisional patent application Ser. No. 60/023,126 filed on July 30, 1996. The '321 patent also introduces new examples regarding the placement of tags (XMT tags) not seen in the 60/023,126 provisional application that need to be considered. This section referred to

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U. S. Patent No. 6,516,321	Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference
	as "Tag Enabling" in the patent discusses the placement of begin tags at the start of a distinct segment of a record and an end tag at the end of the record segment. One purpose of the tags is to ensure that the segment can be retrieved when a corresponding data reference refers to the segment. For example, the record segment of a comprehensive ecg record may include a segment "diagnosis" which, when appropriately recognized using a rule set, can be appropriately tagged with a beginning tag and an ending tag to identify it as the diagnosis segment and to retrieve this section from the larger record. When another medical record includes the data reference "ecg diagnosis," a link can be created that uses a tag enabled application to retrieve just the ecg diagnosis segment. The tag enabled application can search the ecg record for the record segment marked by the beginning and ending tags specifying it is the "diagnosis" segment. The '321 patent is precise that segments of a record are unambiguously recognized in order to be tagged to identify that segment. Once tagged, the segment can then be linked to by a subsequent data reference (DR). The '321 patent is replete with example of record segments that can be tagged. These examples include: Abstract (in a medical report) Diagnosis (in a medical report) Prescription (in a medical report) Heart rate (in a medical report) Title (in a U.S. patent) Cross Reference (segment in a U.S. patent)

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U. S. Patent No. 6,516,321	Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference
	Background (in a U.S. patent) Fig. 1 description (in a U.S. patent) Claims (a section in a U.S. patent) Claim 1 (in a U.S. patent) and others. To proceed further with a review of the claim, we have to also understand the nature of the expression "subject matter tags" and "subject matter corresponding search rules". In the '321 patent, "subject matter" only refers a data reference (DR) or to text that identifies a record segment. In the case of a DR, the tag pair can be the beginning and ending tags surrounding the DR to create a hyperlink. The search rules used to identify the data reference and possibly any related modifier references that are required prior to a hyperlink being formed are shown in Figs. 3, 6, 7, and 11. In the case of a record segment identifier, the tag pair placed at the beginning of a record segment and at the end of the record segment, and the search rules used to identify a record segment are shown in Figs. 12 and 16. Additional discussion about record segments can be found at col. 2, ll. 34–46 which states: "Recently another method and tool for accessing/manipulating data within a specific record has been developed which specifies universal "tags" which can be used within a record to earmark specific data types. An exemplary "tagging" language is the extensible markup language (XML). The tags are to be used by processor applications which are familiar with the tags to identify specific information types. Applications which are capable of recognizing tags are referred to hereinafter as "tag enabled" and records which

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U. S. Patent No. 6,516,321	Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference
	include such tags are likewise referred to as tag enabled. Tags are typically paired including a "begin" tag and an "end" tag identifying the beginning and the end of a specific data type within a corresponding record." In col. 5, ll. 13–24, the '321 patent states: "Another object of the invention is to automatically determine whether or not tags (e.g. may suitably be added to a record to identify specific record segments and information types therein and, when appropriate, to automatically add the tags to render the record tag enabled so that a tag enabled application can identify specific information within the record." (emphasis added) In col. 5, ll. 28-35, the '321 patent states: "Another object of the invention is to automatically determine whether or not tags (e.g. may suitably be added to a record to identify specific record segments and information types therein and, when appropriate, to automatically add the tags to render the record tag enabled so that a tag enabled application can identify specific information within the record." (emphasis added). In col. 8, ll. 30-41, the '321 patent states: "DR column 30 includes a list of DRs. A DR is a unique phrase or word which may be used in a record to refer to another record or record segment. In the context of a medical facility an exemplary DR may be as simple as "medication given", "ECG report", or "Admission NMR heartbeat". As explained in more detail below, when a processor linking feature is selected, processor 14 searches for DRs in a specified record and, when a DR is identified, links the DR to a record or record segment associated with the DR via a hyperlink or other mechanism. In the preferred embodiment of the invention the longest

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U. S. Patent No. 6,516,321	Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference
	DRs in a DR list include more than one word." In col. 10, ll. 24-29, the '321 patent states: "When a DR is identified, processor 14 accesses table 5 and identifies the ARS which corresponds to the identified DR. Thereafter, processor 14 uses the ARS to identify information required to construct an address for the record or record segment associated with the identified DR." In col. 13, ll. 10-17, the '321 patent states: "Systems are also contemplated which support both DRs and DR/MR combinations. For example, where DR-1 is term "ECG" and MR1-1A is term "previous", a specification like specification 4 in FIG. 3 and a specification like specification 200 in FIG. 6 may both be supported. In this case, where DR-1 is identified in a record and MR1-1A is not identified, a link to the record or segment associated with DR-1 may still be made. Similarly, when the DR-1/MR1-1A combination is identified, a link to the record or segment associated therewith can be made." In col. 20, ll. 12-16, the '321 patent states: "To this end, generally, processor 14 is equipped to recognize characteristic sets which correspond to different record segments and, when a specific segment is identified, can place tags around the segment which are recognizable by other applications." In col. 20, ll. 34-49, the '321 patent states: "For example, in the case of XML type patient ID 300, referring also to FIG. 13, XMLRS 312 includes a variable character string 314 which has a form recognizable as a patient ID.

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U. S. Patent No. 6,516,321	Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference
	In the present case it is assumed that each patient at a medical facility is identified by an unambiguous and distinct character string including two numbers followed by two letters which are in turn followed by five numbers. In XMLRS 314 a "#" character indicates a digit from 0 through 9 while an "X" character indicates a letter. The first two characters are reserved for a year indication (e.g., 99 for 1999, etc.) The third and fourth characters are reserved for first and last name initials (e.g., Mary Jones would be M J). The final five characters indicate a unique consecutively assigned number provided via an admit, discharge, transfer (ADT) system (not illustrated) when a patient is admitted to the facility." Croft points to Aberdeen and his MITRE report to show words with tags being placed before words and after words. However, Croft is ignoring the meaning within the '321 patent of "subject matter specific tag pairs and corresponding search rules". Instead of referring to arbitrary words or numbers, there is a specific purpose to the placement of "subject matter specific tag pairs". The purpose has nothing to do with the placement of tags around arbitrary words of part-of-speech elements in English grammar, which is what Aberdeen discusses. Aberdeen discusses an experimental word and word tagging program used to tag nearly any word in a document with a goal toward inferring the meaning of a sentence. For example, on p. 143, we see in Table 1, a sample sentence and below it two iterative tag suggestions: "Even so , Mr. Dooner is on the prowl for more creative talent and is interested in acquiring a hot agency." rb rb , nnp NNF vbz in dt nn in JJR jj nn cc vbz jj in vbg dt jj nn rb rb , nnp NNF vbz in dt nn in RBR jj nn cc vbz jj in vbg dt jj nn Each word and each punctuation mark has been assigned a tag. While not shown in Table 1, each tag in the second and third lines refers to both a start tag to be placed before a word or punctuation mark and an end tag after it. For example, see also on P. 143 "… <lex>,<l/lex> <LEX pos=NNP

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U. S. Patent No. 6,516,321	Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference
	ttl=Whole>Mr.</LEX> …" showing both the comma and "Mr." as being tagged with beginning and end tags similar to those shown in Table 1. With this tagging, Aberdeen continues to discuss the "Phraser" which performs a syntactic analysis and inference to derive the meaning of a sentence. On Page 144, Aberdeen discusses: "The phraser process operates in several steps. First a set of initial phrasing functions is applied to all the sentences to be analyzed. These functions are responsible for seeding the sentences with likely candidate phrases of various kinds. This seeding process is driven by word lists, part-of-speech information, and pre-tagging provided by preprocessors." On page 145, we see another tagged example, presumably after the phraser has removed some of the earlier tags. "But bragging rights to <org>Coke</org> ubiquitous advertising belongs to <org>Creative Artists Agency</org>, the big <location>Hollywood</location> talent agency." Nowhere in Aberdeen are we shown either a data reference that is tagged as a hyperlink (or with other data retrieval tags) or a record segment recognized from text. Instead, we are shown inferred meaning to certain sentence elements, that "Coke" is an organization (as opposed to a product), "Creative Artists Agency" is also an organization, and "Hollywood is a location. Other examples are given with various rules applied to parsing and tagging text, but as Aberdeen states on P. 145: "Note that these rule sequences encode a semantic grammar."

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U. S. Patent No. 6,516,321	Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference
	The purpose behind this statement is exactly how Aberdeen differs from the '321 patent. Aberdeen attempts to find, infer, or impute meaning in text. Instead, claim 27 only attempts to locate data references or record segments in a record. Record segments that can be used to refer to a specific record segment, for example by another data reference in another record. Aberdeen also discusses that they used "… 3 million words of Wall Street Journal text." as part of their tagging lexicon. Clearly, Aberdeen is training his tagging process on generic word usages and phrases, that are clearly record independent information and do not rely on finding either data references or record segments, such as a segment that can be referred to by another data reference. On P. 145, Aberdeen discusses their attempts to locate company names as follows: "What is important to note about these NE phraser rules is that they do not rely on a large database of known company names. Instead, the rules are designed to recognize organization names in almost any complete absence of any information about a particular organization names (with the sole exception of a few acronyms such as IBM, GM, etc.)." It can be no clearer that Aberdeen is describing a system that infers names from the context of a sentence and capitalization. Aberdeen is not locating and tagging a data reference nor a record segment, for example, a segment that can later be referred to by a data reference in another record to retrieve that segment. Aberdeen himself describes the process on the first page (P. 141) as: "… the major processing steps in *Alembic*: part-of speech tagging, syntactic analysis, inference, and in some cases set-fill processing in the Template Element task (TE)."

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U. S. Patent No. 6,516,321	Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference
	Everything described is focused on trying to infer or deduce the content or meaning of a set of words. None of it has to do with the recognition of data references or the identification of record segments. Aberdeen has a complete 4 page section (starting on P. 147) discussing "Phrase Interpretation and Inference". Again, it is clear that he is identifying a process used to "… record propositions encoding the semantics of the parsed phrase" Aberdeen also notes on P. 150 that : "One final wrinkle must be noted. Inference is generally a non-deterministic search problem, with no firm guarantee as to whether facts will be derived in the same chronological order as the sentences which underlie the facts." In short, this means that the same phrases rearranged in a sentence and interpreted by the Alembic system a second time can and do result in different inferences about a sentence and its meaning. This is a far cry from the highly precise rules described in the '321 patent to locate data references or record segments. Aberdeen teaches *away* from either data reference or record segment identification. He is only concerned about the potential inferred meaning of a sentence. He has no concept of how a data reference relates to other data records or record segments; or that even databases of records exist. He also does not describe any concept regarding how record segments can be identified for use by data references (in another document) to retrieve the record segment.

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference**
	Every time the text "Mr." appears in a document, it will be tagged according to the many examples in Aberdeen so that it appears as "<ttl>Mr.</ttl>". In a record, should the title "Mr." appear twenty times, or even three times in one sentence, it is clear from Aberdeen that he has no intention of declaring each occurrence to be a separate record segment or to be a data reference. His only purpose is to identify the title and to infer that the text following it is likely to be a person's name.
(a) receiving a record;	
(b) examining the record according to the search rules to identify record segments including information of each of the information types;	Aberdeen does not examine a record to identify record segments: a data reference, a data reference and modifier reference combination or a record segment. Instead, Aberdeen looks at most for parts-of-speech and he attempts to combine them to infer a meaning to a sentence. The '321 patent uses the phrase "record segment" to describe text with a data reference, see col. 13, ll. 53-58: "For example, assume a first combination including the MR "report" within two terms of the DR "ECG", a second DR/MR combination includes the MR "post-op" within five terms of the DR "X-ray image" and a record segment includes the phrase "The ECG post-op report and the X-ray image"." and to describe a distinct portion of a record, see col. 22, ll. 14-19 : "For example, in the case of a United States patent specification, it is known that each patent generally includes several different sections or segments such as an abstract, a background, a summary, a brief description of drawings, a detailed description, a set of claims, figures and so on."

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In John Aberdeen, "MITRE: Description of the *Alembic* System Used For MUC-6" Reference**
(c) when a record segment is identified which is of a particular information type:	Aberdeen does not discuss a record segment which is a data reference, data reference/modifier reference combination or a record segment that can be retrieved by a data reference in another record, and the record segment must be of a particular information type.
accessing the tag pair associated with the information type; inserting the begin tag before the identified segment and inserting the end tag after the identified segment.	Aberdeen does not identify record segments.

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Aberdeen, besides missing several elements of 27 of the '321 patent, is also merely cumulative to the patents considered by the United States Patent and Trademark Office (PTO) in the course of examining the '321 patent.

For example, consider U.S. Patent No. 4,864,501 to Kucera who describes the tagging of words in a document. The abstract states:

> "A system for annotating digitally encoded text includes a dictionary of base forms. For each base form, a first set of tags represents possible grammatical and syntactic properties of the word, and may encode inflectional paradigms of the base form, or feature agreement behavior and special processing. … The morphological analyzer recognizes words formed by prefixation and suffixation, as well as proper nouns, ordinals, idiomatic expressions, and certain classes of character strings. The tagged words of a sentence are then processed to parse the sentence."

And Figure 5 shows a syntactic tagging appears very similar to the contents of Aberdeen's tagging in Table 1:

GRAMMATICAL ANNOTATION OF TEST SENTENCE

Loc.:	Word:	Tag String:
1:	John	NP
2:	wants	NNS (BF = want) VBZ (= BF)
3:	to	IN TO
4:	sell	VBI VBP
5:	the	AT
6:	new	JJ
7:	metropolitan	JJ
8:	zoo	NN
9:	all	ABN QL RB
10:	his	PP$ PP$$
11:	cleverly	RB
12:	trained	VBN (BF = train) VBD (= BF)
13:	and	CC
14:	brilliantly	QL RB
15:	plumaged	JJ
16:	parakeets	NNS (BF = parakeet)
17:	.	.

FIG. 5

U.S. Patent No. 4,887,212 to Zamora also discusses tagging of words in a document. The Abstract states:

> "A system for annotating digitally encoded text includes a dictionary of base forms. For each base form, a first set of tags represents possible grammatical and syntactic properties of the word, …"

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U.S. Patent No. 4,994,966 to Hutchins also discusses tagging words in a document. The Abstract states:

> "A system and method for parsing natural language is provided. The system comprises a plurality of computer program code modules which address a plurality of predetermined lookup tables. Strings of characters, such as words, assigned one or more syntactical tags identifying the grammatical roles the strings can play are stored in a dictionary and retrieved as a system user inputs text to be processed. The tags are manipulated by a phrase parsing program module and translated into phrases according to grammatical rules stored in a lookup table. …"

Figure 2 shows the logic used to use tags with words:

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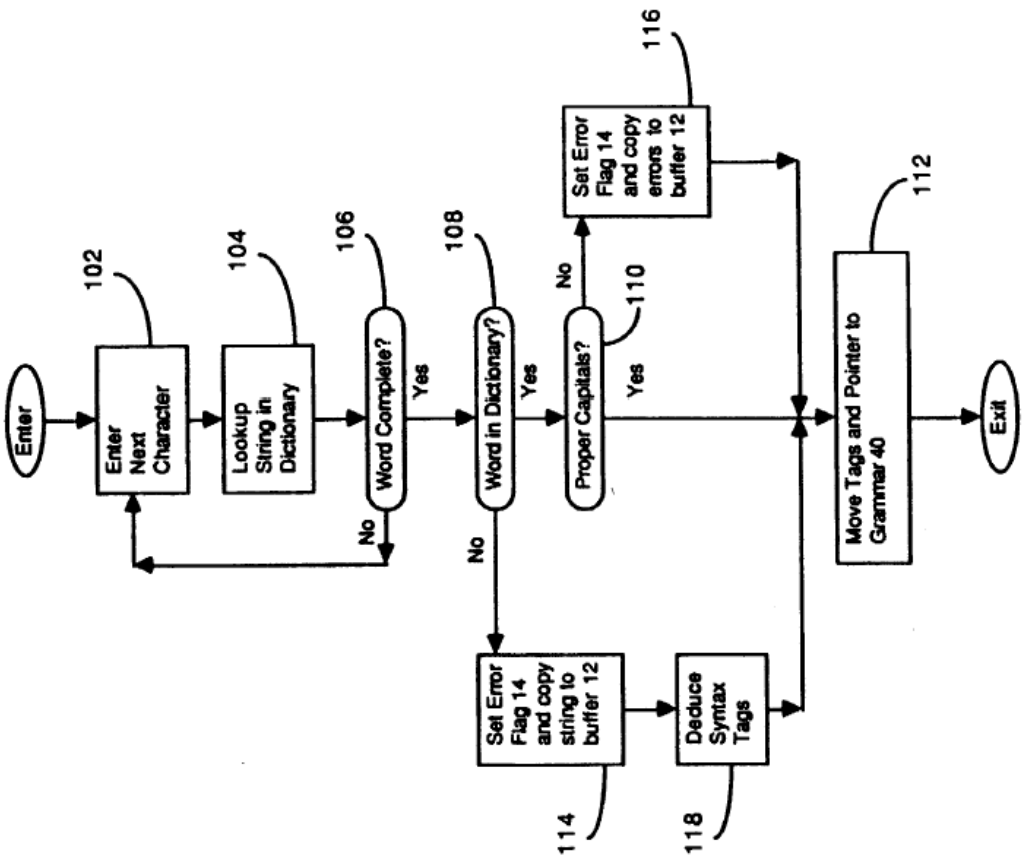

Enter
Enter Next Character
102
Lookup String in Dictionary
104
Word Complete?
106
Yes
No
Word in Dictionary?
108
Yes
No
Proper Capitals?
110
Yes
No
Set Error Flag 14 and copy errors to buffer 12
116
Move Tags and Pointer to Grammar 40
112
Exit
Set Error Flag 14 and copy string to buffer 12
114
Deduce Syntax Tags
118

Figure 2

U.S. Patent No. 6,128,635 to Ikeno discusses the placement of tags in a document to retrieve dictionary definition of words in a document. Consider Figures 5 and 6:

FIG.5

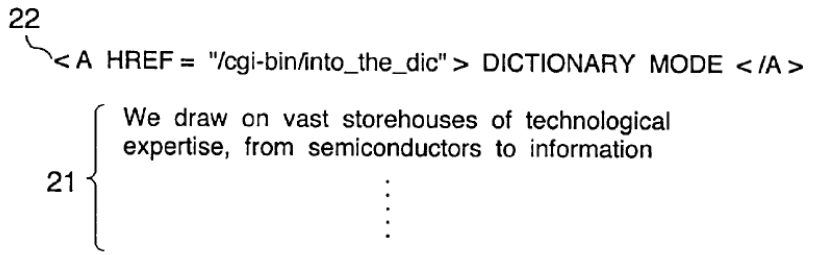
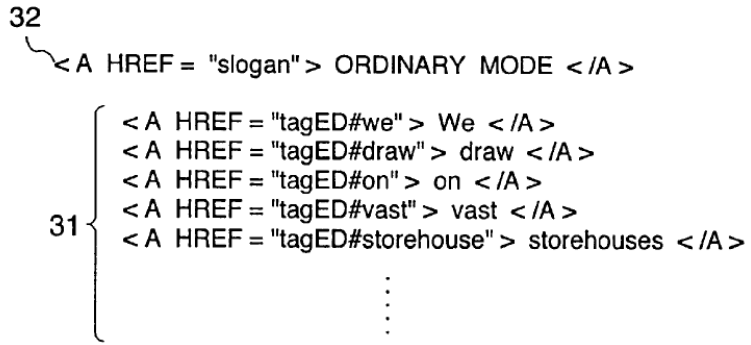


FIG.6



Clearly shown here are words, as in Aberdeen, that are recognized and tags are placed around them. Although Ikeno does not try to infer a meaning to the sentence, it is tagged just as Aberdeen does.

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APPENDIX A-10

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

Appendix A-10

The Gennaro reference, U.S. Patent No. 5,742,768 to Giuseppe Gennaro et al., filed on Jul. 16, 1996, is *not* prior art to U.S. Patent No. 6,516,321 patent which has a priority date of at least April 10, 1996.

Assuming the Gennaro reference is prior art (which it is not), the following analysis is presented.

U. S. Patent No. 6,516,321	**Elements Not Disclosed In Giuseppe Gennaro, U.S. Patent No. 5,742,768 Reference**
86. [i] A method for use with an application wherein specifying references (SRs) in one record to other records which are selectable to access the other records are visually distinguished from other record information so as to indicate selectability,	A "specifying reference" is a data reference or a data reference/modifier reference combination, see col. 4, ll. 34–36: "Hereinafter the term "specifying reference" (SR) will be used to refer generically to each of a DR and a DR/MR combination or a DR/MR/MR combination." The Federal Circuit in its Dec. 26, 2007, ruling stated that a "specifying reference" is: "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." A modifier reference (MR) is described in col. 3, ll. 24-27 as follows: "…when a DR is identified, the record is further examined to identify modifier references (MRs) which identify a specific segment of a record which is associated with the data reference." The preamble also states that a SR is both visibly distinguished from other record information indicating that the "specifying reference" is selectable. Gennaro describes the placement of a graphic hot spot in certain parts of a screen display. The user can interact with the hot spot, see col. 4, ll. 24–42:

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Giuseppe Gennaro, U.S. Patent No. 5,742,768 Reference
	"According to the teachings of the present invention, displayed web page 40 includes a plurality of hot spots 44 that provide access to embedded menus created and managed by applet 28. The embedded menus can be accessed by positioning pointer 42 over one of hot spots 44. FIG. 2B shows an embedded menu 46 in displayed web page 40 which has been invoked by positioning of pointer 42 over the upper hot spot 44. In the illustrated example, selection of the upper hot spot 44 is indicated by highlighting that hot spot 44 with a halo, as shown. Embedded menu 46 includes a banner that matches the text ("WHO WE ARE") that was associated with the selected hot spot 44 in FIG. 2A. Embedded menu 46 also includes a number of links 48, each providing a link to another web page or resource. The links 48 provided by embedded menu 46 may or may not be URLs directly accessible without initially passing through the initial displayed web page 40." This is also shown in Fig. 2 of Gennaro:

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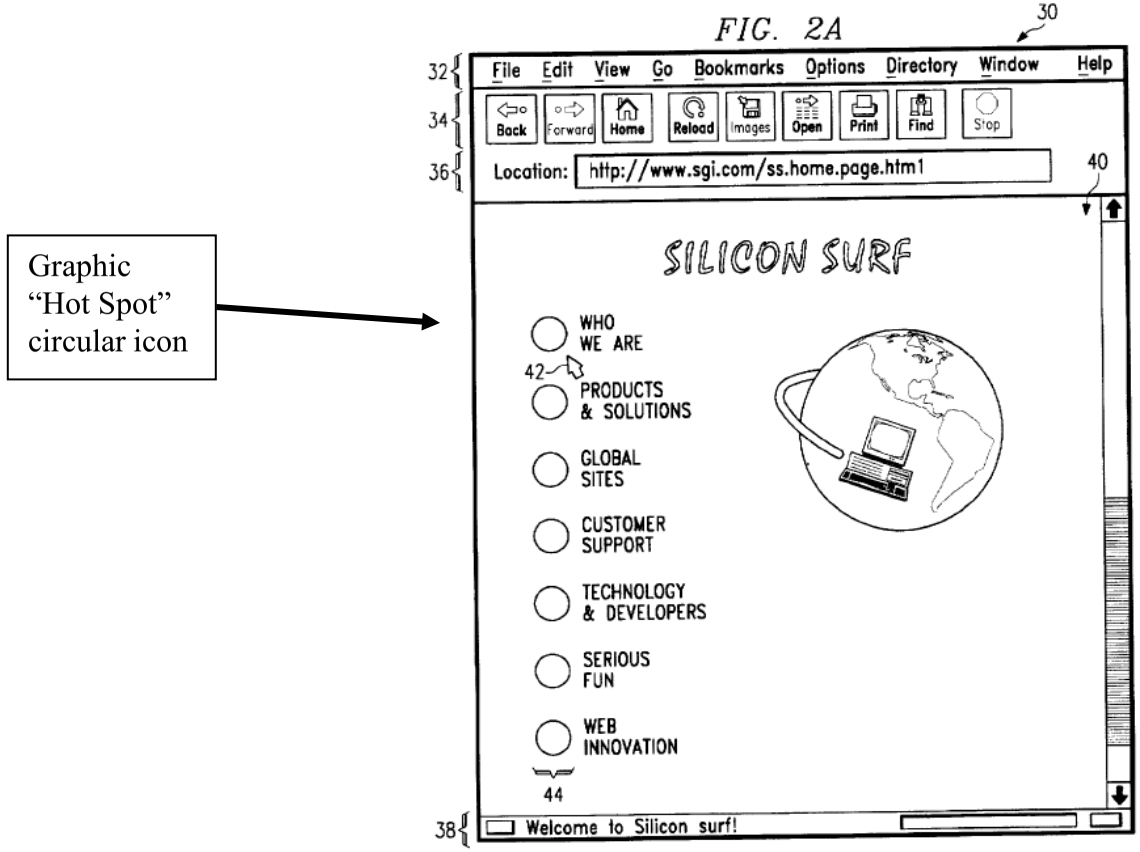
U. S. Patent No. 6,516,321	Elements Not Disclosed In Giuseppe Gennaro, U.S. Patent No. 5,742,768 Reference
	FIG. 2A  Graphic "Hot Spot" circular icon Gennaro is emphatic about the use of hot spots. He uses the term 18 times in the 2½ pages of the Summary of the Invention and Detailed Description of the Invention sections. He never refers to text as a hot spot, instead, it is a graphic icon.

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Giuseppe Gennaro, U.S. Patent No. 5,742,768 Reference
	Croft ties to impute an equivalence between a "data reference" as taught by the '321 patent and a hot spot, but he fails to do so because Gennaro is completely silent on "data references" or "specifying references" being selectable. Instead, Gennaro actually teaches *away* from this concept. Gennaro's concept is to add a dramatic graphic icon indicating a subject that can be interacted with. Gennaro recognizes and appreciates the value of a limitation of his invention. The text is not "visually distinguished from other record information so as to indicate selectability" as in the '321 patent. Instead, he applies the graphic icon adjacent to some text. Of course, a significant limitation is that in an ordinary sentence a graphic icon cannot be inserted in the text string without making the text much more difficult to read and by doing so the reader is not given any indication of the extent or length of the data reference. In fact, if placed within a sentence, graphic icons may be misinterpreted to refer to a footnote or other editorial purpose. Also, graphical icons placed in a sentence do not indicate whether it is related to the text before it or following it.
[ii] the method also for use with a system which enables a user to designate and also select SRs where designation comprises pointing to an SR without selection and,	Gennaro does not designate or select a SR, which must be text used in a record to refer to another record. Gennaro only allows interaction with an added graphic hot spot, separate from the text. Gennaro also says in col. 4, ll. 33–34: "In the illustrated example, selection of the upper hot spot 44 is indicated by highlighting that hot spot 44 with a halo, as shown." This implies that Gennaro is expecting the user to select the hot spot to activate an embedded

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U. S. Patent No. 6,516,321	Elements Not Disclosed In Giuseppe Gennaro, U.S. Patent No. 5,742,768 Reference
	menu as opposed to designating it without selection, as this claim element requires.
[iii] wherein a seemingly general SR is modified by other record information which renders the SR relatively specific,	Gennaro does not discuss using text as "specifying references" (SR) and even if the "hot spot" is viewed as a "specifying reference" (which it is contrary to the definition of "specifying references" in the Federal Circuit opinion), the hot spot is not modified by other record information. While there is text adjacent to the hot sport, this text cannot be a specifying reference as it is not selectable and cannot be designated without selection. Furthermore, no other information in the record that can be read by a user, for example, a modifier reference, is used to modify this text. Instead, Croft can merely state the user is presented with embedded menu choices which can be presented to a reader when the hot spot is selected. No other record information in the text of the record modifies the specifying reference to make it more specific. Instead, information added to the record as an "embedded menu" is provided with no option for other record text information to modify a specifying reference.
[iv] the method for indicating the specific nature of an SR prior to selection and comprising the steps of:	

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U. S. Patent No. 6,516,321	**Elements Not Disclosed In Giuseppe Gennaro, U.S. Patent No. 5,742,768 Reference**
(a) when an SR is designated, indicating the specific nature of the SR.	Gennaro has no specifying reference (which must be text) that can be designated.

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APPENDIX A-11

TO

REBUTTAL EXPERT REPORT OF CARLOS DE LA HUERGA RE. PATENT INVALIDITY

U. S. Patent No. 5,903,889	**Elements Not Disclosed In Andre Charles Anthony, U.S. Patent No. 5,815,830 Reference**
1. A computer system with a plurality of data records on a plurality of databases, and a standardized format for addressing said data records, said computer system comprising:	Anthony discusses the use of HyperNode™, a file format he uses, HyperDB™, a specialized database, XGL Hypertext Voyager™ as the implementation of his invention, and Auto_Hyperlinks™. No documentation of these products is provided in the patent. Anthony does not disclose a plurality of databases. The Summary of the Invention and the Detailed Description of the Invention sections and the Drawings do not discuss or show "databases" (in plural). The only place where "databases" are discussed is in referring to prior art systems in the Background of the Invention section. Instead, in the Summary of the Invention and the Detailed Description of the Invention sections, the phrase "a database" or "the database" is used 32 times in 3½ pages of text. Anthony discusses a process to recognize text between documents that teaches *away* from using this scheme on a system that has multiple databases. Anthony envisions a record storage scheme where text is stored in one section and a unique topic name is stored in another section of it; this is of Anthony's own design. Furthermore, if it were spread across multiple databases, they not only would have to adopt a storage scheme, the data owners would have to agree to mutually exclusive unique names (for which Anthony has no solution), and the time to search every record in multiple databases to see which one has a topic name matching a text sequence becomes impossibly long as every record in every database has to be checked before a match might be made. Anthony does not propose a standard addressing scheme. Instead, Anthony discloses a

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U. S. Patent No. 5,903,889	Elements Not Disclosed In Andre Charles Anthony, U.S. Patent No. 5,815,830 Reference
	process where when a text record is prepared, the person creating it also provides a unique name reference name that is stored in the record. When a record is read, the text portion is compared against the topic names stored in a portion of all the other records stored in the database. When a match is located, a link is created between the record text and the record with the matching topic name. The link is created not using a standard addressing scheme, but using whatever (random) address the record with the matching topic name is stored at. The address can be as variable and random as the personal choices of a person storing records on their own computer file systems. In col. 5, ll. 11-15, Anthony discusses that: "… the database which stores the topic test, reference name, and other identifiers. Such identifiers not the location of the data for each topic; and provide the navigation for the hypertext jumps." The text "location of the data for each topic" is undefined to its exact meaning. It may refer to a byte offset in the record where text for a specific topic can be found. But it does not appear to be a file or database address. Even if the topic names are stored in a separate file, Anthony does not describe a standardized addressed format.
(a) a user interface having an interactive display program for requesting one of said data records and displaying a plurality of interface supported data formats;	Anthony does not describe an interactive display program displaying a plurality of display formats. Anthony is silent on the XGL Hypertext Voyager™ in his invention. We only know that it can display text. Pictures are mentioned as potential links, but without display by any of

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U. S. Patent No. 5,903,889	**Elements Not Disclosed In <u>Andre Charles Anthony, U.S. Patent No. 5,815,830</u> Reference**
	Anthony's software, see col. 3, ll. 14 - 16: "If the requested topic is a text topic, the process is repeated for the new topic. If the requested topic is a picture, or video topic, it will be shown or played without moving from the current text topic."
(b) means for receiving a reference to a first data record from said interactive display program;	
(c) means for retrieving said first data record;	
(d) means for parsing said first data record to identify a reference to a second data record;	The Federal Circuit in its Dec. 26, 2007, ruling stated that a "data reference" or "reference" is: "a unique phrase or word which may be used in a record to refer to another record or record segment," and that a data reference may refer to one or more than one record." Anthony is specific that each record must have a unique topic name, col. 4, ll. 16 – 18: "A reference name 600 is a unique, meaningful name which indicates the subject matter of the data portion to which it refers." Text in a record that matches a topic name will at most link to a single record. Therefore, Anthony cannot teach a system where a "reference" may refer to more than one record as required by the Federal Circuit's definition of "reference."
(e) means for modifying said reference to said second data record to create an address, said address being operable to retrieve said	Anthony does not create an address, the address of a link is provided by the a record that is scanned to determine if it has a topic name that matches text in another record. The address is provided by the author of the document when it is stored.

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U. S. Patent No. 5,903,889	**Elements Not Disclosed In <u>Andre Charles Anthony, U.S. Patent No. 5,815,830</u> Reference**
second data record; and	
(f) means for sending said modified first data record to said interactive display program.	Anthony does not discuss modifying the data record to the interactive program. Anthony's only discussion of HTML or markup codes is in col. 1, l. 66 to col. 2, l. 3: "This procedure would usually involve the author in having to mark cross-reference words and phrases with special codes or with some form or computer language. A known standard for coding such links is Hypertext Markup Language (HTML)>" Anthony then goes on to document the limits of a person to properly create links manually or to keep them up to date. However, Anthony never refers to HTML when describing his own invention. Instead, Anthony teaches displaying a text record on a screen and underlining and bolding the text, see col. 6, ll. 21 – 24: "The words highlighted in bold and underlined have been automatically shown as hyperlinks." However, we are not taught whether Anthony refers to an HTML coded hyperlink or other hyperlink mechanism which may have possibly been known to Anthony in 1994 (his Foreign Application Priority Date). For example, Anthony only has to keep track of the cursor position on the screen. When the cursor is activated and it is over underlined text, Anthony's software need only compare its screen position to a list of screen positions and record file names that are stored separately from the record text. In this manner, Anthony affects a link *without* modifying the record or its text, as required by this claim.
7. The computer system of claim 1, wherein said reference to said	The same reasons noted above apply to claim 7.

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second data record comprises a keyword phrase.	

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