

IN THE UNITED STATES DISTRICT COURT FOR THE  
EASTERN DISTRICT OF TEXAS  
TYLER DIVISION

EOLAS TECHNOLOGIES  
INCORPORATED,

Plaintiff,

v.

ADOBE SYSTEMS INC.,  
ET AL.,

Defendants.

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C.A. NO. 6:09-CV-446

JUDGE LEONARD E. DAVIS

JURY TRIAL DEMANDED

**STAPLES, INC.'S SECOND AMENDED ANSWER, DEFENSES, AND  
COUNTERCLAIMS**

Defendant Staples, Inc. ("Staples") files this Second Amended Answer to Plaintiff Eolas Technologies Incorporated's ("Eolas" or "Plaintiff") Second Amended Complaint for Patent Infringement ("Amended Complaint") and asserts counterclaims, as follows:

**PARTIES**

1. Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations in Paragraph 1 of the Amended Complaint and therefore denies those allegations.

2. Paragraph 2 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 2 and therefore denies those allegations.

3. Paragraph 3 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 3 and therefore denies those allegations.

4. Paragraph 4 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 4 and therefore denies those allegations.

5. Paragraph 5 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 5 and therefore denies those allegations.

6. Paragraph 6 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 6 and therefore denies those allegations.

7. Paragraph 7 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 7 and therefore denies those allegations.

8. Paragraph 8 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 8 and therefore denies those allegations.

9. Paragraph 9 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 9 and therefore denies those allegations.

10. Paragraph 10 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 10 and therefore denies those allegations.

11. Paragraph 11 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 11 and therefore denies those allegations.

12. Paragraph 12 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 12 and therefore denies those allegations.

13. Paragraph 13 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 13 and therefore denies those allegations.

14. Paragraph 14 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 14 and therefore denies those allegations.

15. Paragraph 15 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 15 and therefore denies those allegations.

16. Paragraph 16 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 16 and therefore denies those allegations.

17. Paragraph 17 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 17 and therefore denies those allegations.

18. Paragraph 18 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 18 and therefore denies those allegations.

19. Staples admits the allegations of Paragraph 19 of the Amended Complaint.

20. Paragraph 20 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 19 and therefore denies those allegations.

21. Paragraph 21 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 21 and therefore denies those allegations.

22. Paragraph 22 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 22 and therefore denies those allegations.

23. Paragraph 23 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 23 and therefore denies those allegations.

#### **JURISDICTION AND VENUE**

24. Staples refers to and incorporates herein its previous answers to Paragraphs 1-23.

25. Staples admits that Paragraph 25 of the Amended Complaint alleges that this is an action arising under the patent laws of the United States, Title 35 of the United States Code, but denies the merits of such action. Staples admits that this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

26. The allegations contained in paragraph 26 constitute conclusions of law to which no answer is required.

27. The allegations contained in paragraph 27 constitute conclusions of law to which no answer is required.

**ANSWER TO ALLEGED INFRINGEMENT OF  
U.S. PATENT NOS. 5,838,906 and 7,599,985**

28. Staples refers to and incorporates herein its previous answers to Paragraphs 1-27.

29. Staples admits that U.S. Patent No. 5,838,906 (the “‘906 Patent”) entitled “Distributed hypermedia method for automatically invoking external application providing interaction and display of embedded objects within a hypermedia document,” and U.S. Patent No. 7,599,985 (the “‘985 Patent”) entitled “Distributed hypermedia method and system for automatically invoking external application providing interaction and display of embedded objects within a hypermedia document” were issued by the U.S. Patent and Trademark Office on November 17, 1998 (‘906 Patent) and October 6, 2009 (‘985 Patent). Staples lacks knowledge and information sufficient to form a belief as to the truth of the remaining allegations of Paragraph 29 of the Amended Complaint, and therefore denies them.

30. Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 30 of the Amended Complaint and therefore denies those allegations.

31. Paragraph 31 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 31 and therefore denies those allegations.

32. Paragraph 32 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 32 and therefore denies those allegations.

33. Paragraph 33 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 33 and therefore denies those allegations.

34. Paragraph 34 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 34 and therefore denies those allegations.

35. Paragraph 35 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 35 and therefore denies those allegations.

36. Paragraph 36 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 36 and therefore denies those allegations.

37. Paragraph 37 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 37 and therefore denies those allegations.

38. Paragraph 38 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 38 and therefore denies those allegations.

39. Paragraph 39 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 39 and therefore denies those allegations.

40. Paragraph 40 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 40 and therefore denies those allegations.

41. Paragraph 41 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 41 and therefore denies those allegations.

42. Paragraph 42 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 42 and therefore denies those allegations.

43. Paragraph 43 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 43 and therefore denies those allegations.

44. Paragraph 44 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 44 and therefore denies those allegations.

45. Paragraph 45 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 45 and therefore denies those allegations.

46. Paragraph 46 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 46 and therefore denies those allegations.

47. Paragraph 47 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 47 and therefore denies those allegations.

48. Staples denies the allegations of Paragraph 48 of the Amended Complaint.

49. Paragraph 49 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 49 and therefore denies those allegations.

50. Paragraph 50 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 50 and therefore denies those allegations.

51. Paragraph 51 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 51 and therefore denies those allegations.

52. Paragraph 52 of the Amended Complaint is not directed at Staples. To the extent any response is necessary, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 52 and therefore denies those allegations.

53. Staples admits that following commencement of this case it obtained knowledge of the '906 patent and denies the remaining allegations of Paragraph 53 of the Amended Complaint. With respect to the other Defendants, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 53 of the Amended Complaint and therefore denies those allegations.

54. With respect to Staples, Staples denies the allegations of Paragraph 54 of the Amended Complaint. With respect to the other Defendants, Staples lacks knowledge and



information sufficient to form a belief as to the truth of the allegations of Paragraph 54 and therefore denies those allegations.

55. With respect to Staples, Staples denies the allegations of Paragraph 55 of the Amended Complaint. With respect to the other Defendants, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 55 and therefore denies those allegations.

56. With respect to Staples, Staples denies the allegations of Paragraph 56 of the Amended Complaint. With respect to the other Defendants, Staples lacks knowledge and information sufficient to form a belief as to the truth of the allegations of Paragraph 56 and therefore denies those allegations.

#### **ANSWER TO PRAYER FOR RELIEF**

57. Staples denies that Plaintiff is entitled to any of the relief requested in the Amended Complaint for Patent Infringement.

#### **DEFENSES**

Without conceding that any of the following necessarily must be pled as an affirmative defense, or that any of the following is not already at issue by virtue of the foregoing denials, and without prejudice to Staples' right to plead additional defenses as discovery into the facts of the matter may warrant, Staples hereby asserts the following defenses. Staples specifically reserves the right to amend its defenses further as additional information is developed through discovery or otherwise.

#### **FIRST DEFENSE**

Staples does not infringe and has not infringed (either directly, contributorily, or by inducement) any claim of the '906 Patent and the '985 Patent either literally or under the doctrine of equivalents.

## **SECOND DEFENSE**

The claims of the '906 Patent and the '985 Patent are invalid and/or unenforceable for failing to meet the requirements of one or more sections of Title 35, United States Code, including at least sections 102, 103, and/or 112, and one or more sections of Title 37, Code of Federal Regulations.

## **THIRD DEFENSE**

Plaintiff's claim for damages is limited in time by 35 U.S.C. § 286.

## **FOURTH DEFENSE**

The Amended Complaint fails to plead, and Plaintiff cannot carry its burden to prove, compliance with, or an exception to, the notice requirements of the patent laws, Title 35 of the United States Code, including, but not limited to, 35 U.S.C. § 287, and therefore alleged damages, if any, predating Plaintiff's assertion of the '906 Patent and the '985 Patent against Staples are not recoverable by Plaintiff.

## **FIFTH DEFENSE**

Plaintiff's Amended Complaint fails to state a claim for which relief can be granted.

## **SIXTH DEFENSE**

The claims stated in the Amended Complaint are barred by the doctrines of laches, estoppel, or other equitable defenses.

## **SEVENTH DEFENSE**

Plaintiff's claims for relief are limited by patent exhaustion and/or implied license.

## **EIGHTH DEFENSE**

Plaintiff is estopped from asserting a construction of any claim of the '906 Patent and/or the '985 Patent in any manner inconsistent with prior positions taken before the United States Patent and Trademark Office or any court of law.

### **NINTH DEFENSE**

Each and every claim of the '906 and '895 Patents is unenforceable due to inequitable conduct and/or unclean hands. Staples incorporates by reference the allegations contained in Paragraphs 17 to 268 and 282 to 307 of its Counterclaims.

### **COUNTERCLAIMS**

In further response to the Complaint by Eolas, Staples asserts the following Counterclaims against Eolas:

### **PARTIES**

1. Counterclaimant Staples Inc. ("Staples") is a corporation organized and existing under the laws of Delaware with a principal place of business at 500 Staples Drive, Framingham, Massachusetts 01702.

2. On information and belief, Counterclaim-Defendant Eolas Technologies, Inc. ("Eolas") is a corporation organized and existing under the laws of Texas with a principal place of business in at 313 East Charnwood Street, Tyler, Texas 75701.

### **JURISDICTION AND VENUE**

3. These Counterclaims arise under the patent laws of the United States, 35 U.S.C. § 1 *et. seq.*, and the Declaratory Judgment Act, 28 U.S.C. §§ 2201-02. The Court has subject matter jurisdiction over these Counterclaims pursuant to 28 U.S.C. §§ 1331, 1338, and 2201-02.

4. This Court has personal jurisdiction over Eolas because Eolas is a corporation organized and existing under the laws of Texas, Eolas has its principal place of business in this district, and by virtue of Eolas filing the Complaint in this action in this Court.

5. Venue with respect to these Counterclaims in this district is met under 28 U.S.C. §§ 1391 (b) and (c) because Eolas is a corporation subject to the personal jurisdiction of this Court..

### **COUNT I**

6. Staples incorporates by reference the allegations contained in Paragraphs 1 to 5 of its Counterclaims.

7. An actual controversy exists between the parties with respect to the alleged infringement '906 Patent.

8. Although Eolas alleges in its Complaint that Staples has directly and/or indirectly infringed the claims of the '906 Patent, Staples has not directly and/or indirectly infringed, and does not directly and/or indirectly infringe, any claim of the '906 Patent.

9. A judicial determination of the respective rights of the parties with respect to the infringement of the claims of the '906 Patent is now necessary and appropriate under 28 U.S.C. § 2201.

### **COUNT II**

10. Staples incorporates by reference the allegations contained in Paragraphs 1 to 5 of its Counterclaims.

11. An actual controversy exists between the parties with respect to the invalidity of the '906 Patent.

12. Although Eolas alleges in its Complaint that the '906 Patent was duly and legally issued by the United States Patent and Trademark Office after full and fair examination, each and every claim of the '906 patent is invalid for failure to comply with the patent laws, including, but not limited to, 35 U.S.C. §§ 101, 102, 103, 112, and 113.

13. A judicial determination of the respective rights of the parties with respect to the validity of the claims of the '906 patent is now necessary and appropriate under 28 U.S.C. § 2201.

### **COUNT III**

14. Staples incorporates by reference the allegations contained in Paragraphs 1 to 5 of its Counterclaims.

15. An actual controversy exists between the parties with respect to the unenforceability of the '906 Patent.

16. Although Eolas alleges in its Complaint that the '906 Patent was duly and legally issued by the United States Patent and Trademark Office after full and fair examination, each and every claim of the '906 Patent is unenforceable due to inequitable conduct before the United States Patent and Trademark Office.

#### **I. Overview**

##### **A. Doyle and Krueger had a duty of candor and good faith in dealing with the Patent Office**

17. Michael D. Doyle ("Doyle") is one of the named inventors of the patents-in-suit, U.S. Patent Nos. 5,838,906 and 7,599,985.

18. Charles E. Krueger ("Krueger") was the patent prosecutor for the patents-in-suit, U.S. Patent Nos. 5,838,906 and 7,599,985.

19. Doyle, as a named inventor, and Krueger, as the patent prosecutor, each had a duty of candor and good faith in dealing with the United States Patent and Trademark Office ("the Patent Office") during prosecution of the '906 and '985 patents.

20. Doyle and Krueger's duty of candor and good faith also existed during the reexaminations of the '906 patent.

21. The duty of candor and good faith owed by Doyle and Krueger included a duty to disclose to the Patent Office all information known to that individual to be material to patentability as defined in 37 C.F.R. § 1.56.

**B. Doyle had a financial incentive to deceive the Patent Office**

22. Doyle had a financial incentive to deceive the Patent Office during prosecution of the '906 patent, during the reexaminations of the '906 patent, and during the prosecution of the '985 patent.

23. On information and belief, Doyle worked at the University of California, San Francisco when he allegedly conceived of the inventions claimed in the '906 and '985 patents.

24. The '906 and '985 patents are owned by The Regents of the University of California.

25. Doyle and his co-inventors are entitled to receive a portion of any royalties paid to The Regents of the University of California related to the '906 and/or '985 patents.

26. Doyle is a founder of the plaintiff in this action, Eolas Technologies Incorporated ("Eolas").

27. On information and belief, Doyle quit his job to found Eolas, and personally invested time and money in Eolas.

28. Doyle has had a financial interest in Eolas since at least August 21, 1995.

29. On or about August 21, 1995, Eolas acquired rights to the patent application that matured into the '906 patent.

30. On information and belief, Doyle was personally involved in the prosecution of the '906 patent, the reexaminations of the '906 patent, and the prosecution of the '985 patent at the same time that he had a financial interest in Eolas and a financial interest in any royalties on the '906 and/or '985 patents paid to The Regents of the University of California.

**C. Doyle and Krueger breached their duty of candor and good faith with an intent to deceive the Patent Office**

31. As explained in more detail below, Doyle and Krueger breached the duty of candor and good faith in dealing with the Patent Office. Doyle and Krueger failed to disclose material information and made affirmative misrepresentations of material facts. Doyle and Krueger did so with knowledge of the information they withheld, with knowledge of the falsity of their misrepresentations, and with the specific intent to deceive the Patent Office. The circumstances of Doyle and Krueger's actions confirm an intent to deceive the Patent Office.

**II. Doyle and Krueger failed to disclose material information related to the ViolaWWW browser**

32. As explained in more detail below, Doyle and Krueger breached the duty of candor and good faith in dealing with the Patent Office by failing to disclose material information related to the ViolaWWW browser. On information and belief, Doyle and Krueger did so with knowledge of the information they withheld and with the specific intent to deceive the Patent Office. The circumstances of Doyle and Krueger's actions confirm an intent to deceive the Patent Office.

33. As explained in more detail below, the ViolaWWW browser was material to the patentability of all the claims of the '906 patent because it disclosed limitations that the Patent Office believed were missing in the prior art, including interactivity *embedded within* the webpage (as opposed to a separate window), *automatic* invocation of the interactivity (as opposed to requiring a mouse click to enable the interactivity), and use of a separate executable application (as opposed to a script). Doyle and Krueger knew that the ViolaWWW browser disclosed these limitations, yet they withheld this information from the Patent Office at the same time that they argued to the Patent Office that these limitations were missing from the prior art.

**A. Doyle knew about the ViolaWWW browser before the application for his '906 patent was filed on October 17, 1994**

34. The application for the '906 patent was filed on October 17, 1994.

35. Thus the critical date for purposes of 35 U.S.C. § 102(b) was October 17, 1993.

Any printed publication describing the claimed invention, or any public use of the claimed invention in the United States, before October 17, 1993, would be an absolute bar to patentability.

36. On information and belief, Doyle knew before the application for the '906 patent was filed that an individual in Northern California named Pei Wei had developed a browser called "ViolaWWW" before the critical date of October 17, 1993.

37. On May 20, 1994, David Raggett sent an e-mail to Doyle regarding object level embedding in web browsers. In this email, Raggett advised Doyle that he "might want to look at Viola which [Raggett] seem[s] to remember takes advantage of the tk tool kit to provide a certain level of embedding."

38. Raggett further advised Doyle that he could "find a pointer to Viola off the CERN WWW project page."

39. Later on the same day, May 20, 1994, David Martin, who was one of Doyle's colleagues at the University of California in San Francisco and who was also named as an inventor on the '906 patent, responded to a posting from Pei Wei on a publicly-accessible e-mail distribution list. Pei Wei's post had included the following statements: "In order to do better testings and support of ViolaWWW, I would like to solicit donations for guest accounts on the major Unix platforms. . . . So, if your organization has some CPU crunchies to spare, good network connectivity, don't have a firewall, want to help viola development, etc, please drop me a note. Based mostly on network connectivity, I'll select one (maybe two) offer(s) for each



different platform.” David Martin’s response to Pei Wei included the following statements: “I am willing to discuss providing accounts on SGI IRIX 5.x, Solaris 2.x, Alpha OSF/1. Please let me know what you require in terms of disk space, compiler, utilities, etc...”

40. Thus by May 20, 1994 — several months before the application for the ‘906 patent was filed — Doyle knew about Pei Wei’s ViolaWWW browser.

41. On information and belief, Doyle did not disclose this information to Krueger or Charles J. Kulas (“Kulas”), the patent prosecutor that filed the ‘906 patent application, prior to the filing of the application that lead to the ‘906 patent.

42. On information and belief, Doyle learned even more about the ViolaWWW browser before the application for the ‘906 patent was filed.

43. On August 30, 1994, at approximately 11:15 p.m. California time, Doyle posted a “Press Release” to the publicly-accessible VRML e-mail distribution list that included the following statements:

Researchers at the U. of California have created software for embedding interactive program objects within hypermedia documents. Previously, object linking and embedding (OLE) has been employed on single machines or local area networks using MS Windows -TM-. This UC software is the first instance where program objects have been embedded in documents over an open and distributed hypermedia environment such as the World Wide Web on the Internet.

44. On August 31, 1994, at approximately 6:52 p.m. California time, Pei Wei posted a response on the publicly-accessible VRML e-mail distribution list that included the following statements: “I don’t think this is the first case of program objects embedded in docs and transported over the WWW. ViolaWWW has had this capabilities for months and months now.”

45. Pei Wei’s response included a link to an FTP site where anyone “interested in learning more about how violaWWW does this embedded objects thing can get a paper on it.”

46. The paper cited by Pei Wei was entitled “A Brief Overview of the VIOLA Engine, and its Applications.”

47. The paper cited by Pei Wei was dated August 16, 1994 — over two months before the application for the ‘906 patent was filed (“August 1994 Viola Paper”).

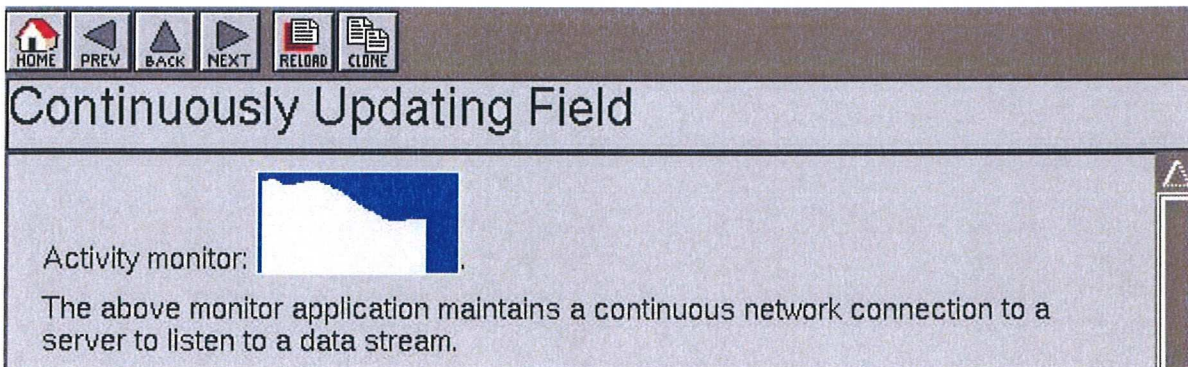
48. The paper cited by Pei Wei included the following statements and graphics:

### **Embedding mini applications**

Viola’s language and toolkit allows ViolaWWW to render documents with embedded viola objects. Although the viola language is not part of the World Wide Web standard (yet?), having this capability provides a powerful extension mechanism to the basic HTML.

For example, if the HTML’s input-forms do not do exactly what you want, you have the option to build a mini customized input-form application. And it could have special scripts to check for the validity of the entered data before even making a connection to the server.

Or, if your document needs to show data that is continuously updated, you could build a small application such as this which display the CPU load of a machine. Note that only the graph field is continuously updated, but not the rest of the document.



Other possible applications include front-ends to the stock market quotes, new wire updates, tele-video style service, etc.

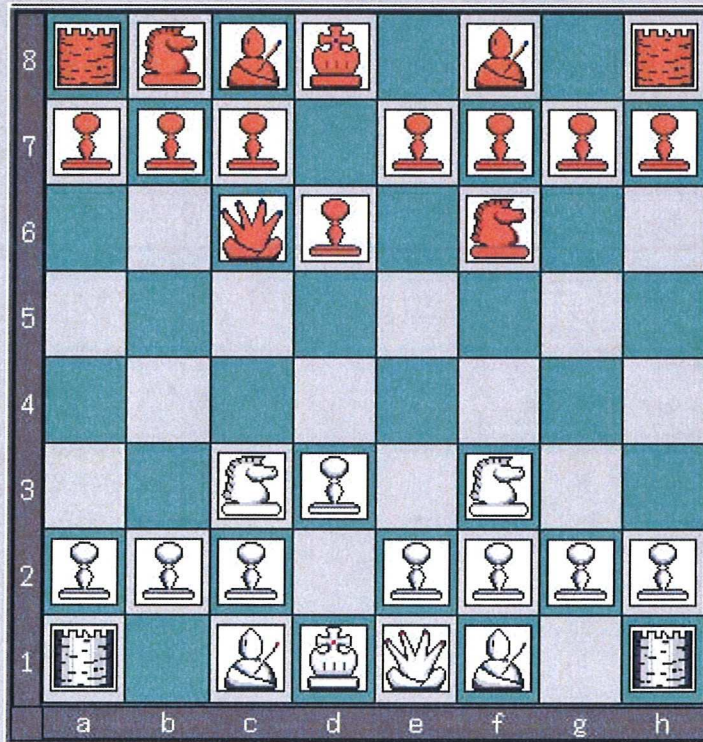
Here’s another example of a mini interactive application that is embedded into a HTML document. It’s a chess board in which the chess pieces are actually active and movable. And, illegal moves can be checked and denied straight off by the

intelligence of the scripts in the application. Given more work, this chess board application can front-end a chess server, connected to it using the socket facility in viola.

<http://xcf.berkeley.edu/ht/projects/viola/docs/vw/chessDemo.html>

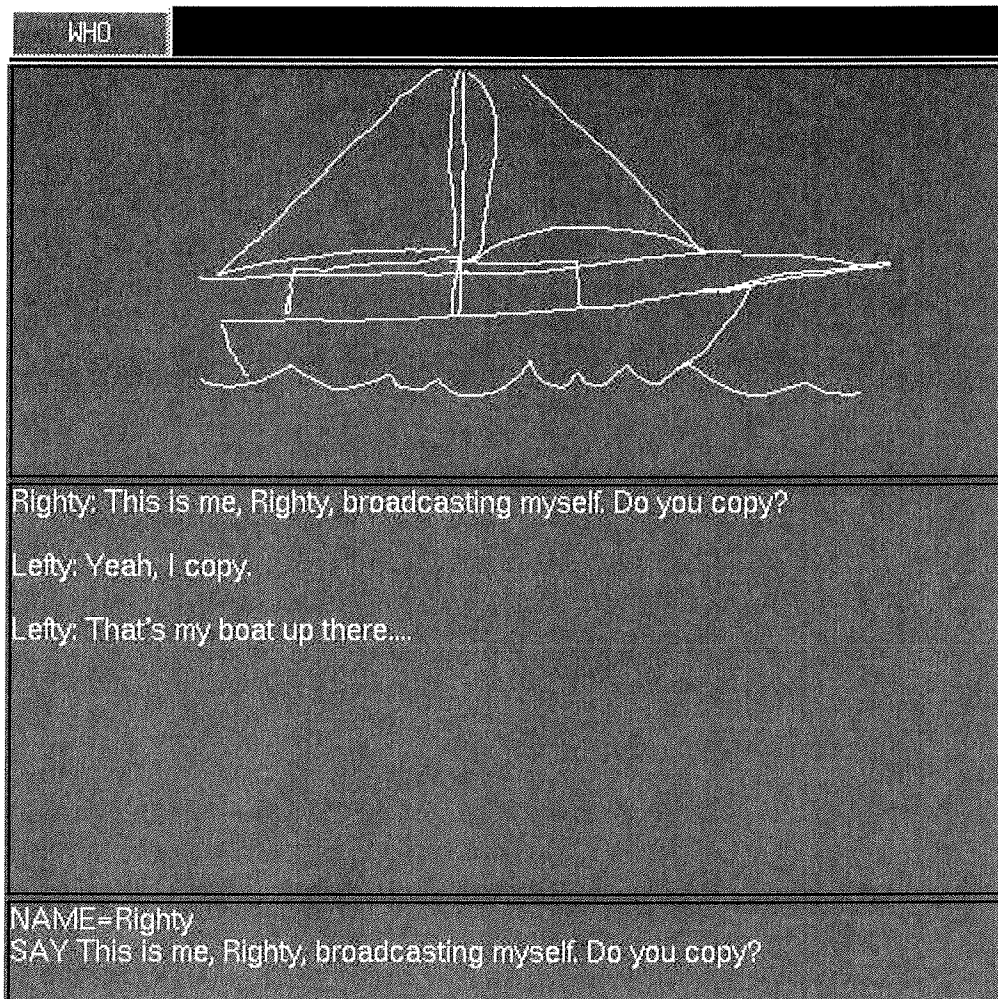
## A Chess Board

This is a demo a viola "application" (the chess board) being retrieved via HTTP, instantiated, and plugged into this HTML document.



What follows is a screendump of a demo of an embedded viola application that lets readers of this HTML page communicate by typing or drawing. Like the chess board application above, this chat application can stand-alone (and have nothing to do with the World Wide Web), or be embedded into a HTML document.

By the way, to make this possible, a multi-threaded/persistent server was written to act as a message relay (and to handle HTTP as well).



This next mini application front-ends a graphing process (on the same machine as the viola process). An important thing to note is that, like all the other document-embeddable mini applications shown, no special modification to the viola engine is required for ViolaWWW to support them. All the bindings are done via the viola language, provided that the necessary primitives are available in the interpreter, of course.

Put it another way, because of the scripting capability, the ViolaWWW browser has become very flexible, and can take on many new features dynamically. C-code patches and re-compilation of the browser can frequently be avoided.

This attribute can be very important for several reasons. It keeps the size of the core software small, yet can grow dynamically as less frequently used features are occasionally used, or as new accessories/components are added.