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Exhibit L



LEXSEE 2006 PAT. APP. LEXIS 50



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As of: Dec 07, 2010

Ex parte PETRUS A.C.M. NUIJTEN

Appeal No. 2003-0853

Application 09/211,928 n1

n1 Application for patent filed December 15, 1998, entitled "Embedding Supplemental Data in an Encoded Signal," which claims the foreign filing priority benefit under 35 U.S.C. § 119 of European Patent Office (EPO) Application 97204056.2, filed December 22, 1997.

Board of Patent Appeals and Interferences

*2006 Pat. App. LEXIS 50; 84 U.S.P.Q.2D (BNA) 1335*

January 24, 2006, Decided

[\*1]

HAIRSTON, BARRETT, and MacDONALD, Administrative Patent Judges

**OPINIONBY: BARRETT**

**OPINION:**

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

ON BRIEF

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1, 5, 6, and 11-24. Claims 2-4 and 7-10 are objected to.

We affirm-in-part.

## BACKGROUND

The invention relates to a method and arrangement for embedding supplemental data in a signal, a signal with embedded supplemental data, and a storage medium having stored thereon a signal with embedded supplemental data.

Claims 1, 14, and 15 are reproduced below.

1. A method of embedding supplemental data in a signal, comprising the steps of:

encoding the signal in accordance with an encoding process which includes the step of feeding back the encoded signal to control the encoding; and modifying selected samples of the encoded signal to represent the supplemental data prior to the feedback of the encoded signal and including the modifying of at least one further sample of the encoded signal [\*2] preceding the selected sample if the further sample modification is found to improve the quality of the encoding process.

14. A signal with embedded supplemental data, the signal being encoded in accordance with a given encoding process and selected samples of the signal representing the supplemental data, and at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process.

15. A storage medium having stored thereon a signal with embedded supplemental data, the signal being encoded in accordance with a given encoding process and selected samples of the signal representing the supplemental data, and at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process.

## THE REFERENCES

The examiner relies on the following references:

Bender et al. (Bender)	5,689,587	November 18, 1997
Bruekers et al. (Bruekers)	6,157,330	December 5, 2000 (filed January 26, 1998)

## THE REJECTIONS

Claims 14, 15, and 22-24 stand rejected under *35 U.S.C. § 101* as being directed to nonstatutory subject matter.

Claims [\*3] 1, 5, 6, and 11-24 stand rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-3, 8, 10, 11, 12, 15, 17, and 19-25 of Bruekers in view of Bender.

We refer to the final rejection (Paper No. 11) (pages referred to as "FR ") and the examiner's answer (Paper No. 16) (pages referred to as "EA ") for a statement of the examiner's rejection, and to the brief (Paper No. 15) (pages referred to as "Br ") and reply brief (Paper No. 17) (pages referred to as "RBr ") for a statement of appellant's arguments thereagainst.

## OPINION

Nonstatutory subject matter

The examiner states that the claims are directed to nonstatutory subject matter because (FR3): "The recitation of the data characteristics of a signal is not a practical application within the technological arts. The recited characteristics are a description of the signal itself and not a process that can be performed by a computer when imparted with the requisite

functionality."

Appellant argues that the examiner has not provided any reference or other support for his position and without such reference or other support, the rejection is legally insufficient and thus [\*4] improper (Br4). It is noted that MPEP § 2106 IV.B.1(c) states that "a signal claim directed to a practical application is statutory regardless of its transitory nature." Appellant argues that the signal is humanly designed and cannot be considered a nonstatutory natural phenomenon (Br4). It is argued that the signal is directed to a practical application (Br5).

The examiner responds that (EA3): (1) "[T]he claims are directed to a signal and not a process"; (2) "Even if the process is statutory, by claiming the signal per se, applicant is seeking to patent an abstract idea or a form of an abstract idea. . . . The signal claimed is a representation of an abstract idea. It is an idea of how to describe an abstract manipulation."; (3) "The claims do not seek the protection of a physical product or manufacture, but the idea expressed by the term 'signal with embedded supplemental data.'"; and (4) "The signal does not represent functional descriptive language that if imparted to a computer would cause a computer to implement a process or become a specialized machine."

Appellant replies that arguments (2) and (3) are new grounds of rejection which are improper, but appellant nevertheless [\*5] replies to all four arguments. It is argued that argument (1) is not an argument but rather a restatement of the issue (RBr3). It is argued with respect to argument (2) that a signal is not abstract, but "[s]aid signal comprises energy, is detectable, and measurable ... [and] is as physical and tangible as a table or a baseball" (RBr4) and is not naturally occurring. It is argued with respect to argument (3) that "the signal of claims 14 and 15 is not an idea but is tangible, detectable, measurable, and humanly created" (RBr4). It is argued with respect to argument (4) that the examiner has not provided any reference or other support for his contention (RBr4). Appellant again asserts that the relevant criterion is that "a signal claim directed to a practical application is statutory regardless of its transitory nature," MPEP § 2106 IV.B.1(c).

#### Claims 14 and 22-24

First, we must interpret the claims. Claim 14 is directed to a "signal" having certain characteristics. A man-made signal represents coded information. A signal can be an abstract quantity describing the information or a physical quantity (e.g., the fluctuations of an electrical quantity, such as voltage), which can [\*6] be measured. See *In re Walter*, 618 F.2d 758, 770, 205 USPQ 397, 409 (CCPA 1980) ("The 'signals' processed by the inventions of claims 10-12 may represent either physical quantities or abstract quantities; the claims do not require one or the other"). The signal of claim 14 is not recited to have any specific physical form, i.e., it is not expressly or impliedly an electrical or electromagnetic signal or a signal transmitted or stored in a physical medium. The signal could simply be a string of +1 and -1 sample values representing an encoded signal z, e.g., -1, +1, -1, +1, +1, -1, etc. for the encoded signal z in appellant's Fig. 4, but the representation of the signal is not claimed. Claim 14 merely recites the abstract properties of the signal. Appellant's assertion that "[s]aid signal comprises energy, is detectable, and measurable ... [and] is as physical and tangible as a table or a baseball" (RBr4) is not supported by any claim limitations.

The same interpretation applies to claim 22, which merely defines the data. Claim 23 recites that "the signal is a video signal" and claim 24 recites that "the signal is an audio signal." The terms [\*7] "video" and "audio" are considered statements of intended use for the signal and while the terms imply some additional formatting for use in video and audio devices, they do not clearly specify any physical properties. In any case, it is not clear that a physical signal per se is patentable.

We conclude that the signal of claims 14 and 22-24 is nonstatutory subject matter because (1) it is an abstract idea, and (2) it does not fall within one of the four statutory categories of subject matter under 35 U.S.C. § 101. These roughly correspond to the examiner's arguments (2) and (3), respectively. The examiner's refers to "technological arts," but technological arts is not a separate test for statutory subject matter. See *Ex parte Lundgren*, 76 USPQ2d 1385 (Bd. Pat. App. & Int. 2005). This not to say that there are no limits on patentable subject matter. See *id. at 1389-1432* (APJ

Barrett, concurring-in-part and dissenting-in-part) (inventions protected under the "useful arts" of the Constitution are specified by Congress in the classes of § 101, as those classes are defined by the caselaw, [\*8] not by some undefined "technological arts" test).

#### Abstract idea

One of the three judicially recognized exceptions is an "abstract idea." *Diamond v. Diehr*, 450 U.S. 175, 185, 209 USPQ 1, 7 (1981). The signal of claims 14 and 22 has no physical attributes and merely describes the abstract characteristics of the signal and, thus, it is considered an "abstract idea." Claim 23, which recites that "the signal is a video signal," and claim 24, which recites that "the signal is an audio signal," are interpreted as reciting the type of information contained in the signal, video or audio, and not any particular physical properties, such as an electrical signal. Accordingly, the signal of claims 14 and 22-24 is nonstatutory subject matter as an "abstract idea."

#### Not within a § 101 category

The categories of statutory subject matter are "process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. "[N]o patent is available for a discovery, however useful, novel, and nonobvious, unless it falls within one of the express categories of patentable subject matter of 35 U.S.C. § 101. [\*9] " *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 483, 181 USPQ 673, 679 (1974).

A "process" is a series of acts and, since claim 14 does not recite acts, it is not a process.

The three product classes of machine, manufacture, and composition of matter have traditionally required physical structure or substance. "The term machine includes every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result." *Corning v. Burden*, 56 U.S. 252, 267 (1854); see also *Burr v. Duryee*, 68 U.S. 531, 570 (1863) (a machine is a concrete thing, consisting of parts or of certain devices and combinations of devices). In modern parlance, electrical circuits and devices, such as computers, are referred to as machines. The signal of claim 14 has no concrete tangible physical structure, and does not itself perform any functions that produce useful, concrete and tangible results. Therefore, a signal does not fit within the definition of a "machine."

A "manufacture" and a "composition of matter" are defined in *Diamond v. Chakrabarty*, 447 U.S. 303, 308, 206 USPQ 193, 196-97 (1980): [\*10]

[T]his Court has read the term "manufacture" in accordance with its dictionary definition to mean "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery." *American Fruit Growers, Inc. v. Brogdex Co.*, 283 U.S. 1, 11 (1931). Similarly, "composition of matter" has been construed consistent with common usage to include "all compositions of two or more substances and ... all composite articles, whether they be results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids." *Shell Development Co. v. Watson*, 149 F. Supp. 279, 280 (D.C. 1957) (citing 1 A. Deller, Walker on Patents § 14, p. 55 (1st ed. 1937)). [Parallel citations omitted.]

The signal is not composed of matter and is clearly not a "composition of matter."

A "manufacture" is the residual category for products. 1 Chisum, Patents § 1.02[3] (2004) (citing W. Robinson, The Law of Patents for Useful Inventions 270 (1890)). If a signal falls within any category of § 101, it must fall [\*11] within this category. The definition of "manufacture" from *Diamond v. Chakrabarty* requires a tangible article prepared from materials. The other cases dealing with manufactures also require a tangible physical article. The CCPA held in *In re Hruby*, 373 F.2d 997, 153 USPQ 61 (CCPA 1967) that there was no distinction between the meaning of "manufacture" in § 101 and "article of manufacture" in § 171 for designs. The issue in *Hruby* was whether that portion of a water fountain which is composed entirely of water in motion was an article of manufacture. The CCPA relied on the analysis of the term "manufacture" in *Riter-Conley Mfg. Co. v. Aiken*, 203 F. 699 (3d Cir.), cert. denied, 229 U.S.

617 (1913), a case involving a utility patent. The CCPA stated in *Hruby*:

The gist of it is, as one can determine from dictionaries, that a manufacture is anything made "by the hands of man" from raw materials, whether literally by hand or by machinery or by art.

373 F.2d at 1000, 153 USPQ at 65. The CCPA held that the fountain was made [\*12] of the only substance fountains can be made of--water--and determined that designs for water fountains were statutory. Articles of manufacture in designs manifestly require physical matter to provide substance for embodiment of the design. Since an "article of manufacture" under § 171 has the same meaning as a "manufacture" under § 101, it is inevitable that a manufacture under § 101 requires physical matter.

Some further indirect evidence that Congress intended to limit patentable subject matter to physical things and steps is found in 35 U.S.C. § 112, sixth paragraph, which states that an element in a claim for a combination may be expressed as a "means or step" for performing a function and will be construed to cover the corresponding "structure, material, or acts described in the specification and equivalents thereof." "Structure" and "material" indicate tangible things made of matter, not energy.

The signal of claim 14 does not have any physical structure or substance and does not fit the definition of a "manufacture" which requires a tangible object. The signal of claims 14 and 22-24 is considered an "abstract idea," as discussed supra. [\*13] The more interesting question is presented with respect to dependent claims 23 and 24, to the extent these claims might be construed to imply an electrical signal: Is a physical electrical signal, not embodied or stored in a tangible medium, a "manufacture"? An electrical signal does not fit the *Diamond v. Chakrabarty* definition of a manufacture because it is not an object prepared from material and, thus, the answer seems to be that a signal, even if claimed as a measurable physical quantity, such as a voltage, is not patentable. See *In re Bonczyk*, 10 Fed. Appx. 908 (Fed. Cir. 2001) (unpublished) ("fabricated energy structure" does not correspond to any statutory category of subject matter and it is unnecessary to reach the alternate ground of affirmance that the subject matter lacks practical utility). This analysis is consistent with the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, 1300 Off. Gaz. Patent and Trademark Off. (O.G.) 142, 152 (Nov. 22, 2005), in the section entitled "Electro-Magnetic Signals." Rather than invent reasons why this different type of subject matter may be statutory [\*14] and open up a whole new type of subject matter for patenting, we leave it to our reviewing court, the U.S. Court of Appeals for the Federal Circuit to make this decision. In summary, the signal of claims 14 and 22-24 is also unpatentable subject matter because it does not fall within any category of § 101.

Appellant relies on the following statement in MPEP § 2106 IV.B.1(c) (8th ed., Rev. 1, Feb. 2003): "However, a signal claim directed to a practical application of electromagnetic energy is statutory regardless of its transitory nature. See *O'Reilly*, 56 U.S. at 114-19; *In re Breslow*, 616 F.2d 516, 519-21, 205 USPQ 221, 225-26 (CCPA 1980)." To the extent this statement suggests that a claim to a signal per se is statutory subject matter, it is in error. Neither *O'Reilly v. Morse* nor *Breslow* are to the contrary: *O'Reilly* was to a method and *Breslow* was to a chemical composition of matter. It is noted that the rejection in this case is based principally on the fact that the signal, as claimed, is abstract and is not recited to be an electromagnetic signal or a signal stored in a physical [\*15] medium. Nevertheless, we hold that an electrical signal per se does not fit within any of the statutory categories of 35 U.S.C. § 101 until told otherwise by the Federal Circuit. As to the statement in the MPEP, the MPEP is a manual of examining procedure and its legal interpretations of the case law are not binding on the Board. The practical application of a signal in a process or manufacture may be statutory, but here the claims recite a signal per se.

The assignee of this application should be familiar with the signal analysis. A rejection of a signal per se was affirmed by the Board in *Koo*, U.S. Patent 5,568,202, issued October 22, 1996, and assigned to U.S. Philips, the assignee of the present application. In *Koo*, after a premature appeal to the Federal Circuit, the claims were allowed after the claim was amended to recite "wherein said reference signal is embodied in a processor readable memory" following the holding in *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994), wherein claims to a data structure stored in memory were held to be statutory subject matter. No memory [\*16] or other physical structure is

claimed here and our decision is not controlled by Lowry.

As to the examiner's statement that "[t]he signal does not represent functional descriptive language that if imparted to a computer would cause a computer to implement a process or become a specialized machine" (EA3). This is apparently a reference to the distinction between "functional descriptive material" and "nonfunctional descriptive material" in MPEP § 2106 IV.B.1. This rationale is relevant to claim 15, but is not necessary for claim 14, which does not recite a memory or storage medium.

#### Claim 15

Claim 15 recites "a storage medium having stored thereon a signal with embedded supplemental data." This claim depends on the distinction between "functional descriptive material" and "nonfunctional descriptive material" described in MPEP § 2106 IV.B.1. "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data." *Id.* While the signal may represent "nonfunctional descriptive material," music or a movie, claim 15 is not trying to claim the content of the material itself. The storage medium in claim 15 nominally [\*17] puts the claim into the statutory category of a "manufacture" and the signal is "functional" because it can be used by a machine to produce a useful result, as with the "data structure stored in memory" in Lowry. Accordingly, we conclude that claim 15 is statutory subject matter. The rejection of claim 15 is reversed.

#### Obviousness-type double patenting

The examiner finds that assignee's patent to Bruekers claims the claimed invention except for the limitation of modifying at least one further sample of the encoded signal preceding the selected sample if the further sample modification is found to improve the quality of the encoding process and the limitation that at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process (FR3-4). The examiner finds that Bender teaches a method and apparatus for hiding data wherein samples preceding the selected samples are modified in order to improve the quality of the encoding process at column 2, lines 35-46 (Br4).

Appellant presents numerous arguments in response (Br7-20).

The examiner responds (EA5):

The patent to Bender teaches the modification of the samples [\*18] around or preceding the location where the watermark is introduced, see column 8, lines 25-39, referring to Figure 2. The Bender patent teaches the modification of samples preceding (around) the selected samples improves the quality of the encoding process, i.e., the ability to hide a watermark, se [sic] column 1, lines 27-38.

Appellant presents numerous arguments in rebuttal (RBr8-11).

Appellant's argument that the examiner did not identify a specific claim in Bruekers against the independent claims of this application (Br8-10), while true, is not the kind of argument that is persuasive given that appellant is a co-inventor on Bruekers and is presumed to be familiar with what is claimed and the fact that the examiner identified what was not taught. The claims are not complex and it takes little time to determine that claim 1 or claim 22 in Bruekers discloses the limitations of the independent claims of the present application except for modifying a further sample of the encoded signal preceding the selected sample (claims 1 and 11) or at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process (claims 14 and [\*19] 15). The limitations of claims 5, 6, 12, and 13 of the present application are found in claims 2 and 3 of Bruekers. Appellant's argument has merit for some dependent claims of the present case, such as claims 16, 19, and 22, which recite the "supplemental data includes a portion of a watermark data pattern," and claims 17, 18, 20, 21, 23, and 24, which recite that the signal is an audio or video signal, because these limitations are not found in the claims in Bruekers and the examiner has not attempted to explain why the limitations would have been obvious.

We agree with appellant that Bender does not disclose modifying a further sample of the encoded signal preceding the selected sample (claims 1 and 11) or that at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process (claims 14 and 15). It appears that the examiner interprets the claim term "preceding" to be taught by the modification of samples "around" the selected samples in Bender. This is not the encoding of a signal with feedback and modification of a sample preceding the selected sample called for in the claims. An electrical signal is a one-dimensional [\*20] entity, e.g., it has a unique value (voltage, frequency, or, in the present case a value of +1 or -1) as a function of time. Bender is directed to embedding supplemental data in a two dimensional image. While the image will be encoded somehow for transmission, the method of encoding is not disclosed. The term "preceding" has meaning for a signal which is a function of time but is meaningless for an image; it does not equate to "around" in a two-dimensional image. Certainly, there is no way the unity bit encoding or sigma-delta modulation of, for example, claims 5 and 6 makes any sense for Bender. Thus, the examiner has failed to establish a prima facie case of obviousness-type double patenting. The rejection of claims 1, 5, 6, and 11-24 is reversed.

#### CONCLUSION

The rejection of claims 14 and 22-24 under 35 U.S.C. § 101 is sustained. The rejection of claim 15 under § 101 is reversed.

The rejection of claims 1, 5, 6, and 11-24 based on obviousness-type double patenting is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1). See 37 CFR § 1.136(a)(1)(iv) (2004). [\*21]

AFFIRMED-IN-PART

#### Legal Topics:

For related research and practice materials, see the following legal topics:

Patent LawDouble PatentingElementsPatent LawSubject MatterProcessesPrinciples & ResultsPatent LawU.S. Patent & Trademark Office ProceedingsGeneral Overview