

SPECIAL

REPORT

THE FEDERAL CIRCUIT HOLDS THAT SIGNALS PER SE
ARE NOT PATENTABLE SUBJECT MATTER*IN RE NUIJTEN*

November 6, 2007 (UPDATED)

I. Summary

In another decision directed to the type of subject matter that is patentable under 35 U.S.C. §101,¹ a divided panel of the U.S. Court of Appeals for the Federal Circuit held in *In re Nuijten* that a "signal" *per se* (i.e., a transient electric or electromagnetic transmission through some medium) is not patentable under §101.² The applicant filed a request for rehearing *en banc* on November 1, 2007. We have posted a copy of the request on our website.

Judge Gajarsa wrote the majority opinion, and was joined by Judge Moore. Judge Linn concurred in part and dissented in part. All three judges agreed that a signal does not constitute a "process," "machine" or "composition of matter" within the meaning of §101. However, Judge Linn vigorously disagreed with the majority's conclusion that a signal also does not constitute a "manufacture" within the meaning of §101.

II. Background

The applicant, Mr. Nuijten, appealed a decision by the USPTO Board of Patent Appeals and Interferences ("the Board") affirming the rejection of Nuijten's signal claims. Nuijten's patent application is directed to reducing the distortion induced by embedding (encoding) additional or supplemental "watermark" data into digital signals such as

audio or video files. Nuijten's technique improves existing watermark technology by further modifying the watermarked signal so as to partially compensate for the distortion introduced by the watermark.

Nuijten had submitted a variety of claims covering his technique: (1) process claims reciting a series of steps for performing a "method of embedding supplemental data in a signal"; (2) apparatus claims for an "arrangement for embedding supplemental data in a signal," including "encoder means for encoding the signal" and other structural features for carrying out the process; (3) "storage medium" claims directed to a "storage medium having stored thereon a signal with embedded supplemental data"; and (4) "signal" claims directed to the encoded signals themselves with embedded supplemental data. The signal claims did not explicitly recite a carrier wave or the like for the signal. The independent signal claim was not limited as to the type of signal that is encoded, or the nature of the embedded supplemental data, reciting:

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.

Three dependent claims respectively added requirements that the embedded data is a watermark, that the signal is a video signal, and that the signal is an audio signal.

The Examiner allowed only the process and apparatus claims, and rejected the other claims as unpatentable under

¹ See also *In re Comiskey*, 499 F.3d 1365 (Fed. Cir. 2007), which is the subject of our October 22, 2007 Special Report.

² 500 F.3d 1346 (Fed. Cir. 2007).

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§101. The Board reversed the Examiner regarding the storage medium claims, but affirmed the §101 rejection of the signal claims, on two grounds: (i) the claims recite an unpatentable "abstract idea" because the claimed signal has no physical attributes and merely describes the abstract characteristics of the signal; and (ii) the claims do not fall into any of the four statutory categories of patentable subject matter.

The Federal Circuit affirmed the Board's rejection of the signal claims as not reciting a statutory category of patentable subject matter. The majority did not address the Board's "abstract idea" ground of rejection. Judge Linn would have reversed the Board on both grounds.

III. Discussion

Section 101 in its present form lists four categories of statutorily patentable subject matter: "process," "machine," "manufacture," and "composition of matter." Section 100 further defines "process" to mean in part "process, art or method." Viewing the claims on appeal as covering "transitory, electrical and electromagnetic signals propagating through some medium, such as wires, air, or a vacuum," all three judges of the *Nuijten* panel agreed that the rejected signal claims did not fall within the "process," "machine" or "composition of matter" categories.

More specifically, as set forth in the majority opinion, the Court agreed with Nuijten that (i) a signal implies signaling, i.e., the conveyance of information, (ii) a physical carrier, such as an electromagnetic wave, is required to convey information to a recipient, and thus (iii) the claimed signals require some carrier upon which information is embedded. However, because the claims at issue are not limited to any specified physical medium, the nature of the signal's physical carrier is totally irrelevant to the claims at issue. Moreover, claims directed to such a physical, but transitory, propagating signal are also non-statutory. In this regard, the Court rejected Nuijten's contention that the statutory definition of "process" as including "art" means that the "process" category does not require "action."

The majority opinion only briefly considered the machine and composition of matter categories of statutory subject matter. Noting that the Supreme Court in 1863 defined "machine" as a "concrete thing, consisting of parts, or of certain devices and combination of devices," the majority concluded that a transitory signal made of electrical or electromagnetic variances, while physical and

real, does not possess concrete structure (i.e., is not a mechanical "device" or "part") as implied by these definitions. Similarly, the majority noted that a "signal comprising a fluctuation in electrical potential or in electromagnetic fields" does not fit within the Supreme Court's definition of "composition of matter" in *Diamond v. Chakrabarty* – "all compositions of two or more substances and all composite articles, whether they be the results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids."³

Regarding the "manufacture" category of statutory subject matter, the majority read Supreme Court and Federal Circuit precedent as limiting "manufactures" to tangible articles or commodities resulting from the process of manufacture, in which articles are produced for use "from raw or prepared materials by giving these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery." According to the majority, a transient electric or electromagnetic transmission does not fit within that definition. It is not enough that something is artificial (man-made) and physical in the sense that it exists in the real world and has tangible causes and effects. According to the majority, "energy embodying the claimed signal is fleeting and devoid of any semblance of permanence during transmission."

In a footnote, the majority distinguished the Supreme Court's decision in *O'Reilly v. Morse*, 56 U.S. 62 (1853), in which the Court approved a claim covering Morse's "system of signs" (i.e., Morse code). According to the *Nuijten* majority, the written description of the Morse patent describes Morse code as part of its description of the actual process of signaling. "While its dated language obscures the question somewhat," the majority viewed the approved claim as a process claim covering the method of signaling. The majority observed that the analogous claims in Nuijten's application had been approved by the PTO and were not at issue in the appeal.⁴

Judge Linn's dissent disagreed with the majority's view that the Supreme Court precedent should be read as limiting the term "manufacture" to non-transitory, tangible things. The dissent is thoughtful and well-reasoned, and illustrates

³ 447 U.S. 303, 308 (1980).

⁴ In the same footnote, the majority distinguished a CCPA decision as relating to a design patent. However, the majority expressly declined to consider whether a signal of the sort at issue would merit design patent protection.

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the challenging questions that are presented in reconciling cutting-edge technologies with the language of a statute that dates back hundreds of years. It thus remains to be seen whether the majority's view becomes settled law in this area. Oliff & Berridge is monitoring whether *Nuijten* petitions for certiorari to the Supreme Court, and if so, whether the Supreme Court agrees to accept the case for review.

IV. Recommendations

Unless and until *Nuijten* is reversed or overruled, it can be expected that the Patent Office will reject, and the courts will invalidate, "signal" claims. In today's Internet-centric world, though, such claims can be important, if not essential, for effective real-world protection of signal-based technologies. Applicants for whom such protection is important may thus wish to consider including signal claims in their applications, at least for the time being, until the law becomes more settled, recognizing, however, that clarification of the law may not come soon.

Whether or not an applicant for whom signal claim coverage would be valuable decides to pursue signal claims at this time, we recommend that applications for signal-based technologies continue to be drafted to support signal claims, so that they can be added in the future if *Nuijten* is reversed, overruled, or limited, whether by the Supreme Court, Congress, or the Federal Circuit in subsequent panel or *en banc* decisions. We of course also recommend that applicants continue to include apparatus, process and/or storage medium claims, all of which were allowed by the Patent Office.

In this regard, it may also be worthwhile to pursue "signaling" claims, i.e., claims directed to methods of signaling (conveying information), which the majority appeared to recognize as statutory in its discussion of the *Morse* decision.⁵ However, under current Federal Circuit law relating to method claims, such signaling claims may not be effective to reach signaling that originates outside the United States, even if a recipient is located in the United States.

Further, under the obviousness standard set forth in *Comiskey* (nonobviousness cannot be established by

showing that subject matter embodied in the claim that is not patentable under §101 is nonobvious),⁶ there is a question whether a signaling claim could be nonobvious, given that conveying a signal containing information is long known, and a signal *per se* is not patentable. Under a *Comiskey*-style obviousness analysis, though, the patentability of storage medium claims, which the Patent Office currently allows, would also be in question, because storing signals on a storage medium is also long known.

It is thus not clear at this time how vigorously the Patent Office and the courts will push the combined logic of the *Nuijten* and *Comiskey* decisions in applying the requirements of §101 and §103 to modern, man-made technologies that are physical and produce a useful, concrete and tangible result, but have relatively "transitory" implementations compared to traditional mechanical inventions.

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⁵ As noted above, the process claims allowed in *Nuijten* were directed to the method of embedding supplemental data in a signal, not to conveying information.

⁶ See again our October 22, 2007 Special Report regarding *Comiskey*.