No. 07-1404

In the Supreme Court of the United States

PETRUS A.C.M. NUIJTEN, PETITIONER

v.

JONATHAN W. DUDAS, UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND DIRECTOR, PATENT AND TRADEMARK OFFICE

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

BRIEF FOR THE RESPONDENT IN OPPOSITION

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QUESTION PRESENTED

Whether an audio or video signal encoded by means of a patent-eligible process is itself a "process, machine, manufacture, or composition of matter" eligible for patent protection under 35 U.S.C. 101.

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OPINIONS BELOW

The opinion of the court of appeals (Pet. App. 1a-51a) is reported at 500 F.3d 1346. The decision of the Board of Patent Appeals and Interferences (Pet. App. 52a-68a) is unreported.

JURISDICTION

The judgment of the court of appeals was entered on September 20, 2007. A petition for rehearing was denied on February 11, 2008 (Pet. App. 69a-72a). The petition for a writ of certiorari was filed on May 9, 2008. The jurisdiction of this Court is invoked under 28 U.S.C. 1254(1).

STATEMENT

1. Petitioner has developed a technique for reducing the distortion that arises when supplemental data known as a "watermark" are embedded in a digital signal, such as a digital audio file. Watermarking is commonly used by publishers of sound and video recordings to embed copyright and other information in the media they distribute. Pet. App. 2a. Because watermarking involves manipulation of the original digital information encoding the song or video, however, watermarks can have the undesirable effect of introducing distortion in the encoded signal. *Ibid.* In United States patent application Serial No. 09/211,928, petitioner disclosed a technique for reducing this distortion by further modifying the digital signal in the immediate vicinity of the watermark data, thereby partially compensating for the distortion. See *id.* at 1a, 3a-7a.

The United States Patent and Trademark Office (USPTO) examiner allowed petitioner's patent claims for the process of adding a low-distortion watermark to a signal, for an apparatus for embedding such a low-distortion watermark in a signal, and for a storage medium containing a digital signal encoded with a low-distortion watermark. Pet. App. 7a-8a. The USPTO, however, disallowed claims that sought to cover the encoded signal itself, unconnected to any device or storage medium. Claim 14 of petitioner's application read:

> 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.

Id. at 8a (quoting Claim 14). In separate claims, petitioner specified that the "supplemental data" are a watermark, and that the "signal" is a "video signal" and an "audio signal." *Ibid.* The USPTO examiner rejected Claim 14 and its dependent claims as directed to nonpatentable subject matter. See *id.* at 9a.

2. The USPTO's Board of Patent Appeals and Interferences (Board) affirmed. Pet. App. 52a-68a. The Board concluded that, to the extent petitioner sought to patent a "signal," absent any physical embodiment and defined only by its abstract characteristics, the application was an impermissible effort to patent an "abstract idea." *Id.* at 58a (citing *Diamond* v. *Diehr*, 450 U.S. 175, 185 (1981)). The Board further concluded that petitioner's claimed signal was not statutorily eligible for patent protection because it was not a "process, machine, manufacture, or composition of matter" under 35 U.S.C. 101. *Id.* at 58a-59a (quoting 35 U.S.C. 101).

3. The court of appeals affirmed. Pet. App. 1a-51a. As a preliminary matter, the court determined that petitioner's signal claims do not cover pure information—*i.e.*, "intangible, immaterial strings of abstract numbers"—but are rather limited to "physical instances of signals," requiring "some carrier upon which the information is embedded." *Id.* at 12a. The court noted, however, that any carrier would suffice for all the claims at issue, including "conventional, known means, such as electrical signals, modulated electromagnetic waves, and pulses in fiber optic cable." *Id.* at 13a; see *id.* at 11a ("The claims on appeal cover transitory electrical and electromagnetic signals propagating through some medium, such as wires, air, or a vacuum.").

The court of appeals agreed with the Board that a transitory signal of that kind is not a "process, machine, manufacture, or composition of matter," and thus is ineligible for patent protection under Section 101. Pet. App. 13a-23a. First, the court rejected petitioner's contention that a signal of the type covered by his claims was eligible for patent protection as a "process," explaining that the statutory term "process" has consistently been understood to require an act or series of acts, and not the product of those acts. *Id.* at 17a (citing, *inter alia*, *Gottschalk* v. *Benson*, 409 U.S. 63, 70 (1972)). Next, the court rejected petitioner's argument that the claimed signal was a patent-eligible "machine," explaining that this Court has defined the term "machine" to mean "a concrete thing, consisting of parts, or of certain devices and combination of devices." *Id.* at 18a (quoting *Burr* v. *Duryee*, 68 U.S. (1 Wall.) 531, 570 (1864)). The court concluded that a "transitory signal made of electrical or electromagnetic variances is not made of 'parts' or 'devices' in any mechanical sense." *Ibid.* And although the court noted that petitioner's opening brief did not challenge the Board's conclusion that the signal was not a patent-eligible "composition of matter," the court nevertheless observed that "[a] signal comprising a fluctuation in electric potential or in electromagnetic fields" is not a "composition of matter" as this Court has interpreted the term. *Id.* at 23a (citing *Diamond* v. *Chakrabarty*, 447 U.S. 303, 308 (1980)).

Finally, the court of appeals concluded that the claimed signal was not a "manufacture" within the meaning of Section 101. Pet. App. 19a-22a. The court explained that this Court has interpreted the term "manufacture" as "the production of articles for use from raw or prepared materials by giving to these mate-

rials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery." *Id.* at 19a (quoting *Chakrabarty*, 447 U.S. at 308) (emphasis omitted); see *American Fruit Growers, Inc.* v. *Brogdex Co.*, 283 U.S. 1, 11 (1931). The court reasoned that the relevant definitions "address 'articles' of 'manufacture' as being tangible articles or commodities," and that, while an electric or electromagnetic transmission is "man-made" and "has tangible causes and effects," it is itself only a "change in electric potential that, to be perceived, must be measured at a certain point and space in time by equipment capable of detecting and interpreting the signal." Pet. App. 20a-21a. The court further noted that petitioner's claims would encompass, for example, a "signal * * * encoded on an electromagnetic carrier and transmitted through a vacuum—a medium that, by definition, is devoid of matter." *Id.* at 21a-22a. The court thus concluded that an electrical or electromagnetic signal, independent of any apparatus that generates it or any medium that stores it, is not an "article[]" that has been "produc[ed]" from "raw or prepared materials," *id.* at 19a (quoting *Chakrabarty*, 447 U.S. at 308), and therefore is not a patent-eligible article of "manufacture" under Section 101, *id.* at 22a.

Judge Linn dissented in relevant part. Pet. App. 25a-51a. In his view, petitioner's claimed signal qualifies as a patent-eligible "manufacture." *Id.* at 27a-37a. Judge Linn reasoned that Congress intended Section 101 "to cover the full scope of technological ingenuity, however it might best be claimed," *id.* at 34a, and did not limit the scope of patent-eligible "manufacture[s]" to inventions that are "tangible or non-transitory," *id.* at 28a. Judge Linn also filed an opinion dissenting from

the denial of a petition for rehearing en banc, in which Judges Newman and Rader joined. *Id.* at 70a-72a.

ARGUMENT

The court of appeals in this case affirmed the decision of the United States Patent and Trademark Office (USPTO) allowing petitioner's claims for the process of adding a low-distortion watermark to a signal, for a device that performs that process, and for a storage medium containing the resulting signals, but rejecting petitioner's claims directed to the signal alone. Pet. App. 8a. The court's decision is correct and does not conflict with any decision of this Court or any other court of appeals. Further review is not warranted.

1. The Patent Clause of the Constitution empowers Congress "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to * * * Inventors the exclusive Right to their * * * Discoveries." U.S. Const. Art. 1, § 8, cl. 8. Congress exercised that authority in enacting the federal patent statute, which provides, in relevant part:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

35 U.S.C. 101. Although the statute is broad in scope, see *Diamond* v. *Chakrabarty*, 447 U.S. 303, 308 (1980), it imposes important limitations on the subject matter eligible for federal patent protection. As this Court has explained, "no 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." *Kewanee Oil Co.* v. *Bicron*

Corp., 416 U.S. 470, 483 (1974). That is true even though research outside of those categories "may be costly and time-consuming; monetary incentives may matter; and the fruits of those incentives and that research may prove of great benefit to the human race." *Laboratory Corp. of Am. Holdings* v. *Metabolite Labs., Inc.*, 548 U.S. 124, 126 (2006) (*LabCorp*) (Breyer, J., dissenting from dismissal of writ). By "bring[ing] certain types of invention and discovery within the scope of patentability while excluding others," the patent statute "seeks to avoid the dangers of overprotection," including "discourag[ing] research," "just as surely as it seeks to avoid the diminished incentive to invent that underprotection can threaten." *Id.* at 127. Thus, in considering the scope of patentable subject matter under Section 101, courts "must proceed cautiously when * * * asked to extend patent rights into areas wholly unforeseen by Congress." *Parker* v. *Flook*, 437 U.S. 584, 596 (1978).

2. The court of appeals correctly held that the "signal" resulting from petitioner's process, as distinguished from the process of creating the signal or the device used to generate it, falls outside the scope of patentable inventions because it is not a "process, machine, manufacture, or composition of matter." 35 U.S.C. 101.

The "signal" for which petitioner seeks patent protection is, as the court of appeals explained, a pattern of energy that may be expressed as optical pulses, variations in electrical potential, electromagnetic waves traveling through a vacuum, or otherwise. See Pet. App. 13a, 21a-22a.[1] The patent laws do not encompass pure

[1] Although petitioner's signal must have some detectable form, Pet. App. 12a, the claimed invention is not the form of the signal but the pattern of energy *itself*. See *id.* at 13a (explaining that "any form will do" because "the nature of the signal's physical carrier is totally irrelevant

expressions of energy, even if they are man-made, useful, and nonobvious. The "signal" claimed by petitioner is no more patentable than a color, a sound, or any other useful expression of energy.

As the court of appeals correctly concluded, such a pattern of energy is not a "process," "machine," or a "composition of matter." Pet. App. 23a. Petitioner makes little effort to dispute those conclusions.[2] He does contend (Pet. 12, 22), however, that his claimed signal qualifies as a "manufacture" under Section 101. Petitioner's contention is without merit.

In *American Fruit Growers, Inc.* v. *Brogdex Co.*, 283 U.S. 1 (1931), this Court rejected the contention that an orange impregnated with borax to retard mold is a "manufacture" or a "manufactured article" eligible for patent protection. *Id.* at 11. The Court found "not tenable" the proposition that the "combination of the natural fruit and a boric compound" qualified as an "article of manufacture" because it was a product of human ingenuity "not found in nature." *Ibid.* (citation omitted). The Court held that the claimed invention was not an "article of manufacture," interpreting the term "manufacture" to mean, *inter alia*, "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." *Ibid.* (citation

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to the claims at issue"). As the dissent below recognized, a signal could be expressed as, and thus infringed by, a "smoke signal," *id.* at 49a, or even an illustration on a sheet of paper, *id.* at 30a.

[2] In a footnote in his statement of the case, petitioner notes that he "also contends that his signal is patentable under the statutory categories as a 'process' and a 'machine.'" Pet. 9 n.3. Petitioner makes no substantive challenge to the Federal Circuit's reasoning on those points, however. See Pet. App. 15a-19a.

omitted); see *ibid.* (explaining that "[a]ddition of borax to the rind of a natural fruit does not produce from the raw material an article for use which possesses a new or distinctive form, quality, or property"). The Court subsequently quoted that definition with approval in *Chakrabarty* in discussing the meaning of the term "manufacture" in 35 U.S.C. 101. See 447 U.S. at 308.

The court of appeals correctly held that petitioner's claimed signal is not a patent-eligible "manufacture," as this Court has interpreted the term. As the court concluded, a pattern of energy, which contains no matter, cannot be described as an "article" that has been "produc[ed] * * * for use from raw or prepared materials * * * whether by hand-labor or by machinery" for purposes of applying Section 101. Pet. App. 19a-20a (quoting *Chakrabarty*, 447 U.S. at 308).[3]

Petitioner contends (Pet. 15-16) that his claimed signal "indisputably" falls within the scope of a second definition of "manufacture" cited in this Court's decision in *American Fruit Growers*: "anything made for use from raw or prepared materials." See 283 U.S. at 11. In petitioner's view, the court of appeals erred in failing to address that alternative definition. Pet. 15. Petitioner is incorrect. The alternative definition cited in *American Fruit Growers* reflects the fact that the word "manufacture" is commonly used to mean both "the production of articles for use from raw or prepared materials" and the result of that production process (*i.e.*, a "manufactured article"). *American Fruit Growers*, 283 U.S. at 11; cf., *e.g.*, *Webster's New International Dictionary of the*

[3] As the court of appeals explained, although "photons traveling at or near the speed of light behave in some ways like particles," that does not mean that pure expressions of energy qualify as "articles" of "manufacture." Pet. App. 22a n.8.

English Language 1499 (2d ed. 1958) (defining the noun "manufacture" to mean both "[t]he process or operation of making wares or any material products by hand, by machinery, or by other agency," and "[a]nything made from raw materials, by the hand, by machinery, or by art, as cloths, utensils, machinery, etc."). The definition does not, as petitioner suggests, expand the scope of the term beyond those articles created by a process of "manufacture," to any and all things that are "man-made," Pet. 22.[4]

The court of appeals' conclusion that petitioner's claimed signal is not patent-eligible under Section 101 is

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[4] Petitioner also contends (Pet. 20-22) that the court of appeals erred by relying on the definition of "manufacture" discussed in this Court's cases, rather than turning to dictionary definitions prevailing when the Patent Act was first enacted in 1790 and amended in 1793. Petitioner's contention lacks merit. As the court of appeals explained (Pet. App. 20a n.5), Congress re-enacted the Patent Act in 1952 against the backdrop of this Court's decision in *American Fruit Growers*. See Act of July 19, 1952, ch. 950, § 101, 66 Stat. 797. It was, moreover, to that decision that this Court turned in *Chakrabarty* for a definition of the word "manufacture" as it appears in the Patent Act. See 447 U.S. at 308. The court of appeals did not err in relying on this Court's cases for an understanding of the term "manufacture" as used in Section 101.

In any event, the definitions of "manufacture" prevailing during the period when the Patent Act was first enacted are no more helpful to petitioner than the definitions cited in this Court's cases. See, *e.g.*, Samuel Johnson, *A Dictionary of the English Language* 16B (1755) (defining the noun "manufacture" as "[t]he practice of making any piece of workmanship" and "[a]ny thing made by art"); cf. 2 Noah Webster, *An American Dictionary of the English Language* 12 (1828) (defining the noun "manufacture" as "[t]he operation of making cloth, wares, utensils, paper, books, and whatever is used by man; the operation of reducing raw materials of any kind into a form suitable for use, by the hands, by art or machinery," and "[a]ny thing made from raw materials by the hand, by machinery, or by art; as cloths, iron utensils, shoes, cabinet work, sadlery, and the like").

consistent with other provisions of the Patent Act. For example, the Act requires manufacturing patentees to provide notice to potential infringers by marking their patent numbers on each "article" covered by their patents, "or when, from the character of the article, this cannot be done, by fixing to it, or to the package wherein one or more of them is contained, a label containing a like notice." 35 U.S.C. 287(a). A pulse of energy propagating through space is not an "article" to which a patent number can be affixed, nor can such a pulse of energy meaningfully be "contained" in a "package" for labeling.

Likewise, the Patent Act makes no provision for the potentially radical expansion of infringement liability that would result if digital signals, by themselves, were eligible for patent protection. Internet service providers, for example, transmit vast quantities of digital information over their networks each day. Because there is no "innocent infringer" defense in patent law, cf. 35 U.S.C. 271 (2000 & Supp. V 2005), it appears that under petitioner's view each unknowing transmission of a patented signal could constitute an act of infringement entitling the patentee to damages. Cf. Pet. 27 (noting that files embodying the claimed signal may be downloaded from the internet). In copyright law, Congress has taken pains to provide a safe harbor for internet service providers. See 17 U.S.C. 512. There is, however, no analogous safe harbor in patent law. Petitioner provides no reason to think that Congress would have intended the vast expansion of infringement liability that would result if digital signals were protected by patent law.

3. Petitioner errs in contending (Pet. 16-20) that the decision below conflicts with this Court's decision in *O'Reilly* v. *Morse*, 56 U.S. (15 How.) 62 (1854). *Morse*

concerned the validity of the patent granted to Samuel Morse for his telegraph system. The Court in that case rejected Morse's "broad claim covering any use of electromagnetism for printing intelligible signs, characters, or letters at a distance." *Flook*, 437 U.S. at 592. Petitioner, however, contends that *Morse* also established the very different proposition that abstract signs and signals, unconnected to any process or apparatus, qualify as patentable subject matter. Petitioner is incorrect.

Petitioner's argument focuses on Morse's fifth claim, which recited a "system of signs." See Pet. 17-18. The Court upheld that claim summarily, without discussion or analysis. See *Morse*, 56 U.S. (15 How.) at 112 (rejecting, in one sentence, all objections "to the first seven inventions set forth in the specification of [Morse's] claims"). Elsewhere in its opinion, however, the Court rejected precisely the inference that petitioner now seeks to draw, explaining that Morse's patent was not for the particular signs and signals he described, but for the *process* of communicating by telegraph. The Court explained:

> [Morse's] patent is not for the invention of a new alphabet; but for a combination of powers composed of tangible and intangible elements * * * by means of which marks or signs may be impressed upon paper at a distance, which can there be read and understood.

Id. at 124. As the court of appeals in this case noted, the written description in Morse's patent corresponding to the fifth claim described the Morse code as part of the overall process of signaling.[5] Pet. App. 22a n.9 (citing 56

[5] Petitioner's focus on the specific wording of the claims of the Morse patent is misplaced. As the Court observed in *Markman* v. *Westview*

U.S. (15 How.) at 94-95). The dissent below acknowledged that Morse's fifth claim was allowed as an "art" (*i.e.*, process), rather than as a "manufacture." *Id.* at 51a n.8. Here, USPTO allowed petitioner's analogous claims for the process of generating his low-distortion signals, as well as for a machine to perform that process and a storage medium containing the resulting signals, but rejected his claim for the propagating pulse of energy itself. That conclusion is consistent with *Morse*.

4. Petitioner also contends (Pet. 23-36) that the question presented merits this Court's intervention because the court of appeals' decision "will render unpatentable a broad range of technologies * * * and will cause uncertainty and breed litigation." Pet. 23. Petitioner's argument rests largely on the premise that the decision below "effectively create[s] three new requirements for inventions to qualify for patent protection: they must now also be (1) tangible articles that are (2) non-transitory; and (3) measurable without resort to special equipment." Pet. 24. But nothing in the decision below purports to announce broad new requirements for patentability. The decision below merely holds that a "transient electric or electromagnetic transmission," a pattern of energy containing no matter, is not a patent-eligible "process, machine, manufacture, or composition of matter." 35 U.S.C. 101. The court did not hold that patent-eligible "manufacture[s]" are limited to articles

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Instruments, Inc., 517 U.S. 370 (1996), the prominence of claim construction in patent law is a modern innovation. Claim practice did not achieve statutory recognition until 1836, and "[t]he idea that the claim is just as important if not more important than the description and drawings did not develop until the Act of 1870 or thereabouts," nearly two decades after the *Morse* decision. *Id.* at 379 (quoting 1 Anthony W. Deller, *Patent Claims* § 4, at 9 (2d ed. 1971)).

"that one can touch and hold," Pet. 25; or that "live forever," Pet. 27; or that are perceptible without the use of special equipment, Pet. 28-29.[6]

Petitioner also contends that the question whether pure signals are patentable subject matter under Section 101 is sufficiently important to warrant this Court's review because digital signals "are key components of any communications system." Pet. 5. But communications *systems* (and processes) that employ digital signals are patentable, as the USPTO's decision in this very case demonstrates. Cf. *Flook*, 437 U.S. at 590-592 (noting that an invention is not unpatentable "simply because it contains a law of nature or a mathematical algorithm").

Petitioner further urges that, unless he can directly claim and patent the signal itself, "he will be unable to effectively protect his invention in today's globally distributed network environment and thus to receive the economic benefits that are necessary to encourage further research and full disclosure of inventions." Pet. 31. But it is not apparent why that is so: the USPTO allowed petitioner's claims for the distortion-reducing process that he invented, for a device for performing that process, and for a storage medium containing the resulting watermarked signals. And although petitioner argues (*ibid.*) that the claims approved by the USPTO may be insufficient to prevent infringement where his patented process is practiced overseas, federal patent laws specifically address the problem of patented pro-

[6] Petitioner also contends that the court of appeals' reasoning undermines a patent granted for "optical tweezers." Pet. 35 n.9 (citing U.S. Patent No. 6,416,190). The "method" and "system" claims of that patent, however, do not appear to be drawn to the "optical tweezers" themselves, and thus are not implicated by the decision below.

cesses employed outside of the United States. See 35 U.S.C. 271(g), 295.

Finally, petitioner's amicus argues that this Court's intervention is warranted because questions concerning patentability under Section 101 are "inherently important," as demonstrated by, *inter alia*, this Court's recent decision to grant review in *LabCorp*, *supra*, in which the writ of certiorari was ultimately dismissed as improvidently granted. Br. of Intellectual Prop. Academics 13; see *LabCorp*, 548 U.S. at 125 (per curiam); *id.* at 132 (Breyer, J., dissenting from dismissal of writ). The question in this case, however, is different from that in *LabCorp*, which asked whether the Federal Circuit erred in upholding the validity of a patent that involved a process for diagnosing certain vitamin deficiencies by correlating levels of an amino acid called homocysteine with the deficiencies. While questions concerning the proper treatment of process claims under Section 101 affect a wide variety of pending and issued patent claims, the question at issue here, which concerns the patent-eligibility of pure signals, is narrower in scope.

Moreover, in the wake of this Court's dismissal in *LabCorp*, the Federal Circuit decided to hear en banc a case concerning Section 101's requirements in the context of process claims. See *In re Bilski*, No. 2007-1130 (argued May 8, 2008). The court's decision in that case may clarify some of the issues at stake in *LabCorp*, including the continued vitality of the proposition that processes are eligible for patent protection if they have a "useful, concrete, and tangible result." See *LabCorp*, 548 U.S. at 136-137 (Breyer, J., dissenting from dismissal of writ) (citing *State St. Bank & Trust Co.* v. *Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998), cert. denied, 525 U.S. 1093 (1999)).

CONCLUSION

The petition for a writ of certiorari should be denied.

Respectfully submitted.

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AUGUST 2008