No. 07-

IN THE

Supreme Court of the United States

PETRUS A.C.M. NUIJTEN,

Petitioner,

v.

JON DUDAS, Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office,

Respondent.

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

PETITION FOR A WRIT OF CERTIORARI

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QUESTION PRESENTED

Whether the U.S. Court of Appeals for the Federal Circuit erred by adding new requirements to 35 U.S.C. § 101 that patentable manufactures must be tangible articles that are nontransitory and perceivable without special equipment, thereby denying patent protection to all signals and other important advances in technology that do not meet these new requirements, no matter how innovative, unique, or useful they are.

PARTIES TO THE PROCEEDING

Pursuant to Rule 14.1(b), the following list identifies all of the parties appearing here and before the U.S. Court of Appeals for the Federal Circuit:

The petitioner here and appellant below is Petrus A.C.M. Nuijten and the real party in interest is U.S. Philips Corporation.

The respondent here and appellee below is Jon Dudas, in his capacity as Director of the United States Patent and Trademark Office.

RULE 29.6 STATEMENT

All parent corporations and publicly held companies that own 10 percent or more of the stock of U.S. Philips Corporation are: Philips Holding U.S.A., Inc. and Koninklijke Philips Electronics N.V. (aka Royal Philips Electronics N.V.).

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The opinion of the U.S. Court of Appeals for the Federal Circuit (Pet. App. 1a-51a) is reported at *In re Nuijten*, 500 F.3d 1346 (Fed. Cir. 2007). The opinion of the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office (Pet. App. 52a-68a) is available at *Ex parte PETRUS A.C.M. NUIJTEN*, 2006 WL 3939192, 2006 Pat. App. LEXIS 50, 84 U.S.P.Q.2D (BNA) 1335 (Pat. App. 2006). The Federal Circuit's denial of rehearing and rehearing en banc (Pet. App. 69a-72a) is available at *In re Petrus A.C.M. Nuijten*, 515 F.3d 1361, 85 U.S.P.Q.2d 1927 (Fed. Cir. 2008).

JURISDICTION

The Federal Circuit denied the petition for rehearing and rehearing en banc on February 11, 2008. Pet. App. 69a-70a. Judges Linn, Newman, and Rader dissented. Pet. App. 70a-72a. This Court has jurisdiction under 28 U.S.C. § 1254 (1).

STATUTORY PROVISION INVOLVED

"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 (2007).

STATEMENT OF THE CASE

More than 200 years after the statutory language was adopted, the United States Court of Appeals for the Federal Circuit has significantly narrowed the scope of patentable subject matter and denied effective patent protection for new technologies. The Federal Circuit did this by improperly adding three new criteria for determining whether an invention is a patentable manufacture. In direct contravention of this Court's precedent, Congressional intent, and sound policy considerations, an invention now must be (1) a tangible article that is (2) nontransitory and (3) capable of being perceived without special equipment. These new requirements will stifle innovation by denying patent protection for all communications signals and many other advanced technologies. These new criteria for patentability are not in the Patent Act and are contrary to the

decisions of this Court. They are also vague, and will breed litigation due to uncertainty.

Although the drafters of the original Patent Act might not have been able to envision many of today's specific advances in communications, biotechnology, nanotechnology, and other fields, they drafted what has become Section 101 to provide patent protection for such future technologies.[1] The Federal Circuit's new criteria undermine the Constitutional purpose of the patent system, which is to promote the progress of the useful arts. The patent system accomplishes that objective by granting protection for inventions that advance the state of knowledge. As recognized in this Court's precedents, Section 101 of the Patent Act was purposefully drafted to provide patent protection for

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[1] Subsequent patent statutes have used much the same broad language as the original Act promulgated in 1790 and first amended in 1793. *See* An Act to Promote the Progress of Useful Arts, 1 Cong. Ch. 7; 1 Stat. 109 (1790) (allowing patents for "any useful art, manufacture, engine, machine, or device"); An Act to Promote the Progress of Useful Arts, 2 Cong. Ch. 11; 1 Stat. 318 (1793) (allowing patents for "any new and useful art, machine, manufacture or composition of matter"). The category "manufacture"—the part of the statute at issue here—has been included without modification since the original Act. *Id.* The 1952 Act broadened the statutory categories by including the word "art" within its broader definition of the category "process." *See* 35 U.S.C. § 100(b) (2007).

future innovation across the full spectrum of man's technological ingenuity, by allowing patents for any new and useful process, machine, manufacture, or composition of matter. A hallmark of modern progress is the extension of technology into physical realms that lie beyond unaided human sensory perception. We can now harness and regulate electrical, magnetic, biochemical, and other physical qualities that were unknown and unknowable to 18th and 19th century technologists.

The Federal Circuit's decision to add new limits on the scope of patentable subject matter will have a detrimental effect on American innovation. Under the Federal Circuit's new criteria, physical inventions that are invisible or short-lived will not be considered patentable manufactures, regardless of how novel they are, how useful they are, and how much their disclosure contributes to society's collective knowledge. Without effective patent protection, innovators will be less likely to spend research and development resources on technologies that will not meet the new criteria. If they do create such technologies, inventors will be forced to choose to either forgo patent protection completely and conceal their inventions as trade secrets, or obtain patents that protect only visible, tangible, and nontransitory forms of their invention while leaving fundamental aspects unprotected. The net result undermines the very purposes of the patent system,

which are to stimulate innovation and to entice inventors to publicly disclose their innovations in return for full patent protection. Inventors of new technologies should be able to protect the full scope of their inventions, not have their protection crippled by new limitations the Federal Circuit has grafted onto Section 101.

The Federal Circuit's new criteria categorically deny patent protection to all signals, which are key components of any communications system. The new patentability criteria also reach well beyond communications technologies. They will deny effective patent protection to a host of other technological inventions that are man-made and physical, yet cannot be seen or touched in the traditional sense; whose existence is not permanent; or that require instruments or equipment to be recorded and measured. Chemical intermediates, metastable polymorphs, advances in nanotechnology, and other transitory or invisible inventions could well be considered unpatentable. For example, a wide swath of inventions in pioneering fields could be denied patent protection simply because they are only sensed with the help of electronic, chemical, or optical equipment.

To preserve this Court's precedents, the intended purpose of the Patent Act and the patent system, and the broad societal benefits of patent

protection for modern technologies, this Court should grant certiorari.

Factual Background

Digital watermarks are used by publishers of sound and video recordings to embed information such as copyright or ownership information within their program content. Much like a watermark on paper, a digital watermark is embedded in the background of a signal, such as a digital audio or video file, to convey information. The watermark is typically hidden from normal users and casual copyists, but is designed to be extracted through software capable of analyzing the signal.

Unfortunately, a watermark often introduces noise and distortion to the signal that can impact the quality and enjoyment of the program by the user. "A key goal of watermarking techniques is to minimize the distortion so that the resulting diminution in signal quality is as minimal as possible." Pet. App. 2a. Mr. Nuijten invented a unique watermarked signal, manufactured by a new technique that compensates for the watermark.[2] Mr. Nuijten's invention greatly decreases the distortion and loss of signal quality due to the watermark. Pet. App. 7a.

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[2] Petitioner, Mr. Nuijten (pronounced "knight-en"), is a prolific inventor of nine U.S. patents.

Proceedings Below

The Patent Office determined that Mr. Nuijten had made a novel and nonobvious invention, and allowed Mr. Nuijten's claims for the process of creating the signal, a device that performs the process, and a storage medium containing the signal. Pet. App. 68a; Pet. App. 7a-8a. But the Patent Office Board of Appeals and Interferences rejected Mr. Nuijten's claims to the signal *per se* solely on the basis of unpatentability under Section 101 of the Patent Act. Pet. App. 57a-64a; Pet. App. 1a. An example of the denied "signal" claims is as follows:

> 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 [s]upplemental data, and at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process.

Pet. App. 53a (emphasis added). Mr. Nuijten timely appealed that decision to the Federal Circuit, which had jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

A two-to-one majority of the Federal Circuit panel below held that Mr. Nuijten's signal does not

fall within any of the four categories of patentable subject matter that are listed in 35 U.S.C. § 101: process, machine, manufacture, or composition of matter.

In construing the scope of Mr. Nuijten's signal claims as a matter of law, the panel below unanimously agreed that Mr. Nuijten's claimed signals were physical inventions: "A 'signal' implies signaling—that is, the conveyance of information. To convey information to a recipient a physical carrier, such as an electromagnetic wave, is needed." Pet. App. 12a; *see also* Pet. App. 25a.

The majority also acknowledged that signals are "man-made, in the sense of having been encoded, generated, and transmitted by artificial means" (Pet. App. 19a) and that a signal is "physical—it exists in the real world and has tangible causes and effects . . ." (Pet. App. 20a). The majority held, however, that signals are unpatentable and not manufactures because they are not **tangible articles**, they are transitory, and they can only be perceived through the use of special equipment. Pet. App. 20a-22a. The majority concluded that its decision was supported by a dictionary definition of the word manufacture that was discussed by this Court in *American Fruit Growers, Inc. v. Brogdex Co.*, 283 U.S. 1 (1931), and *Diamond v. Chakrabarty*, 447 U.S. 303 (1980). Pet. App. 19a-20a.

Judge Linn dissented, arguing that Mr. Nuijten's signal is patentable as a new and useful manufacture.[3] Judge Linn's dissent recognized that "[t]his case presents challenging questions that go beyond the single patent claim at issue." Pet. App. 25a.

Judge Linn found that Mr. Nuijten's signal was a patentable manufacture for five reasons. First, the dictionary definitions cited by the majority do not require a manufacture to be a tangible article. Pet. App. 28a. Even if they did, something can be an article even though it is transitory or can only be detected using equipment. Pet. App. 29a. In fact, he noted that a prior Federal Circuit decision "squarely held that transitory inventions are patentable under § 101." Pet. App. 29a. Second, he noted that Mr. Nuijten's signal is not as transitory or "fleeting" as the majority suggests, because the signal itself could last for hours or be inscribed on paper and "last indefinitely." Pet. App. 30a. Third, he explained that neither *American Fruit* nor *Chakrabarty* held that a manufacture must be a tangible article. Pet. App. 30a-31a. Fourth, he noted that dictionaries contemporaneous with enactment of the Patent Act illustrate that manufacture was meant to be a broad term that covers any result of technological innovation, including Petitioner's signals. Pet. App.

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[3] Petitioner also contends that his signal is patentable under the statutory categories as a "process" and a "machine."

31a-34a. Finally, he argued that the majority was incorporating limitations on patentable subject matter that conflict with this Court's decision in *Chakrabarty*. Pet. App. 36a-37a.

Mr. Nuijten petitioned the Federal Circuit to rehear his case en banc. The petition was denied. Pet. App. 69a-70a. Judges Linn, Newman, and Rader dissented from the denial of en banc treatment, stating:

> [The panel opinion] conflicts with Supreme Court precedent because it ignores the Supreme Court's analysis of how, in general terms, §101 is to be construed. As the Court discussed in *Diamond v. Chakrabarty*, patentable subject matter includes "anything under the sun that is made by man" except for certain enumerated exceptions: "The laws of nature, physical phenomena, and abstract ideas have been held not patentable." 447 U.S. 303, 309 (1980). The majority's narrow construction of "manufacture" ignores this framework.

Pet. App. 70a-71a.

REASONS FOR GRANTING THE WRIT

Because the Federal Circuit has national appellate jurisdiction over all patent cases, other circuit courts cannot serve as a check if the Federal Circuit creates doctrinal error in patent law. *See* Eugene Gressman et al., Supreme Court Practice 255 (9th Ed. 2007). Rather, in increasing instances in recent years, this Court has granted certiorari over Federal Circuit patent decisions in two circumstances: first, where the issue presented is important because it has broad practical application; and second, where the Federal Circuit's decision conflicts with prior decisions of this Court. *See, e.g., eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006); *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007); *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118 (2007); *see also* Gressman, *supra*, at 123 (even absent a conflict, "[t]he Supreme Court has granted certiorari to review Federal Circuit decisions that have . . . raised important issues of federal law").

This case is important because the Federal Circuit improperly introduced three new criteria for patentability that will deny patents not only to signals and other communications technologies, but to many other cutting-edge inventions that are not tangible articles, that are transitory, or that require equipment to be perceived. The new criteria have no support in the language of Section 101 or in any earlier versions of the Patent Act, they have no

sound economic rationale, and they will undermine the purpose of the patent system. These vague new criteria will serve only to sow uncertainty and breed further litigation.

The Federal Circuit's decision also contradicts this Court's precedent. The Federal Circuit's new criteria contravene the holding of *Chakrabarty* that a patentable manufacture should "include anything under the sun that is made by man." 447 U.S. at 309. The Federal Circuit's decision also directly contradicts *O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 86 (1853), which upheld the patentability of a signal claim related to Morse code. The Federal Circuit decision also contradicts the broad definitions of manufacture in *American Fruit* and in dictionaries contemporaneous with the original Patent Act. Finally, the Federal Circuit's decision undermines Congressional intent by denying patents to innovative technologies. Because the Patent Act was originally drafted to provide full protection to both present and future technologies, any new restrictions on the scope of patentable subject matter should come from Congress, not the Courts.

We will address first how the Federal Circuit's decision conflicts with this Court's precedent and the statutory language, then discuss why this case is important to technological advances.

I. The Decision Below Conflicts With Prior Decisions Of This Court And The Statutory Language

The conflicts between the decision below and this Court's precedent warrant certiorari. The decision directly conflicts with the Constitutional purpose of the patent system and the intent of Congress, as set forth by this Court in *Chakrabarty*. It also conflicts with this Court's decision in *Morse*, which upheld the patentability of a signal claim related to Morse code. Finally, the decision below conflicts with Congressional intent in passing the original Patent Act, as evidenced by contemporaneous dictionary definitions.

A. The Federal Circuit's Decision Conflicts With *Chakrabarty* And *American Fruit*

The Constitutional purpose of the patent system is to promote the progress of the useful arts. U.S. Const., art. 1, § 8, cl. 8. Congress has implemented that Constitutional mandate by creating four broad, technology-agnostic categories of patentable subject matter: machine, manufacture, process, and composition of matter. 35 U.S.C. § 101 (2007). Whoever invents or discovers "any" new and useful invention that falls into one of those categories is entitled to patent protection. *Id.* As this Court held in *Chakrabarty*, "[i]n choosing such

expansive terms as 'manufacture' and 'composition of matter,' modified by the comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope." 447 U.S. at 308. Thus, the statutory categories "include anything under the sun that is made by man." *Id.* at 309 (citation omitted).

Chakrabarty specifically held that the broadly defined categories should accommodate pioneering technologies because "the inventions most benefiting mankind are those that push back the frontiers of chemistry, physics, and the like." *Id.* at 316 (citation and internal quotation omitted). Thus, "Congress employed broad general language in drafting §101 precisely because such inventions are often unforeseeable." *Id.* at 316. *Chakrabarty* specifically rejected "read[ing] into the patent laws limitations and conditions which the legislature has not expressed." *Id.* at 308. By adding three new criteria for patentability that are not in the Patent Act, the Federal Circuit has done precisely what *Chakrabarty* rejected.

The Federal Circuit majority nonetheless concluded that its decision was supported by this Court's decisions in *Chakrabarty* and *American Fruit*. In doing so, they improperly singled-out and relied on just one of the two dictionary definitions of manufacture recited in *American Fruit*, a definition that was later quoted by this Court in *Chakrabarty*.

From that fragmentary definition, the majority concluded that a manufacture must be a tangible article. Pet. App. 20a.

The majority's conclusion was erroneous. The *American Fruit* Court recited two definitions of manufacture from the Century Dictionary: "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by handlablor [sic] or by machinery" and "anything made for use from raw or prepared materials." 283 U.S. at 11 (citing 5 *Century Dictionary* 3620 (William Dwight Whitney ed., 1895).[4] Neither definition requires tangibility. Petitioner's signal indisputably satisfies the second definition, which does not require an "article." The majority of the Federal

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[4] *American Fruit* addressed whether chemical treatment of an orange with a borax impregnate effected a sufficient change to transform the naturally occurring fruit into a patentable manufacture. 283 U.S. at 11. There was no dispute that the borax-impregnated orange was a tangible article. But the Court held that the orange was not a manufacture because it did not possess "a new or distinctive form, quality, or property" from the original orange. *Id.* at 11-12. Thus, *American Fruit* only addressed the amount of transformation that is necessary to turn a pre-existing natural object into a patentable manufacture. It did not address the patentability of entirely new technological creations, such as Mr. Nuijten's signal, and it did not limit the definition of manufacture to encompass only "articles."

Circuit, however, ignored the broader second definition. *See* Pet. App. 19a; Pet. App. 29a.

In *Chakrabarty*, this Court cited the first portion of the *American Fruit* definition only as an example of an expansive definition, not to limit the full definition cited in *American Fruit*. *See* 447 U.S. at 308. As *Chakrabarty* explained, "[i]n choosing such expansive terms as 'manufacture' . . . modified by the comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope." *Id.* In fact, because the use of the word "any" in the statute "excludes selection or distinction," it would have been improper for the Court to select one of the dictionary definitions from *American Fruit* over the other. *See Citizens' Bank v. Parker*, 192 U.S. 73, 81 (1904). Therefore, the majority's decision is not only unsupported by *Chakrabarty* and *American Fruit*, but is instead in direct conflict with them.

B. The Federal Circuit's Decision Conflicts With *Morse*

The Federal Circuit majority decision is also in direct conflict with this Court's decision in *O'Reilly v. Morse* which affirmed the patentability of a claim to Mr. Morse's coded signal.

Mr. Morse "invented a new and useful improvement in the mode of communicating

information by signals, by the application of electro-magnetism." *Morse*, 56 U.S. (15 How.) at 84. He also invented machinery "which may be used to imprint signals upon paper or other suitable material . . . ." *Id.* at 85. The object of his invention was "the communication of intelligence at a distance by signs or signals." *Id.* at 87. Mr. Morse's signals allowed rapid, effective communications over long distances.

This Court held that Mr. Morse should receive a patent claim on his signal. *Morse*, 56 U.S. (15 How.) at 86. Mr. Morse's fifth patent claim reads as follows:

> Fifth. I claim, as my invention, the system of signs, consisting of dots and spaces, and of dots, spaces, and horizontal lines, for numerals, letters, words, or sentences, substantially as herein set forth and illustrated, for telegraphic purposes.

Id. (emphasis added). Mr. Morse's "system of signs" is the set of signals that he invented to represent letters and numerals. Mr. Morse uses the terms "signs" and "signals" interchangeably to describe the coded sequences of dots and dashes that are sent and recorded using his process. *See, e.g., id.* at 69 ("signs representing figures, letters, or words, might be legibly written down at any distance"); *id.* at 85 ("may be used to imprint signals upon paper or other

suitable material"); *id.* at 87 ("communicating intelligence at a distance by signs or signals"); *id.* at 88 ("by which means I am enabled to mark or print signs or signals upon paper or other fabric") (emphases added).

Mr. Morse was granted patent protection despite the fact that his signal was no more tangible or less transitory than Mr. Nuijten's signal, and was usually sent and received in a form that could not be detected by normal human perceptions, but rather required electromagnetic telegraph equipment.

As Judge Linn pointed out in his dissenting opinion, "[t]he 'system' and constituent 'signs' of Morse's fifth claim are not 'tangible articles or commodities.' . . . Rather the claim is directed to a signal—a particular way of encoding information so that it can be conveyed . . . in a useful manner at a distance." Pet. App. 51a (citation omitted). Just as Mr. Morse was allowed to patent the Morse Code signal that he invented, Mr. Nuijten should be allowed to patent his new signal. When the Federal Circuit majority decision held otherwise, it created a direct conflict with *Morse*.

The Federal Circuit majority decision in this case erroneously asserted that Morse's fifth claim was, in fact, a process claim covering the method (or "art") of signaling, with the true character of the claim being somewhat obscured by the "dated

language" of the claim. Pet. App. 22a-23a n.9. The majority contends that "[t]he written description of the patent describes Morse code as part of its description of the actual process of signaling" at pages 94-95 of the decision. *Id.* However, the passage cited by the majority does not suggest that Mr. Morse's fifth claim was to a "process." Instead, it describes the characters that form the claimed signal, and illustrates the process through which Mr. Morse's signal is created by pressing a "signal lever." *Morse*, 56 U.S. (15 How.) at 94-95. It is incorrect to describe the characters that are created by pressing the signal lever as a *process* for signaling.

Moreover, Morse's fifth claim cannot be recast as antiquated language for describing a process, because Mr. Morse's sixth claim expressly refers to his fifth claim as patenting "signals":

> Sixth. I also claim as my invention the system of signs, consisting of dots and spaces, and of dots, spaces, and horizontal lines, substantially as herein set forth and illustrated, in combination with machinery for recording them, as signals for telegraphic purposes.

Morse, 56 U.S. (15 How.) at 86 (emphasis added). There is little room to rationalize the **system of signs** recited in the fifth Morse code claim as an obscure recitation of process steps when those very

same signs are recorded **as signals** by the machinery of the very next claim.

C. The Federal Circuit's Decision Conflicts With The Original Meaning Of The Patent Act

The patentability of signals is confirmed by using dictionary definitions from the time the Patent Act was originally enacted. It is improper to read in new limitations that did not exist in contemporaneous definitions of language in the statute. *See, e.g., Smiley v. Citibank (S.D.), N.A,* 517 U.S. 735, 745 (1996) (refusing to read a limitation into the term "interest" in the National Bank Act because most legal dictionaries of the era did not contain that limitation); *see also St. Francis College v. Al-Khazraji*, 481 U.S. 604, 610-612 (1987).

The Patent Act was enacted in 1790 and first amended in 1793. The 1793 Patent Act, authored by Thomas Jefferson, embodied his philosophy that "ingenuity should receive a liberal encouragement." *Chakrabarty*, 447 U.S. at 308 (citation omitted). Jefferson's four broad statutory categories were "art, machine, manufacture, or composition of matter." *Id.* at 308. At the time the early versions of the Patent Act were drafted, "manufacture" was defined by the leading dictionary of the day as "[a]ny thing made by art." Samuel Johnson, *A Dictionary of the English Language* (3d ed. 1768). The word "art" was

defined as "[t]he power of doing something not taught by nature and instinct"; "[a] science"; "[a] trade"; "[a]rtfulness, skill, dexterity." *Id.* Just as this Court has used Dr. Johnson's dictionary to understand the original meaning of terms in the Constitution, drafted in 1787, *see Eldred v. Ashcroft*, 537 U.S. 186, 199 (2003) (using Dr. Johnson's definition of the word "limited" to interpret the Copyright Clause); *Utah v. Evans*, 536 U.S. 452, 475 (2002) (referring to Dr. Johnson's definition of "enumeration" to interpret the Census Clause), so too does Dr. Johnson's dictionary inform the meaning of terms in the original versions of the Patent Act.

The authors of the 1790 and 1793 Patent Acts were sufficiently prescient to adopt broad terms so that patentable intellectual property covers both the bricks-and-mortar world of that day and the more recent advent of the Internet and digital communications techniques that have changed the landscape for 21st century innovation, engineering, and high technology manufacturing. As companies continue to invent, manufacture, and market more advanced products, they need this Court's guidance to reaffirm the intent of the drafters of the Constitution and the Patent Act to ensure that our society's most useful and novel innovations receive full and economically effective patent protection. Mr. Nuijten's case thus provides an opportunity for this Court to reaffirm the Constitutional principles and

Congressional intent underlying Section 101 of the Patent Act, as enunciated in *Chakrabarty* almost thirty years ago.

The Federal Circuit's three new requirements, created more than 200 years after the Patent Act was first enacted, contradict the breadth of Dr. Johnson's definition of manufacture. Mr. Nuijten's signal is a "thing made by art" in the traditional Jeffersonian sense. The signal is man-made and physical, not taught by nature and instinct. It is not a law of nature, a naturally occurring physical phenomenon, nor an abstract idea.[5] A signal is an information carrier that, by definition, requires some physical manifestation. *See* Pet. App. 12a; Pet. App. 49a. Mr. Nuijten's signal is, simply put, a manufacture as that term was defined by Dr. Johnson and incorporated into the Patent Act by Thomas Jefferson.

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[5] Mr. Nuijten's signal is a physical technological invention. Like all signals, it is a physical container for conveying information—the signal is not itself abstract information. Thus, the claim at issue here is very different from mathematical and "business method" claims, which are often criticized for being abstract ideas and nothing more. The Federal Circuit has announced that it will clarify the scope of "process" claims under Section 101 by hearing en banc a recent decision involving a business method of managing risk. *In re Bilski*, No. 2007-1130 (Fed. Cir. Feb. 15, 2008). But *Bilski* will not address the interpretation of a "manufacture" under Section 101.

II. This Case Is Important Because The Federal Circuit Created Three Indeterminate New Criteria That Will Deny Patent Protection To Many Innovative Technologies And Breed Litigation

This case is important because the Federal Circuit effectively added three new requirements to the Patent Act that will render unpatentable a broad range of technologies, including all signals, and will cause uncertainty and breed litigation. The potential impact of the Federal Circuit's decision has already generated extensive commentary from members of the patent bar, academia, and experts from various industries.[6]

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[6] *See, e.g.,* Kristen Osenga, *Ants, Elephant Guns, and Statutory Subject Matter*, 39 Ariz. St. L.J. 1087, 1090 (Winter 2007) ("And most recently, the Federal Circuit laid a solid foundation for Supreme Court review of subject-matter eligibility by issuing two opinions, *In re Nuijten* and *In re Comiskey*, that . . . seemingly change the § 101 landscape."); John F. Duffy, *In re Nuijten: Patentable Subject Matter, Textualism and the Supreme Court* (Feb. 5, 2007), *available at* http://patentlyo.com/patent/2007/02/in_re_nuijten_p.html ("[*Nuijten*] is about the fundamental approach to interpreting the Patent Act and the effect of the Supreme Court's recent interest in patent cases."); Cynthia M. Ho, *Lessons From Lab. Corp. of America Holdings v. Metabolite Labs., Inc.*, 23 Santa Clara Computer & High Tech. L.J. 463, 465 (2007) ("The appropriate scope of patentable subject matter is a prime topic

A. The New Federal Circuit Criteria Will Discourage Innovation

There are important characteristics of Mr. Nuijten's signal that are not contested in this case: (1) it is man-made (2) it is physical, (3) it is novel, and (4) it is useful. There is no logical reason to deny him patent protection.

Rather than granting Mr. Nuijten the patent protection he deserves, the Federal Circuit effectively created 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. These new criteria deny patent protection to all signals, and to numerous other 20th and 21st century technologies.

1. Tangible Article

The Federal Circuit panel unanimously found that a signal has tangible causes and effects because it must be able to be physically sensed and

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for consideration by courts and commentators alike."); Harold Wegner, *Wegner's Top 10 Patent Cases* 3-4 (July 16, 2007), http://www.patentlyo.com/patent/TopTenJuly16.pdf ("To the extent that the Federal Circuit issues a clear pronouncement *either way*, this may represent a vehicle for a Supreme Court test as to the limits of § 101 patent-eligibility . . . .").

measured. Pet. App. 20a-21a. A signal cannot otherwise convey information. Pet. App. 12a.

But the panel majority invented a new requirement that has no support in this Court's holdings or the language of Section 101: to be a manufacture, something must be a "tangible article[]" that one can touch and hold. Pet. App. 20a. Under that new requirement, whole fields of technology could be excluded from patent protection just because they can not be seen, heard, touched, or smelled in the traditional sense. As a result, companies will not invest in research and development in these fields, or if they do, they may decide to protect their inventions as trade secrets. Moreover, under the Federal Circuit's indeterminate standard, parties will often have to litigate to determine when something that is physical is not also a tangible article.

2. Nontransitory

This Court has never held that inventions must exist for some minimum period of time to be patentable. Nor can that requirement be found in the language of either Section 101 or any version of the Patent Act since 1790. Such a requirement serves only to sow doubt and confusion as to what is, and is not, patentable subject matter.

Indeed, in an earlier case, *In re Breslow*, the Federal Circuit held that transitory, unstable, and non-isolatable chemical intermediates can be patentable. 616 F.2d 516, 519 (C.C.P.A. 1980). In that case, the court refused to read a permanence requirement into the composition of matter category, particularly if the invention was useful in its transitory state:

> It appears to us that the PTO would read into [Section 101] a requirement that compositions of matter must be stable which is a relative term to say the least. We see no good reason to do so. It would appear that many compounds may find their greatest or even their sole utility in the fact that they are not stable. Certainly, in the invention at bar there is no reason to have the claimed compounds in a stable form so they can be bottled or tanked or otherwise stored. The preferred manner of using them is to produce them in situ, whereupon they exhibit their cross-linking activity, their only disclosed utility.

Id. at 521 (emphasis added). Like the chemical intermediate in *Breslow*, Mr. Nuijten's signal exists long enough to fulfill its utility, and should be patentable.

In fact, Mr. Nuijten's signal is not actually "fleeting." The watermark is embedded throughout the entire transmitted signal. When downloaded over a slow internet connection, a media file containing Mr. Nuijten's digital watermark could last for hours. As Judge Linn pointed out in his dissent, "[i]n many embodiments—for example, when the signal encodes an audio or video signal representing a symphony or a full-length motion picture that is being watched in real time—the transmission may be in progress for a significant period of time." Pet. App. 30a. Therefore, under the Federal Circuit's new requirement, the question of "how long" something must exist to be non-transitory will be a highly litigated issue. Deciding what is patentable based on how long it lasts in its shortest potential embodiment makes no sense.

Nothing physical lasts forever, as reflected in the well known phrase "ashes to ashes, dust to dust."[7] In *Breslow*, the intermediary composition of matter was in existence only long enough to be useful. Mr. Chakrabarty's oil-eating bacteria did not live forever, yet they were patentable. Like the patented inventions in *Breslow, Chakrabarty*, and

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[7] The phrase is from the Anglican Funeral Service. Church of England, Book of Common Prayer, Funeral Service, *available at* http://www.cofe.anglican.org/worship/liturgy/commonworship/texts/funeral/funeral.html#service.

Morse, Mr. Nuijten's signal exists long enough to fulfill its intended purpose.

Although the Federal Circuit's decision purports to be merely interpreting the definition of the word manufacture, the decision actually adds a new, vague requirement that creates a conflict between the statutory categories of composition of matter and manufacture. Under *Breslow* a composition of matter can be transitory; under *Nuijten* a manufacture cannot. Rather than clarifying the patent law, this decision simply adds confusion and will breed litigation.

3. No Special Equipment

The Federal Circuit also denies patentability to Mr. Nuijten's signal because it requires special equipment to be perceived. Pet. App. 20a-21a ("While such a transmission is man-made and physical . . . it . . . must be measured . . . by equipment capable of detecting and interpreting the signal."). Patents are granted for inventions that are, by definition, novel and nonobvious. Thus, they often require technologically advanced equipment to measure and use them. Morse code required special equipment to be sent and received over long distances. Mr. Chakrabarty's bacteria would require a microscope to be viewed.

Determining whether an invention requires special equipment to be perceived raises a potential issue that would cut across many patents. The most ubiquitous modern electronic devices send and receive signals. The Federal Circuit's suggestion that signals are not patentable because they require equipment to be perceived is indeterminate and will breed litigation.

Ironically, under the Federal Circuit's approach, a watermark that was less innovative than Mr. Nuijten's signal could be patentable. The commercial importance of Mr. Nuijten's invention stems from the fact that his novel digital watermark is *not* noticeable to the casual user; that is why the watermark must be perceived and extracted by "equipment capable of detecting and interpreting the signal." Pet. App. 21a. If a digital watermark used in a Disney movie repeated the phrase "Disney, Disney, Disney" in a quiet whisper to identify the originator of the content, it could be discerned by the human ear, but would distract and likely annoy a listener. Mr. Nuijten developed something better than that, and the Federal Circuit used that very reason to deny him patent protection.

B. The New Criteria Deny Patents For All Signals *Per Se*, No Matter How Novel And Useful

Under the Federal Circuit's criteria, signals *per se* can never be patented, regardless of how inventive and useful they are. To obtain some level of patent protection, inventors of signals that are encrypted, encoded, or compressed in novel ways will be forced to draft their claims to include a storage medium or other tangible apparatus. Such narrow claim drafting will reduce the scope of their patent protection and make inventors less likely to develop and disclose new signals.

For example, Mr. Nuijten's signal is useful in combating piracy of intellectual property. The principal commercial applications of digital watermark technology are tracing and suppressing copyright infringement and piracy of music and video programs, particularly on the Internet.[8] Musicians,

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[8] The International Chamber of Commerce (the "ICC") has found that "[t]he ease and speed of reproduction and transmission of digital content on the Internet have made it difficult for rightholders to control the distribution of their copyrighted works and to enforce their rights in the digital context . . . ." ICC, Current and Emerging Intellectual Property Issues for Business: A Roadmap for Business and Policymakers 48 (9th ed. 2008), *available at* http://www.iccwbo.org/uploadedFiles/ICC/policy/intellectual_property/pages/IP_Roadmap-2005.pdf. They also found that

entertainment companies, and other content creators can encode license information and other data into their transmissions using Mr. Nuijten's signal technology, without degrading the quality of the content for the end user.

The Patent Office granted Mr. Nuijten's claims to a process for generating the watermarked signal, a device for performing that process, and a storage medium containing the signal. But, unless Mr. Nuijten 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 to thus receive the economic benefits that are necessary to encourage further research and full disclosure of inventions. Digital programs are often produced by groups of artists, technicians and service firms who collaborate and/or serially add their inputs to the finished products. Conventional apparatus and process claims often will not reach patent infringement in such distributed network environments, where neither the machine that generates the infringing signal, nor a storage medium containing the signal, may ever be located wholly within the United States.

"infringers are resourceful and have tried to structure their services in such a way so as to make it more difficult for rightsholders to enforce their rights, for example by using remote servers to avoid jurisdiction." *Id.*

When an inventor like Mr. Nuijten creates a novel type of communications signal, he or she should be able to claim the signal *per se*, and not simply a non-novel storage medium or other tangible article containing the novel signal. This is not just an issue of semantics—Mr. Nuijten will receive less protection from infringement by claiming his invention on a storage medium rather than as a signal. As Judge Linn explained, "[i]t is incongruous to treat an individual watching a movie containing the signal . . . in real time as any less of an infringer than someone watching the same movie after a short delay using the recording feature of, for example, a TiVo® digital video recorder." Pet. App. 46a. The only sure way for Mr. Nuijten to effectively protect his invention from "real time" infringement during transmission in the United States is to claim the signal itself.

Another example further highlights the difficulty of being forced to claim a novel signal on a storage medium. One of the key goals of communications technology is to increase transmission speeds. If an inventor develops a signal that results in faster data transfer rates than were ever previously achieved, that inventor should be able to patent the *communicated* signal, which embodies the inventive concept of faster transmission speed, rather than the *stored* signal, which does not have any transmission speed at all

because it is no longer propagating. The signal's sole utility occurs while it is being transmitted. That is the point in time when an infringer would use the technology, and thus that is the point in time when the inventor most needs patent protection.

The Federal Circuit's new criteria will be detrimental to innovation in the field of communications, because signals form the core of communication technology. Throughout history, advances in signaling technologies have been critical to the development of human society. As key components of any communication system, signals and signaling technologies are precisely the type of "useful arts" whose development should be promoted through the patent system. That is why Section 101 was drafted to provide non-tangible inventions, such as transmitted signals, the same patent protection as inventions that are tangible articles.

C. The New Criteria Contravene Public Policy By Encouraging Cutting-Edge Technology To Be Kept Secret

The current patentability rules of this Court are designed to navigate the "opposing and risky shoals" between patent overprotection and underprotection. *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 548 U.S. 124, 126 S.Ct. 2921, 2922 (Stevens, J., dissenting). In contrast, the three

new requirements invented by the Federal Circuit undermine the economic rationales for the patent system because they (1) deny inventors the ability to recoup their fixed costs of research and development and (2) encourage them to keep inventions secret. *See* W. Landes & R. Posner, The Economic Structure of Intellectual Property Law 294 (2003).

As this Court has noted, "the federal patent system . . . embodies a carefully crafted bargain for encouraging the creation and disclosure of new, useful, and nonobvious advances in technology and design in return for the exclusive right to practice the invention for a period of years." *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150-51 (1989). If the Federal Circuit's new requirements are left to stand, innovators are less likely to spend research and development resources on inventions that are not tangible articles, that are transitory, or that require special equipment to be perceived. If they do invent such technologies, they likely will keep their inventions secret. Inventors like Mr. Nuijten will "invest many more resources in maintaining trade secrecy . . . and inventive activity [will] be inefficiently biased toward inventions that can be kept secret." Landes & Posner at 328. The end result will be to "reduce[e] the stock of knowledge available to society as a whole." *Id.* at 294. Thus, the Federal Circuit's new criteria improperly disrupt the delicate economic balance

between patent overprotection and underprotection that has been established by Congress and upheld by this Court. By denying Mr. Nuijten's claims to the signal *per se*, the Federal Circuit has exalted form over substance and created new criteria that will deny patents to innovative technologies.

The Federal Circuit's decision below will affect a broad spectrum of unforeseen technological advances solely because they are intangible, transitory, or require special equipment to be perceived.[9] Chemical intermediates, metastable polymorphs, and other unstable compounds might now be considered too transitory to be patentable; inventions in nanotechnology, biotechnology, and other current fields could be denied patents because they are measured using special equipment.

Since its inception over 200 years ago, the patent system was purposefully created to be flexible enough to protect present and future advances in manufacturing and engineering technology. By adding new patentability criteria that restrict the broad patent protection envisioned by the original drafters of the Patent Act and upheld by this Court,

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[9] For example, patents have been granted to "optical tweezers" that are constructed solely from light and allow manipulation of very small particles. U.S. Patent No. 6,416,190, at [54] (filed Apr. 27, 2001). Yet such an invention might not be considered a tangible article, and thus would not be patentable under the Federal Circuit's reasoning.

the Federal Circuit has crippled effective patent protection for a large segment of American industry. This Court should grant certiorari so that modern technologies such as Mr. Nuijten's signal can be patented, effectively protected, and broadly shared through public disclosures.

CONCLUSION

The petition for certiorari should be granted.

Respectfully submitted,

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