No. 08-964

IN THE
Supreme Court of the United States

BERNARD L. BILSKI and RAND A. WARSAW,

Petitioners,

v.

JOHN DOLL, Acting Under Secretary of Commerce for Intellectual Property and Acting Director, Patent and Trademark Office,

Respondent.

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

BRIEF OF AMICUS CURIAE INTELLECTUAL PROPERTY OWNERS ASSOCIATION IN SUPPORT OF NEITHER PARTY

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INTEREST OF AMICUS CURIAE

Amicus curiae Intellectual Property Owners Association ("IPO") is a trade association representing companies and individuals in all industries and fields of technology who own or are interested in U.S. intellectual property rights.[1] IPO's membership includes more than 200 companies and a total of nearly 11,000 individuals who are involved in the association either through their companies or as inventor, author, executive, law firm, or attorney members. Founded in 1972, IPO represents the interests of all owners of intellectual property. IPO members receive about thirty percent of the patents issued by the Patent and Trademark Office to U.S. nationals. IPO regularly represents the interests of its members before Congress and the PTO and has filed *amicus curiae* briefs in this Court and other courts on significant issues of intellectual property law. The members of IPO's Board of Directors, which approved the filing of this brief, are listed in the Appendix.[2] IPO generally adheres to a policy of submitting amicus briefs on significant issues affecting its members. Because of the central importance of the scope of patent eligible subject matter under 35 U.S.C. § 101, IPO has

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1. No counsel for a party authored this brief in whole or in part, and no such counsel or party made a monetary contribution intended to fund the preparation or submission of this brief. No person other than the *amicus curiae*, or its counsel made a monetary contribution to its preparation or submission. The parties have consented to the filing of this brief and such consents are being lodged herewith.

2. IPO procedures require approval of positions in briefs by a three-fourths majority of directors present and voting.

authorized the filing of this brief urging this Court to adopt its members' view of that scope as set forth below. IPO expressly declines, however, to take any position on whether claim 1 of the 08/833,892 patent application, which was at issue below, claims patent eligible subject matter under § 101.

INTRODUCTION

The patent claim at issue in this case is directed to a method for hedging risk in the field of commodities trading. *In re Bilski*, 545 F.3d 943, 949 (Fed. Cir. 2008) ("*Bilski*"). Under the claimed method, a provider of a commodity, such as coal, would initiate a series of transactions with consumers at a fixed rate to insulate them from higher rates that would result from a spike in demand due to unusually cold weather. *Id*. The provider would then initiate transactions with coal suppliers at a second fixed rate that would insulate them from lower prices for coal that would result from a drop in demand due to unusually warm weather. *Id*. The offsetting positions would then operate as a hedge for the provider against unusual demand for coal. *Id*. The Patent & Trademark Office ("PTO") rejected the claim as not directed to patentable subject matter under 35 U.S.C. § 101. *Id*.

In affirming that result, the Federal Circuit held that this Court's decisions in *Diamond v. Diehr*, 450 U.S. 175 (1981) and *Gottschalk v. Benson*, 409 U.S. 63 (1972) establish a "definitive test" for determining the patent eligibility of a claimed process: whether the process "(1) . . . is tied to a particular machine or apparatus or (2) . . . transforms a particular article into

a different state or things" (the "Machine or Transformation Test"). *Id.* at 954. Although the court held that there was no basis for doing so now, it did note that "future developments in technology and the sciences may present difficult challenges to the machine-or-transformation test" and opined that that this Court "may ultimately decide to alter or perhaps even set aside this test to accommodate emerging technologies." *Id.* at 956.

The Federal Circuit then went on to discuss how the test would apply in various circumstances, concentrating on its own prior decisions and those of its predecessor, the Court of Customs and Patent Appeals. *Id.* at 961-63. Because the Bilski claim admittedly did not require the use of any machine to practice the claimed process, the Federal Circuit did not attempt to define the scope of the "particular machine" aspect of the test, but concentrated its analysis to a discussion of what constitutes a "transformation into a different state or thing." *Id.* at 962.

Noting that it was "virtually self-evident that a process for a chemical or physical transformation of physical objects is patent-eligible subject matter," the court focused its discussion on electronic signals and electronically manipulated data, which it described as "the raw materials of many information-age processes." *Id.* at 962. Pointing to its predecessor's decisions in *In re Abele*, 684 F.2d 902 (C.C.P.A. 1982), and *In re Meyer*, 688 F.2d 789 (C.C.P.A. 1982), the Federal Circuit concluded that a display of data that "did not specify any particular type of data; nor . . . specify how or from where the data was obtained or what the data

represented" would be insufficient, but that "the transformation of that raw data into a particular visual depiction of a physical object on a display was sufficient" to meet the test. *Id.*

As for so called "business method" patents, such as the one involved in this case, the Federal Circuit held that "transformations or manipulations simply of public or private legal obligations or relationships, business risks, or other such abstractions cannot meet the test because they are not physical objects or substances, and they are not representative of physical objects or substances." *Id.* at 962. However, the court took pains to reaffirm its holding in *State St. Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368 (Fed. Cir. 1998), that "business method claims . . . are 'subject to the same legal requirements for patentability as applied to any other process or method.'" 545 F.3d at 960 (quoting *State St. Bank & Trust Co.*, 149 F.3d at 1375-76).

SUMMARY OF ARGUMENT

In crafting the language defining potentially patentable subject matter, Congress used sweeping language, "Whoever invents or discovers any new and useful process . . . may obtain a patent . . ." 35 U.S.C. § 101. It is telling that Congress chose to make no carve outs from its formulation of potentially patentable subject matter. IPO urges this Court to reaffirm prior precedent that patent eligible subject matter is to be broadly construed. *Diamond v. Chakrabarty*, 447 U.S. 303 (1980) at 308 ("In 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."). Previously, this Court has found only three limited exceptions to patentability.[3] Today more than ever, a flexible approach to interpreting the statutory framework of the 1952 Patent Act and applying the Machine or Transformation Test is necessary in distinguishing abstract ideas from practical applications of ideas in constantly changing and rapidly evolving areas of human endeavor. *See Chakrabarty*, 447 U.S. at 309 (noting comments of the principal draftsman of the 1952 recodification that "anything under the sun made by man" is patentable subject matter).

IPO believes the Machine or Transformation Test is consistent with this Court's precedents, but, properly understood it is simply a method for distinguishing between patentable subject matter and "laws of nature, natural phenomena, and abstract ideas," which this Court has clearly held to be unpatentable subject matter. *Diehr*, 450 U.S. at 185. Thus, IPO asks this Court to make clear that the Machine or Transformation test is not the exclusive test, and to expressly authorize the courts and the PTO to develop alternative approaches to analyze particular claimed inventions on a case-by-case basis, within the broader framework. Said another way, IPO advocates that while the Machine or Transformation test is a clue, but not the only clue, to patent eligibility under § 101.

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3. The laws of nature, physical phenomena, and abstract ideas have been held not patentable. *See Parker v. Flook*, 437 U.S. 584 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 67, (1948); *O'Reilly v. Morse*, 15 How. 61, 112-121 (1853); *Le Roy v. Tatham*, 14 How. 155, 175 (1852).

Further, there are significant gaps in the Federal Circuit's discussion of the application of the Machine and Transformation Test to contemporary and future technological developments, most particularly to the use of computers, which IPO urges this court to address in order to reduce confusion and uncertainty in the courts and the PTO. Moreover, in the one area it did discuss at some length – processes involving the use of electronic signals to transmit information, IPO believes that the Federal Circuit's discussion unduly focuses on the *contents* of the data – particularly whether or not the data creates an image of physical objects – rather than the manner in which those signals are generated.

In particular, IPO believes that this Court's long standing precedent, and the need to provide appropriate protection to valuable innovative technologies, require that a claim that sets out a method for changing any existing state of matter, including by generating or modifying an electrical, optical or any other type of signal to transmit information, is patentable, regardless of whether the subject matter being conveyed relates to images or physical objects, methods of doing business, mathematical functions, or even video games, so long as the methodology for producing the signals are sufficiently defined and the claims meet the other standards for patentability under the Patent Act.

In addition, IPO believes that a discussion of the application of the "particular machine" to the computers and other programmable devices, which have already replaced mechanical devices and "hard wired" circuitry in so many areas of contemporary life, can no longer be avoided. Although admittedly not specifically involved

in this case, the failure to address the applicability of the "particular machine" to devices whose prevalence and significance could hardly have been imagined when that test was originally articulated by this court, has created huge uncertainty, not only as to the patentability of future inventions, but to the validity of some of the most valuable and important patents currently in effect, that is sure to engender extensive litigation and have a chilling effect on the investment in the research and development activities that are so important to the future strength of American industry and our ability to maintain our status in an increasingly competitive global economy.

IPO believes that the history of the development of the "particular machine" requirement clearly points the way to the appropriate application of that test to computers and other programmable devices: a process that is tied to the use of a programmable device, including a general purpose computer, generally satisfies the "particular machine" requirement for patent eligibility so long as the claim that requires that the device be programmed to perform the functions specified in the claim in the manner contemplated by the inventor and the claim otherwise meets the novelty, usefulness, non-obviousness and disclosure requirements of the Patent Act.

ARGUMENT

A. The Machine or Transformation Test – Properly Construed – is One Approach to Determine Patentability of a Process

IPO believes that the Machine or Transformation Test is consistent with this Court's precedents and serves as one appropriate measure for determining the patentability of processes, provided the test is construed and applied in a manner that adequately takes into account the broad statutory language of the Patent Act, this Court's precedent and existing and future technology. However, the statutory language of the Patent Act is broad, and the mushrooming of developments in such fields as nanotechnology, applied quantum mechanics and genomics, render it unwise to adopt a test for patentability that would or should necessarily apply to claims involving innovations for which the appropriateness of the test have never been considered. Rather, this Court should continue, as it did in *Benson*, to expressly recognize that other standards or analytic frameworks may apply in cases involving claims that are fundamentally different from those that this Court has previously had an opportunity to pass upon. *Gottschalk* v. *Benson*, 409 U.S. 63, 70 (1972)

> It is argued that a process patent must either be tied to a particular machine or apparatus or must operate to change articles or materials to a 'different state or thing.' We do not hold that no process patent could ever qualify if it did not meet the requirements of our prior precedents.

Subject to the exceptions described above, the patent statute provides a very broad and expansive framework for what may be patented:

> 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. *(emphasis added)*

35 U.S.C. § 101.

This expansive breadth was intended by Congress[4] to accomplish its Constitutional imperative to "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. I, § 8, cl. 8 (pertinent part).

The Machine or Transformation Test, properly seen, has been one way that the Court has determined whether a given process is patentable. Other Courts have asked whether the invention claims a "*practical method or means of producing a beneficial result or effect*" (Diamond v. Diehr 182, n.7 (quoting *Corning v. Burden*, 56 U.S. (15 How.) 252, 267-68 (1853)) (emphasis added). Although this brief will generally leave to others a detailed analysis of the history of the development of the Machine or Transformation Test, we note that this Court has used that particular test as simply one way

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4. This Court previously took note of the legislative intent behind the 1952 Patent Act. *See Chakrabarty* footnote 6.

to determine whether an invention claims a practical method or merely an abstract idea. *See Chakrabarty Id.*

The "machine" aspect of the particular test traces its origin at least to this Court's decision in *O'Reilly v. Morse*, 56 U.S. 62 (1854), discussed more fully at p. 19, *infra*, while the "transformation" aspect was initially expressed in *Cochrane* v. *Deener*, 94 U.S. 780 (1877), in which the Court, after noting that the claims in issue did not require any particular configuration of machinery, nevertheless held that a patentable "process" would include:

> [A] mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.

94 U.S. at 788.

Starting in the early 1970's, this Court considered a trio of cases involving the patentability of process claims, starting with *Gottschalk* v. *Benson*, 409 U.S. 63 (1972), continuing with *Parker* v. *Flook*, 437 U.S. 584 (1978), and culminating in *Diamond* v. *Diehr*, 450 U.S. 175 (1981), in which this Court summarized its precedents in the following terms:

> This Court has undoubtedly recognized limits to § 101 and every discovery is not embraced within the statutory terms. Excluded from such patent protection are laws of nature, natural phenomena, and abstract ideas. "An

> idea of itself is not patentable." "A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right."

450 U.S. at 185 (internal citations omitted).

The *Diehr* majority stressed that the Court's holdings in *Benson* and *Flook* "stand for no more than these long-established principles." *Id.* As this Court has recognized, the need to distinguish between patent eligible processes and unpatentable abstract ideas or laws of nature has always presented the courts with difficult issues. *See*, *e.g.*, *Parker v. Flook*, 437 U.S. 584, 589 (1978) ("The line between a patentable 'process' and an unpatentable 'principle' is not always clear."); *Risdon Iron & Locomotive Works*, 158 U.S. 68, 71 (1895) ("That certain processes of manufacture are patentable is as clear as that certain others are not, but nowhere is the distinction between them accurately defined."). Accordingly, the Machine or Transformation Test must not be applied rigidly, and indeed there are instances in which it is inappropriate. It is one useful approach to determine whether a claimed process falls within § 101, but it cannot be definitively stated to be the exclusive approach. The analysis necessarily must adapt to the specific facts of each form of practical innovation.

Indeed, the opinion of the Federal Circuit itself recognizes the difficulty of a "one size fits all" test:

> . . . [W]e agree that future developments in technology and the sciences may present

> difficult challenges to the machine-or-transformation test, just as the widespread use of computers and the advent of the Internet has begun to challenge it in the past decade. Thus, we recognize that the Supreme Court may ultimately decide to alter or perhaps even set aside this test to accommodate emerging technologies.

545 F.3d at 956.

It is hard to imagine any single test sufficing to differentiate patentable processes from unpatentable subject matter under §101. No matter how the Machine or Transformation test is formulated and refined, there will always be scope for innovation outside such test, while also falling outside this Court's long established exclusion of "abstract ideas, laws of nature and natural phenomenon".

In sum, IPO believes that the Court should again recognize, as it did in *Benson*, the possibility that process claims might not fit neatly into the Machine or Transformation Test, and may require the application of a modified or different standard in order to appropriately accord with the broad legislative framework that Congress has set forth.[5] IPO believes it is important for this Court not to mandate that the Machine or Transformation Test be applied rigidly, but rather to leave to the PTO and lower courts the freedom

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5. In *Benson*, this Court took pains to point out that it was not holding that "no process patent could ever qualify if it did not meet the requirements of our prior precedents." 409 U.S. at 7.1.

to consider other tests that can accommodate innovations that do not fit within the confines of the Machine or Transformation Test, and which nevertheless should be eligible for patent protection in order the comply with the overall policy of the Patent Act and the constitutional grant to Congress "To promote the Progress of Science and useful Arts by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." U.S. CONST. art. 1, § 8.

B. The Transformation of Matter Test Must Be Construed and Applied in a Manner that Recognizes and Applies Modern Technology

Although, as noted above, IPO remains concerned that many areas of practical innovation may unnecessarily be precluded from patent protection if the Machine or Transformation Test is held to be the sole test for eligibility, another pressing concern is that the courts and the PTO may construe and apply the existing test in a narrow and restrictive manner that further limits the availability of patent protection. In particular, IPO believes that when applied, both aspects of the test must be applied in a manner which clearly recognizes the significance and implications of modern technology on what constitutes a "machine" and the myriad ways in which the states of matter can be "transformed" in order to accomplish useful functions.

With respect to the "transformation" aspect of the test, the Federal Circuit noted that it is "virtually self-evident that a process for a chemical or physical transformation of physical objects" is patent-eligible

subject matter. Although that is certainly true, those concepts must incorporate a recognition that matter and its properties can be physically and chemically transformed in a host of ways that were not remotely conceived of when the test was first articulated, including, but certainly not limited to modifying the DNA molecules of biological cells, and inducing and modifying the energy states of matter to control the output of electro-magnetic, nuclear or other forms energy or the quantum states of subatomic particles. IPO believes that any process which can change these or any other attributes of matter from their pre-existing state in order to perform useful functions fit within the rubric of transformation of matter under this Court's precedents and that this Court's opinion in this matter should clearly so state.

A particularly important (although hardly the only) area in which this issue has arisen is in patents involving the generation or modification of electronic, optical or other forms of signals that are used to convey information. In its decision below, the Federal Circuit recognized such signals as the "raw materials of many information age processes" and discussed at some length the applicability of the test to such signals. 545 F.3d at 962. However, without citing any authority of this Court, the Federal Circuit applied the "transformation" test in a manner that drew a distinction based not on whether the process itself involved a transformation of matter, but on the subject matter of the information that was being conveyed, concluding that a process that generated an image that happened to represent physical or tangible objects or substances would be patentable, but implying that a new method for generating signals

to convey "abstract constructs such as legal obligations, organizational relationships and business risks" would not be.

In fact, however, this Court has long recognized the patentability of processes involving generation and modification of electrical and other forms of signals to convey information without regard to the subject matter of the information being conveyed. Indeed, one of the oldest and most well known examples of the application of the transformation test to a process for using electrical signals to convey information, not mentioned or considered in the decision below, is this Court's decision in the "Telephone Cases," *i.e.*, *Dolbear v. American Bell Tel. Co.*, 126 U.S. 1 (1888).

One of Alexander Graham Bell's claims involved in those cases was for a "method of and apparatus for transmitting vocal or other sounds telegraphically . . . by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds . . . ." *Id.* at 531. As described in the specification, the invention consisted "in the employment of a vibratory or undulatory current of electricity, in contradistinction to a merely intermittent or pulsatory current, and of a method of, and apparatus for, producing electrical undulations upon the line wire." *Id.*

In sustaining the patentability of the claimed method portion of the claim as an "art" or "process" (the two words have historically been used interchangeably in patent law), independent of the particular means or device for creating them, the Court pointed out that the

generation of the electrical signals inherently required a transformation from that which existed in nature:

> In this art — or, what is the same thing under the patent law, this process, this way of transmitting speech — electricity, one of the forces of nature, is employed; but electricity, left to itself, will not do what is wanted. The art consists in so controlling the force as to make it accomplish the purpose.

126 U.S. at 532.

Thus, the claim met the "transformation" test not because of its subject matter – which required no images of physical objects or even a reproduction of intelligible speech – but because it required transformation of electricity from its natural state "by gradually changing the intensity of a continuous electric current, so as to make it correspond exactly to the changes in the density of the air caused by the sound of the voice." *Id.* at 533.

This Court's holding that the Bell claim met the statutory definition of a patentable "useful art," has been repeatedly cited with approval by this Court. *See*, *e.g.*, *Gottschalk v. Benson*, 409 U.S. at 68-69; *Expanded Metal Co. v. Bradford*, 214 U.S. 366, 384, 385 (1909) (citing the Telephone Cases, among others, to illustrate the breadth of processes that can be properly claimed by a patent); *Risdon Iron & Locomotive Works*, 158 U.S. at 76-77 (referring to the Telephone Cases as "the most important case in which a patent for a process was considered"). Notably, however, the claim would not have

survived the "transformation" test as construed in the opinion below since the claim "did not specify any particular type of data; nor … specify how or from where the data was obtained or what the data represented;" nor provide that the signal being generated convey an image of a physical object.[6]

Although it is perhaps the most prominent example, the Bell claim is hardly unique in illustrating the divide between this Court's precedent and the more restrictive construction of the Machine or Transformation Test applied by the Federal Circuit in its decision below. Another important example is provided by U.S. Patent No. 1,342,885 (the "Armstrong Patent"), which disclosed the process for converting radio signals that made FM transmissions feasible. Claim 1 of the patent read:

> The method of amplifying and receiving high frequency electrical oscillatory energy which comprises, combining the incoming energy with locally generated high frequency continuous oscillations of a frequency differing from said incoming energy by a third readily-amplifiable high frequency, converting the combined energy by suitable means to produce said readily-amplifiable high frequency oscillations, amplifying the third said high frequency oscillations, and detecting and indicating the resulting amplified oscillations.

There is little doubt that the Armstrong patent, as a method of changing the state of electronic signals,

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6. Notably, neither *Bilski* nor *In re Abele* cite to the Telephone Cases.

claimed patent eligible subject matter under the holding of the Telephone Cases. However, it would be unlikely to survive the holding of *Bilksi* because the claim says nothing about particular types of data or an image representing a physical object. Another example is provided by U.S. Patent No. 4,901,307 (the "Gilhousen Patent"), which, in claim 33, claimed a fundamental process for cell phone communication comprised of various steps for providing, converting and transmitting communication signals. Again, there is little doubt that the Gilhousen Patent claimed eligible subject matter under the holding of Telephone Cases, but it too could not have survived the holding of *Bilksi* that a claim that "did not specify any particular type of data; nor . . . specify how or from where the data was obtained or what the data represented" is unpatentable.

IPO urges this Court to recognize that not only the generation and modification of electrical signals, but any other process that can alter the attributes of matter or energy from their pre-existing state, whether by manipulating the optical, phasic, genetic, magnetic, gravitational, quantum mechanical or any other attribute capable of being generated or modified and detected in order to perform a useful function, should qualify as patentable subject matter, and that the court should decisively reject the notion that the patentability of a process of conveying, manipulating or displaying information using such signals turns on the source or subject matter of the information being conveyed or whether it can generate a visual depiction of a physical object.

C. A Computer or Other Device that has been Programmed to Perform a Claimed Function is a "Particular Machine"

Citing the fact that the *Bilski* invention did not involve the use of a computer to implement its claimed process, the Federal Circuit decided to "leave to future cases the elaboration of the precise contours of machine implementation, as well as the answers to particular questions, such as whether or when recitation of a computer suffices to tie a process claim to a particular machine." 545 F.3d at 962. Although IPO recognizes the general wisdom of declining to rule upon issues that are not presented by the specific facts of the case before the court, it considers the question of patentability of computer implemented processes to be critically important and anticipates that this Court will be more than sufficiently briefed on the subject in this case to justify providing the practitioners the IPO represents, along with the PTO and the courts, with some guidance on the critical question of the patentability of process claims involving the use computers and other programmable devices.

In particular, IPO believes strongly that a blanket exclusion from patentability of processes implemented through the use of computers and other programmable devices would be harmful as a matter of policy and unjustified in light of the purpose and function of the "particular machine" test as it has developed in this Court's jurisprudence. The use of computers and other programmable devices to perform functions that have been historically performed by mechanical devices or hard-wired circuitry has become so pervasive that a

blanket exclusion of process patents implemented through programmable devices would eliminate patent protection for a wide swath of our modern economy that has been built and developed in large part in reliance on the availability of such protection. Almost all analog electronics can now be represented mathematically and reproduced through modern digital circuitry and there is no logical basis for treating the invention of, for example, analog filtering processes accomplished through the use of "old fashioned" discrete resistors, capacitors, transistors and other conventional components differently from those which accomplish similar functions by programming the circuitry in a general purpose microprocessor to perform the same function. Yet, today, those functions, and indeed virtually all of the functionality of radios, televisions, telephones and many functions historically performed by mechanical devices such as clocks, adding machines, linotype machines and cameras, are now implemented primarily through the use of the software controlled operation of microprocessors capable of performing a wide variety of functions. In essence, once they have been programmed, "general purpose" computers become special purpose machines on a practical level and it would unjustifiably exclude large areas of technology from patent protection if they were simply excluded because the machine that was designed to implement them is capable of performing other functions as well.

To be sure, IPO recognizes that a general requirement that some unspecified function be performed on a computer, without more, may not be a sufficient designation of a "particular machine" for purposes of the Machine or Transformation Test.

However, a review of the historical development of the "particular machine" requirement points to the conclusion that the requirement can and should be deemed to be satisfied so long as the claim inherently requires that the computer or device be programmed to perform its function in the particular manner that was conceived by the inventor.

The "particular machine" aspect of the Machine or Transformation Test was developed more than 150 years ago as a way to satisfy this Court's concern that a patent not be used to give the patentee exclusive rights in a fundamental principle (*i.e.*, a law of nature, abstract idea or natural phenomena): where a process is tied to a "particular" machine, all other means of executing the process remain open to the public such that there is no danger of giving one patentee exclusive rights in natural principle or a means of usefully employing such principles that he or she did not invent. [7] This concern

7. It will be helpful here to distinguish between limiting a process to a particular means of execution, which, as discussed above, leaves the process open to be executed by other means, and limiting a process to a field of use. In the latter situation, all other means of executing the process within the field of use would still be cut off from the public and would not ameliorate the danger that, in fact, the patentee received exclusive rights in a fundamental principle. The Federal Circuit recognized that distinction in its decision below, noting that "pre-emption of all uses of a fundamental principle in all fields and pre-emption of all uses of the principle in only one field both indicate that the claim is not limited to a particular application of the principle" (citing *Diehr*, 450 U.S. at 193 n.14 ("A mathematical formula in the abstract is nonstatutory subject matter regardless of whether the patent is intended to cover all uses of the formula or only limited uses.").

was initially articulated by this Court's holding in *O'Reilly v. Morse*, 56 U.S. 62 (1854), where the Court rejected a claim directed at the use of electro-magnetism, however created, for imprinting intelligible characters as not patent eligible. *Id.* at 120. The rationale for this result, as expressed by the court, was the need to assure that the inventor's patent was limited to the process that he invented and would not foreclose others from inventing different, and potentially superior methods of accomplishing similar results:

> If this claim can be maintained, it matters not by what process or machinery the result is accomplished. For aught that we now know some future inventor, in the onward march of science, may discover a mode of writing or printing at a distance by means of the electric or galvanic current, without using any part of the process or combination set forth in the plaintiff's specification. His invention may be less complicated — less liable to get out of order — less expensive in construction, and in its operation. But yet if it is covered by this patent the inventor could not use it, nor the public have the benefit of it without the permission of this patentee.
>
> Nor is this all, while he shuts the door against inventions of other persons, the patentee would be able to avail himself of new discoveries in the properties and powers of electro-magnetism which scientific men might bring to light. For he says he does not confine his claim to the machinery or parts of machinery, which he

> specifies; but claims for himself a monopoly in its use, however developed, for the purpose of printing at a distance. New discoveries in physical science may enable him to combine it with new agents and new elements, and by that means attain the object in a manner superior to the present process and altogether different from it. And if he can secure the exclusive use by his present patent he may vary it with every new discovery and development of the science, and need place no description of the new manner, process, or machinery, upon the records of the patent office. And when his patent expires, the public must apply to him to learn what it is. In fine he claims an exclusive right to use a manner and process which he has not described and indeed had not invented, and therefore could not describe when he obtained his patent. The court is of opinion that the claim is too broad, and not warranted by law.

56 U.S. at 113.

This holding was further explained in the Telephone Cases where this Court stated that "[t]he effect of [the O'Reilly] decision was, therefore, that the use of magnetism as a motive power, without regard to the particular process with which it was connected in the patent, could not be claimed, but that its use in that connection could." 126 U.S. at 534; *see also Tilghman v. Proctor*, 102 U.S. 707, 726-727 (1881)

> The eighth claim of Morse's patent was held to be invalid, because it was . . . not for a

> process, but for a mere principle. It amounted to . . . a claim of the exclusive right to the use of electro-magnetism as a motive power for making intelligible marks at a distance; that is, a claim to the exclusive use of one of the powers of nature for a particular purpose. *It was not a claim of any particular machinery, nor a claim of any particular process for utilizing the power; but a claim of the power itself* . . . .

(emphasis added).

These cases make it clear that the underlying purpose of the machine prong of the Test is to insure that the process claimed is no broader than the particular process that the inventor conceived. To put it simply, the machine embodies a particular manner of executing the process, thereby insuring that all other manners of accomplishing the same result remain open to the public.

In applying that principle, it is also important to emphasize that there is no requirement that the "particular machine" be novel or specifically designed for use in the claimed process. *Cf. Cochrane v. Deener*, 94 U.S. 780, 788 (1876) ("The machinery pointed out as suitable to perform the process may or may not be new or patentable; whilst the process itself may be altogether new, and produce an entirely new result."). Indeed, section 100(b) of the Patent specifically defines the term "process" as including "a new use of a known process, *machine*, manufacture, composition of matter, or material." (Emphasis added.) Thus, there can be no

requirement that a "particular" machine be one specially designed to carry out the claimed process nor that it be novel in itself.

Applying these principles to computers readily supplies the answer to the question of whether and under what circumstances a process that is implemented on a computer or other programmable device is tied to a "particular machine." If the claim requires that the programmable device implement certain functions of a process with sufficient specificity to limit the claim to the particular process conceived by the inventor, such as by requiring the use of a specified program or algorithm, then it would satisfy the particular machine test, even though the computer is capable of performing other functions and the program may have been designed for other purposes.

Properly construed, this Court's decisions in *Benson* and *Flook* are consistent with this conclusion. Issued at the dawn of the computer age, the claim in *Benson* involved a basic algorithm for converting binary coded decimal numbers into pure binary numbers. The Court held the claim was not patentable not because it was implemented on a computer, but because it sought to claim all uses of a basic mathematical algorithm. Thus, the Court was concerned that, if the patent issued, it would "wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself." 409 U.S. at 72.

In *Flook* this Court considered the patentability of a process claim for updating the alarm limits for a catalytic converter process in which the only difference

between the claimed process and the prior art was a particular mathematical algorithm which, the Court took pains to point out, was not required to be implemented on a computer or any other type of machine. Based upon an extensive review of its precedents, from *Morse* to *Benson*, the Court held that even if newly discovered, a scientific principle or mathematical formula cannot be patented but is to be treated "as though it were a familiar part of the prior art." 437 U.S. at 592. Since, in that case, the algorithm was the only aspect of the process that was claimed to have been invented, the Court rejected the claims as unpatentable. However, the court also took pains to point out that the fact that the algorithm itself could not be patented did not preclude the patentability of claims for a novel and useful application of the algorithm:

> Respondent's is unpatentable under § 101, not because it contains a mathematical algorithm as one component, but because once that algorithm is assumed to be within the prior art, the application, considered as a whole, contains no patentable invention. *Even though a phenomenon of nature or mathematical formula may be well known, an inventive application of the principle may be patented.* Conversely, the discovery of such a phenomenon cannot support a patent unless there is some other inventive concept in its application.

437 U.S. at 594 (emphasis added).

It is important to emphasize that nothing about the holdings of these cases turns on the question of whether the claimed algorithms were implemented on a computer. Indeed, the *Flook* decision took pains to emphasize that, at that time, the computer industry was too immature and there was insufficient precedent for it to consider that question:

> The youth of the industry may explain the complete absence of precedent supporting patentability. Neither the dearth of precedent, nor this decision, should therefore be interpreted as reflecting a judgment that patent protection of certain novel and useful computer programs will not promote the progress of science and the useful arts, or that such protection is undesirable as a matter of policy.

437 U.S. at 595.

Rather, the critical question was whether the claim, considered as a whole, purported to claim a novel and useful process apart from the unpatentable algorithms it employs. If so, the claims would be patentable even if (as *Flook* presumes) the algorithm itself is not.

In sum, IPO urges this Court to state unequivocally that a microprocessor based general purpose computer or other programmable device, like any other machine, can qualify as a "particular machine" for purposes of the Machine or Transformation Test, so long as its use is sufficiently limited in the patent to the implementation of a defined process for performing a useful function and does not foreclose other uses of a particular algorithm or scientific principle.

CONCLUSION

For the forgoing reasons, IPO believes that the Machine or Transformation Test, properly applied, will normally be a sufficient test for determining the eligibility of a process patent under § 101, but that the Court should make clear that applying the Machine or Transformation Test too rigidly may call into question the patent eligibility of practical innovations which go beyond mere abstract ideas, laws of nature, and natural phenomena. This Court should leave open the possibility that other specific tests or analytical frameworks may be appropriate to analyze particular innovations on a case-by-case basis, within the broader framework of section 101 of the Patent Act. Moreover, when the Machine or Transformation Test is applied, the concept of "transformation" needs to include not only tangible chemical or physical attributes of objects, but also their electrical, magnetic and any other intangible properties that are capable of being created, modified and detected to perform useful functions, including, particularly to transmit, manipulate, store or retrieve information of any kind, without regard to its subject matter. Similarly, the Court should affirm, once and for all, that the computers and other programmable devices that have become so pervasive in our modern economy can fill the role of a "particular machine" for purposes of the test so long as the device has been programed to perform a defined function in the manner contemplated by the inventor and the claims are otherwise sufficiently limited to a novel and useful process that does not pre-empt all uses of a basic mathematical formula or other law of nature or abstract idea.

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APPENDIX

APPENDIX

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