

Appeal No. 2007-1130  
(Serial No. 08/833,892)  
FOR HEARING *EN BANC*

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UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

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In Re Bernard L. Bilski and Rand A. Warsaw

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APPEAL FROM THE UNITED STATES PATENT AND TRADEMARK  
OFFICE, BOARD OF PATENT APPEALS AND INTERFERENCES

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BRIEF OF *AMICI CURIAE* TEN LAW PROFESSORS  
IN SUPPORT OF APPELLEE DIRECTOR OF THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

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## CERTIFICATE OF INTEREST

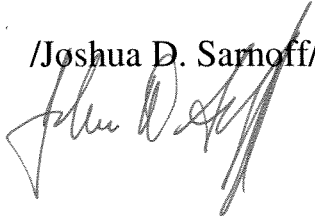
Counsel for *Amici Curiae* Ten Law Professors certifies the following:

1. The full name of every party or *amicus curiae* represented by me is listed in Appendix A.
2. The name of the real parties in interest (if the party named in the caption is not the real party in interest) represented by me are listed in Appendix A.
3. All parent corporations and any publicly held companies that own 10 percent of the stock of the party or *amicus curiae* represented by me are: None.
4. The names of all law firms and the partners or associates that appeared for the party or *amicus curiae* now represented by me in the trial court or are expected to appear in this court are:

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A handwritten signature in dark ink, appearing to read 'Joshua D. Sarnoff', is written over the printed name and signature line.

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## **STATEMENT OF INTEREST OF AMICI CURIAE**

*Amici curiae* are professors of law who have written on intellectual property law and its relationship to constitutional authority and/or innovation policy. *Amici* have no personal stake in the outcome of this case. A list of *amici* appears at Appendix A.<sup>1</sup> *Amici* believe that this Court would benefit from understanding the concerns that an expansive test of patentable subject matter raises for the constitutional innovation policies of promoting progress, in the useful arts, for discoveries of inventors. These concerns underlie the historic exclusions for “[p]henomena of nature, though just discovered, mental processes, and abstract intellectual concepts,” which must be “treated as though [they] were a familiar part of the prior art” because “they are the basic tools of scientific and technological work.”<sup>2</sup> Such pre-existing basic information (conventionally referred to as science, nature, or ideas) is “part of the storehouse of knowledge,” “free to all men and reserved exclusively to none.”<sup>3</sup>

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<sup>1</sup> No part of this brief was authored by counsel for any party, person, or organization besides *amici* and their counsel, and Elliot Cook, Ashley Gordon, Khalil Malouf, Whitney Mancino, and Sakina Rizvi, law students enrolled in or assisting the Glushko-Samuelson Intellectual Property Law Clinic.

<sup>2</sup> *Parker v. Flook*, 437 U.S. 584, 589, 591-92 (1978) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972), and citing *O’Reilly v. Morse*, 56 U.S. (15 How.) 62, 115 (1853), and *Nielson v. Harford*, Web. Pat. Cases 295, 371 (1844)). See *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

<sup>3</sup> *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 126 S.Ct. 2921, 2923 (2007) (Breyer, J., dissenting from dismissal of certiorari as improvidently granted) (quoting *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948)).

## **SUMMARY OF ARGUMENT**

The claim at issue is invalid under the binding precedents of *Diamond v. Diehr*, 450 U.S. 175 (1981), and *Parker v. Flook*, 437 U.S. 584 (1978). The claim lacks any “inventive concept” other than application of the abstract idea of hedging to a “particular ... environment,” and its physical steps constitute “insignificant post-solution activity.” *Diehr*, 450 U.S. at 191-92; *Flook*, 437 U.S. at 594.

To recognize this claim as patent eligible may be unconstitutional for any or all of three reasons – it does not promote progress, it is not within the useful arts, and it is not the discovery of an inventor. The *Diehr-Flook* standard avoids these constitutional concerns, and this Court should apply that standard to prevent encroachment on the public domain of science, nature, and ideas.

The *Diehr-Flook* standard limits patent eligibility for claims reciting a mental step limitation and for all other claims applying categorically excluded information. The *Diehr-Flook* standard requires more than trivial or peripheral physical transformations, steps, or structures.

The “useful, concrete, and tangible result” test of patent eligibility as applied by this Court conflicts with the *Diehr-Flook* standard, was not ratified by Congress, is potentially unconstitutional, and should be restricted. *State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373-75 (Fed. Cir. 1998). *See In re Alappat*, 33 F.3d 1526, 1344 (Fed. Cir. 1994) (en banc).

## ARGUMENT

### **I. (Question 1) Claim 1 Is Not Patent Eligible, as It Lacks the Requisite Inventive Concept Under the *Diehr-Flook* Standard.**

In its essence and as a whole, Claim 1 of the 08/833,892 Application claims the abstract idea of hedging as applied to the context of commodities purchase risks (rather than of other risks). Claim 1 requires in element (b) the step of “identifying” potential commodities purchasers with a different risk position than other purchasers. This identifying step can (but need not) be performed entirely in the mind.<sup>4</sup> Claim 1’s elements (a) and (c) add to the abstract idea of hedging only the facially trivial and (absent telepathy) nominally physical steps of “initiating ... transactions” with relevant purchasers having the required risk positions. The applicant here could not reasonably consider himself “to be the original and first inventor” of any one or more of the abstract idea of hedging risks, or the steps of initiating commodities transactions “at a fixed rate based upon historical averages” or “at a second fixed rate.” 35 U.S.C. § 115 (2000); Claim 1.

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<sup>4</sup> The Court should not ignore the identifying step or dissect it from the claim because it can be performed in the mind or applies categorically excluded abstract ideas. Rather, the Court must apply the *Diehr-Flook* standard for that reason. Both *Diehr* and *Flook* require the claimed invention to be understood as a whole, *including* the operative relationship of all elements. *See Diehr*, 450 U.S. at 187-89 (criticizing focus on the novelty of particular elements); *Flook*, 437 U.S. at 594 (noting consistency with considering the claim as a whole). To ignore the mental step or dissect the unpatentable idea from the claim would change what the applicant “himself invent[s],” “regards as his invention,” and “distinctly claim[s].” 35 U.S.C. §§ 102(f), 112 para. 2 (2000).

Claim 1 thus claims an innovation that is insufficient as a matter of law to constitute patent eligible subject matter under Section 101. Mere application of an abstract idea – even to solve a particular problem in a particular context – does not constitute a patent eligible invention. *See Flook*, 437 U.S. at 594 (discovery of mathematical algorithms “cannot support a patent unless there is some *other* inventive concept in its application”) (emphasis added); *id.* at 595 (claims ineligible if they are “essentially” methods of calculating, “even if the solution is for a specific purpose”).<sup>5</sup> Claim 1 contains no inventive concept other than the idea of hedging risks, and did not become patent eligible by restricting that concept to the context of commodities purchases. *See Diehr*, 450 U.S. at 191 (ineligibility “cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.”); *In re Abele*, 684 F.2d 902, 907 (C.C.P.A. 1982) (algorithms require “more than a field of use limitation”).

Similarly, Claim 1 did not become patent eligible by combining the limited application of the idea of hedging risks with the physical steps of “initiating ... transactions” with commodities purchasers. Such trivial physical steps are inherent

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<sup>5</sup> *See also* 1 William C. Robinson, *The Law of Patents for Useful Inventions*, §136, at 195-96 (Little, Brown 1890) (eligibility requires a “new instrument or method [of applying a discovered principle] contrived for its direction towards ends which it cannot naturally accomplish”); Joshua D. Sarnoff, *Shaking the Foundations of Patentable Subject Matter*, at 75-85 (draft Apr. 2, 2008) (reviewing historic cases requiring an additional inventive concept beyond mere application), at <http://www.wcl.american.edu/pijip/go/research-and-advocacy/ip-policy-and-law-reform> (last visited April 4, 2008).

in any application of hedging to purchase risks, and did not “transform [the] unpatentable principle into a patentable process.” *Diehr*, 450 U.S. at 191-92. Rather, those steps reflect only “insignificant post-solution activity.” *Id.* See, e.g., *Lab. Corp. of Am. Holdings*, 126 S.Ct. at 2928 (finding “nothing ... that adds anything more of significance” by physically assaying to obtain data for performing an unpatentable scientific correlation). Claim 1 simply is not the kind of innovation that is patent eligible under Section 101.

## **II. (Question 2) The *Diehr-Flook* Standard Must Be Applied, Avoids Constitutional Concerns, and Protects the Public Domain.**

The binding Supreme Court *Diehr-Flook* precedent establishes the applicable standard for *all* claims relating to categorically excluded public domain information. See *Diehr*, 450 U.S. at 193 (noting that the standard applies to claims implementing or applying algorithms “in a structure or process”).<sup>6</sup> The *Diehr-Flook* standard not only protects the public domain of science, nature, and ideas, but also avoids constitutional concerns and encroachment on that public domain through artful claim drafting. See *id.* at 191-92 (patent eligibility based on insignificant post-solution activity “would allow a competent draftsman to evade

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<sup>6</sup> There is no similar eligibility concern for claims relating to public domain information derived from earlier patented or patentable inventive concepts. Such claims will not “evade the recognized limitations,” and thus should be evaluated under Sections 102 and 103.

the recognized limitations”).<sup>7</sup> This Court is not free to adopt a new test. It must apply the *Diehr-Flook* standard unless and until that standard is changed by the Supreme Court or the Congress. However, this Court remains free to further articulate *when* physical transformations or physical steps or structures supply another inventive concept beyond “insignificant post-solution activity” or limitation “to a particular technological environment.” *Diehr*, 450 U.S. at 191.

This Court cannot avoid making distinctions among physical combinations or processes, and should not seek to do so. *See Flook*, 437 U.S. at 593 (discussing “the obligation to determine [the] type of discovery”). Nor should this Court be concerned with drawing categorical lines; such threshold line-drawing is unexceptional.<sup>8</sup> By properly applying the *Diehr-Flook* standard, moreover, this

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<sup>7</sup> Similar concerns animate the copyright law doctrine of “merger,” which precludes copyright protection for an author’s expression if it would “would effectively accord protection to the idea itself,” given that “ideas are too important to the advancement of knowledge to permit them to be under private ownership.” *CCC Info. Servs., Inc. v. Maclean Hunter Market Repts., Inc.*, 44 F.3d 61, 69 (2d Cir. 1994); *Kregos v. Associated Press*, 937 F.2d 700, 705 (2d Cir. 1991). Concerns are stronger for patent law, as patents grant the right to exclude from all but experimental uses, whereas a copyright excludes neither independent creations nor fair uses. *See* 35 U.S.C. § 271(a) (2000); 17 U.S.C. §§ 106, 107 (2000); Mark A. Lemley, *Should Patent Infringement Require Proof of Copying*, 105 Mich. L. Rev. 1525, 1525 (2007) (noting that the patent right “to control the use of the[] idea” is unique in both intellectual and real property law).

<sup>8</sup> *See, e.g.*, Luigi Palombi, *The Patenting of Biological Materials in the Context of the Agreement on Trade-Related Aspects of Intellectual Property Rights*, available at [http://cgkd.anu.edu.au/menus/PDFs/Palombi-PhD\\_Thesis.pdf](http://cgkd.anu.edu.au/menus/PDFs/Palombi-PhD_Thesis.pdf) (last visited Mar. 20, 2008) (comparing line drawing for patent eligibility under United Kingdom, Australian, and U.S. law).

Court will not restrict eligibility of claims that should be found patentable under Sections 102 and 103.<sup>9</sup> Rather, by articulating clear categorical exclusions, this Court will relieve officials and the public of the burdens of evaluating (or seeking) futile claims of patentable invention,<sup>10</sup> will protect against evaluation errors that encroach on the public domain, and will focus the patent system on innovations that achieve the Constitution's purposes.

**A. The U.S. Constitution Limits Patentable Subject Matter, and Historic Exclusions from Patent Eligibility Reflect These Limits.**

The U.S. Constitution poses three distinct, potential limits on legislative power to define patentable subject matter (and thus to grant patent rights to the results of the relevant creative activities).<sup>11</sup> These are:

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<sup>9</sup> Ineligible claims will be the “predictable results” or “predictable variation[s]” either of applying science, nature, or ideas (treated as prior art) to a particular context or of combining such information with insignificant physical activities, steps or structures. *KSR Int’l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727, 1739, 1740 (2007). See *Dann v. Johnston*, 425 U.S. 219, 225-29 (1976) (finding obvious, without addressing eligibility, claims employing a general purpose computer to provide bank customers with categorized information).

<sup>10</sup> See, e.g., *In re Comiskey*, 499 F.3d 1365, 1379-80 (Fed. Cir. 2007) (remanding to evaluate obviousness of claims found to be patent eligible, that “could require” “merely add[ing]” general purpose computers or modern communication devices to mental processes that must be considered prior art).

<sup>11</sup> Although *Amici* do not necessarily agree on which Constitutional language imposes such limits, all *Amici* agree that Article I, Section 8, Clause 8 imposes limits. Further, *Amici* believe that some of these limits are fundamental and may not be “eradicate[d]” by resort to Commerce Clause power. *Railway Labor Executives Ass’n v. Gibbons*, 455 U.S. 457, 469 (1982). See *United States v. Moghadam*, 175 F.3d 1269, 1279 (11th Cir. 1999).



- (1) that certain new and useful functional ideas (innovations) cannot be patented because to do so would “impede rather than ‘promote the Progress of Science and useful Arts’”<sup>12</sup>;
- (2) that patent rights must be limited to innovations in the “useful Arts” (*i.e.* granted for innovations in technological fields rather than in science, business or other non-technological fields)<sup>13</sup>; and
- (3) that not all innovations – particularly the identification of pre-existing scientific principles and natural materials – are patentable “Discoveries” of “Inventors.”<sup>14</sup>

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<sup>12</sup> *Lab. Corp. of Am. Holdings*, 126 S.Ct. at 2922 (quoting U.S. Const., Art. I, § 8, cl. 8).

<sup>13</sup> U.S. Const., Art. I, § 8, cl. 8. *See, e.g.*, Edward C. Walterscheid, *The Nature of the Intellectual Property Clause: A Study in Historical Perspective* 349-51, 365-66 (William S. Hein & Co. 2002) (discussing things “made by the hands of man” and “that which promotes the useful arts,” and citing, *inter alia*, *In re Bergy*, 596 F.2d 952, 959 (C.C.P.A. 1979)); Malla Pollack, *The Multiple Unconstitutionality of Business Method Patents: Common Sense, Congressional Consideration, and Constitutional History*, 28 Rutgers Comp. & Tech. L.J. 61, 81-19 (2002) (reviewing historic meaning and practice limiting the “useful arts” to technological inventions); John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. Rev. 1139, 1143-48, 1164-67 (1999) (describing the history of interpreting “useful art,” exceptions for business methods, and “doubt whether such innovations lie within the ‘useful Arts’”); *id.* at 1167-75 (discussing historic and modern understanding of “technology”); Sean M. O’Connor, *Using Insights From the History of Science to Redefine Patentable Subject Matter Under the IP Clause of the U.S. Constitution* 7-33 (draft Oct. 8, 2007), at <http://ssrn.com/abstract=1104899> (last visited Mar. 18, 2008) (discussing historic understanding of how “science” differed from “useful arts”).

<sup>14</sup> U.S. Const., Art. I, § 8, cl. 8. *See, e.g.*, Walterscheid, *supra* note 13, at 350, 360-65 (discussing “inventors” and “discoveries,” and historic interpretation of these

The Supreme Court has previously held that the patent power is limited both by its purpose (promoting progress) and by its object (useful arts):

The clause is both a grant of power and a limitation. This qualified authority, unlike the power often exercised in the sixteenth and seventeenth centuries by the English Crown, is limited to the promotion of advances in the ‘useful arts.’ It was written against the backdrop of the practices--eventually curtailed by the Statute of Monopolies--of the Crown in granting monopolies to court favorites in goods or businesses which had long before been enjoyed by the public.... The Congress in the exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose. Nor may it enlarge the patent monopoly without regard to the innovation, advancement or social benefit gained thereby.

*Graham v. John Deere Co.*, 383 U.S. 1, 5-6 (1966) (citation omitted). Recently, the Supreme Court reiterated that the granted power is subject to these limits, as well as to limits imposed by additional terms in the body of the Clause. *See Eldred v. Ashcroft*, 537 U.S. 186, 204, 213 (2003).

The three relevant constitutional limits are reflected in two sets of judicial restrictions interpreting the statutory subject matter provision of the Patent Act.<sup>15</sup>

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terms to exclude scientific principles but to permit “application of such principles to produce useful technological result[s]”). *Cf.* 17 U.S.C. § 102(b) (2000) (excluding protection for ideas); *Feist Pubs., Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 346-47 (1991) (holding that originality is a constitutional requirement for “Authors,” that “facts do not owe their origin to an act of authorship,” and that “one who discovers a fact is not its ‘maker’ or ‘originator’”) (citing, *inter alia*, *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58-59 (1884)).

<sup>15</sup> Since 1793, when compositions of matter were added, the statute’s language has remained stable, applying to “any new and useful [art] process, machine, manufacture, or composition.” 35 U.S.C. § 101 (2000). *See* Act of Feb. 21, 1793, ch. 11, § 1, 1 Stat. 318. In 1952, Congress recodified the subject matter provision

Although the Supreme Court has not explicitly held that these judicial restrictions are constitutionally required, it has implied that they have constitutional stature.<sup>16</sup>

The first set of restrictions cabins the permissible breadth of patent scope and assures commensurability between the inventive concept and the scope of the exclusive right (originally precluding claims to processes that were not constrained to equivalents of disclosed structures).<sup>17</sup> While these restrictions have been relaxed, statutory and potential constitutional limits on overbreadth remain. *Benson* thus expressed the concern that the claim not “wholly pre-empt the

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but did not intend any change to its scope – except to make clear that judicial precedent had permitted claims to “processes” and that the statutory term “useful art” had not been construed synonymously with the constitutional language. *See* 35 U.S.C. § 100(b) (2000); S. Rep. No. 82-1979, 1, 4, 6 (1952). Congress in 1952 thus did not intend to revise the judicial restrictions that had developed, and could not override any constitutional limits. *See Flook*, 437 U.S. at 589 (noting that *Benson* foreclosed any literal reading of Section 101’s scope and “applied the established rule that a law of nature cannot be the subject of a patent”). *Compare Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (“Congress intended statutory subject matter to ‘include anything under the sun that is made by man.’”) (quoting S. Rep. No. 82-1979, 5) *with Pollack*, *supra* note 13, at 67-68 (noting that the word “may” preceded the quoted language, which was not applied to processes).

<sup>16</sup> *See, e.g., Funk Bros. Seed Co.*, 333 U.S. at 130 (“patents *cannot* issue for the discovery of a phenomenon of nature.”) (emphasis added).

<sup>17</sup> *See, e.g., Walterscheid*, *supra* note 13, at 352-64 (discussing historic limitations to “principles of invention”); Joshua D. Sarnoff, *The Historic and Modern Doctrines of Equivalents and Claiming the Future*, Part I (1790-1870), 87 J. Pat. & Trademark Off. Soc’y 371, 382-84, 386-91 (2005) (discussing patentable principles of invention, the limited range of equivalents claimable, and the application of those principles); Joshua D. Sarnoff, *The Historic and Modern Doctrines of Equivalents and Claiming the Future*, Part II (1870-1952), 87 J. Pat. & Trademark Off. Soc’y 441, 451, 454-56 (2005) (discussing expansion of the scope and application of patentable principles that could be claimed).

mathematical formula.” 409 U.S. at 72. As noted in *Flook*, a “narrow reading” of *Benson* is “untenable.” 437 U.S. at 593. Accordingly, *Flook* rejected the argument that if “a process application implements a principle in some specific fashion, it automatically falls within the patentable subject matter of § 101.” *Id.* Rather, *Diehr* and *Flook* avoid overbreadth concerns (and necessarily avoid preemption) by requiring more than mere application of unpatentable algorithms to a “particular technological context” or for a “specific purpose.” *Diehr*, 450 U.S. at 191; *Flook*, 437 U.S. at 595. *See Flook*, 437 U.S. at 595 n.18 (a “specific end use”).

The *Diehr-Flook* standard, more effectively than *Benson*’s prohibition on preemption, protects the public from the grant of patents that would effectively bar some (but not necessarily all) otherwise permissible uses of categorically excluded science, nature, or ideas.<sup>18</sup> In addition, by requiring some other inventive concept beyond merely applying public domain information, it helps to preserve the technological nature of the patent system and prevent it from either extending to scientific principles or creating odious monopolies.<sup>19</sup>

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<sup>18</sup> *See supra* note 7.

<sup>19</sup> *See, e.g.*, Walterscheid, *supra* note 13, at 31-58 (discussing the anti-monopoly origins of the patent power under English and colonial law). *See generally* Bruce W. Bugbee, *Genesis of American Patent and Copyright Law* (Public Affairs 1967); Oren Bracha, *Owning Ideas: A History of Intellectual Property in the United States*, ch. 1 (June 2005), available at <http://www.obracha.net/oi/oi.htm> (last visited Mar. 25, 2008).

The second set of restrictions are the exclusions for “laws of nature, natural phenomena, and abstract ideas.” *Diehr*, 450 U.S. at 185 (citing, *inter alia*, *Le Roy v. Tatham*, 55 U.S. (14 How.) 156, 175 (1853)). These exclusions not only categorically prohibit patents on science, nature, or ideas, they also require such previously unknown or undisclosed information to be treated as if it were already in the public domain, without regard to its novelty or obviousness. *See Flook*, 437 U.S. at 592. These categorical exclusions reflect a fundamental belief – which can be traced back to the Early Modern period – in a social obligation to preserve free from private ownership and to disseminate pre-existing basic information.<sup>20</sup> Such

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<sup>20</sup> Pre-existing, basic information constitutes the infrastructure on which subsequent innovation and useful human activity can build, and thus to privatize such information would impose broad innovation and other social costs. *See, e.g.*, Brett M. Frischmann, *An Economic Theory of Infrastructure and Commons Management*, 89 Minn. L. Rev. 917, 942-56 (2005) (efficient allocation of rights to use basic ideas does not require exclusivity because they are non-rivalrous, non-depletable, and foundational for a wide variety of subsequent creative productive outputs). *See generally* *Infrastructure and the Complexity of Economic Development* (David F. Batten & Charlie Karlsson eds., 1996). Rather, such basic information is a public good to which access should be assured, and which should be supplied through a commons to provide extensive positive externalities. *See, e.g.*, Frischmann, *supra*, at 937. There are inherent incentives for people to discover and develop such basic information, although financial resources may be needed. *See, e.g.*, John Adams, *Discourses on Davila*, in *The Portable John Adams* 346-47, 352-53 (Penguin Classic 2004) (1790). If current incentives or resources for scientific discovery are inadequate, alternatives to patenting basic information exist. *See, e.g.*, Joseph Stiglitz, *Give Prizes Not Patents*, *New Scientist* 21 (Sept. 16, 2006), available at [http://www2.gsb.columbia.edu/faculty/jstiglitz/download/2006\\_New\\_Scientist.pdf](http://www2.gsb.columbia.edu/faculty/jstiglitz/download/2006_New_Scientist.pdf) (last visited Mar. 24, 2008); Brian D. Wright, *The Economics of Invention Incentives: Patents, Prizes, and Research Contracts*, 73 *Am. Econ. Rev.* 691 (1983).

basic knowledge and materials were not considered to be original to their human discoverers who owe social duties to share them freely with other humans.<sup>21</sup>

Protecting a public domain of science, nature, and ideas free from private ownership goes beyond reflecting these historic beliefs. It also achieves the constitutional policy of promoting progress rather than impeding sequential innovation.<sup>22</sup> As articulated by William Robinson in his seminal 1890 treatise:

To benefit by the discoveries of his fellow-men is thus not only a natural right, it is also *the natural duty which every man owes to himself and to society; and the mutual universal progress thence resulting* is the fulfillment of the earthly destiny of the human race.<sup>23</sup>

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<sup>21</sup> See, e.g., 17 The Parliamentary History of England col. 999 (William Cobbett ed., 1806-20) (1774) (Lord Camden) (scientists “are entrusted by Providence with the delegated power of imparting to their fellow creatures that instruction which heaven meant for universal benefit; they must not ... hoard up for themselves the common stock”); Christine MacLeod, *Inventing the Industrial Revolution: The English Patent System 1660-1800*, 198-203, 220-21 (Cambridge 1988) (discussing the relevant religious conceptions and changes over time from user rights to property in regard to patentable inventions); Sarnoff, *supra* note 5, at 7-12, 94-96, 135-43 (discussing religious and moral origins of the exclusions and treatment of science, nature, and ideas as commons property to be disseminated, and explaining why Lockean labor theory did not apply to such newly discovered information and materials). These animating beliefs distinguish categorically excluded public domain information from other public domain information. See *supra* note 6.

<sup>22</sup> See, e.g., Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 Colum. L. Rev. 839, 884-916 (1990) (discussing historical evidence regarding social and innovation costs of overbreadth and suggesting appropriate limits on patent claim scope); Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. Econ. Persp. 29 (1991) (discussing sequential innovation). Although the pioneering discovery of scientific principles, natural materials, and abstract ideas may be costly, time-consuming, or the product of genius, it is not the historic function of the patent system to provide rewards in the form of exclusive rights for such discoveries.

<sup>23</sup> 1 Robinson, *supra* note 5, § 25, at 39 (emphasis added).

**B. This Court Should Apply the *Diehr-Flook* Standard to Prevent Encroachment on the Public Domain of Science, Nature, and Ideas.**

The two sets of historic exclusions continue to steer the patent system clear of all three constitutional limits on the legislative power to grant patents. By requiring “[s]ignificant post-solution activity” and “some other inventive concept in its application,” the *Diehr-Flook* standard prevents encroachment on otherwise permissible public uses of categorically excluded science, nature, and ideas. *Diehr*, 450 U.S. at 191; *Flook*, 437 U.S. at 594. In applying the *Diehr-Flook* standard, this Court should seek to protect this public domain from encroachment. For two centuries, broad categorical exclusions have promoted rapid technological progress.<sup>24</sup> This Court strayed from this historic wisdom in an effort to protect new information technologies.<sup>25</sup> It can now lead the patent system back to its proper path, better effectuating the constitutional purpose of promoting progress.

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<sup>24</sup> Cf. Frederick M. Scherer, *The Political Economy of Patent Policy Reform in the United States* 27-30 (Sept. 2007 revision) (discussing recent changes to patentable subject matter and other doctrines that did not increase R&D expenditures), available at <http://www.researchoninnovation.org/scherer/patpolic.pdf> (last visited Apr. 2, 2008); Fritz Machlup & Edith Penrose, *The Patent Controversy in the Nineteenth Century*, 10 J. Econ. Hist. 1, 24 (1950) (discussing historic concerns that patent grants “*did* deprive others of what they had before: of the opportunity to evolve and use the same idea that the patentee has had,” which “deprives society of the benefits that would flow from the more widespread use of these ideas”).

<sup>25</sup> See, e.g., A. Samuel Oddi, *Assault on the Citadel: Judge Rich and Computer Related Inventions*, 39 Hous. L. Rev. 1033, 1040 (2002) (following *Diehr*, the Federal Circuit “proceeded cautiously but persistently to expand the scope of protection afforded computer-related inventions”); Richard S. Gruner, *Intangible Inventions: Patentable Subject Matter for an Information Age*, 35 Loy. L.A. L.

### **III. (Questions 3 and 4) Patent Eligibility Requires More than Trivial or Peripheral Physical Transformations, Steps or Structures.**

For claims combining mental steps with physical steps or structures, the *Diehr-Flook* standard requires another inventive concept beyond merely applying categorically excluded public domain information. The claim either must transform matter significantly or must use a machine, article, or composition for significant post-solution activity. *See also Benson*, 409 U.S. at 70 (discussing “transformation and reduction” and use of “particular machines”). The same is true for all other claims relating to such information. Although requiring *some* physical transformation to result, *some* physical steps to be employed, or *some* physical structures to be used avoids the concern that the claim may be performed solely in the mind, it is not enough for patent eligibility. It neither meets the *Diehr-Flook* standard nor protects the public domain of science, nature, and ideas from encroachment.

Claim 1 here is invalid both because it lacks any inventive concept beyond applying the abstract idea of hedging to the context of commodities purchase risks and because combining the physical steps of initiating transactions the mental step of identifying purchasers is trivial and inherent post-solution activity for any such application. But Claim 1 would remain unpatentable if it were revised to explicitly

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Rev. 355, 360 (2002) (discussing the “technological pressures” for patenting “intangible information-processing steps with useful consequences”).



require the initiating transaction steps to trivially and peripherally transform physical objects.<sup>26</sup> Similarly, Claim 1 would remain unpatentable if it were revised to add trivial and peripheral (but not inherent) physical steps, or to require trivial or peripheral physical structures for implementing the identifying purchasers or initiating transactions steps.<sup>27</sup> The physical transformation, steps, or structures would merely further restrict the ineligible abstract idea within the context of commodities risks.

If all that were required for patent eligibility was some trivial or peripheral physical transformation, the claim at issue in *Flook* would have been valid. *See*

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<sup>26</sup> For example, Claim 1 might be revised to require that written contracts be created or funds be transferred among commodity purchaser accounts. *See In re Schrader*, 22 F.3d 290, 294 (Fed. Cir. 1994) (recording “bids” by writing is an insufficient physical transformation); Supplemental Brief of Appellee Director of the United States Patent and Trademark Office, at 12, *In re Bilski*, No. 2007-1130 (Fed. Cir. Mar. 6, 2008) (“PTO Brief”) (“reciting incidental physical transformations also may not pass muster under Section 101”). The physical transformations would be entirely peripheral to the invention itself; the inventive concept of Claim 1 is not to create written contracts or to transfer funds but to hedge purchasing risks. *See Lab. Corp. of Am. Holdings*, 126 S.Ct. at 2927 (noting that the claim at issue was “*not* a process for transforming blood or any other matter,” in response to the argument that requiring physical test results resulted in transforming blood and thus rendered the claimed invention patent eligible).

<sup>27</sup> For example, Claim 1 might be revised to require recording, storing, comparing, and analyzing the initiated transactions, using a general purpose computer or the internet to identify purchasers, or using a telephone book or fiber optic cable to initiate transactions. *See* PTO Brief at 12 (determining if a method is “appropriately ‘tied to a particular apparatus’ ... may not always be a straightforward inquiry”); *id.* (“nominal or token recitations of structure” are insufficient); *id.* at 13 (claims are eligible where “machines play[] a central role in generating a useful result”).

437 U.S. at 586, 596 (requiring calculating an “alarm limit” for a process variable “involved in ... the catalytic chemical conversion of hydrocarbons”). Similarly, if some trivial or peripheral physical step were sufficient, the claim at issue in *Funk Brothers Seed Co.* would have been valid. See 333 U.S. at 131 (implicitly requiring physical “aggregation of select strains ... into one product”). And if some trivial or peripheral physical structure were sufficient, the claim at issue in *Benson* would have been valid. See 409 U.S. at 73-74 (requiring storage of signals in a “reentrant shift register”). See also *id.* at 71-72 (noting that the “formula involved here has no substantial practical application except in connection with a digital computer,” and thus use of physical computers was inherent for other claims).<sup>28</sup> Past precedents of this Court also have recognized that merely including a machine or apparatus limitation is insufficient for patent eligibility when the limit is entirely illusory (because it covers all known means of performing a calculation) or when it adds nothing meaningful to the application of patent ineligible public domain science, nature, or ideas.<sup>29</sup>

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<sup>28</sup> Cf. *Schrader*, 22 F.3d at 294 (“entering data into a ‘record’ is implicit in any application of a mathematical algorithm”); *Abele*, 684 F.2d at 909 (holding invalid a structure claim reciting “means for calculating,” given that it was “really to the [ineligible] method or series of functions itself”).

<sup>29</sup> See, e.g., *Schrader*, 22 F.3d at 294 (using paper or chalk to enter bids was “indistinguishable from ... data gathering” and “insufficient to impart patentability”) (citing *In re Grams*, 888 F.2d 835, 840 (Fed. Cir. 1989), and *In re Meyer*, 688 F.2d 789, 794 (C.C.P.A. 1982)); *Abele*, 684 F.2d at 909 (discussing limitation to a matrix of data without restriction to “what method generated” them

Thus, in applying the *Diehr-Flook* standard and in articulating categorical distinctions between eligible and ineligible claims, this Court should seek to preclude claims that reflect merely limited applications of categorically excluded public domain information, even if the claims do not limit *all* such applications. Concerns with encroachment are reduced but not eliminated by a total preemption test. *See Flook*, 437 U.S. at 590 n.11 (“it is not entirely clear why a process claim is any more or less patentable because the specific end use contemplated is the only one for which the algorithm has any practical application”).

**IV. (Question 5) The “Useful, Concrete, and Tangible Result” Test Conflicts with Binding Precedent, Was Not Ratified by Congress, Is Potentially Unconstitutional, and Should Be Restricted.**

As three Supreme Court Justices recently noted, the test articulated in *Alappat* and *State Street Bank* – that “a process is patentable if it produces a ‘useful, concrete, and tangible result’” – was not based on any Supreme Court “statement and, if taken literally ... would cover instances where th[e Supreme] Court has held the contrary.” *Lab. Corp. of Am. Holdings*, 127 S.Ct. at 2928 (citation omitted). The “useful, concrete, and tangible result” test is invalid to the

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and limitation to a shade of gray display “that provides no greater or better information, considering the broad range of applications encompassed”). *See also* Richard H. Stern, *Tales of the Algorithm War: Benson to Iwahashi, It’s Déjà Vu All Over Again*, 18 AIPLA Q.J. 371, 382 (1991) (discussing structural limitations, such as read-only memory, that “[a]s a practical matter, [exclude] nothing”).

extent that it conflicts with the binding *Diehr-Flook* precedent and the rule of law requires that this Court restrict it. The Court may and should do so here, as Claim 1 would be considered patentable subject matter under the “useful, concrete, and tangible result” test if that test were understood to require only trivial or peripheral physical transformation, steps, or structure. Particularly as it will rule *en banc*, this Court should take the opportunity to reiterate that the binding *Diehr-Flook* precedent remains the law and to disavow its precedents that conflict with the *Diehr-Flook* standard.<sup>30</sup>

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<sup>30</sup> For example, this Court should disavow cases where it held to be patent eligible claims that merely required physical activity as a prerequisite to or consequence of applying a mathematical algorithm or scientific principle (such as the “assaying a body fluid” step to obtain input data for performing a correlation in *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1358 (Fed. Cir. 2004)), or that merely perform calculations or represent calculated physical quantities (such as the “display means” for manipulated data reflecting “an input waveform” in *Alappat*, 33 F.3d at 1358-59). This Court also should disavow cases where it held to be patent eligible claims merely supplying the means for performing data calculations or manipulations to accomplish a useful result (such as the various “means” elements in the “processing data” system in *State Street Bank*, 149 F.3d at 1371-72) or merely supplying the means for obtaining data (such as the “means for selecting” element in *Comiskey*, 499 F.3d at 1379). Finally, this Court should disavow cases that have suggested patent eligibility of claims that merely provided a physical structure for public domain information as a prerequisite to its use (such as the “‘storage medium having stored thereon’ a signal” in *In re Nuitjen*, 500 F.3d 1346, 1365 (Fed. Cir. 2007) (relying on *In re Lowry*, 32 F.3d 1579, 1581 (Fed. Cir. 1994) (a “data structure” stored in computer memory), and *In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995) (computer program product claims)). They should be held ineligible even though invalid for obviousness under the printed matter doctrine – the converse of the other inventive concept requirement for abstract ideas. See, e.g., *Nuitjen*, 500 F.3d at 1365-66 (noting the relationship to Section 101 and to *Flook*); *In re Gulack*, 703 F.2d 1381, 1387 (Fed. Cir. 1983) (noting that

This Court should not construe Section 273 of the Patent Act to have impliedly or effectively ratified the “useful, concrete, and tangible result” test as applied in *State Street Bank* for business methods (or for any other claims), thereby overruling the binding *Diehr-Flook* precedent for some or all subject matter. Congress was clearly aware of the *State Street Bank* decision, and of the dramatic change to interpretation of Section 101 standards that that decision reflected.<sup>31</sup> But the *State Street Bank* decision did not motivate the enactment of Section 273’s prior user rights provision. Rather, it motivated restriction of that provision to business methods from an earlier and broader proposal.<sup>32</sup> Congress did not approve of this Court’s decision, but focused on business methods because it felt that the strongest fairness arguments for a prior user defense existed in regard to

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printed matter lacks patentable weight in the absence of a “functional relationship”).

<sup>31</sup> See, e.g., H.R. Rep. 106-464, 121 (1999) (Conf. Rep.) (“business methods and processes, many of which until recently were thought not to be patentable”); *id.* at 122 (the “1998 opinion ... in *State Street Bank* ... which held that methods of doing business are patentable, has added urgency to the issue.... [T]housands of methods and processes used internally are now being patented.”). See also H.R. Rep. 106-287, 45-46 (1999) (“many businesses ... thought secrecy was the only protection available,” and such methods “previously had been thought to be unpatentable”); Cong. Rec. E1789 (Aug. 5, 1999) (speech of Rep. Coble) (same); Cong. Rec. S13259 (Oct. 27, 1999) (statement of Sen. Hatch) (same).

<sup>32</sup> See, e.g., Cong. Rec. H6944 (Aug. 3, 1999) (statement of Rep. Rohrbacher). Cf. H.R. Rep. 106-464, 121 (noting importance of the “earlier-invention defense” to “any business that relies on innovative business processes and methods”).

the newly patentable subject matter.<sup>33</sup> As stated by Senator Schumer, Section 273 “should be viewed as just the first step in defining the appropriate limits and boundaries of the State Street decision.... I believe that it is time for Congress to take a closer look at the potentially broad and, perhaps, adverse consequences of the State Street decision.”<sup>34</sup>

Ratification should not be found here, given that Congress did not amend Section 101 or otherwise specifically address patent eligibility.<sup>35</sup> Instead, Congress created only an isolated change to the law that responded to specific concerns raised by this Court’s changed interpretation of Section 101. *See, e.g., Alexander v. Sandoval*, 532 U.S. 275, 292 (2001) (“when, as here, Congress has not comprehensively revised a statutory scheme but has made only isolated amendments, we have spoken more bluntly: ‘It is “impossible to assert with any

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<sup>33</sup> *See, e.g.,* Cong. Rec. S14836 (Nov. 18, 1999) (statement of Sen. Schumer) (the “decision has raised questions about what types of business methods may now be eligible for patent protection.... It has created doubt regarding whether or not particular business methods ... might now suddenly become subject to new claims under the patent law.”); Cong. Rec. H6947 (Aug. 3, 1999) (statement of Rep. Manzullo) (Congress “felt that those who kept their business practices secret had an equitable cause not to be stopped by someone who subsequently reinvented the method”). Congress limited the defense to business methods because it believed that the law had been changed only in regard to such methods. *See id.*

<sup>34</sup> Cong. Rec. S14836 (Nov. 18, 1999) (statement of Sen. Schumer)

<sup>35</sup> Congress expressly acknowledged that *State Street Bank* altered the law in regard both to “the business method exception” and to “the essential question of whether the invention produced a ‘useful, concrete, and tangible result.’” H.R. Rep. 106-464, 122. However, Congress did not approve of that result. Rather, it noted only that the new defense applied to systems as well as to processes. *See id.* at 123.

degree of assurance that congressional failure to act represents” affirmative congressional approval of the Court’s statutory interpretation.””) (citations omitted). Similarly, ratification should not be found here, given that the *State Street Bank* holding was a significant change to the law and conflicted with binding Supreme Court precedent. *See, e.g., Central Bank of Denver v. First Interstate Bank of Denver*, 511 U.S. 164, 185 (1994) (ratification is implied when Congress “reenact[s] statutory language that has been given a consistent judicial construction”).<sup>36</sup> Had Congress thought that adopting a new defense to liability might affect subsequent interpretation of Section 101, it could have expressed its intent either to alter or to preserve earlier law – as it did with regard to Sections 102 and 103. *See* 35 U.S.C. § 273(b)(9) (2000).<sup>37</sup>

Moreover, ratification of the “useful, concrete, and tangible result” test as applied in *State Street Bank* would pose serious constitutional concerns by authorizing patents for claims reflecting only insignificant post-solution activity. The test would thereby encroach on permissible public uses of categorically

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<sup>36</sup> *Cf. Food and Drug Admin. v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 157 (2000) (finding effective ratification from enactment of a specific set of separate regulatory provisions, at a time when the agency’s interpretation had historic “consistency”); *Brown v. Gardner*, 513 U.S. 115, 121 (1994) (“[w]here the law is plain, subsequent reenactment does not constitute an adoption of a previous administrative construction.”) (citation omitted); *Fogerty v. Fantasy*, 510 U.S. 517, 532 (1994) (rejecting effective ratification and noting that “this is hardly the sort of uniform construction that Congress might have endorsed.”).

<sup>37</sup> *See also* H.R. Rep. 106-464, 124-25; H.R. Rep. 106-287, 49.

excluded public domain information, potentially extending protection beyond any inventive concept properly attributable to the applicant and retarding rather than promoting sequential innovation. It would require patents for non-technological inventive concepts, extending protection to activities that may not be within the useful arts (however broadly or narrowly that category is construed).

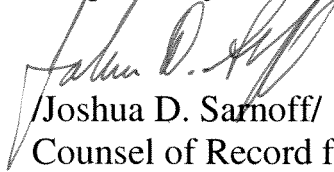
Given the reasonable alternative interpretation discussed above, this Court should not construe Section 273 to have ratified the “useful, concrete, and tangible result” test as applied in *State Street Bank*. See, e.g., *Gomez v. United States*, 490 U.S. 858, 864 (1989) (describing “settled policy to avoid an interpretation of a federal statute that engenders constitutional issues if a reasonable alternative interpretation poses no constitutional question”); *Ashwander v. Tennessee Valley Auth.*, 297 U.S. 288, 346-48 (Brandeis, J., concurring) (establishing the policy). Finding such ratification would force the Court to decide whether Section 101 (at least since 1999) is constitutional. Cf. *Richardson v. United States*, 526 U.S. 813, 820 (1999) (“We have no reason to believe that Congress intended to come close to, or to test, those constitutional limits when it wrote this statute”). Without ratification, the binding *Diehr-Flook* precedent remains the law and avoids any such constitutional concerns.



## CONCLUSION

For the foregoing reasons, this Court should: hold that Claim 1 is invalid because it is not patent eligible under Section 101; recognize that binding Supreme Court precedents avoid constitutional concerns and seek to apply those precedents to protect the public domain of science, nature, and ideas from encroachment; acknowledge that patent eligibility requires more than trivial or peripheral physical transformations, steps or structures; and restrict the “useful, concrete, and tangible result” test of *State Street Bank* to – and disavow precedents of this Court to the extent they are inconsistent with – the *Diehr-Flook* standard.

Respectfully submitted,



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April 7, 2008

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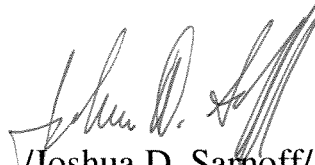
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## CERTIFICATE OF COMPLIANCE

Pursuant to Rule 32(a)(7)(C) of the Federal Rules of Appellate Procedure, I certify that the foregoing Brief of *Amici Curiae* Ten Law Professors in Support of Appellee Director of the United States Patent and Trademark Office complies with the type volume limitations of Rule 29(d) of the U.S. Court of Appeals for the Federal Circuit and this Court's February 15, 2008 Order. I further certify that the body of this brief – not including the cover page, table of contents, table of authorities, Appendix, and certificates – contains 6,999 words as determined by Microsoft Word 2003, including the statement of interest, summary of argument, headings, footnotes, quotations, signature lines, and date.



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**CERTIFICATE OF SERVICE**


I, Joshua D. Sarnoff, hereby certify that I caused two copies of the foregoing Brief of *Amici Curiae* Ten Law Professors in Support of Appellee Director of the United States Patent and Trademark Office to be served this 7<sup>th</sup> day of April, 2008, by first class mail, postage prepaid, upon each of the following sets of Counsel:

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