

IN THE

Supreme Court of the United States

JAMES BONGIORNO,

Supreme Court, U.S. FILED OCT 192021

ORIGINAL

v.

DREW HIRSHFELD,

Respondent.

Petitioner

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

PETITION FOR A WRIT OF CERTIORARI

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Section 101 of the Patent Act provides that "[w]hoever 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." The decision in Alice Corp. Pty. Ltd. v. CLS Bank Int'l. 573 U.S. 208, 212, 221, and 226 (2014), found a method of "mitigating 'settlement risk" to be a patent-ineligible "abstract idea implemented on a generic computer." However, since that decision did not need to "delimit the precise contours of the 'abstract ideas' category," the bounds of the category have expanded unabated, vacating rights afforded by section 101 for a new and improved machine. The questions presented are:

1. Whether a new and non obvious "dedicated electronic unit" with new hardware structures including a plurality of "special function buttons [to] enable the user to more easily navigate through the software" (App. 73a), which "increase its usefulness," and its "effectiveness," is a patentable "machine" in accordance with *Cantrell v. Wallick*, 117 U.S. 689, 694 (1886).

2. Whether presumptive patent-eligibly of a "new and useful improvement" to a "machine" under section 101 is eviscerated because the analog of the mechanical functionality provided by the physical "machine" components (e.g., the "function buttons") and the corresponding software functionality of the "dedicated electronic unit" can be programmed to operate in a similar manner using the touch screen of a "generic computer."

PARTIES TO THE PROCEEDINGS

Petitioner (appellant below) is James Bongiorno. Respondent (appellee below) is Drew Hirshfeld, Director of the United States Patent and Trademark Office.

RELATED PROCEEDINGS

• *Ex parte James Bongiorno*, PTAB Appeal 2019: 000130, judgment entered on March 20, 2020.

• In re: James Bongiorno, Case No. 20-1835 (Fed. Cir.), judgment entered on May 19, 2021.

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PETITION FOR WRIT OF CERTIORARI

James Bongiorno respectfully petitions for a writ of certiorari to review the judgment of the United States Court of Appeals for the Federal Circuit.

OPINIONS BELOW

The Federal Circuit's order denying rehearing *en banc* is unreported. App. 1a-2a. The panel opinion of the Court of Appeals for the Federal Circuit is reported at 857 F. Appx. 637 (Fed. Cir. 2021). App. 3a-11a. The decision of the Patent Trial and Appeal Board is unpublished but available at 2020 WL 1443650 (PTAB 2020). App. 12a-51a.

JURISDICTION

The Federal Circuit entered judgement on May 19, 2021, and denied Appellant's timely petition for rehearing *en banc* on July 23, 2021. App. 1a-11a. This Court has jurisdiction under 28 U.S.C. 1254(1).

CONSTITUTIONAL AND STATUTORY PROVISIONS

Article I, Section 8, Clause 8 of the Constitution provides: [The Congress shall have power...] "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."

Section 101 of Title 35 of the U.S. Code provides: "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."

INTRODUCTION

There is growing inconsistency and lack of clarity in U.S. patent-eligibility jurisprudence, stemming in large part from the development of one technological innovationa generic computer that may be uniquely programmed by software code to perform specific functionality. Since the binary code of a software program is by itself neither a machine, process, composition of matter, nor an article of manufacture, and the hardware components of the generic. computer remain unchanged, externally, the physical nature of the "machine" is not "new." While the Court's decision in Mayo addressed particular claims directed to "mitigating 'settlement risk'," confusion surrounding patent eligibility is proliferating due to unbridled use of the three exceptions to the patent statute to invalidate claims other than an abstract process implemented on a generic computer.

This growing uncertainty in patent-eligibility jurisprudence prompted a bi-partisan letter from four U.S. Senators to Drew Hirshfeld, the Commissioner for Patents, asking that a request for information be published to assist with prospective legislation that would address the uncertainty, and alleviate its adverse impact on innovation. Letter Re: The State of Patent Eligibility Jurisprudence in the United States, from Senators Tillis, Hirono, Cotton, and Coons, to Drew Hirshfeld, Director, PTO (Mar. 5, 2021). www.tillis.senate.gov/services/files/04D9DCF2-B699-41AC-BE62-9DCA9460EDDA.

However, some of the same challenges with respect to the patent eligibility of a computer and computer programs have persisted without resolution. In the case of *In re Prater*, 415 F.2d 1378, 1393 (C.C.P.A. 1968), the Court of Customs and Patent Appeals noted more than half a century ago that

"Some have approached this case as though we were obliged to decide a momentous question of public policy: *should* computer programs be patentable? That is the problem the Patent Office presented to Congress, where the question belongs...

But we are not at all concerned with what ought to be. We are not a policy-making body but a court of law. The simple question which has been before us is whether appellants' claimed process and apparatus are patentable *under the existing statutes.*"

The legislative responsibility with respect to "software" constituting a statutory category of patenteligible subject matter has also been noted in this Court's opinions. *Gottschalk v. Benson*, 409 U.S. 63, 72 (1972) ("It may be that the patent laws should be extended to cover these programs, a policy matter to which we are not competent to speak. The President's Commission on the Patent System rejected the proposal that these programs be patentable...").

Action by Congress will increasingly become necessary for the patent statue to encompass twenty first century technological innovations wholly unforeseeable when Thomas Jefferson crafted the eligible categories of subject matter in the 1793 patent statute, Graham v. John Deere Co., 383 U.S. 1, 7 (1966), which remain substantially unchanged. Bilski v. Kappos, 561 U.S. 593, 632 (2010) (Stevens, J., concurring) ("Three years later, Congress passed the Patent Act of 1793 and slightly modified the language to cover "any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement on any art, machine, manufacture or composition of matter."). However, two narrow questions can nonetheless be addressed by this Court today to provide a positive guidepost for the patent eligibility of new "machine" consisting of hardware improvements, i.e., the "travel itinerary device" of Appellant's claim 56, in order to limit expansion of the non-textual "abstract ideas" exceptions to the statute, in the same instructive manner that was provided by the opinion in *Diamond v. Diehr*, 450 U.S. 175, 192 (1981).

The section 101 rejection of the hardware utilized to create a "dedicated electronic unit," including "mechanical buttons" that form a "custom device" (App. 103a, 105a) necessitate the questions presented herein, which are

distinct from the early inquiry as to whether "a programmed [generic] computer was structurally different from the same computer without that particular program..." *Diamond v. Diehr*, 450 U.S. at 202 (Stevens, J., dissenting). A decision in this case instead concerns the patent-eligibility of a machine that is physically different, rather than merely changing software code to create a different "*digital*" machine. *Amdocs (Israel) Limited v. Openet Telecom, Inc.*, 841 F.3d 1288, 1318 (Fed. Cir. 2016) (Reyna, J., dissenting); *In re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994) (en banc).

This Court's conclusion in *Bilski v. Kappos*, 561 U.S. at 613, is even more applicable today, that "in light of the uncertainty that currently pervades this field, it is prudent to provide further guidance."

In the absence of additional guidance at this time, "human made inventions," Diamond v. Chakrabarty, 447 U.S. 303, 313 (1980), in the form of a new "machine" that possesses different and improved physical structures, will increasing be deemed a patent-ineligible "abstract idea," abrogating the intent of Congress that "patent laws would be given wide scope" to "ensure that 'ingenuity should receive a liberal encouragement'." Bilski v. Kappos, 561 U.S. at 601.

Without a positive ruling in an appropriate case, this Court's words of caution regarding the need to "tread carefully" will become meaningless, effectively enabling the "exclusionary principle" to Section 101 to "swallow all of patent law." *Alice*, 573 U.S. at 217.

I. Legal Background

A. The Plain Text of Section 101 and the Three Judicially Created Exceptions

Section 101 provides that "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. 101.

The broad language of the statute was specifically crafted to "include anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. at 309 (quoting S. Rep. No. 1979, 82d Cong., 2d Sess., at 5 (1952); H. R. Rep. No. 1923, 82d Cong., 2d Sess., at 6 (1952)).

The plain text of Section 101 does not include any exceptions. However, this Court has "long held" that it nonetheless contains three "implicit" exceptions: "Laws of nature, natural phenomena, and abstract ideas are not patentable." *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012).

The implicit exceptions are based on the premise that "basic tools of scientific and technological work," such as "mental processes," and a "fundamental truth," such as Einstein's discovery that energy and mass are interchangeable per the equation $E=mc^2$, are "not patentable," Gottschalk v. Benson, 409 U.S. at 67; they constitute "manifestations of ... nature, free to all men and reserved exclusively to none." Diamond v. Chakrabarty, 447 U.S. at 309.

This Court had long ago sought to prevent the grant of a patent monopoly based upon such exceptions to the then existing Patent Act, believing it "would discourage arts and manufactures, against the avowed policy of the patent laws." *LeRoy v. Tatham*, 55 U.S. 156, 175 (1852). That view of the Court remains unchanged. *Mayo*, 566 U.S. at 71 ("[M]onopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it.").

However, "all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas." *Mayo*, 566 U.S. at 71. Therefore, "an invention is not rendered ineligible for patent simply because it involves" one of the exceptions. *Alice*, 573 U.S. at 217, and "an *application* of [an ineligible exception] to a known structure or process may well be deserving of patent protection." *Diehr*, 450 U.S. at 187 (emphasis in original).

B. Cases Defining the Abstract-Idea Exception

In Gottschalk v. Benson, 409 U.S. at 64, a claimed "method for converting binary-coded decimal (BCD) numerals into pure binary numerals" was "not limited to any particular art or technology, to any particular apparatus or machinery, or to any particular end use." This Court found the claim to be ineligible, since "one may not patent an idea" and "in practical effect that would be the result if the formula for converting BCD numerals to pure binary numerals were patented in this case," and because a patent on the "mathematical formula involved here... would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself." *Id.* at 71-72.

In Parker v. Flook, 437 U.S. 584, 585 (1978), the patent claims appealed were for a "Method for Updating Alarm Limits." The "presence of specific 'post-solution' activity-- the adjustment of the alarm limit to the figure computed according to the formula," failed to distinguish the claims from the holding in Benson. Parker, 437 U.S. at 590. This Court adopted an earlier explanation of the Court of Customs and Patent Appeals, that "if a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory." (Quoting, In re Richman, 563 F. 2d 1026, 1030 (Fed. Cir. 1977)). The claimed "formula itself was an abstract idea." *Alice*, 573 U.S. at 222.

In *Bilski*, 561 U.S. at 599-600, claims of a patent application were rejected by a Patent Examiner, who explained that it "is not implemented on a specific apparatus and merely manipulates [an] abstract idea and solves a purely mathematical problem without any limitation to a practical application, therefore, the invention is not directed to the technological arts." This Court affirmed, as the claims sought "to patent both the concept of hedging risk and the application of that concept to energy markets," and were "not patentable processes but attempts to patent abstract ideas." *Id.* at 595.

In Mayo, 566 U.S. at 72, the appealed claims were for "processes that help doctors who use thiopurine drugs to treat patients with autoimmune diseases determine whether a given dosage level is too low or too high," and apply natural laws describing the purported "to relationships between the concentration in the blood of certain thiopurine metabolites and the likelihood that the drug dosage will be ineffective or induce harmful sideeffects." The claimed process included "several unconventional steps (such as inserting the receptacle, applying heat to the receptacle externally, and blowing the air into the furnace) that confined the claims to a particular, useful application of the principle." Id. at 84. But the "prohibition against patenting abstract ideas `cannot be circumvented by attempting to limit the use of the formula to a particular technological environment." Id. at. 67. This Court concluded that "the patent claims at issue here effectively claim the underlying laws of nature themselves," and were "consequently invalid," Id. at 92, reasoning that "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." Id. at. 85.

In *Alice*, 573 U.S. at 213, the "claims at issue relate to a computerized scheme for mitigating 'settlement risk'- i.e., the risk that only one party to an agreed-upon financial exchange will satisfy its obligation," in which "the exchange of financial obligations between two parties [is] by using a computer system \mathbf{as} а third-party intermediary." The "patents in suit claim (1) the foregoing method for exchanging obligations (the method claims), (2) a computer system configured to carry out the method for exchanging obligations (the system claims), and (3) a computer readable medium containing program code for performing the method of exchanging obligations (the media claims)." Id. at. 214. This Court found that the "claims are drawn to the abstract idea of intermediated settlement," Id. at. 218, and "[1]ike the risk hedging in Bilski, the concept of intermediated settlement is 'a fundamental economic practice long prevalent in our system of commerce." Id. at. 219. The opinion noted that the Court "need not labor to delimit the precise contours of the 'abstract ideas' category" in this case, because it "is enough to recognize that there is no meaningful distinction between the concept of risk hedging in Bilski and the concept of intermediated settlement at issue here," as "[b]oth are squarely within the realm of 'abstract ideas' as we have used that term." Id. at. 221. At "the second step in Mayo's framework," the "method claims, which merely computer implementation, fail require generic to transform that abstract idea into a patent-eligible invention." Id. Also, the "claims to a computer system and a computer-readable medium fail for substantially the same reasons," because "what petitioner characterizes as specific hardware a 'data processing system' with a 'communications controller' and 'data storage unit,'...is purely functional and generic," as those components are found on "[n]early every computer," for the same purpose of "performing the basic calculation, storage, and transmission functions required by the method claims." Id. at. 226. Therefore, "none of the hardware recited by the system claims 'offers a meaningful limitation beyond generally linking "the use of the [method] to a particular technological environment," that is, implementation via

computers." *Id.* The Court found that the "system and media claims add nothing of substance to the underlying abstract idea," and held "that they too are patent ineligible under §101." *Id.* at. 227.

C. The Patentability of a New "Machine"

In LeRoy v. Tatham, 55 U.S. at 171-72, an "action was brought in the Circuit Court to recover damages for an alleged infringement of a patent," where "the invention consists 'in certain improvements upon, and additions to, the machinery used for manufacturing pipes...'" The jury verdict was for the plaintiff. Id. at 159. The patentees declared that they "do not claim as [their] invention and improvement, any of the parts of the above-described independently of its arrangement machinery. and combination above set forth," and instead claimed "the combination of the following parts above described, to wit: the core and bridge, or guide piece, with the cylinder, the piston, the chamber and the die, when used to form pipes of metal, under heat and pressure, in the manner set forth, or in any other manner substantially the same." Id. at 172. The Court found that there was error in a jury instruction to the effect "that the novelty of the combination of the machinery, specifically claimed by the patentees as their invention, was not a material fact for the jury, and that on that ground, the judgment must be reversed." Id. at 177. The Court's opinion included the following, Id. at 175:

> "The elements of the power exist; the invention is not in discovering them, but in applying them to useful objects. Whether the machinery used be novel, or consist of a new combination of parts known, the right of the inventor is secured against all who use the same mechanical power, or one that shall be substantially the same."

In Seymour v. Osborne, 78 U.S. 516, 533-34 (1871), an infringement of five letters patent related to a "new and useful improvement in harvesters" and a "new and useful improvement in reaping machines." The opinion noted that "[i]nventions secured by letters patent sometimes, though rarely, embrace an entire machine," and that "[p]atented inventions are also made which embrace both a new ingredient and a combination of old ingredients embodied machine." Id. in the same at 541. Moreover, "Improvements in machines protected by letters patent may also be ... where all the ingredients of the invention are old, and where the invention consists entirely in a new combination of the old ingredients, where by a new and useful result is obtained ... " Id. at 542. The Court's opinion included the following, Id. at 548:

> "New and useful machines are the proper subjects of an application for a patent, and so, by the express words of the act of Congress, are new and useful improvements on any machine...

> Particular changes may be made in the construction and operation of an old machine so as to adapt it to a new and valuable use not known before, and to which the old machine had not been, and could not be, applied without those changes, and, under those circumstances, if the machine, as changed and modified, produces a new and useful result, it may be patented, and the patent will be upheld under existing laws.

> Such a change in an old machine may consist merely of a new and useful combination of the several parts of which the old machine is composed, or it may consist of a material alteration or modification of one or more of the several devices which entered into its construction, and whether it be the one or the other, if the change of construction and operation actually adapts the machine to a new and valuable use not known before, and it actually produces a new and useful result, then a patent may be granted for the same, and it will be upheld as a patentable improvement.

The Court found that "[a]ll of the patents embraced in the suit ... consist of a new combination of old elements whereby a new and useful result is obtained," *Id.*, and that the "patents are valid." *Id.* at 560.

In Loom Co. v. Higgins, 105 U.S. 580, 581 (1882), relief was sought "for an alleged infringement by the defendants of certain letters patent for improvements in looms for weaving pile fabrics." This Court held that "[i]t may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result, never attained before, it is evidence of invention." Id. at 591. Moreover, "[a] new combination of known devices, producing a new and useful result (as that of greatly increasing the effectiveness of a machine), is evidence of invention, and may be the subject of letters-patent." Id. at 580. The Court concluded that "[i]t was certainly a new and useful result to make a loom produce fifty yards a day when it never before had produced more than forty; and we think that the combination of elements by which this was effected, even if those elements were separately known before, was invention sufficient to form the basis of a patent." Id. at 591.92.

In Cantrell v. Wallick, 117 at 690, "a bill in equity" was "filed by Wallick...to restrain the infringement by Cantrell and Petty...of letters patent granted to Wallick" for an "improvement in apparatus for enamelling mouldings." The first defense was "based on the theory that a patent cannot be valid unless it is new in all its elements as well as in the combination, if it is for a combination." Id. at 694. However, the Court found that the "theory cannot be maintained," because "[i]f it were sound no patent for an improvement on a known contrivance or process could be valid," and "yet the great majority of patents are for improvements in old and well known devices, or on patented inventions." Id. The Court held that "[c]hanges in the construction of an old machine which usefulness are patentable," increase its citing Seymour v. Osborne, 11 Wall. 516," and that "a new combination of known devices, whereby the effectiveness of a machine is increased, may be the subject of a patent,"

citing "Loom Co. v. Higgins, 105 U.S. 580; Hailes v. Van Wormer, 20 Wall. 353." Id.

2. The Sole Claim at Issue- Claim 56

This case involves the appeal of only claim 56 of U.S. Patent Application Serial No. 12/910,790 (the '790 Application). Claim 56 includes the recitations of claims 1, 2, 3, 4, 6, 7, 8, 36, 50, and 54, which read as follows:

1. A travel itinerary device comprising:

a housing;

. . .

a non-transitory computer readable program storage medium having computer readable program code embodied therein, said computer readable code being configured for planning of a travel itinerary;

a database of travel information, relating to a destination, stored in said non-transitory computerreadable program storage medium;

a viewing screen;

a processor for executing said computer readable code, said computer readable code comprising instructions for accessing said database of information on said nontransitory computer-readable program storage medium, and for causing displaying, on said viewing screen, of one or more image screens permitting selective planning of said travel itinerary;

a plan itinerary button, an alter itinerary button, and one or more additional buttons configured, when toggled, for communicating a selection, from among a plurality of options displayed within said one or more image screens, to said processor, and for permitting selective entry of one or more characters;

wherein said selective planning comprises actuating said plan itinerary button for causing displaying of a first image screen by said instructions, said first image screen configured for selecting a first itinerary template and one or more additional itinerary templates from among a plurality of said additional templates, said first itinerary template comprising a template for entering of a number of days for said itinerary, an arrival city and a departure city, and for selecting of one of a plurality of graduated levels of a tour schedule intensity, each of said graduated levels of said tour schedule intensity comprising a range of hours for touring for each of said number of days; each of said plurality of additional itinerary templates comprising a respective list of sites relating to a category of said additional template, with a portion of said list of sites in each said selected one or more additional itinerary templates being used to form a complete travel itinerary, said complete travel itinerary comprising a sequence of sites, for each of said number of days, with said sequence of sites being optimized to include as many sites as possible in said range of touring hours, for touring at the destination;

wherein said selective planning further comprises said alter itinerary button configured for causing displaying of a customizing image screen, said customizing image screen permitting, but not requiring, customizing of said sequence of sites of said complete itinerary, using selective access to said database of travel information, for creating a customized sequence of sites for a complete customized travel itinerary; and

wherein said computer readable code is configured for retrievably storing said selective planning within said program storage medium; and

a use itinerary button, said use itinerary button configured, when actuated, for causing displaying of a guidance screen configured for communicating with a GPS receiver for providing guidance during executing of said travel itinerary at the destination, said guidance comprising providing directions to any of said sequence of sites from a current location of said travel itinerary device

[2...] wherein said customizing image screen is configured for: removing of one or more of said sites of said sequence of sites; for adding of other sites, by selecting from a list of said sites; and for reordering of one or more sites in said sequence of sites.

[3...] said first template further permitting entering of a total number of desired cities for touring at the destination; and said instructions using a portion of said list of sites in each said selected additional templates for each of said desired cities, for adding sites at each of said desired cities to said sequence of sites.

[4...] wherein said instructions are configured for optimizing said sequence of sites for including as many sites as possible in said range of touring hours, based upon a minimum recommended viewing time for each of said sites. [6...] wherein said list of sites in each of said additional itinerary templates comprises an ordered list of sites, said ordered list of sites being ordered according to one or more of: a popularity of said sites, and a significance of said sites; and wherein said using of said portion of said sites in said one or more additional templates for said itinerary comprises using said sites therein according to said ordered list.

[7...] wherein said instructions are configured for providing one or more of: a default city for said arrival city, a default city for said departure city, and one or more default cities corresponding to said total number of desired cities.

[8...] further comprising a GPS receiver; and wherein said guidance screen is configured for selective displaying of:

said sequence of sites of said travel itinerary;

- a scalable map region for one or more of said sites of said travel itinerary; and
- wherein said providing of directions to any of said sites of said travel itinerary comprises providing direction based on a current GPS location of said device.

[36...] further comprising an en route detour button configured for causing, when actuated, displaying of a detour option screen on said viewing screen, said detour option screen configured for identifying alternative nearby sites in close proximity to a current location of said device.

[50...] further comprising:

a sound generator;

a microphone;

- a language database stored in said storage medium;
- a translate phrase button configured, when actuated, for causing displaying of a language translation screen on said viewing screen, said language translation screen configured for translating one or more words entered into said device in a first language, into a second language being used at the destination, and to cause said sound generator to articulate said translated one or more words; and
- one or more speech recognition algorithms configured for translating a response in said language used at the destination into said first language.

[54...] being further configured for using said sound generator for providing alarm prompts for giving notice of when a visit at one site of said sequence of sites is scheduled to end, and movement towards a next site in said sequence of sites is to begin.

[56...] wherein *each of said buttons comprises a mechanical button* configured to be manually depressed to be actuated.

3. Written Description of the Claimed "Device"

The "travel itinerary device" of claim 56 is described as a "specially designed mobile device" (App. 96a), which is formed of a combination of new and non-obvious hardware and new and non-obvious software that is usable to plan a travel itinerary and to assist a traveler in execution of that itinerary while touring at the destination. App. 52a; App. 111a.

The device includes particular "mechanical buttons" (App. 68a, lines 18.19; App. 97a, line 15) protruding from the front face of the "housing," and may include "hardwired circuitry" (App. 107a, lines 19-21) which facilitate its use "by...depressing" of the "mechanical buttons" (App. 105a, lines 15.16) to launch particularly structured graphical user interfaces (GUIs). App. 79a, line 1.

The '790 specification describes that the claimed "device" is "a dedicated electronic unit or article that is specially designed for such planning" (App. 69a, line 5), and which is explicitly described as a "custom device" (App. 105a, line 8; and see App. 103a, line 11: "...software running on a custom or preferred mobile computing device may preferably provide two additional different types of communication...").

Constructing a "custom" tailored and "specially designed" device that includes the described and claimed "mechanical buttons," (e.g., the claimed "Plan Itinerary" button, "Alter Itinerary" button, "Use Itinerary" button, "En Route Detour" button, and "Translate Phrase" button, App. 73a, lines21-22; App. 74a, lines 3 and 8), is advantageous for a traveler in planning and executing the itinerary, including that the "special function buttons and keys, as mentioned above, [] enable the user to more easily navigate through the software..." App. 73a, lines 17-18. The specification describes and the figures illustrate two versions of this "custom device." FIGS. 1-68 (App. 111a-182a) illustrate the first embodiment, and FIGS. 69-70 (App. 183a-184a) illustrate the second embodiment. The "custom device" of FIGS. 1 and 69-70, are shown below.





Another advantage of the "custom device" is its use of particular batteries, i.e., "18650 lithium-ion" batteries (App. 105a, lines 9-13), in a compartment configured for easy access and quick replacement of depleted batteries using a "battery access panel." App. 68a; App. 184a.

Upon toggling of the "Plan Itinerary" button of the "custom device," as shown in FIG. 2, the "central information region 24 displays a list of options, each of which may comprise a specialized template from which the itinerary planning may proceed..." App. 74a, lines 18-20. These "templates" constitute "specific databases of travel related materials" (App. 57a, line 20) that "group or organize touring options according to certain methods of planning, certain viewing possibilities, and possibly according to certain categories of vacation attributes or parameters..." (App. 74a, lines 20-22; App. 76a, lines 22-23; App. 77a, line 21; App. 87a, line 12; and (App. 78a, lines 6-7).

The "custom device" of FIG. 2, showing toggling of the "plan itinerary button 32" and the resulting GUI being displayed on the screen, is reproduced below:



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FIGURE 2

Examples of the templates that may be selected in the screen of FIG. 2 are shown in FIG. 3 (App. 113a), FIG. 6A (App. 120a), FIGS. 9-10 (App. 123a – App. 124a), FIGS. 12-16 (App. 126a – App. 130a), and FIG. 37 (App. 151a), each of which illustrate highly structured GUIs that may initially be used for defining the traveler's framework for a complete itinerary for personalized touring at the destination.

The GUI in the display screen portion of the "custom device" shown in FIG. 3 is reproduced below:

As other "templates" and "sub-templates" are used for creating the traveler's framework for the itinerary. (App. 79a, line 8), the travel planner is also presented with "different options...depending upon which portion of the planned itinerary is highlighted...including: viewing the possible sites or special events that may be available..." App. 83a, lines 5-8.

FIGS. 18-24 (App. 132a-138a) illustrate "templates" that may be utilized to allocate "tour sites" in accordance within the traveler-defined framework to produce a "complete itinerary," where a tour "site" may be "a place, a structure, or an event, or some combination of those three..." App. 77a, line 21. For example, "[w]ith Rome highlighted, as in Figure 17, hitting the enter key with "View Rome Site Options" being highlighted, may result in the display of Figure 18." App. 131a-132a; App. 86a, lines 21-22.

The GUI of the "custom device" of FIG. 18 is shown below:

MODE: Plan Itinerary / <u>Rome / Venice</u> / <u>Liguria Region</u> / Rome Site Options /				
ITINERARY #1	Minimum Recommended Audio Viewing Time <u>Tours</u>			
1) PRE-PLANNED TOURS (1-Day	, 2-Day)			
$\rightarrow \underline{2) \text{ COLOSSEUM}}_{3) \text{ VATICAN CITY}}$	30 min 30/60/90 min			
4) PANTHEON				
5) ROMAN FORUM				
6) GALLERIA BORGHESE				
7) MUSEI CAPITOLINI				
8) MUSEO NATIONALE ROMANO				
9) SANTA MARIA DEL POPOLO				
10) SAN CLEMENTE				
MORE ROME SITE OPTIONS (use ↑↓ Up/Down Keys)				
OPTIONS (Shift plus [†] Up/Down Keys): ↓	1) View Colosseum Photo 2) View Colosseum Description 3) View Colosseum Area Map 4) Add to ROME Site Itinerary 5) Return to Vacation Itinerary List 6) Save Itinerary			

- The "custom" device populates a traveler-developed framework with user-selected and device-allocated "sites" according to particular rules, including at least: the number of hours defined for the "Touring Schedule" (i.e., "Light," or "Medium," or "Heavy"); the "rank ordering" within each sub-template "of the priority of places and sites that should be visited" (App. 76a, line 22), which may be "a rank order according to popularity, or significance" (App. 87a, line 12); and a "minimum recommended viewing time for each site" (App. 87a, lines 3·4), where the "device returns an itinerary that has been optimized according to the allotted time for the traveler to see as many of the most significant highlights as possible, in the given touring time..." App. 75a, lines 19·20.

The "Alter Itinerary button 33" (App. 77a, line 1) of the "*custom device*" may be manually toggled to provide the travel planner the options shown in FIG. 25, to further customize any itinerary developed. The "custom device" of FIG. 25 (App. 139a) is reproduced below:



The travel planner may also thereby "plan alternate itineraries" (App. 94a, lines 10.11) that may be saved by "[s]electing the 'save itinerary' option at any point in time" (App. 89a, line 7).

The "Use Itinerary button 42, as seen in FIG. 43, [] may cause the display of all saved itineraries to permit selection therefrom," upon "arriving at the destination." App. 95a, lines 13-15; App. 157a. The "custom device" of FIG. 43 (App. 157a), showing toggling of the "Use Itinerary button 42" and the resulting GUI being displayed on the screen, is reproduced below:



FIGURE 43

The traveler may toggle the "Execute Itinerary" option in the GUI of FIG. 43 to cause the highlighted itinerary, i.e., "Itinerary # 1: Rome, Liguria, Venice," to be "displayed..., but with a different options/directions list 25 being offered..." than was available during the planning stage. App. 95a, lines 17.19.

In the "Use Itinerary" mode, the "*custom device*" offers guidance for executing the itinerary, as seen in the GUI of the display screen portion of the "*custom device*" of FIG. 44 (App. 158a):



The guidance may include having the device "automatically display map regions of the sites chosen for the itinerary to assist the traveler while navigating in a city or region of a foreign country" (App. 58a, lines 13-14; App. 118a); providing "walking directions or other guidance to a site" that "may be a rote recitation of steps necessary to progress from place to place" (App. 95a, line 24 – App. 96a, line 1); and providing "alarm prompts to give the traveler notice of when one site visit is to end, and movement towards another site is to begin." App. 95a, lines 20-22. The specification also describes that the "custom device" may provide "active guidance through the use of a GPS receiver." App. 96a, line 2.

The "En Route Detour" button of the "custom device," shown in FIGS. 61-62 (App. 175a - 176a) permits the traveler "to search the database to quickly ascertain what other sites of interest may be in close proximity to his/her current location, or in close proximity to other legs of the itinerary..." (App. 102a, line 7-11), because "even for the well designed trip," there may be instances while touring at the destination that require "spur of the moment changes because of poor weather during the trip, an unexpected closure, or some other event that was unforeseen during the planning stages..." (App. 53a, lines 14-16), or if the traveler "finds extra time left at the end of the day, or was perhaps disinterested in remaining very long at one of the planned sites..." App. 102a, line 8-9.

The general options provided by the "En Route Detour" button are shown in FIG. 61 (App. 175a), which is reproduced below:



FIGURE 61

The GUI of the display screen portion of the "custom device" of FIG. 62 (App. 176a), showing a list of "detour" options for a traveler from a "current location," is reproduced below:



The "Translate Phrase" button provides the GUI screen of FIG. 50 (App. 164a) to assist the traveler touring at a destination with a foreign language speaking populous:



This GUI permits the traveler "to type in a word or phrase that the user is trying to express to a foreign national at the destination country," with the result that "both the English phrase and the...translation are listed next to each other." App. 98a, lines 15-19; App. 165a. A "Pronounce the Phrase' option" may "use a sound generator/speaker 13 to enunciate the phrase..." App. 99a, lines 3-4; App. 166a).

The specification lastly describes that "Figure 71," reproduced below, "illustrates the software" being particularly configured for "running" on a generic "mobile computing device, where each of the buttons may be actuated by touching its digital appearance on the touch screen, rather than by depressing mechanical buttons," citing the "apple iPad" as an exemplary generic device.



FIGURE 71

4. Proceedings Below

A. The PTAB Decision

The Appellant argued that the "non-conventional' custom electromechanical device...of claim 56 is particularly configured to assist the traveler through its buttons that are easily accessed, which provide diverse functionality for both the planning and executing of a travel itinerary that may thereby be created, as defined in claims 1, 2, 3, 4, 6, 7, 8, 36, 50, and 54." App. 33a.

The PTAB held, App. 33a:

We do not find Appellant's arguments persuasive. As an initial matter, we note that Appellant is not claiming to have invented mechanical buttons or the use of mechanical buttons for communicating selections. Even if we consider Appellant's claimed use of mechanical buttons to be limited to a particular technological environment, "limiting the claims to [a] particular technological environment...is, without more. insufficient to transform them into a patent-eligible application of the abstract idea at their core." Elec. Power Grp., 830 F.3d at 1354.

The PTAB further held, App. 33a:

we find persuasive Appellant's Nor do argument that "[t]he claimed device with its customized mechanical buttons and functionality constitutes the 'improvement' noted in Enfish that is explicitly 'defined by reference to "physical" components' and 'particular features." (Appeal Br. 25.) Enfish explained that simply because "the improvements is not defined by reference to 'physical' components does not doom the claims." Enfish, LLC, 822 F.3d at 1339. Indeed, the claims in Enfish were "specifically directed to a self*referential* table for a computer database." Enfish, 822 F.3d at 1337. That is, unlike claim 56 here, in Enfish, "the plain focus of the claims [was] on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity." Id. at 1336.

For the reasons discussed above, we are not persuaded that the Examiner erred in rejecting claim 56.

B. The Federal Circuit's Panel Decision

The panel was unanimous in affirming all of the patent-eligibility rejections, holding that "[w]e agree with the Board." App. 10a.

Appellant's Opening Brief before the Court of Appeals for the Federal Circuit provided entirely new arguments based on its opinion in *Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999 (Fed. Cir. October, 9 2018). The Federal Circuit's opinion in *Data Engine Techs* was issued after the filing of Appellant's Brief before the PTAB in 2017, and it was neither applied nor distinguished *sua sponte* in the Board's analysis and opinion, which was entered on March 20, 2020.

The unanimous Panel of the Federal circuit simply found, without providing any analysis of the additional arguments presented, that the "Board...addressed Mr. Bongiorno's claims thoroughly." App. 10a.

C. Denial of a Rehearing En Banc

The Appellant's Petition for Rehearing *en banc* was denied, despite the factual basis that the appealed claims could not have been considered "thoroughly," since they were never considered in light of the most recent patenteligibility guidance provided by Federal Circuit.

REASONS FOR GRANTING THE PETITION

1. The PTAB argument, affirmed by the Federal Circuit without further analysis, erroneously conflates the test for the patentability of an "improvement" to a "machine" under *Cantrell v. Wallick*, which inherently is eligible subject matter under section 101, with the Mayo/Alice patent-eligibility test for determining if a claimed process includes nothing more than just an "abstract idea implemented on a generic computer."

"Improvements in machines protected by letters patent may also be ... where all the ingredients of the invention are old, and where the invention consists entirely in a new combination of the old ingredients..." Seymour v. Osborne, 78 U.S. at 542.

In response to the Appellant's position that claim 56 constitutes "a new 'non-conventional' custom electromechanical device." the principle argument advanced by the PTAB is that "Appellant is not claiming to have invented mechanical buttons or the use of mechanical selections" communicating buttons for and that considering the "claimed use of mechanical buttons to be limited to a particular technological environment" fails to transform the abstract idea of "planning and executing a vacation or travel itinerary" into a "patent-eligible application of the abstract idea." App. 33a.

However, the "travel itinerary device" of claim 56, being a "dedicated electronic unit" (App. 69a, line 5) that is explicitly described as a "custom device" (App. 105a, line 8; and App. 103a, line 11), conversely constitutes the creation of a new "technological environment," regardless of the fact that it does not include a new type of mechanical button (i.e., a new "ingredient") for the making of particular selections.

The custom "travel itinerary device" of claim 56 with its particular "mechanical buttons" in a custom "housing," including the claimed "plan itinerary button," the "alter itinerary button," the "use itinerary button" (claim 1), the "en route detour button" (claim 36), and the "translate phrase button" (claim 50), each of which trigger display of corresponding graphical user interfaces enabling the described functionality, therefore "purport[s] to improve the functioning of the computer itself," with a "specific or limiting recitation of...improved computer technology..." *Alice*, 573 U.S. at 225. As described in Appellant's specification, which was filed on October 23, 2010, the "special function buttons [] enable the user to more easily navigate through the software..." (App. 73a, lines 17-18).

See also, DDR Holdings, LLC v. Hotels.com LP, 773 F.3d 1245, 1256 (Fed. Cir. 2014), where system claims were found to recite patent-eligible subject matter because the "solution" offered was "necessarily rooted in computer technology in order to overcome a problem," even where the "solution offered by DDR's claims" was "not rooted in any new computer technology," because it "did not invent any of the generic computer elements disclosed in its claims." The eligible system claims in DDR nonetheless "required doing something to a web page, not simply doing something on a web page." Affinity Labs of Tex., LLC v. DIRECTV, LLC, 838 F.3d 1253, 1262 (Fed. Cir. 2016).

See also, Data Engine Techs. LLC v. Google LLC, where a "notebook tabbed interface [] allows users to easily navigate through three-dimensional electronic spreadsheets," so the "complexities of the system are hidden under ordinary, everyday object metaphors," 906 F.3d at 1003, and the "tabbed interface" was "not merely labeled buttons or other generic icons." *Id.* at 1011. Instead, the "notebook-tabbed interface" was found to constitute "specific structures" that "allow a user to avoid" a "burdensome task of navigating" in "separate windows using arbitrary commands," and the claims were therefore "not abstract under *Alice* step one." *Id.*

See also, *Core Wireless Licensing, S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356, 1359 and 1363 (Fed. Cir. 2018) (holding patent-eligible the claims of U.S. Patent Nos. 8,713,476 and 8,434,020, which "disclose improved display interfaces, particularly for electronic devices with small screens," as they are "directed to an improvement in the functioning of computers," because the "improved

interfaces allow a user to more quickly access desired data stored in, and functions of applications included in, the electronic devices.").

The "focus" of Appellant's claim 56 is on the creation of a new "technological environment"- i.e., a "custom" "travel itinerary device" with its particular "mechanical buttons" to "navigate through the software" functionality- not "on a process that qualifies as an 'abstract idea' for which [generic] computers are invoked merely as a tool." *Enfish*, *LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335-35 (Fed. Cir. 2016) (considering "the first step in the Alice inquiry").

Therefore, the non-obvious "travel itinerary device" defined by claim 56 is patent-eligible under 35 U.S.C. § 101 as an improved "machine," per *Seymour v. Osborne*. Moreover, even if claim 56 were explicitly and meticulously analyzed under the Mayo/Alice two-step test, it should nonetheless be found "not abstract under *Alice* step one," the same as the claims considered in *Data Engine Techs* and *Core Wireless Licensing*.

2. The patent-eligibility of the "custom" "travel planning device" of claim 56 under section 101 is not eviscerated due to its potential for analogous implementation on a generic computer, because claim 56 defines a structurally different "machine."

"Changes in the construction of an old machine which increase its usefulness are patentable," and "a new combination of known devices, whereby the effectiveness of a machine is increased, may be the subject of a patent..." *Cantrell v. Wallick*, 117 U.S. 689, 690 (1886).

Claim 56 defines a new machine with different hardware components forming a "dedicated electronic unit" to implement the described and claimed functionality more effectively, and is therefore distinct from, superior to, and a patentable improvement over, merely programming a generic computer to function in an analogous manner.

The lesser implementation whereby the same functionality may be programmed to operate on a generic computer does not negative the "improvement" provided by the "custom device" in the form of a "dedicated electronic unit," for several reasons.

The functionality of the "travel planning device" of

claim 56 is immediately accessible via the "mechanical buttons" that protrude from the front face of the "housing."

A generic computer is far more capable than the "travel planning device" of claim 56, which is a single purpose "dedicated electronic unit," and which consequently uses fewer parts than a generic computer. As a result, the "dedicated electronic unit" defined by claim 56 is not configured to implement all of the diverse functionality that would be subsequently programmed to run on the generic computing device

The power utilization of the single purpose "travel planning device" of claim 56, being a "dedicated electronic unit," is inherently more effective and more efficient, as power is not expended in support of the unnecessary components and unused functionality of a generic computer.

Extrinsic evidence supports those distinctions.

See, "Application Specific Processors," Springer International Series in Engineering and Computer Science, Earl E. Swartzlander Jr., Nov. 30, 1996, p. ix:

> "General purpose computers sacrifice performance in order to achieve flexibility and generality. In contrast, application specific processors are optimized for their intended application, often achieving orders of magnitude improvement in performance."

See, "The Decline of Computers as a General Purpose Technology: Why Deep Learning and the End of Moore's Law are Fragmenting Computing," Neil C. Thompson and Svenja Spanuth, Laboratory for Innovation Science at Harvard & MIT Sloan School of Management & MIT Computer Science and Artificial Intelligence Lab RWTH Aachen University, November 2018, p. 3:

> "But, just as Bresnahan and Trajtenberg (1992) predicted, GPTs at the end of their lifecycle can run into challenges. As progress slows, the possibility arises for other technologies to displace the GPT in particular niches. We are observing just such a transition today as some applications move to specialized computer processors - which can do fewer things than traditional processors, but perform those functions better. Many high profile applications are already following this

trend, including Deep Learning (a form of Machine Learning) and Bitcoin mining. This paper outlines why this transition is happening. It shows how we are moving from the traditional model of computer hardware that is universal, providing broad-based benefits to many and improving rapidly, to a model where different applications use different computer hardware..."

See, "EIC's Message: General-purpose versus application-specific processors," P. Bose, *IEEE Micro*, vol. 24, no. 3, pp. 5-5, May-June 2004:

> In the world of embedded processor systems that are geared to solve a single application (or a limited class of applications) very efficiently, the processor core of choice has traditionally been quite different—one that uses a much simpler microarchitecture. well-matched to the characteristics of the targeted application(s). Simplicity derives from precise knowledge of the specific application focus and from the constraints of cost and power consumption that are usual in such markets. For example, a DSP core that is part of a mobile phone product must necessarily be very low power, and the cost must be much less than that of a microprocessor that powers a desktop...

See, "The Era of General Purpose Computers is Ending," February 5, 2019, Michael Feldman, The Next Platform:

> ...general-purpose computing was not always the norm. In the early days of supercomputing, custom built vector based architectures from companies like Cray dominated the HPC industry. A version of this still exists today in the vector systems built by NEC...

> ...The other driver toward specialized processors is a new set of applications that are not amenable to general-purpose computing. For starters, you have platforms like mobile devices and the internet of things (IoT) that are so demanding with regard to energy efficiency and cost, and are deployed in such large volumes, that they necessitated customized chips...

Accordingly, the PTAB's analysis, which only considers claim 56 in the context of the described software functionality being utilized with respect to a generic computer composed of generic computer components, instead of the described "dedicated electronic unit," fails to make the proper analysis of the claim as a whole, and furthermore fails to use the proper test.

> A. The Court can and should correct the growing misapplication of its judicially created two-step test that is intended to filter out claimed inventions that are directed to nothing more than "an abstract idea implemented on a generic computer."

Patent law scholars had prophesied years ago that misapplication of the Courts two-step test would one day be used to deny patents for claimed inventions "which have historically been eligible to receive patent-law protection..." *Diamond v. Diehr*, 450 U.S. at 184.

For example, Law Professor Adam Mossoff wrote that "[a]ll patented innovation uses mathematics," and that -

All inventions of practically applied processes and machines are reducible to mathematical abstractions and algorithms; for example, a patentable method for operating a combustion engine is really just an application of the law of PV=nRT, the principles of thermodynamics, and other laws of nature comprising the principles of engineering."

A Brief History of Software Patents (and Why They're Valid), 56 Ariz. L. Rev. Syllabus 65, 70-71 (2014).

Professor Massoff warned that proliferation of the Court's two-step test "would invalidate all patents if applied equally to other inventions." *Id.* at p. 71.

As suggested, the two-step test is useable to invalidate an apparatus claim directed to an improved combustion engine. Without the need to review any drawings or even a specification for a theoretical patent application, pro-forma misapplication of the court's test would proceed as follows: The specification provides evidence as to what the claimed invention is directed. In this case the specification discloses that the invention relates to the combustion of a fuel that occurs in an enclosed chamber, in which oxidation of the fuel creates higher temperature and pressures, causing expansion of the gases therein, and movement of a piston rod. Displacement of the piston rod creates a force that is useable to perform work by the engine.

However, use of the combustion process to perform useful work is a "fundamental truth" based the on Laws of Chemistry and Thermodynamics long prevalent in systems of energy production and utilization. See e.g., The Pneumatics of Hero of Alexandria, From the Ancient Greek, edited by Bennet Woodcroft, London, 1851, p. 44, "The Fire Engine... Take two vessels of bronze, A B C D, E F G H, (fig. 27), having the inner surface bore in a lathe to fit a piston, (like the barrels of water organs), K L, M N being the pistons fitted to the boxes..."; p. 72, "The Steam Engine... Place a cauldron over a fire: a ball shall revolve on a pivot"; p. 100-102, "A Steam Boiler...When the fire is kindled there will be a rush of vapour from the small chamber"; and p. 103, "A Steam-Boiler from which either a hot Blast may be driven into the Fire, a Blackbird made to sing, or a Triton to blow a Horn..."

The specification and figures of the application merelv disclose generic combustion engine components a housing, a bore in the housing, and a piston rod slidable in the bore to form a combustion chamber. Each of the recited components perform routine combustion engine functionality, without adding more. The claim amounts to nothing more than a draftsman's effort limit the abstract idea to a particular to technological environment. Thus the claim is ineligible for being directed to nothing more than an attempt to monopolize the natural laws of Chemistry and Thermodynamics...

Widespread pro-forma misapplication of the Court's two-part test for the eligibility of a process implemented on a generic computer will enable realization of a patent regime where "*Nothing is Patentable*," Michael Risch, 67 FLORIDA L. REV. F. 45, 51-52 (2015).

......

As shown by the rejection of Appellant's claim 56 in the '790 application (App. 33a), such misuse of the Court's two-part test is beginning to dismantle the "machine" category of 35 U.S.C. § 101, despite the Court's own warning that "[a]ll inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas." *Mayo*, 566 U.S. at 71. The broadest reasonable interpretation of claim 56 is the "*dedicated electronic unit*" shown in FIGS. 1-69, with new hardware structures including a plurality of "special function buttons [to] enable the user to more easily navigate through the software" (App. 73a), which warrants consideration as a new "machine."

Conversely, the PTAB arbitrarily and exclusively chooses to view and analyze claim 56 through the lens of an abstract process being implemented on a generic computing device.

Until this Court again grants certiorari to provide a positive guide post to proscribe limits for application of the two part test, its proliferation will increasingly erode the eligibility framework crafted by Congress, rather than being a filter to prevent pro-forma patenting of a claimed "invention" that amounts to nothing more than one of the three judicial exceptions. Enfish, LLC, 822 F.3d at 1335 ("the 'directed to' inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether 'their character as a whole is directed to excluded subject matter."); See also, Athena Diagnostics, Inc. v. Mayo Collaborative Servs., LLC, 915 F.3d 732 (Fed. Cir. 2019), reh'd denied, 927 F.3d 1333, 1337 (Dyk, J., concurring)("In the realm of abstract ideas, the Mayo/Alice framework has successfully screened out claims that few would contend should be patent eligible...").

Granting certiorari to consider only claim 56 of the '790 application provides an ideal path to very narrowly distinguish the Court's holding in *Mayo*.

B. Certiorari should be granted to prevent misapplication of the Mayo two-step test from rewriting the patent statue and overruling this Court's opinions on the patentability of a machine.

"That the invention [] comes within the category of a 'machine,' cannot be disputed... A machine is a concrete thing, consisting of parts, or of certain devices and combination of devices," *Burr v. Duryee*, 68 U.S. 531, 570 (1864), where the "term machine includes every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result." *Corning v. Burden*, 56 U.S. 252, 267 (1854).

The "travel planning device" of claim 56 consists of a different arrangement of function buttons that trigger new and particular associated functionality, and dedicated electronics.

Even if the "concrete parts" of the "travel planning device" of claim 56 are considered "old," it nonetheless constitutes "[i]improvements in machines" because it would "consist[] entirely in a new combination of the old ingredients..." Seymour v. Osborne, 78 U.S. at 542.

Furthermore, the particular "circuity" interacting with the claimed "mechanical buttons" being necessary to create the "dedicated electronic unit" is also patent-eligible because it constitutes "an improvement in a machine," as it "effects the desired result in a better or cheaper manner than before," *Burr v. Duryee*, 68 U.S. at 571, and because its "effectiveness [] is increased" *Cantrell v. Wallick*, 117 at 690.

The particularly claimed "travel planning device" of claim 56 constitutes more than just "[a]bstract software code [that] is an idea without physical embodiment." *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 449 (2007). The particularly claimed "travel planning device" of claim 56 also constitutes more than just an "electronic machine," *In re Walter*, 618 F.2d 758, 764 (Fed. Cir. 1980) that is *purely* electronic in nature, which would operate without any mechanical elements that move and/or are actuated to accomplish work (i.e., without any push buttons, levers, gears, pulleys, actuators, etc.). See e.g., U.S. Patent No. 7,804,311 to Irie for "Electronic Machine, Connected Machine Identifying Method for Electronic Machine and Control System."

Granting certiorari to consider only claim 56 of the '790 application will prevent misapplication of the Mayo/Alice test from inappropriately operating to redefine the "machine" category of the patent statue and effectively overrule this Court's earlier cases.

CONCLUSION

For the foregoing reasons, the petition for a writ of certiorari should be granted.

Respectfully Submitted,

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