No. 2016-1616

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

TRADING TECHNOLOGIES INTERNATIONAL, INC.,

Plaintiff-Appellee,

v.

CQG, INC., CQGT, LLC, fka CQCT, LLC,

Defendants-Appellants.

On Appeal from the United States District Court for the Northern District of Illinois, in No. 05-4811, Judge Sharon Johnson Coleman

BRIEF OF TEN LAW PROFESSORS AS *AMICI CURIAE* IN SUPPORT OF PLAINTIFF-APPELLEE

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CERTIFICATE OF INTEREST

Pursuant to Federal Circuit Rules 28(a)(1) and 47.4(a), counsel for *amici curiae* state the following:

1.   The full name of every party or *amicus* represented by us is:

    Ten Law Professors – See Appendix A

2.   The names of the real party in interest represented by us is:

    Not applicable

3.   All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or *amicus curiae* represented by me are:

    Not applicable

4.   The names of all law firms and the partners or associates that appeared for the party or *amici* now represented by me in the trial court or agency or are expected to appear in this court are:

    STRAIN PLLC: Andrew S. Baluch, Stephen G. Nagy

Dated: July 18, 2016

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INTEREST OF *AMICI CURIAE*[1]

The *amici curiae* are 10 law professors who teach and write on patent law and policy. As patent law scholars, they are concerned that the law properly promotes and secures protection for computer-implemented inventions. They have no stake in the parties or in the outcome of the case. The names and affiliations of the members of the *amici* are set forth in Appendix A below.

SUMMARY OF ARGUMENT

The trial court's decision represents a proper application of 35 U.S.C. § 101. *See Trading Techs. Int'l, Inc. v. CQG, Inc.*, No. 05-4811, 2015 WL 774655 (N.D. Ill. Feb. 24, 2015). Because the parties address the relevant innovation covered by Trading Technologies' patents, as well as the application of the Supreme Court's recent § 101 jurisprudence, *amici* offer an additional insight that supports the trial court's decision: the invention of computer-mediated processes is exactly the kind of innovation that the patent system is designed to promote.

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[1] No party's counsel authored this brief in whole or part; no party or party's counsel contributed money intended to fund preparing or submitting this brief; and no person other than *amici*, their members, or counsel contributed money intended to fund preparing or submitting this brief. Consent has been sought from each party, none of whom opposed the filing of this brief. FED. R. APP. P. 29(c)(5).

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As the Supreme Court recognized in *Bilski v. Kappos*, 561 U.S. 593 (2010), "Section 101 is a dynamic provision designed to encompass new and unforeseen inventions." *Id.* at 605 (internal quotations omitted). Thus, this Court should decline the invitation by Appellant to construe § 101 in a crabbed and antiquarian fashion that would limit patent eligibility only to "processes similar to those in the Industrial Age—for example, inventions grounded in a physical or other tangible form." *Id.* To do so would contravene the *Bilski* Court's warning against limiting § 101 to only non-digital inventions, creating thereby unnecessary and innovation-killing "uncertainty as to the patentability of software," such as Appellee's graphical-user-interface invention. *Id.*

ARGUMENT

The core of Appellant's argument contravenes the Supreme Court's oft-repeated mandate that § 101 should not impede the progress of future innovation. The development and commercialization of new innovations in computer-implemented inventions, such as the methods of using a graphical user interface (GUI) covered by Appellee's patents, exemplify the "progress of . . . useful Arts" that the patent system is intended to promote. U.S. CONST. art. I, § 8, cl. 8. Unfortunately, ongoing legal disputes and policy

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debates over so-called "software patents" are rife with confusion and

misinformation about both the law and the technology.

Appellant misunderstands the two-step test developed by the Supreme

Court in its recent § 101 decisions (the "*Mayo-Alice* test"). *See Alice Corp.*

Pty. Ltd. v. CLS Bank Int'l, 134 S. Ct. 2347 (2014); *Mayo Collaborative*

Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289 (2012). The *Mayo* Court

cautioned that courts should "tread carefully" in applying the judicial

exception because "all inventions at some level embody, use, reflect, rest

upon, or apply laws of nature, natural phenomena, or abstract ideas." *Mayo*,

132 S. Ct. at 1293. Unfortunately, Appellant ignores the Court's cautionary

note in applying § 101 and asks this Court to dissect Appellee's patent

claims into the individual component elements that reflect an abstract idea

and conventional operations in presenting information. In numerous ways,

this is both legally improper and factually incorrect.

First, Appellant ignores the requirement from the *Alice* Court that "we

consider the elements of each claim both individually and 'as an ordered

combination.'" *Alice*, 134 S. Ct. at 2355 (quoting *Mayo*, 132 S. Ct. at 1298).

In considering Appellee's claims as "an ordered combination," *id.*, it is clear

they are directed to a specified method of operation in a GUI. A specific

method of using a specific GUI is a modern innovation. A majority of

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commercial and personal interactions today exist entirely within the digital

"machine" of software, which this Court rightly recognized as a patent-

eligible invention more than two decades ago: "We have held that such

programming creates a new machine, because a general purpose computer in

effect becomes a special purpose computer once it is programmed to

perform particular functions pursuant to instructions from program

software." *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994) (en banc).

This statement is not merely a legal conclusion; it is technological

truth. It is a consequence of the foundational work in computer science in

the 1930s by Alan Turing, who proved that a general-purpose computer

(what he called a "Universal Turing Machine") executing a software

program can perform the same operations of any specific hardware designed

and built for that same purpose. Alan M. Turing, *On Computable Numbers,

with an Application to the Entscheidungsproblem*, 2-42 PROC. LONDON

MATH. SOC. 230 (1937).

This Court has repeatedly affirmed this proper methodological

approach under § 101, recognizing that specific computer-implemented

technologies are not "abstract" under the *Mayo-Alice* test. *See, e.g., Bascom

Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, No. 2015-1763, 2016 WL

3514158, at *6-7 (Fed. Cir. June 27, 2016) (holding a computer-

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implemented invention patent eligible given inventive concept in "ordered combination of limitations"); *Enfish, LLC v. Microsoft Corp.*, No. 2015-1244, 2016 WL 2756255, at *4-5 (Fed. Cir. May 12, 2016) (holding computer-implemented inventions are not "abstract" under step one of *Mayo-Alice* test).

Second, Appellant's approach denies the fact that every claim to a computer process must by necessity recite steps that the computer can perform. *See Oplus Techs. Ltd. v. Sears Holding Corp.*, No. 12-5707, 2013 WL 1003632, at *12 (C.D. Cal. Mar. 4, 2013) (order denying motion for summary judgment of invalidity) ("All software *only* 'receives data,' 'applies algorithms,' and 'ends with decisions.' That is the *only* thing software does. Software does nothing more.") (emphases in original). That a claim uses verbs like *receiving, storing, generating, transmitting, determining* is not indicative that the claim as a whole is "conventional"—it is the entirety of the elements themselves and as an overall combination that matters, precisely for the reasons understood by the *Alappat* court. In evaluating the specific elements together, it is improper to ignore the precise data being operated upon, and to generally summarize the claim merely as "storing data" or "receiving data" or "determining options using rules."

Third, with respect to the technological innovation in a GUI, the evolution of digital machines and processes from their mechanical and electrical ancestors represents precisely the type of development in the "useful Arts" that the patent system promotes. Appellant's methodology—of looking for a pre-computer analogue as evidence that the present invention is "abstract"—contravenes the very nature of invention: *all* inventions have precursors because they all solve functional problems human have had (and will continue to have) in interacting with the world. Humans first invented basic tools to control and alter material objects around them: the plow, sewing machine, nuclear reactor. We then invented instruments and tests to measure physical aspects of the world, such as scales, clocks, and microscopes. At each stage of evolution in technology, although the specific nature of the inventions is different, the purpose is always the same: to solve a functional problem that humans have in interacting with the world.

Consider, for example, the basic functional need to reliably record and retrieve information. In the evolution of the technology of recording information--from writing on papyrus to clay tablets to bamboo to paper to film to magnetic tape to optical disc, and myriad technologies in between, each innovation served the function of reliably recording symbolic information in a non-transitory medium. Each step forward answered

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problems in the prior technology, as well as resolved problems created by the new technology. Had it been said at the time of the invention of the magnetic disc at the dawn of the computer age that this invention has a pre-machine analog in paper, and thus was not patent eligible because it represents merely an abstract idea ("recording information") and was conventional (encoding symbols in a non-transitory medium), there would have been no digital revolution.

The invention of the digital computer has been the most versatile of all of human inventions precisely because of its ability to be reconfigured (programmed) for new and useful functions. "No artifact devised by man is so convenient for this kind of functional description as a digital computer." HERBERT A. SIMON, THE SCIENCES OF THE ARTIFICIAL 17 (3d ed., 1996). As machines became more complex, humans invented "human-machine interfaces" to better understand their operation and to better control them in achieving their functional purposes: combinations of dials, gauges, meters, switches, and so forth. *See* PIETRO C. CACCIABUE, GUIDE TO APPLYING HUMAN FACTORS METHODS 13 (2004). A GUI is the digital descendant of these electro-mechanical ancestors. Like their predecessors they provide a solution to a specific functional problem, conveying information about the underlying state of the machine and means to control it.

Fourth, a proper approach to applying § 101 cannot have the perverse result of invalidating even the classic "Industrial Age" inventions that the *Bilski* Court warned not to exclude under § 101. *Bilski*, 561 U.S. at 605. Consider Claim 5 of Alexander Graham Bell's patent on the telephone:

> The method of; and apparatus for, transmitting vocal or other sounds telegraphically . . . by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds. . . .

> U.S. Patent No. 174,465 (issued Mar. 7, 1876).

The Supreme Court expressly affirmed Claim 5 as patentable subject matter under the predecessor statute to § 101 in *Dolbear v. Am. Bell Tel. Co.*, 126 U.S. 1 (1888). Applying Appellant's version of *Mayo-Alice* test invalidates this claim. Under *Mayo* step one, the claim is directed to "transmitting vocal or other sounds" by "electrical undulations" (electric current) which is an abstract idea (transmitting sounds) applied to a natural phenomenon (electricity). Under step two, the claim does not recite anything that was not conventional, because telegraphic transmission and electrical circuits had been long known in the art. *See* CHRISTOPHER BEAUCHAMP, INVENTED BY LAW: ALEXANDER GRAHAM BELL AND THE PATENT THAT CHANGED AMERICA 58-85 (2014) (recounting many prior and existing uses of electrical currents in telegraphic communication before Bell's invention). *See also* David Stein, *The Main Event: Alice v Diehr*, USPTO TALK (Sept.

29, 2014), http://www.usptotalk.com/the-main-event-alice-v-diehr/

(demonstrating how the same approach as Appellant's in applying the *Mayo-Alice* test invalidates the claim confirmed as valid in *Diamond v. Diehr*).

Fifth, and lastly, a central focus of most innovation is *automation*.

Historically, automation was achieved through purely mechanical means,

then electrical ones, and then later through computer-implemented means.

From sewing pins pulled by hand to sewing machines, from semaphores to

telephones, from pens to typewriters to word processors, from manual

automobile transmissions to automatic transmissions, from a human

navigator fumbling with a paper map to a GPS-based software program in

our smart phone, an essential characteristic of technological innovation itself

is automation. Some human-machine interface is necessary to enable a

human operator to understand the operation of an automated machine and to

control its operation; in computers and software, this is the GUI.

Appellant's approach would arguably make ineligible every one of

these foregoing technological innovations, because automation can be

characterized as merely a conventional step applied to an abstract idea

(whatever the general function of the invention was) to solve a previously

known problem. To adopt the Appellant's reasoning that a computer-

implemented invention of a GUI that solves a problem that existed before

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digital technology is "abstract" would be to adopt a § 101 rule that calls into question most inventive activities that have created patentable inventions long recognized by this Court and by the Supreme Court since the first Patent Act of 1790.

In sum, all process claims can be analytically dissected down to foundational abstractions and conventionally-known information in the field. That is not because such inventions are abstract, but because all process claims necessarily rely upon preexisting concepts and steps using known elements to solve functional problems. This Court should refrain from taking up the invitation by Appellant to commit this error in this case in disintegrating Appellee's method for using a GUI into these foundational, unpatentable ideas.

CONCLUSION

Amici urge this Court to affirm the district court's decision that

Appellee's claims directed to the use of a GUI are patentable subject matter

under § 101.

Respectfully submitted,

Dated: July 18, 2016

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[*] Institutions of all signatories are for identification purposes only. The undersigned do not purport to speak for their institutions, and the views of *amici* should not be attributed to these institutions.

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CERTIFICATE OF COMPLIANCE

Pursuant to Fed. R. App. P. 32(a)(7)(C), the undersigned hereby certifies that this brief complies with the type-volume limitation of Fed. R. App. P. 29(d), 32(a)(7)(B) and Circuit Rule 32(b).

1. Exclusive of the exempted portions of the brief, as provided in Fed. R. App. P. 32(a)(7)(B), the brief contains <u>2,061</u> words.

2. The brief has been prepared in proportionally spaced typeface using Microsoft Word 2010 in 14 point Times New Roman font. As permitted by Fed. R. App. P. 32(a)(7)(C), the undersigned has relied upon the word count feature of this word processing system in preparing this certificate.

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CERTIFICATE OF SERVICE

I hereby certify that, on this 18th day of July, 2016, I filed the foregoing with the Clerk of the United States Court of Appeals for the Federal Circuit via the CM/ECF system, which will send notice of such filing to all registered CM/ECF users.

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