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NEW GUIDELINES ISSUED BY THE U.S. PATENT & TRADEMARK OFFICE ON PATENTING COMPUTER-IMPLEMENTED INVENTIONS THAT BROADEN PATENT ELIGIBILITY BY RESTRICTING ABSTRACT IDEA DETERMINATIONS

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Abstract

Since the U.S. Supreme Court decision of *Alice Corp. v. CLS Bank* in 2014, many U.S. patents and patent applications covering computer-implemented inventions (CIIs), including software inventions, have been invalidated or rejected as being directed to "abstract ideas" which are not eligible for patenting. This decision has resulted in a plethora of issued patents in all areas of computer technology being invalidated as abstract ideas by the federal courts and by the U.S. Patent & Trademark Office (PTO) while providing little or confusing guidance to Applicants on how to avoid patent ineligible abstract idea determinations. As a result, the PTO has recently issued new examination guidelines to assist Applicants in preparing patent applications to avoid such determinations. Furthermore, the U.S. Senate is currently promulgating new patent statute legislation to clarify the requirements of patentable subject matter to ensure the CIIs are not being denied the patent protection that they deserve. This paper will discuss the new guidelines and provide take-aways for Applicants considering patent protection on their CIIs.

Scientists and engineers in advanced technology fields are frequently involved in the patenting process and are generally aware of the basic threshold standards of novelty and non-obviousness for patenting an invention. [1]. There is, however, an equally fundamental requirement that rarely arose in patenting high tech inventions, but which has now taken center stage, at least in inventions that include software. This is the requirement that the invention be directed to patent eligible-subject matter. The Patent Statute 35 U.S.C. §101 states:

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.

While the Patent Statute states only that a patent may be obtained for "any new and useful process, machine, manufacture or composition of matter," the U.S. Supreme Court in *Gottschalk v. Benson* [2] interpreted those terms such that "(1) laws of nature, (2) natural phenomena and (3) abstract ideas" are ***excluded*** from patent eligible subject matter. The last of these three areas, the prohibition against patenting abstract ideas, which came to include mathematical formulae in *Gottschalk*, is the basis for the far-ranging 2014 Supreme Court ruling *Alice Corp. v. CLS Bank*. That ruling, overnight, effectively invalidated thousands of patents and has already been the basis for a large number of court cases and motions to invalidate previously-granted patents; and nowhere in the *Alice* opinion is the term "abstract idea" explicitly defined but only "hinted at" using phrases such as "the basic tools of scientific and technological work" or "tying up the future use of these building blocks of human ingenuity". [3]. Meanwhile, patent practitioners have seen rejections of applications involving software skyrocket with the "abstract idea" concept applied even to inventions that do not mention software.

Alice v. CLS Bank

In the 2010 U.S. Supreme Court case, *Bilski v. Kappos* [4], an applicant had claimed a series of steps in a method claim directed towards optimizing a fixed bill system for energy markets. The Federal Circuit denied the claim as directed to non-patentable subject matter that failed to meet a machine or transformation test, i.e., the invention had to be tied to a particular machine or effect a transformation of matter, neither of which the method claim included or effected. On appeal, the Supreme Court upheld the Federal Circuit and said that the machine or transformation test was not the only test, but failed to identify any alternative tests. Patent practitioners took this to mean that as long as method claims included some type of computer hardware, that would support patentable subject matter. That assurance evaporated in 2014 when the Supreme Court ruled on a patent claim for a computer-implemented method of mitigating settlement risk in *Alice Corp. v. CLS Bank Int'l.* [5]. The Supreme Court ruled in *Alice* that "the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention." Here is an example of one of the claims in one of the contested patents in the *Alice* case:

1. A data processing system to enable the exchange of an obligation between parties, the system comprising:

> ***a data storage unit*** having stored therein information about a shadow credit record and shadow debit record for a party, independent from a credit record and debit record maintained by an exchange institution; and
>
> ***a computer, coupled to said data storage unit***, that is configured to (a) receive a transaction;

(b) electronically adjust said shadow credit record and/or said shadow debit record in order to effect an exchange obligation arising from said transaction, allowing only those transactions that do not result in a value of said shadow debit record being less than a value of said shadow credit record; and (c) generate an instruction to said exchange institution at the end of a period of time to adjust said credit record and/or said debit record in accordance with the adjustment of said shadow credit record and/or said shadow debit record, wherein said instruction being an irrevocable, time invariant obligation placed on said exchange institution. (emphasis added, U.S. Patent No. 7,149,720).

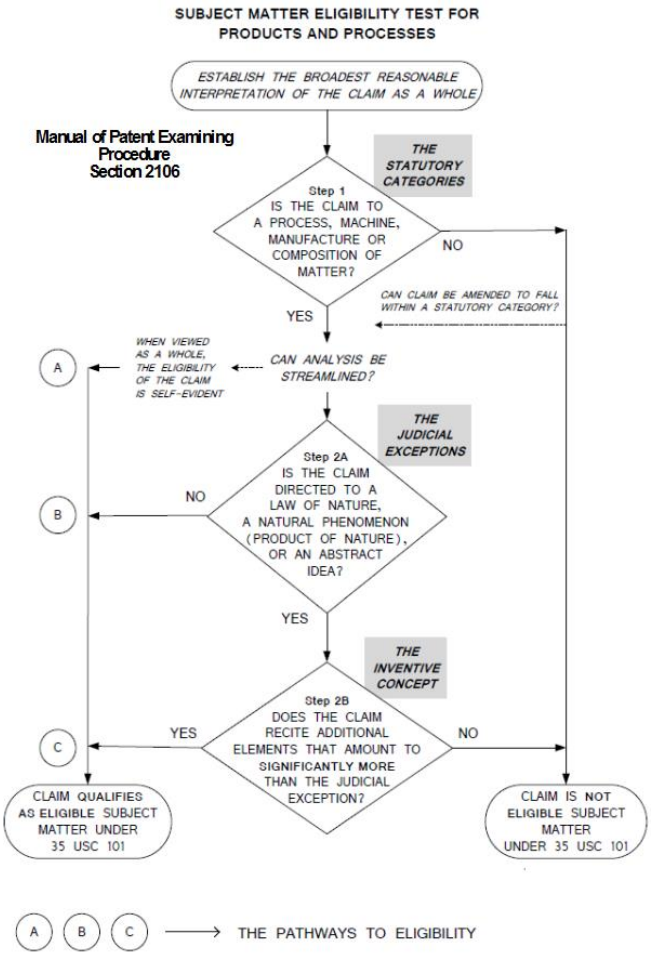
At first blush, it would appear to the reader that there is sufficient detail in the claim to make the claimed invention very "concrete" and there is nothing "abstract" about it. But, as mentioned above, the Court never explicitly defined the word "abstract" in its opinion. Rather, the Court determined that the mere recitation of computer hardware (viz., "a data storage unit" and "a computer") in the claim above was not sufficient to make the claimed invention patentable subject matter. The above claim was considered an "abstract idea." The Court in *Alice* then continued its analysis based on its 2012 *Mayo vs. Prometheus* [6] opinion it issued regarding a medical diagnostic test patent with regard to a law of nature exception to patentable subject matter. In particular, the next step to ask was whether there was an additional element or combination of elements in the claim that added something "significantly more" than the abstract idea. The Court identified what it meant by "significantly more":

(i)Improvements to the functioning of a computer;
(ii)Improvements to any other technology or technical field;
(iii)Applying the abstract idea with, or by use of, a *particular* machine;
(iv)Effecting a transformation or reduction of a particular article to a different state or thing;
(v) adding a specific limitation other than what is well-understood, routine, conventional activity in the field, or adding unconventional steps that confine the claim to a particular useful application;
(vi) other meaningful limitations beyond generally linking the use of the judicial exception to a particular technological environment.

The Court in *Alice* found that none of these "significantly more" features were found in the claims of the contested patents owned by Alice Corp. The claims of these patents were thus determined to be ineligible subject matter for patenting.

And although the patents in the *Alice* case involved the application of business methods with a generic computer, the reach of the *Alice* opinion was *not* just limited to business applications on generic computers; the opinion soon was applied to patents and patent applications on CIIs in general. [7]. As a result, all patent applicants with patent applications on IOS and Android apps would be rejected in the PTO, while inventors and investors holding patents on e-commerce method patents would see their asserted patents bounced out of court at an early stage, usually seen only in borderline frivolous lawsuits. If the claims of a patent application specifies "a computer or microprocessor" and any steps performed by same, the PTO will most likely issue a 35 U.S.C § 101 rejection for non-patentable subject matter. PTO examination requires examiners to make rejections based on prior art (earlier examples of the claimed invention, 35 U.S.C. §102) or a combination that makes the invention obvious, 35 U.S.C. §103). But now, in view of the *Alice* opinion, the applicant must now also argue against the §101 rejection and any prior art rejections (§102 and §103).

Based on the *Mayo* and *Alice* opinions, the PTO created a flow diagram for its Subject Matter Eligibility (SME) Test to be used by its examiners to examine claims for subject matter eligibility under §101:



Step 1 requires the patent examiner to determine if the claimed subject matter falls within any one of the four statutory categories of patentable subject matter, namely, (1) a process; (2) a machine; (3) an article of manufacture; or (4) a composition of matter? If the answer is no, the claim is determined to be not patentable subject matter. If the answer is yes, the test continues to Step 2A: Is the claim directed to one of the three exceptions of patentable subject matter, namely, (1) a law of nature; (2) a natural phenomenon; or (3) an abstract idea? If the answer to Step 2A is no, the claim is

determined to be patentable subject matter. If the answer to Step 2A is yes, then there is still one more opportunity to have these non-patentable subject matter categories considered patentable subject matter: Step 2: Does the claim recite additional elements that amount to "significantly more" than the judicial exception?

Although Steps 2A and 2B appear straight-forward, they are anything but. Firstly, as stated above, the meaning of "abstract idea" was not explicitly defined in the *Alice* opinion. Just what is an "abstract idea"? As such, evaluating the answer to Step 2A is not an easy determination. Since the *Alice* opinion, many cases of patent validity/invalidity have been issued by federal courts. From these cases, categories of "abstract ideas" have been identified:

1) Fundamental Economic Practices
- -agreements between people;
- -performance of financial transactions;
- -concepts related to risk

2) Certain Methods of Organizing Human Activity
- -managing relationships;
- -managing transactions between people;
- -satisfying or avoiding legal obligations;
- -advertising, marketing, sales activities or behaviors
- -managing human behavior;
- -trading or organizing information;
- -relaying mailing address data;
- -virus screening;
- -voting, verifying voting, submitting votes for tabulation

3) An "Idea" of Itself;
- -data comparisons that can be performed mentally;
- -organizing or analyzing information that can be performed mentally or analogous to human mental work;
- -determining price using organizational & product group hierarchies;
- -displaying an advertisement in exchange for access to copyrighted media;
- -delivering user-selected media content to portable devices;
- -generating a second menu from a first menu & sending second menu to another location;
- -providing out-of-region access to regional broadcast content;
- -remotely accessing & retrieving user-specified information

4) Mathematical Relationship
- -concepts relating to mathematical relationships or formulas;
- -concepts relating to performing mathematical calculations

By way of example only, the explosion of artificial intelligence (AI) has many inventors and investors seeking patent protection. But in many instances such AI "algorithms" could be considered "organizing information" or "mathematical relationships" that fall under the "abstract idea" categories mentioned above. [8]

On the other hand, the following have been determined as ***not*** being abstract ideas:

-a graphic user interface (GUI) for mobile devices that displays commonly accessed data on a main menu;
-matching website "look and feel";
-self-referential data table;
-virus scan that generates a security profile identifying both hostile & potentially hostile operations;
-rules for lip sync & facial expression animation;
-using sensors to more efficiently track an object moving on a platform;
-GUI that prevents order entry at a changed price;
-enhanced computer memory system

As to evaluating Step 2B, namely, determining whether an "abstract idea" from Step 2A does add something "significantly more", the Manual of Patent Examining Procedure [9] specified that if additional claim elements are other than well-understood, routine and conventional activities in the industry, then such elements favor patent eligibility. In the *Berkheimer v. HP, Inc.* case [10], the Federal Circuit further clarified that just because the patent examiner finds that a feature is disclosed in a prior art document, that alone does not establish that the claim element(s) is well-understood, routine and conventional activities in the industry under Step 2B. As such, the following have been found to have added something "significantly more" than the abstract idea itself:

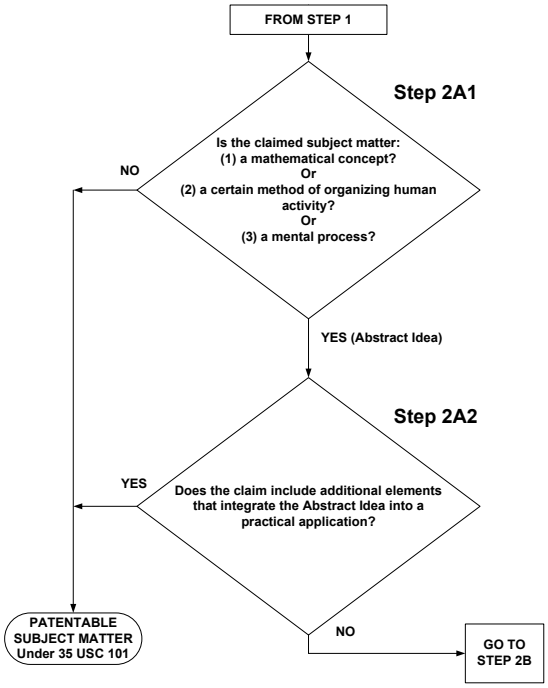
-tomographic scanning;
-field enhancement in distributed networks;
-processing data about vaccination schedules & then vaccinating;
-rubber manufacturing;
-antenna;
-digital image processing;
-GPS system

The initial effect of *Alice* on patent prosecution of business method patents was profound. Prior to *Alice*, patent applicants overcame Section 101 rejections about 62% of the time prior to receiving a final rejection. After *Alice,* 90% of business method applications have received final rejections [10]. Moreover, being now five years out from the *Alice* opinion, it still appears that there is no clear standard for guiding patent applicants on how best to avoid rejections under §101. Furthermore, given that we live in a "digital revolution environment" most innovation occurs in ***software***, not in hardware. As a result, it is difficult to always rely on "improving computer function" (one of the five examples of "significantly more" identified in the *Alice* opinion) in order to pass Step 2B in the SME Test during patent application examination.

PTO's New Guidelines

To attempt to wade through this morass of confusion, the PTO decided in January 2019 to issue revised guidelines for determining patentable subject matter eligibility. It did so by revising Step 2A of the SME Test and breaking it into two distinct steps, Step 2A1 and Step 2A2. Step 2A1 identifies particular groupings of subject matter as being "abstract ideas": (1) mathematical concepts; (2) certain methods of organizing human activity; and (3) mental processes. If the claimed subject matter does not fall within any one of those three groupings, the claimed subject matter is not an abstract idea and is considered eligible patentable subject matter. If, on the other hand, the claimed subject matter does fall within one of those categories, it considered an "abstract idea" and the SME Test continues to Step 2A2. In Step 2A2, if the abstract idea is integrated into a "practical application" then the claimed subject matter is eligible patentable subject matter; if, on the other hand, the abstract idea is not integrated into a practical application, then the SME Test continues onto Step 2B.

REVISED STEP 2A UNDER NEW PTO JANUARY 2019 GUIDELINES



The effects of these new PTO guidelines appear to have made a significant change in the determination of patentable subject matter since the new guidelines were released in January 2019. In particular by March 2019, the Patent Trial and Appeal Board (PTAB) in the PTO had reversed 77 patent ineligible decisions by examiners. [11]. This represented 1 out of every 3 abstract idea determinations were being reversed. Moreover, of the 77 reversal decisions, it was determined that 61 of those reversals were made at Step 2A of the SME Test, whereas the remaining reversals were made at Step 2B. This means that the PTAB was concluding that there was no abstract idea. By restricting "abstract ideas" in Step 2A1 to only 3 particular categories (viz., either a "mathematical concept" or a "certain method of organizing human activity" or "a mental process"), the new guidelines have permitted claimed inventions to pass as "patentable subject matter" more readily. Looking at the different PTO technology centers:

PTO Technology Center	***% Reversals of §101 Rejections by PTAB***
3700-Mechanical; Medical Devices	23/47 = 50%
2100-Electrical; Computer tech	27/43 = 63%
2400-Electrical; Computer tech	14/26 = 54%

The Federal Courts, the New Guidelines and Congress

The issuance of the new guidelines will help both examiners and applicants navigate what the PTO considers is patentable subject matter for patent applications filed on CIIs. But the PTO also makes it clear that these guidelines do "…not constitute substantive rulemaking and do not have the force and effect of law." As such, the federal courts are only obligated to follow court precedents, namely, the *Alice* opinion and its progeny, and not the PTO guidelines. [12]. Thus, for patent owners, citing that the claims of their patent comply with the new PTO guidelines will have no weight to patent challenges filed in federal court. Two recent Federal Circuit cases made this clear when they upheld the invalidity of patents under §101 even though the patent owners asserted that their claimed inventions met the criteria of the new PTO guidelines. [13].

This disparity between the new PTO patent examination guidelines and the federal courts' disregard of these new PTO guidelines, has further prompted Congress to act to consider amending the Patent Statute to provide comprehensive and consistent guidance on patentable subject matter eligibility. A bicameral bill introduced by U.S. Senators Chris Coons (D-DE) and Thom Tillis (R-NC) and by U.S. Representatives Doug Collins (R-GA-9), Hank Johnson (D-GA-4) and Steve Stivers (R-OH-15) seeks to expand patent eligibility under 35 U.S.C. §101 and has been presented for public comment:

> The provisions of section 101 shall be construed in favor of eligibility.
>
> No implicit or other judicially created exceptions to subject matter eligibility, including "abstract ideas," "laws of nature," or "natural phenomena," shall be used to determine patent eligibility under section 101, and all cases establishing or interpreting those exceptions to eligibility are hereby abrogated. [14]

This proposed language basically overrules of the Alice progeny of case law. This is only the current proposal at this time which, of course, is subject to change as Congress continues to hold hearings from the different stakeholders. Certainly public opinion has been divided. Those supporting the bill includes people in the financial sector and investors whereas those opposing the bill are people who believe that the *Alice* opinion and its progeny have greatly reduced patent troll suits and nuisance value lawsuits that proliferated the federal courts prior to *Alice* on all kinds of e-commerce patents.

TAKE-AWAYS

In view of the foregoing, the following are recommended to:

1. Always integrate the claimed CII into a practical application;
2. Avoid the three categories in Step 2A1 of the SME Test in claiming the invention: mathematical concepts, certain methods of organizing human activity and mental processes;
3. Identify improvements in computer technology. Identify HOW technology improves computer functionality (e.g., faster processing, more efficient processing, less data, better data utilization, fewer steps, better processing, greater flexibility, etc.)
4. Provide a statement that explains HOW computer functionality (i.e., the functioning of a computer) has been improved.
5. Identify the inventive feature and explain why it not "well-understood, routine, conventional" or generic.
6. Identify and inventive feature, as opposed to the mere use of a computer, that improves the process.
7. Identify a specific technical problem and explain how the inventive feature overcomes the technical problem.
8. Avoid pure algorithms, fundamental economic practices and CADD (collect, analyze and display data).
9. Specify HOW the inventive features effect a transformation or reduction of a particular article to a different state or thing.

References

[1] Patent Statute, 35 U.S.C.§§ 102-103.

[2] *Gottschalk v. Benson*, 409 U.S. 63 (1972).

[3] *Alice Corp. v. CLS Bank Int'l,* 573 U.S. 208, 216 (2014).

[4] *Bilski v. Kappos,* 561 U.S. 593 (2010).

[5] *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208 (2014).

[6] *Mayo Collaborative Services v. Prometheus Labs, Inc.*, 132 S. Ct. 1289 (2012).

[7] Samuel Hayin & Kate Gaudry, *Eligibility Rejections are Appearing in Greater Frequency Across All Computer Related Technology Centers,* www.ipwatchdog.com; May 24, 2018.

[8] *4 Ways Advances in AI Could Challenge Patent Law*, Law 360, October 9, 2018

[9] Manual Patent Examining Procedure, §2106.05(d);

[10] *Berkheimer v. HP, Inc.,* 881 F.3d 1360 (Fed. Cir. 2018)

[11] *The PTAB Sets Another Record for Reversing Abstract Idea Rejections*, Anticipat Blog, Ex Parte PTAB Guiding Patent Prosecution, May 14, 2019

[12] Larry Ashery, *Murky Parts of the New USPTO Patent Eligibility Guidance*, Caesar Rivise blog, Jan. 16, 2019

[13] *Athena Diagnostics Inc, et al., v. Mayo Collaborative Services LLC*, 2017-2508 (Fed. Cir. Feb. 2019); *Cleveland Clinic Foundation, et al. v. True Health Diagnostics LLC*, 2018-1218 (Fed. Cir. April 2019).

[14] Danielle Hohmeier, *The State of Patent Eligibility in America*, Blog.juristat.com/101-reform-senate-hearing, June 18, 2019

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Scott Slomowitz is an intellectual property attorney with over 25 years of experience in all aspects of IP which includes patents, copyrights, trademarks and trade secrets. He represents large corporations and small businesses, as well as sole inventors in counseling them on how best to protect their IP. He holds an electrical engineering degree from the University of Delaware and worked as a flight controls engineer at Boeing Helicopters for several years. His industry experience, as well as being a patent holder of several inventions himself, places him in the unique role of being a well-seasoned IP attorney and inventor.

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