



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/281,586	05/19/2014	MAOMAO CHEN	5924-23901	5232
35690	7590	10/16/2018	EXAMINER	
MEYERTONS, HOOD, KIVLIN, KOWERT & GOETZEL, P.C. P.O. BOX 398 AUSTIN, TX 78767-0398			REFAI, RAMSEY	
			ART UNIT	PAPER NUMBER
			3668	
			NOTIFICATION DATE	DELIVERY MODE
			10/16/2018	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patent\_docketing@intprop.com

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* MAOMAO CHEN and XIAO YU LI

---

Appeal 2017–001736  
Application 14/281,586  
Technology Center 3600

---

Before ANTON W. FETTING, BRUCE T. WIEDER, and  
MATTHEW S. MEYERS, *Administrative Patent Judges*.  
FETTING, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE<sup>1</sup>

Maomao Chen and Xiao Yu Li (Appellants)<sup>2</sup> seek review under  
35 U.S.C. § 134(a) of a final rejection of claims 17–36, the only claims

---

<sup>1</sup> Our decision will make reference to the Appellants’ Appeal Brief (“App. Br.,” filed April 1, 2016) and Reply Brief (“Reply Br.,” filed November 8, 2016), and the Examiner’s Answer (“Ans.,” mailed September 8, 2016), and Final Action (“Final Act.,” mailed October 30, 2015).

<sup>2</sup> Appellants identify Amazon Technologies, Inc. as the real party in interest.  
App. Br. 2.

pending in the application on appeal.<sup>3</sup> We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

The Appellants invented a way of allocating regional inventory to reduce out-of-stock costs. Specification para. 14.

An understanding of the invention can be derived from a reading of exemplary claim 30, which is reproduced below (bracketed matter and some paragraphing added).

30. A method, comprising:

[1] performing, by one or more computing devices, receiving,  
by a planning system,

a regional demand forecast

for an item

for each of a plurality of regions;

[2] receiving, by the planning system, a unit out-of-stock cost  
of the item in each of the plurality of regions;

[3] calculating, by the planning system, an expected out-of-  
stock cost

for each of the plurality of regions based, at least in part,  
on each region's respective regional demand forecast,  
target inventory of the item, and unit out-of-stock cost,

wherein the calculating comprises calculating respective  
target inventories of the item for each of the plurality of  
regions,

such that a difference between the expected out-of-  
stock costs for each of the plurality of regions is  
reduced;

---

<sup>3</sup> An amendment after final to the claims was filed December 30, 2015, and was entered with an Advisory Action mailed January 13, 2016.

[4] allocating, by the planning system, each calculated respective target inventory of the item to the respective region of the plurality of regions;

and

[5] cause distribution of physical inventory units of the item to respective fulfillment centers of each of the plurality of regions

in accordance with the allocation of each calculated respective target inventory and reduction of the difference between the expected out-of-stock costs for each of the plurality of regions.

Claims 17–36 stand rejected under 35 U.S.C. § 101 as directed to non–statutory subject matter.

## ISSUES

The issues of eligible subject matter turn primarily on whether the claims recite more than abstract conceptual advice of what a computer is to provide without implementation details.

## ANALYSIS

Method claim 30 recites receiving demand forecasts and unit out-of-stock costs, computing expected out-of-stock costs based on the demand and unit cost data, allocating target inventory data to regions, and somehow causing distribution of inventory according to the allocation. Thus, claim 30 recites receiving, analyzing, and transmitting data. None of the limitations recite implementation details for any of these steps, but instead recite functional results to be achieved by any and all possible means. In

particular, claim 30 recites nothing about how the inventory distribution is caused, but whatever the nature and implementation, it is within a computer<sup>4</sup> and not external with the physical inventory itself. Data reception, analysis and modification, and transmission are all generic, conventional data processing operations to the point they are themselves concepts awaiting implementation details. The sequence of data reception-analysis-transmission is equally generic and conventional. The ordering of the steps is therefore ordinary and conventional. The remaining claims merely describe parameters for the computations, with no implementation details.

#### The Supreme Court

set forth a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts. First, [] determine whether the claims at issue are directed to one of those patent-ineligible concepts. [] If so, we then ask, “[w]hat else is there in the claims before us? [] To answer that question, [] consider the elements of each claim both individually and “as an ordered combination” to determine whether the additional elements “transform the nature of the claim” into a patent-eligible application. [The Court] described step two of this analysis as a search for an ““inventive concept””—i.e., an element or combination of elements that is “sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.”

*Alice Corp., Pty. Ltd. v CLS Bank Intl*, 134 S.Ct. 2347, 2355 (2014) (citing *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012)).

---

<sup>4</sup> “[P]erforming, by one or more computing devices.” Claim 30.

To perform this test, we must first determine whether the claims at issue are directed to a patent-ineligible concept. The Examiner finds the claims directed to allocating inventory to respective regions based on demand forecast and out-of-stock cost of item to reduce out-of-stock costs, which is considered a method of organizing human activities, a mathematical relationship/formula, and a fundamental economic practice. Final Act. 4.

Although the Court in *Alice* made a determination as to what the claims were directed to, we find that this case's claims themselves and the Specification provide enough information to inform one as to what they are directed to.

The preamble to claim 30 does not recite what it is directed to, but the steps in claim 30 result in inventory levels based on inventory targets and costs. The Specification at paragraph 14 recites that the invention relates to allocating regional inventory to reduce out-of-stock costs. Thus, all this evidence shows that claim 30 is directed to allocating inventory based on targets and costs, i.e. inventory optimization. This is consistent with the Examiner's finding.

It follows from prior Supreme Court cases, and *Bilski* (*Bilski v Kappos*, 561 U.S. 593 (2010)) in particular, that the claims at issue here are directed to an abstract idea. The concept of inventory optimization is a fundamental business practice long prevalent in our system of commerce. The use of inventory optimization is also a building block of ingenuity in production planning. Thus, inventory optimization, like hedging, is an "abstract idea" beyond the scope of §101. *See Alice Corp. Pty. Ltd.* at 2356.

As in *Alice Corp. Pty. Ltd.*, we need not labor to delimit the precise contours of the “abstract ideas” category in this case. It is enough to recognize that there is no meaningful distinction in the level of abstraction between the concept of risk hedging in *Bilski* and the concept of inventory optimization at issue here. Both are squarely within the realm of “abstract ideas” as the Court has used that term. *See Alice Corp. Pty. Ltd.* at 2357.

Further, claims involving data collection, analysis, and display are directed to an abstract idea. *Elec. Power Grp. v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (holding that “collecting information, analyzing it, and displaying certain results of the collection and analysis” are “a familiar class of claims ‘directed to’ a patent ineligible concept”); *see also In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 611 (Fed. Cir. 2016); *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1093–94 (Fed. Cir. 2016). Claim 30, unlike the claims found non-abstract in prior cases, uses generic computer technology to perform data retrieval, analysis, and transmission and does not recite an improvement to a particular computer technology. *See, e.g., McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016) (finding claims not abstract because they “focused on a specific asserted improvement in computer animation”). As such, claim 30 is directed to the abstract idea of receiving, analyzing, and transmitting data.

The remaining claims merely describe parameters for the computations. We conclude that the claims at issue are directed to a patent-ineligible concept.

The introduction of a computer into the claims does not alter the analysis at Mayo step two.

the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Stating an abstract idea “while adding the words ‘apply it’” is not enough for patent eligibility. Nor is limiting the use of an abstract idea “to a particular technological environment.” Stating an abstract idea while adding the words “apply it with a computer” simply combines those two steps, with the same deficient result. Thus, if a patent’s recitation of a computer amounts to a mere instruction to “implemen[t]” an abstract idea “on . . . a computer,” that addition cannot impart patent eligibility. This conclusion accords with the preemption concern that undergirds our §101 jurisprudence. Given the ubiquity of computers, wholly generic computer implementation is not generally the sort of “additional featur[e]” that provides any “practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself.”

*Alice Corp. Pty. Ltd.*, 134 S.Ct. at 2358 (citations omitted).

“[T]he relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea . . . on a generic computer.” *Alice Corp. Pty. Ltd.*, 134 S.Ct. at 2359. They do not.

Taking the claim elements separately, the function performed by the computer at each step of the process is purely conventional. Using a computer to receive, analyze, and transmit data amounts to electronic data query and retrieval—one of the most basic functions of a computer. The limitation of causing distribution is just that, some form of causation trigger, such as data generated to use for subsequent inventory distribution. By the claim’s terms, such causation is performed by a computing device and so



does not extend to actual physical transport. Simply displaying or emailing an instruction to do so would be within the scope of causing distribution. All of these computer functions are well-understood, routine, conventional activities previously known to the industry. *See Elec. Power Grp. v. Alstom S.A., supra.* Also see *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) (“Absent a possible narrower construction of the terms ‘processing,’ ‘receiving,’ and ‘storing,’ . . . those functions can be achieved by any general purpose computer without special programming”). In short, each step does no more than require a generic computer to perform generic computer functions. As to the data operated upon, “even if a process of collecting and analyzing information is ‘limited to particular content’ or a particular ‘source,’ that limitation does not make the collection and analysis other than abstract.” *SAP America Inc. v. InvestPic LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018)

Considered as an ordered combination, the computer components of Appellants’ method add nothing that is not already present when the steps are considered separately. The sequence of data reception-analysis-transmission is equally generic and conventional or otherwise held to be abstract. *See Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014) (sequence of receiving, selecting, offering for exchange, display, allowing access, and receiving payment recited an abstraction), *Inventor Holdings, LLC v. Bed Bath & Beyond, Inc.*, 876 F.3d 1372, 1378 (Fed. Cir. 2017) (sequence of data retrieval, analysis, modification, generation, display, and transmission), *Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017)(sequence of processing, routing,

controlling, and monitoring). The ordering of the steps is therefore ordinary and conventional.

Viewed as a whole, Appellants' method claims simply recite the concept of inventory optimization as performed by a generic computer. To be sure, the claims recite doing so by advising one to use out-of-stock costs and inventory target levels to allocate inventory and let one know when and how much inventory to distribute. But this is no more than abstract conceptual advice on the parameters for such inventory optimization and the generic computer processes necessary to process those parameters, and do not recite any particular implementation.

The method claims do not, for example, purport to improve the functioning of the computer itself. Nor do they effect an improvement in any other technology or technical field. The Specification spells out different generic equipment<sup>5</sup> and parameters that might be applied using this concept and the particular steps such conventional processing would entail based on the concept of inventory optimization under different scenarios. They do not describe any particular improvement in the manner a computer functions. Instead, the claims at issue amount to nothing significantly more

---

<sup>5</sup> Processors 910 may be any suitable processor capable of executing instructions. For example, in various embodiments processors 910 may be a general-purpose or embedded processor implementing any of a variety of instruction set architectures (ISAs), such as the x96, PowerPC, SPARC, or MIPS ISAs, or any other suitable ISA. In multiprocessor systems, each of processors 910 may commonly, but not necessarily, implement the same ISA.

Spec. para. 81.

than an instruction to apply the abstract idea of inventory optimization using some unspecified, generic computer. Under our precedents, that is not enough to transform an abstract idea into a patent-eligible invention. *See Alice Corp. Pty. Ltd.* at 2360.

As to the structural claims, they

are no different from the method claims in substance. The method claims recite the abstract idea implemented on a generic computer; the system claims recite a handful of generic computer components configured to implement the same idea. This Court has long “warn[ed] ... against” interpreting § 101 “in ways that make patent eligibility ‘depend simply on the draftsman’s art.’

*Alice Corp. Pty. Ltd.* at 2360.

We are not persuaded by Appellants' argument that “because the Office has not adequately articulated what the similarity is (to say nothing of what case law precedent are the source of such concepts, thereby providing the necessary claims of those cases as a source of comparison) a prima facie rejection has not been established.” App. Br. 7 (emphases omitted). The Examiner determined what the claims are directed to, why they are abstract ideas, and that the claim details and claim as a whole do not provide significantly more than the abstract idea. We have done so as well, *supra*.

We are not persuaded by Appellants' argument that “Appellants' claim is not actually similar to any of the concepts recited in the rejection. Instead, Appellants' claim pertains to physically arranging quantities of an inventory items [sic] among different physical fulfillment centers in a manner that reduces differences in out-of-stock costs for different regions.” App. Br. 8. As we find *supra*, Appellants’ claims are analogous to those in *Electric*

*Power.* As we also determine *supra*, Appellants' claims on their own terms are performed within a computer and so do not and cannot extend to physically arranging quantities of an inventory. Claim 30 only recites causing distribution, not distributing. Such a cause may be any trigger such as providing the data used to trigger the subsequent distribution.

We are not persuaded by Appellants' argument that “describes a novel technique used to control the physical distribution of inventory among different physical locations, much like the calculations in a computer in *Diehr* were used to control when to open a rubber curing oven.” App. Br. 8 (citing *Diamond v. Diehr*, 450 U.S. 175 (1981)).

First as to novelty, “a claim for a *new* abstract idea is still an abstract idea. The search for a § 101 inventive concept is thus distinct from demonstrating § 102 novelty.” *Synopsys, Inc. v. Mentor Graphics Corporation*, 839 F.3d 1138, 1151 (Fed. Cir. 2016). As to *Diehr*, first unlike *Diehr*, which recited “opening said press when a said comparison of calculated total required cure time and monitored elapsed time indicates equivalence” and “removing from said mold the resultant precision molded and cured rubber article,” *Diehr*, 450 U.S. at 220, the instant claim only recites causing distribution of inventory.

The *Diehr* Court found those claims eligible because they “involve[d] the transformation of an article, . . . raw, uncured synthetic rubber, into a different state or thing” and “describe[d] in detail a step-by-step method for accomplishing such, beginning with the loading of a mold with raw, uncured rubber and ending with the eventual opening of the press at the conclusion of

the cure.” *Id.* at 184.<sup>6</sup> Because Appellant’s claims are not directed an industrial process, *Diehr* is inapposite.

Again, in the instant claim, the recited causation does not encompass physical distribution, as contrasted with *Diehr*’s physical press opening and tire removal. More to the point, at the time of *Diehr*, it was unknown to use a computer’s algorithmic output to send the signal to the press, so the computer and press formed a combined special purpose press that has structural novelty. It has long been known to compute optimal inventory levels and then follow up on those levels in inventory distribution.

Much as the phones in *Affinity Labs of Texas*, absent some technological improvement in the distribution itself or the technological linkage between computational output and distribution, the recitation of causing to distribute, or even distributing, is no more than abstract conceptual advice to do so and adds nothing substantive to the claim.

In this case, the claims are directed not to an improvement in cellular telephones but simply to the use of cellular telephones as tools in the aid of a process focused on an abstract idea. That is not enough to constitute patentable subject matter.

*Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1262 (Fed. Cir. 2016).

---

<sup>6</sup> Exemplary claims at issue in *Diehr* are reproduced in note 2 of the opinion and include limitations such as “constantly determining the temperature (Z) of the mold at a location closely adjacent to the mold cavity in the press during molding” and “opening the press automatically when a said comparison indicates equivalence.”

We are not persuaded by Appellants' argument that “Appellants submit that the claims are directed to patent-eligible subject matter at least because the claims are directed to inventions that clearly do not seek to tie up the alleged judicial exception and thus the claims should be examined via streamlined eligibility analysis.” App. Br. 9 (emphases omitted). As to the preemption argument, “[w]here a patent’s claims are deemed only to disclose patent ineligible subject matter under the *Mayo* [*Alice*] framework, as they are in this case, preemption concerns are fully addressed and made moot.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015).

As to the streamlined eligibility analysis argument, Appellants mischaracterize the purpose of section 1(B)(3) of the *2014 Interim Guidance on Patent Subject Matter Eligibility* guidelines as placing a requirement on the Examiner. Rather, section 1(B)(3) is available to the Examiner as a discretionary streamlined § 101 *Alice/Mayo* analysis favoring Applicant. Section 1(B)(3) is explicit that “if there is doubt as to whether the applicant is effectively seeking coverage for a judicial exception itself, ***the full analysis should be conducted.***” Emphasis added. Contrary to Appellants’ argument, the streamlined patent-eligibility analysis under section 1(B)(3) is not required to be available to Appellants; rather, it is at the Examiner’s discretion. The Examiner choosing to perform a full § 101 *Alice/Mayo* analysis is not an error.

Further, any Examiner’s failure to follow the Director’s guidance is appealable only to the extent that the Examiner has failed to follow the statutes or case law. That is, to the extent the Director’s guidance goes beyond the case law and is more restrictive on the Examiner than the case

law, failure of the Examiner to follow those added restrictions is a matter for petition to the Director. We review Appellants' particular arguments against the case law and find no requirement in the law that the Examiner perform a section 1(B)(3) streamlined § 101 *Alice/Mayo* analysis.

We are not persuaded by Appellants' argument that the claim do not preempt an idea (App. Br. 10–11) for the same reasons we find *supra*.

We are not persuaded by Appellants' argument that “at least because the Office has failed to show that independent claim 17 is directed to subject matter that the Court has positively identified as being within any exception to subject matter eligibility, the Office has failed to make a *prima facie* rejection” (App. Br. 13) for the same reasons we find *supra*.

Similarly, we are not persuaded by Appellants' argument that “Appellants' claimed subject matter is not actually similar to the concepts already found to be abstract in the body of case law precedent.” *See* App. Br. 14–20. Appellants contend that because no case has yet opined on the eligibility of inventory optimization, no rejection may be made. We do not disagree that inventory optimization is not a financial instrument concept as in *Alice*. But inventory optimization is inherently economic in character as it by definition optimizes the trade-offs between actual costs of inventory carrying and storage against opportunity costs of sales delayed and foregone from inventory outages. In fact the prototypical inventory optimization algorithm from the early 1900's is the *economic* order quantity (EOQ)

algorithm.<sup>7</sup> Thus, the claims are directed to an economic idea of optimizing inventory costs.

We are not persuaded by Appellants' argument that the claims are analogous to those in *Diehr* (App. Br. 22–24) for the same reasons we find *supra*.

We are not persuaded by Appellants' argument that “if a claim is directed to a concept which amounts to significantly more than an abstract idea, claiming a generic computer implementation of the concept does not automatically render the claim patent-ineligible, under *Alice Corp.*” App. Br. 26. First, a concept *per se* is an abstract idea. The Supreme Court held that claims that explained the basic concept of an activity (hedging) would allow the Appellant to pre-empt the use of this approach in all fields, and would effectively grant a monopoly over an abstract idea. *Bilski v. Kappos*, 561 U.S. 593, 611–612 (June 2010). Abstract ideas are not patent eligible. *Id.* at 601 and 653. Hence, concepts without more are patent ineligible. We take Appellants to mean that if a claim is directed to a process which amounts to significantly more than an abstract idea, claiming a generic computer implementation of the concept does not automatically render the claim patent ineligible, under *Alice Corp.* We agree, but we disagree that the claims recite significantly more for the reasons we determine *supra*.

As to Appellants’ arguments regarding lack of detail in rejecting the dependent claims, Appellants conflate consideration with explication. The Examiner is required to consider every claim separately, but the analysis

---

<sup>7</sup> See e.g., Wilson, R. H. (1934). "A Scientific Routine for Stock Control". *Harvard Business Review*. 13: 116–28.



Appeal 2017-001736  
Application 14/281,586

may include summarization of findings. As we find *supra*, all of the dependent claims recite no more than parameters used for the computations, and such parameters are themselves abstractions.

#### CONCLUSIONS OF LAW

The rejection of claims 17–36 under 35 U.S.C. § 101 as directed to non–statutory subject matter is proper.

#### DECISION

The rejection of claims 17–36 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2011).

AFFIRMED