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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDREW VAKHUTINSKY

Appeal 2016-007207[1]
Application 13/101,539[2]
Technology Center 3600

Before MURRIEL E. CRAWFORD, BRADLEY B. BAYAT, and ALYSSA A. FINAMORE, *Administrative Patent Judges*.

FINAMORE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant appeals from the Examiner's decision to reject claims 1–4, 6–11, 13–15, 17, and 18. We have jurisdiction under § 6(b). We AFFIRM.

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[1] Our Decision references Appellant's Specification ("Spec.," filed May 5, 2011), Appeal Brief ("Appeal Br.," filed Nov. 30, 2015), and Reply Brief ("Reply Br.," filed July 19, 2016), as well as the Examiner's Answer ("Ans.," mailed May 19, 2016) and Final Office Action ("Final Act.," mailed May 26, 2015).

[2] Appellant identifies Oracle International Corporation as the real party in interest. Appeal Br. 2.

SUBJECT MATTER ON APPEAL

The invention is directed to a retail pre-pack optimization system. Spec., Title. Claims 1, 8, and 15 are the independent claims on appeal. Independent claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, cause the processor to determine an optimized pre-pack solution for a plurality of stores, the determining the optimized solution comprising:
>
> (a) receive demand data and constraints;
>
> (b) initialize a current pre-pack configuration comprising a current pre-pack design that comprises a plurality of pre-pack types, each pre-pack type comprising one or more different products, wherein each product comprises a different stock keeping unit (SKU) representing a unique item;
>
> (c) optimize a pre-pack allocation based on the current pre-pack configuration;
>
> (d) determine an objective function value improvement comprising, for each product in each pre-pack type, change a level of the product by one unit and determine if the objective function value has improved;
>
> (e) if the objective function value has improved, generate a new pre-pack design based on the changed level of the product;
>
> (f) assign the new pre-pack design as the current pre-pack design;
>
> (g) repeat (c) – (f), until the objective function value has not improved at (e);
>
> (h) output an optimized pre-pack configuration;
>
> wherein the optimized pre-pack configuration comprises a specification of a set of unique pre-pack types used as shipment units to the stores, and each unique pre-pack type comprises one or more SKUs and a quantity for each of the SKUs;

wherein a change of the objective function value when a product a_{pq} is increased by one unit comprises:

$$grad_{pq}^{+} = \sum_{j=1}^{D} \left(c_1 \max(x_{pj} - y_{jq}^{-}, 0) - c_2 \min(x_{pj}, y_{jq}^{-})\right)$$

and wherein the change of the objective function value when the product a_{pq} is decreased by one unit comprises:

$$grad_{pq}^{-} = \sum_{j=1}^{D} \left(c_2 \max(x_{pj} - y_{jq}^{+}, 0) - c_1 \min(x_{pj}, y_{jq}^{+})\right)$$

wherein an SKU set comprises $q = 1, \ldots, Q$; a pack type comprises $p = 1, \ldots, P$; wherein a pack type p includes a_{pq} items of SKU q; a store comprises $j = 1, \ldots, D$; y_{jq}^{-} comprises an amount of per-store-per-SKU misallocation for under-allocation, y_{jq}^{+} comprises an amount of per-store-per-SKU misallocation for over-allocation; and c_1 comprises a cost of one unit of under-allocation of any SKU at a store, and c_2 comprises a cost of one unit of over-allocation of any SKU at a store.

REJECTION

The Examiner rejects claims 1–4, 6–11, 13–15, 17, and 18 under 35 U.S.C. § 101 as directed to non-statutory subject matter.

ANALYSIS

Appellant argues claims 1–4, 6–11, 13–15, 17, and 18 as a group. Appeal Br. 3–9; Reply Br. 2–4. We select independent claim 1 as representative. The remaining claims of the group stand or fall with independent claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

An invention is patent eligible if it is a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. The

Supreme Court, however, has long interpreted § 101 to include an implicit exception: "[l]aws of nature, natural phenomena, and abstract ideas are not patentable." *See, e.g.*, *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)).

To "distinguish[] patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts," the Supreme Court has provided a two-step framework. *Alice*, 134 S. Ct. at 2355 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012)). The first step considers whether a claim is directed to a patent-ineligible concept, e.g., an abstract idea. *Id.* (citing *Mayo*, 566 U.S. at 77). If so, the second step then considers whether the claim recites an inventive concept—an element or combination of elements sufficient to ensure the claim amounts to significantly more than the abstract idea and transform the nature of the claim into a patent-eligible application. *Id.* (citing *Mayo*, 566 U.S. at 72–73, 78, 79).

In rejecting independent claim 1 under 35 U.S.C. § 101, the Examiner analyzes the claim using this two-step framework. Final Act. 6; Ans. 3–9. Pursuant to the first step, the Examiner determines the claim is directed to the abstract idea of "determining a pre-pack configuration for items that are sold in stores." Final Act. 6. According to the Examiner, "determining a pre-pack configuration for items that are sold in stores" is similar to other concepts involving the use of mathematical formulas or algorithms that the courts have held to be abstract ideas, such as a mathematical procedure for converting one form of a numerical representation to another in *Gottschalk v. Benson*, 409 U.S. 63 (1972) and an algorithm for calculating parameters

indicating an abnormal condition in *In re Grams*, 888 F.2d 835 (Fed. Cir. 1989). Ans. 3–4.

Under the second step, the Examiner determines the claim does not recite significantly more than the abstract idea because the additional elements of the claim, considered alone and in combination, amount to no more than mere instructions to implement the abstract idea on a computer that allows a user to manipulate data to output an answer. Final Act. 6. The Examiner further determines that the claimed invention simply requires a generic processor for performing the steps, and does not improve the functioning of the computer itself. Ans. 7 (citing Spec. ¶ 15).

Appellant argues that independent claim 1 is not directed to an abstract idea pursuant to the first step of the *Alice* analysis because the concept of "determining a pre-pack configuration for items that are sold in stores" is not similar to an abstract idea identified by a court. Appeal Br. 4; Reply Br. 2–3. Appellant's argument is not convincing.

As set forth above, the Examiner explains that the concept of "determining a pre-pack configuration for items that are sold in stores" is similar to other concepts the courts have held to be abstract ideas. Ans. 3–4. Moreover, independent claim 1 relies on a mathematical algorithm for "determining a pre-pack configuration for items that are sold in stores." As the Supreme Court has explained, "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." *Parker v. Flook*, 437 U.S. 584, 595 (1978) (quoting *In re Richman*, 563 F.2d 1026, 1030 (1977)).

Seeing no error in the Examiner's determination that independent claim 1 is directed to an abstract idea pursuant to the first step of the *Alice* analysis, we turn to Appellant's arguments under the second step. Appellant argues that the Examiner did not consider the elements of independent claim 1 in combination, as the *Alice* analysis requires. Appeal Br. 8–9. We disagree. As set forth above, the Examiner determines the additional elements of the claim, considered alone and in combination, amount to no more than mere instructions to implement the abstract idea on a computer that allows a user to manipulate data to output an answer. Final Act. 6. The Examiner also explains that "[l]ooking at the elements as a combination does not add anything more than the elements analyzed individually." Ans. 8.

Appellant additionally contends that, like the claims in *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016), independent claim 1 recites an inventive concept in the non-conventional and non-generic arrangement of known conventional pieces. Reply Br. 4. According to Appellant, "the Final Office Action indicates that all claims are allowable over the prior art, meaning all of the pending claims now recite an inventive concept per *Bascom*." *Id.* Appellant's argument is not persuasive of error.

At the outset, we note that Appellant does not explain what the alleged non-conventional and non-generic arrangement is or how it provides an inventive concept. Rather, Appellant simply relies on the alleged novelty of the claimed invention as the inventive concept.

Although the second step of the *Alice* analysis is termed a search for an "inventive concept," the analysis is not an evaluation of novelty or nonobviousness, but rather, a consideration of "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." *Alice*, 134 S. Ct. at 2355 (emphasis added) (quoting *Mayo*, 566 U.S. 79, 78). The question in the second step, therefore, is whether the implementation of the abstract idea involves "more than performance of 'well-understood, routine, [and] conventional activities previously known to the industry.'" *Content Extraction & Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343, 1347–48 (Fed. Cir. 2014) (quoting *Alice*, 134 S. Ct. at 2359).

As the Examiner explains, independent claim 1 requires that a processor performs the recited steps. Ans. 6. The Examiner further explains that Appellant's Specification describes "[p]rocessor 22 may be any type of general or specific purpose processor capable of processing multiple instructions in parallel." *Id.* at 7 (quoting Spec. ¶ 15 (emphasis omitted)). This description of a general purpose processor supports the Examiner's finding that the computer implementation of the recited steps involves computer functions that are well-understood, routine, and conventional.

Moreover, independent claim 1 recites the steps of: (a) receiving demand data and constraints; (b) initializing a current pre-pack configuration; (c) optimizing a pre-pack allocation; (d) determining an objective function value improvement; (e) if the objective function value has improved, generating a new pre-pack design; (f) assigning the new pre-pack design as the current pre-pack design; (g) repeating steps (c)–(f) until the objective function value has not improved; and (h) outputting an optimized pre-pack configuration. We agree with the Examiner that the computer implementation of the recited steps merely requires the generic computer

functions of receiving, manipulating, and outputting data. Ans. 9; *see also In re Katz Interactive Call Processing Patent Litig.*, 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.").

Appellant similarly argues independent claim 1 does not merely recite conventional functionality. Appeal Br. 5–6. In particular, Appellant asserts that determining changes in objective function values, as recited in the claim, elevates independent claim 1 well beyond the mere concept of retrieving and combining data using a computer. *Id.* at 6. Appellant's argument does not apprise us of error because Appellant conflates the conventionality of the steps being performed by a processor and the conventionality of the computer functions required to implement the steps. As set forth above, the implementation of the recited steps, including the step of determining changes in objective function values, simply involves computer functions that are well-understood, routine, and conventional, namely the generic computer functions of receiving, manipulating, and outputting data.

Appellant also asserts that

> the use of a computer to determine changes in objective function values is clearly a technical solution to the problem of determining "an optimized pre-pack solution for a plurality of stores", and is not a solution that can be performed manually or using routine computer data storage and mathematical operations.

Appeal Br. 6. Appellant's argument is not persuasive of error. Even if the claimed invention requires the use of a computer, the computer implementation of the recited steps requires nothing more than a generic

processor performing the generic computer functions of receiving, manipulating, and outputting data. As the Supreme Court has explained, "[g]iven 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*, 134 S. Ct. at 2358 (alteration in original) (internal citation omitted) (quoting *Mayo*, 566 U.S. at 77).

Appellant additionally argues the claimed invention provides improvement to the functioning of the computer. Appeal Br. 7–8. According to Appellant, the claimed invention improves optimization outcome and reduces the need for computer resources, which leads to a better result. *Id.* at 8 (citing Spec. ¶¶ 48–49). Appellant's argument is not convincing. Appellant's Specification explains that the invention improves a pre-pack configuration by decreasing the total cost of product demand mismatching at each store in a chain, while reducing the total shipping and handling costs. Spec. ¶ 48. The Specification also explains the invention solves problems associated with business optimization. *Id.* ¶ 49. The Specification, therefore, describes improvements to pre-pack configuration and business optimization, not an improvement to the functioning of the computer.

Appellant further asserts that independent claim 1 does not preempt the abstract idea. Appeal Br. 7. Appellant's argument is not persuasive of error. Although preemption may be the basis for excluding abstract ideas from eligible subject matter, it is not the test for determining whether a claim is patent eligible. *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d

1371, 1379 (Fed. Cir. 2015) ("The Supreme Court has made clear that the principle of preemption is the basis for the judicial exceptions to patentability. For this reason, questions on preemption are inherent in and resolved by the § 101 analysis." (citation omitted)).

In view of the foregoing, Appellant does not apprise us of error in the Examiner's determination that independent claim 1 is patent-ineligible. Accordingly, we sustain the rejection of independent claim 1 under 35 U.S.C. § 101, with claims 2–4, 6–11, 13–15, 17, and 18 falling therewith.

DECISION

The Examiner's decision to reject claims 1–4, 6–11, 13–15, 17, and 18 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). 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED