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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DANIEL J. REAUME, WAYNE W. CAI,
and JEFFREY M. ALDEN

Appeal 2017-003103¹
Application 11/696,914²
Technology Center 3600

Before MURRIEL E. CRAWFORD, ANTON W. FETTING, and
NINA L. MEDLOCK, *Administrative Patent Judges*.

MEDLOCK, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner’s final rejection of claims 1–5, 9–11, and 13–15. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ Our decision references Appellants’ Appeal Brief (“App. Br.,” filed April 7, 2016) and Reply Brief (“Reply Br.,” filed December 21, 2016), and the Examiner’s Answer (“Ans.,” mailed October 28, 2016) and Final Office Action (“Final Act.,” mailed October 5, 2015).

² Appellants identify General Motors of Detroit, Michigan as the real party in interest. App. Br. 3.

CLAIMED INVENTION

Appellants' claimed invention "relates generally to a method for making an infeasible sequence of things feasible" and, more particularly, to "a method for making an infeasible assembly sequence of parts feasible in a process that provides assembly sequence optimization using a fictitious play algorithm" (Spec. ¶ 2).

Claims 1 and 10 are the independent claims on appeal. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method for making an infeasible assembly sequence of parts feasible, said method comprising:
 - executing, using at least one computing device coupled to a memory, instructions for:
 - generating a series of matrices that define the relative position of the parts in the assembly sequence based on graph theory;
 - multiplying matrices to determine the required order of the parts in the assembly sequence based on prior predetermined constraints;
 - selecting a current position for a part in the assembly sequence;
 - looking at each part in the assembly sequence before the current position being selected on a sequential basis to determine whether the part at the current position should come before any of the previous parts in the assembly sequence based on the multiplied matrices; and
 - assembling the parts using the assembly sequence.

REJECTION

Claims 1–5, 9–11, and 13–15 are rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter.

ANALYSIS

Under 35 U.S.C. § 101, an invention is patent-eligible if it claims 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. *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014).

The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice Corp.*, 134 S. Ct. at 2355. The first step in that analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts.” *Id.* If the claims are not directed to a patent-ineligible concept, e.g., an abstract idea, the inquiry ends. Otherwise, the inquiry proceeds to the second step where the elements of the claims are considered “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 566 U.S. at 79, 78).

The Court acknowledged in *Mayo*, that “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, the Federal Circuit has instructed that claims are to be considered in their entirety to determine “whether their character as a whole is directed to excluded subject matter.” *McRO, Inc. v. Bandai Namco Games Am., Inc.*, 837 F.3d 1299, 1312

(Fed. Cir. 2016) (quoting *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015)).

In rejecting the pending claims under 35 U.S.C. § 101, the Examiner determined that the claims are directed to making an infeasible sequence of things feasible, which the Examiner determined is reasonably considered to be a method of organizing behaviors and actions, and, therefore, an abstract idea (Final Act. 5). The Examiner also determined that the claims do not include additional elements or a combination of elements that amounts to significantly more than the abstract idea itself (*id.* at 6).

The Specification discloses that sheet panels are widely used in automotive assembly, where individual panels are joined and assembled through a variety of processes, and describes that appropriate assembly sequence designs can improve vehicle dimensional quality, optimize cycle time, and reduce cost (Spec. ¶ 3). According to the Specification, it is known that different assembly sequences can result in different assembly dimensional variations (*id.* ¶ 4); yet, assembly sequence planning traditionally has been based on “experience-based guesswork, lacking scientific reasoning and engineering precision” (*id.* ¶ 6). Thus, for example, in one approach, experienced process engineers gather together to decide on an assembly sequence based on what is perceived as practical or the appropriate thing to do (*id.*). The Specification notes that “genetic algorithms” are known in the art for determining assembly sequences, but explains that these algorithms suffer a number of disadvantages in terms of their optimization rate and ultimate efficiency (*id.*). The Specification, thus, discloses that “[b]ecause a typical assembly sequence includes a lot of constraints . . . and because there are many different combinations of parts,

the assembly sequence designs need to be optimized to produce the best tolerances” (*id.*), and describes that the claimed invention addresses the assembly sequence optimization problem, using an optimization process to determine a best assembly sequence (*id.* ¶ 15).

Putting aside whether the Examiner erred in finding that the claims are directed to an abstract idea, we are persuaded that even if the claims are directed to an abstract idea, the Examiner has not adequately explained why the claims fail to recite limitations that are “significantly more” than the abstract idea itself. For example, the Examiner does not explain why, in view of the express claim language read in light of the above-referenced portions of the Specification, the claimed invention would not be considered an improvement in assembly sequence planning and performance. Instead, the Examiner summarily concludes, without any further analysis, that the limitations beyond the abstract idea are “(i) mere instructions to store and retrieve data and further perform mathematical correlations on a computer, and (ii) recitation of generic computer structure that serves to perform generic computer functions that are well-understood, routine, and conventional activities previously known to the pertinent industry” (Final Act. 6). We are persuaded that such cursory reasoning is inadequate to sustain the rejection, when the above-referenced portions of the record are considered as a whole.

The Examiner has not sufficiently established that the claims are directed to patent-ineligible subject matter. Therefore, we do not sustain the Examiner’s rejection of claims 1–5, 9–11, and 13–15 under 35 U.S.C. § 101.

Appeal 2017-003103
Application 11/696,914

DECISION

The Examiner's rejection of claims 1–5, 9–11, and 13–15 under 35 U.S.C. § 101 is reversed.

REVERSED