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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/039,690	02/28/2008	Sandeep Gopisetty	ARC920070075US1	8002
74682	7590	03/28/2018	EXAMINER	
SHERMAN IP LLP (IBM2/IBM2-S) 1519 26th Street Santa Monica, CA 90404			NGUYEN, TIEN C	
			ART UNIT	PAPER NUMBER
			3694	
			NOTIFICATION DATE	DELIVERY MODE
			03/28/2018	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SANDEEP GOPISETTY and MADHUKAR R. KORUPOLU

Appeal 2017-000216¹
Application 12/039,690²
Technology Center 3600

Before BRADLEY B. BAYAT, AMEE A. SHAH, and
MATTHEW S. MEYERS, *Administrative Patent Judges*.

BAYAT, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the decision rejecting claims 1–4, 6–11, 26–29, and 31–36 under 35 U.S.C. § 101 as directed to non-statutory subject matter.³ Br. 7; Final Act. 2. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ Our Decision references Appellants’ Appeal Brief (“Br.,” filed Nov. 24, 2015), the Examiner’s Answer (“Ans.,” mailed July 15, 2016), and Final Office Action (“Final Act.,” mailed June 26, 2015).

² Appellants identify “International Business Machines Corporation” as the real party in interest. Br. 3.

³ Claims 12–25 are withdrawn from consideration, and claims 5 and 30 have been canceled. *Id.*, Claims App.

STATEMENT OF THE CASE

Claimed Subject Matter

Appellants’ “invention relates to virtual appliances and in particular to integrated server-storage deployment planning for virtual appliances.” Spec. ¶ 1.

Method claim 1 and computer program product claim 26 are the independent claims on appeal and recite substantially similar subject matter. Br. 19–25, Claims App. Claim 1, reproduced below, is illustrative of the claimed subject matter and recites:

1. A method for integrated server-storage deployment planning for virtual appliances, comprising:
 - using a hardware processor for determining a performance cost for deploying the virtual appliance to different pairings of candidate host and storage subsystems based on:
 - determining resource availability using resource requirements obtained from each virtual appliance and available workload storage space for each storage subsystem, and
 - determining a cost function for deployment of each virtual appliance for execution with the different pairings of candidate host and candidate storage subsystems, wherein the cost function is based on determining a maximum latency reachable for: any components of a candidate storage subsystem, parameters for a candidate host or path capacity between the candidate storage subsystem and the candidate host;
 - using the hardware processor for selecting among the candidate pairings, a particular pairing of a host and storage subsystem with a least performance cost to satisfy performance requirements of the virtual appliance by comparing performance costs obtained from the cost function for deployment of each virtual appliance; and

providing a recommendation for deploying the virtual appliance to the particular pairing of the host and storage subsystem.

Id. at 19, Claims App.

ANALYSIS

Non-Statutory Subject Matter

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: “[I]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) (citation omitted).

The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289, 1300 (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*, 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,” such as an abstract idea. *Id.* For example, abstract ideas include, but are not limited to, fundamental economic practices, methods of organizing human activities, an idea of itself, and mathematical formulas or relationships. *Id.* at 2355–57. If the claims are not directed to a patent-ineligible concept, the inquiry ends. Otherwise, the inquiry proceeds to the second step to look at the claim for “something more” by “examin[ing] the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the

claimed abstract idea into a patent-eligible application.” *Id.* at 2354, 2357 (quoting *Mayo*, 132 S. Ct. at 1294, 1298). This inventive concept must do more than simply recite “well-understood, routine, conventional activity.” *Mayo*, 132 S. Ct. at 1298.

Applying the framework in *Alice*, and as the first step of that analysis, the Examiner determined that the claims are “directed to the abstract idea of determining a performance cost for deploying a virtual appliance which is seen to be: mathematical relationships/formulas.” Final Act. 4–5.

Proceeding to *Alice* step two, the Examiner found:

The claims do not recite an improvement in another technology or technical field, (determining the performance cost for deploying a virtual appliance is not seen to be a technical field), nor do they purport to improve the functioning of the computer itself.

The limitations recited in the claims do not appear to be significantly more than the abstract idea as they are seen to be mere instructions to implement the abstract idea on a computer and the [S]pecification [0005, 0017-0019 and Fig. 1] requires no more than a general purpose computing environment to perform generic functions that are well-understood, routine, and conventional activities previously known in the industry.

Id. at 5.

Appellants argue “that the limitations identified by the Examiner are not an abstract idea and only represent a scintilla of claims 1 and 26 limitations.” Br. 12. Appellants contend that USPTO “Preliminary Examination Instructions and Interim Eligibility Guidance describe abstract ideas as: fundamental economic practices; certain methods of organizing human activities; an idea of itself; and mathematical relationships/formulas” but the limitations of claims 1 and 26 “do not fit into any of these

categories of an abstract idea.” *Id.* at 12–13 (reproducing the limitations of claim 1). According to Appellants, it appears the Examiner is rejecting the claims simply because they recite the term *cost* and *function*, and “is leaving out specialized functionality that the determinations (e.g.; resource availability, deployment of each virtual appliance for execution with the different pairings, maximum latency, etc.) are based on, [and therefore,] the Examiner has not established that the claims are directed to an abstract idea.” *Id.* at 13.

We are not persuaded by these arguments because Appellants do not persuasively explain why the Examiner’s characterization of the concept the claims are directed to (i.e., mathematical formula/relationship) is in error, or, if the characterization is accurate, why said concept is not an abstract idea. Despite Appellants’ contention, the Examiner’s determination of the abstract idea is made in consideration of the determining steps/functions recited in claims 1 and 26.

In our analysis, we are mindful of the Supreme Court’s implicit caution to maintain focus on the basic, core concept of the claim, particularly when the claim is dressed in technological language. Most instructive in this regard is *Parker v. Flook*, where the claim’s preamble indicated that the claim’s basic, core concept was ostensibly directed to a chemical process involving catalytic conversion of hydrocarbons. *Parker v. Flook*, 437 U.S. 584, 594–95 (1978) (Claims directed to updating alarm limit values and claims for converting one form of numerical representation to another to be mathematical algorithms, and thus, abstract ideas.). The Supreme Court found, however, that when more closely scrutinized, the

claim's basic, core concept was actually calculating alarm limits—a mathematical algorithm, not a chemical process.

We agree with the Examiner that independent claims 1 and 26 are directed to an abstract idea—a mathematical algorithm. The determining steps of claim 1, for example, describe a set of mathematical operations. Claims 1 and 26 recite, in relevant part, “determining a performance cost for deploying a virtual appliance to different pairing of candidate host and storage subsystems based on” the performance of two mathematical calculations: (i) “determining resource availability using resource requirements obtained from each virtual appliance and available workload storage space for each storage subsystem;” and (ii) “determining a cost function for deployment of each virtual appliance for execution with the different pairings of candidate host and candidate storage subsystems.” Br. 19, 24–25, Claims App. Appellants direct us to paragraphs 29 and 30 of the Specification in support of this claimed subject matter. *See* Br. 5. There, Appellants describe the performance of determining steps (i) and (ii) according to mathematical calculations. *See, e.g.*, Spec. ¶ 29 (“Determine workload storage space available in storage subsystem 33” by calculating Gap (S_A.); Spec. ¶ 30 (“[C]ompute a Cost function” by calculating Cost (S_A, H_B).). The subsequent step in claim 1 is a comparison of the performance costs obtained from those calculations, and the final step in claim 1 provides a recommendation based on that comparison.

Claims directed to calculating and comparing the results of the calculations without more, as here, “recite nothing more than a mathematical algorithm that could be implemented using a pen and paper.” *Coffelt v. NVIDIA Corp.*, 680 F. App'x 1010, 1011 (Fed. Cir. 2017), *cert, denied*, 137

S. Ct. 2143 (2017). Indeed, “[i]f 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.” *Flook*, 437 U.S. at 595 (quoting *In re Richman*, 563 F.2d 1026, 1030 (CCPA 1977)). The Federal Circuit has “treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract category.” *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016).

We conclude the character of claims 1 and 26 as a whole is directed to a mathematical algorithm via a set of mathematical operations for calculating a performance cost for deploying a virtual appliance to different pairings of candidate host and storage subsystems. *See Diamond v. Diehr*, 450 U.S. 175, 191 (1981) (“[a] mathematical formula . . . is not accorded the protection of our patent laws, and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment”) (citation omitted); *In re Grams*, 888 F.2d 835, 837 (Fed. Cir. 1989) (“Mathematical algorithms join the list of non-patentable subject matter not within the scope of section 101.”). The comparison of the results of the mathematical operations itself is an abstract idea. *See Blue Spike, LLC v. Google Inc.*, No. 14-CV-01650-YGR, 2015 WL 5260506 (N.D. Cal. Sept. 8, 2015), *aff’d*, No. 2016-1054, 669 Fed. Appx. 575, 2016 WL 5956746 (mem) (Fed. Cir. Oct. 14, 2016) (“[C]omparing one thing to another” is an abstract idea.). As such, “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.” *Electric Power*, 830 F.3d at 1354; *see also In re TLI Comme’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). And, merely combining abstract ideas does not render the combination any less abstract. *Cf. Shortridge v. Found. Constr. Payroll Serv., LLC*, No. 14-CV-04850-JCS, 2015 WL 1739256 (N.D. Cal. Apr. 14, 2015), *aff'd*, No. 2015-1898, 2016 WL 3742816 (Fed. Cir. July 13, 2016). As in *Electric Power*, the “advance [Appellants] purport to make is a process. . . analyzing information of a specified content . . . and not any particular assertedly inventive technology for performing those functions.” *Electric Power*, 830 F.3d at 1354. Thus, we agree with the Examiner that independent claims 1 and 26 as a whole are directed to an abstract idea.

Turning to the second step in *Alice*, we agree with the Examiner and conclude that claims 1 and 26 do not contain an inventive concept sufficient to “‘transform the nature of the claim’ into a patent-eligible application.” *Alice*, 134 S. Ct. at 2355 (citation omitted). The introduction of a computer or a generic hardware processor into the claims does not alter the analysis here.⁴ *See Spec.* ¶ 33 (“[T]he invention, can be implemented in many ways,

⁴ [T]he 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 pre-emption concern that undergirds our § 101 jurisprudence. Given the

such as program instructions for execution by a processor, as computer implemented instructions, as computer program product, as logic circuits, as an application specific integrated circuit, as firmware, etc.”). The claims here do no more than simply instruct the practitioner to implement the abstract idea on a generic computer. *See Elec. Power*, 830 F.3d at 1355 (“Nothing in the claims, understood in light of the specification, requires anything other than off-the-shelf, conventional computer, network, and display technology for gathering, sending, and presenting the desired information”); *see also Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012) (“Simply adding a ‘computer aided’ limitation to a claim covering an abstract concept, without more, is insufficient to render [a] claim patent eligible.”) (citation omitted). And indeed, the Supreme Court in *Alice* stated “[w]e accordingly ‘held that simply implementing a mathematical principle on a physical machine, namely a computer, [i]s not a patentable application of that principle.’” *Alice*, 134 S.Ct. 2347, 2357–58.

Appellants argue that even assuming an abstract idea is present in claims 1 and 26, “the claims are directed to patent eligible subject matter because they recite significantly more than an abstract idea.” Br. 13. In support of this argument, Appellants argue “[t]here is simply no evidence in the record that establishes that these steps/functions are ‘well understood, routine, and conventional activities previously known to the pertinent

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 (citations omitted).

industry.” Br. 14–15; *id.* at 18 (“Since the Examiner asserted that the prior art of record does not teach or suggest these limitations, it appears that claims 1 and 26 clearly not well-understood, routine and conventional in the field.”).

To the extent that Appellants maintain that the elements of the claims necessarily amount to “significantly more” than the abstract idea because the claimed system is allegedly patentable over the prior art, Appellants misapprehend the controlling precedent. A finding that the claims are novel and nonobvious in light of an absence of evidence does not conflict with the Examiner’s conclusion under 35 U.S.C. § 101, because “a claim for a *new* abstract idea is still an abstract idea.” *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) (citing *Mayo*, 566 U.S. at 90). The question in step two of the *Alice* framework is not whether an additional feature is novel, but 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 and Transmission LLC v. Wells Fargo Bank, National Association*, 776 F.3d 1343, 1347–48 (Fed. Cir. 2014) (quoting *Alice*, 134 S.Ct. at 2359). Thus, an abstract idea does not transform into an inventive concept just because the Examiner has not found prior art that discloses or suggests it. Indeed, “[t]he ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.” *Diehr*, 450 U.S. at 188–189. Even if a claimed concept is “[g]roundbreaking, innovative, or even brilliant” does not by

“itself satisfy the § 101 inquiry.” *Association for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S.Ct. 2107, 2117 (2013).

We also are unpersuaded by Appellants’ argument that “[i]t is quite readily seen that the limitations relate to improvements in the technical field in server-storage deployment and simplify deployment planning, virtual appliance management and improvements in server-storage deployment by reducing system latencies.” Br. 17. We do not readily see from the claim language, and Appellants do not adequately explain and/or provide technical reasoning as to what these technical improvements entail. In fact, at its most basic, a “computer” is “an automatic electronic device for performing mathematical or logical operations.” Oxford English Dictionary 640 (2d ed. 1989). The use of a computer in an otherwise patent-ineligible process for no more than its most basic function—making calculations or computations—fails to circumvent the prohibition against patenting abstract ideas and mental processes. No element claimed for accomplishing the claimed solution is other than what was generically-known for performing conventional functions. Appellants do not explain what particular assertedly inventive technology for performing these conventional functions is required for achieving the claimed result. *See Intellectual Ventures I LLC v. Capital One Financial Corporation*, 850 F.3d 1332, 1342 (Fed. Cir. 2017) (Explaining that “[o]ur law demands more” than claim language that “provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it.”).

Accordingly, we sustain the rejection of independent claim 1, and independent claim 26, which recites substantially similar subject matter. We

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also sustain the rejection of dependent claims 2–4, 6–11, 27–29, and 31–36, which are not argued separately, for the same reasons. *See* Br. 18.

DECISION

The Examiner’s rejection of claims 1–4, 6–11, 26–29, and 31–36 under 35 U.S.C. § 101 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)(1)(iv).

AFFIRMED