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.
14/100,081	12/09/2013	Fang Hao	813988-US-NP	4943

46363 7590 09/11/2018

Tong, Rea, Bentley & Kim, LLC
Nokia
12 Christopher Way
Suite 105
Eatontown, NJ 07724

EXAMINER
KASSA, ELIZABETH

ART UNIT	PAPER NUMBER
2457	

NOTIFICATION DATE	DELIVERY MODE
09/11/2018	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):

docketing@trbklaw.com
Nokia.IPR@nokia.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte FANG HAO, MURALI KODIALAM,
TIRUNELL V. LAKSHMAN and SARIT MUKHERJEE
(Applicant: Alcatel-Lucent USA Inc.)

Appeal 2018-002604
Application 14/100,081[1]
Technology Center 2400

Before TERRENCE W. McMILLIN, KARA L. SZPONDOWSKI, and SCOTT B. HOWARD, *Administrative Patent Judges*.

HOWARD, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–21, which constitute all of the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

---

[1] Appellant identifies itself, Alcatel Lucent, as the real party in interest. App. Br. 3.

THE INVENTION

The disclosed and claimed invention is directed to "allocation of resources in a distributed cloud system." Spec. 1.[2]

Claim 1, reproduced below with the disputed limitations italicized, is illustrative of the claimed subject matter:

> 1. An apparatus for allocating cloud resources within a cloud system, the apparatus comprising:
>
> a processor and a memory communicatively connected to the processor, the processor configured to:
>
> *receive a cloud resource request configured to request allocation of cloud resources of the cloud system, the cloud resource request comprising cloud resource request information, the cloud resource request information comprising a cloud resource allocation parameter associated with allocation of requested cloud resources responsive to the cloud resource request, the cloud resource request information comprising a cloud resource migration parameter associated with migration of cloud resources allocated within the cloud system responsive to the cloud resource request*; and
>
> determine, based on the cloud resource allocation parameter and the cloud resource migration parameter, a cloud resource allocation associated with the cloud resource request, the cloud resource allocation comprising cloud resource allocation information specifying allocation of cloud resources within the cloud system responsive to the cloud resource request, the cloud resource allocation comprising cloud resource migration information specifying migration of cloud resources

[2] We refer to the Specification filed Dec. 9, 2013 ("Spec."); Final Office Action mailed Jan. 30, 2017 ("Final Act."); Appeal Brief filed Aug. 16, 2017 ("App. Br."); Examiner's Answer mailed Dec. 27, 2017 ("Ans."); and the Reply Brief filed Jan. 8, 2018 ("Reply Br.").

allocated within the cloud system responsive to the cloud resource request.

REFERENCES

The prior art relied upon by the Examiner as evidence in rejecting the claims on appeal is:

Morgan	US 2012/0311154 A1	Dec. 6, 2012
Ponsford et al. (hereinafter "Ponsford")	US 2015/0244640 A1	Aug. 27, 2015
Chai	EP 2,725,862 A1	Apr. 30, 2014

REJECTIONS

Claims 1–21 stand rejected under 35 U.S.C. § 101 because the claims are directed to patent-ineligible subject matter. Final Act. 6–8.

Claims 1–4, 11–14, and 21 stand rejected under 35 U.S.C. § 102(a)(1) as being anticipated by Ponsford. Final Act. 8–12.

Claims 5–9 and 15–19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ponsford and Chai. Final Act. 12–16.

Claims 10 and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ponsford and Morgan. Final Act. 16–18.

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellant's arguments that the Examiner erred. In reaching this decision, we have considered all evidence presented and all arguments made by Appellant. We are not persuaded by Appellant's arguments regarding the pending claims.

Section 101 Rejection

The Alice/Mayo Framework Governing Patent-Eligible Subject Matter

Patent-eligible subject matter is defined in section 101 of the Patent Act, which recites: "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."

There are, however, three judicially created exceptions to the broad categories of patent-eligible subject matter in section 101: laws of nature, natural phenomena, and abstract ideas. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70–71 (2012). Although an abstract idea, itself, is patent-ineligible, an application of the abstract idea may be patent-eligible. *Alice*, 134 S. Ct. at 2355. Thus, we must 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." *Id.* (citing *Mayo*, 566 U.S. at 79). The claim must contain elements or a combination of elements that are "sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [abstract idea] itself." *Id.* (citing *Mayo*, 566 U.S. at 79).

The Supreme Court set forth a two-part "framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." *Id.* at 2355.

> First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. [*Mayo*,] 132

> S. Ct., at 1296–1297. If so, we then ask, "[w]hat else is there in the claims before us?" *Id.*, at ——, 132 S. Ct., at 1297. To answer that question, we 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. *Id.*, at ——, 132 S. Ct., at 1298, 1297. We have 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." *Id.*, at ——, 132 S. Ct., at 1294.

Id.

"The 'abstract idea' step of the inquiry calls upon us to look at the 'focus of the claimed advance over the prior art' to determine if the claim's 'character as a whole' is directed to excluded subject matter." *Affinity Labs of Tex. v. DirectTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (quoting *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016)); *see also Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). There is no definitive rule to determine what constitutes an "abstract idea." Rather, the Federal Circuit has explained that "both [it] and the Supreme Court have found it sufficient to compare claims at issue to those claims already found to be directed to an abstract idea in previous cases." *Enfish*, 822 F.3d at 1334; *see also Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1294 (Fed. Cir. 2016) (explaining that, in determining whether claims are patent eligible under section 101, "the decisional mechanism courts now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen—what prior cases were about, and which way they were decided").

Under the second step of the *Alice/Mayo* framework, we examine the claim limitations "more microscopically," *Elec. Power*, 830 F.3d at 1354, to determine whether they contain "additional features" sufficient to "'transform the nature of the claim' into a patent-eligible application." *Alice*, 134 S. Ct. at 2355, 2357 (quoting Mayo, 566 U.S. at 78). "Mere recitation of concrete, tangible components is insufficient to confer patent eligibility to an otherwise abstract idea. Rather, the components must involve more than performance of 'well-understood, routine, conventional activit[ies] previously known to the industry.'" *In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016) (citing *Alice*, 134 S. Ct. at 2359).

Abstract Idea

The Examiner concludes the claims are directed to the abstract idea of collecting and comparing known information, by simply describing gathering and combining data. Final Act. 6–7. According to the Examiner, the claims do nothing more than "determine" information based on collected parameters, where the determined information is not used or applied, and the determining is performable by a person who can mentally make the same determination after analyzing the received/observed parameters. Ans. 5; *see also id.* at 4 ("All that appears to be occurring in the claims is a determination of a cloud allocation using parameters."). Specifically, the Examiner determines the claimed invention is a mental process that can be performed in a human mind or by a human using pen and paper, with the steps amounting to no more than mere instructions to implement the idea on a generic computer performing generic computer functions that are well-understood, routine, and conventional. Final Act. 7.

Appellant argues that the Examiner has not related the abstract idea to the limitations of claim 1. App. Br. 15. Specifically, Appellant argues that the claimed invention is more than simply comparing data and collecting and comparing known information, and rather "it involves using a specific combination of information in order to make a specific determination (namely, determining a cloud resource allocation)." Reply Br. 3. According to Appellant, the claimed invention does not just compare the parameters, but uses them as a basis for determining a cloud resource allocation. Reply Br. 4.

We are not persuaded by Appellant's arguments that the Examiner erred. As identified by the Examiner, the claim, directed to receiving a request comprising parameters and determining allocation information and migration information based on the received parameters, does nothing more than determine information (that is otherwise not used or applied) based on collected parameters, which is performable by a person who can mentally make the same determination after analyzing the received parameters. Ans. 5. The claimed receiving parameters (i.e., collecting information) and determining information from the parameters (i.e., analyzing collected information and displaying results) is directed towards an abstract idea, similar to the claims in *Electric Power*. *See Elec. Power*, 830 F.3d at 1353 ("collecting information, analyzing it, and displaying certain results of the collection and analysis" are abstract-idea processes). Specifically, our reviewing court held that "collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas" and that "analyzing information by steps people go through in their minds, or by mathematical algorithms, without

more, as essentially mental processes within the abstract-idea category." *Id.* at 1353–54 (citations omitted). As in *Electric Power*, the combination of various abstract ideas relating to data collection and analysis is itself an abstract idea.

Accordingly, we agree with the Examiner that the claims are directed to an abstract idea.

Significantly More

The Examiner determines that the claims do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional elements merely include a processor and memory for receiving, which are generic recitations of computers performing basic and generic computer functions that are well-understood, routine, and conventional. Final Act. 7.

Appellant argues the additional elements of the claims include significantly more than an abstract idea. *See* App. Br. 17–18. Specifically, Appellant contends that the claimed combination of features would meaningfully limit application of the purported abstract idea in order to solve a problem faced with certain cloud systems. App. Br. 19 (citing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014)). According to Appellant, the claimed determining cloud resource allocation "may be a challenge specific to certain cloud systems: namely, as opposed to other types of cloud or communication systems and in certain cloud systems but perhaps not all cloud systems." Reply Br. 7. Appellant also contends the claimed combination of features would transfer the purported abstract idea of collecting and comparing known information into a particular practical application of the purported abstract idea. App. Br. 19 (citing

BASCOM Global Internet Servs., Inc. v. AT&T Mobility LLC, 827 F.3d 1341 (Fed. Cir. 2016)). Specifically, Appellant argues the claimed features enable "improvement in migration of cloud resources that have not yet been allocated based on a non-generic and non-conventional arrangement." Reply Br. 8–9 (emphasis omitted).

We are not persuaded by Appellant's argument that the Examiner erred. In *DDR*, the Court found that the claims "specify how interactions with the Internet are manipulated to yield a desired result – a result that overrides the routine and conventional sequence of events." *DDR*, 773 F.3d at 1258. In *Bascom*, the Court found that the claims "recite a specific, discrete implementation of the abstract idea" and are "more than a drafting effort designed to monopolize the [abstract idea]" and instead "improve[] an existing technological process." *Bascom*, 827 F.3d at 1350–51 (citing *Alice*, 134 S. Ct. at 2357–58). Unlike the claims in *DDR* and *Bascom*, we agree with and adopt the Examiner's determination that the claims in this case merely use collected parameters to determine information that is not otherwise used or applied, employing the use of a generic processor and a memory.

Two Supreme Court cases discussing patent-eligible subject matter are instructive. In *Parker v. Flook*, the Supreme Court held that because the claim merely calculated an alarm limit—admittedly using a new and presumably better method—it was not directed to patent-eligible subject matter. 437 U.S. 584 (1978). In *Diamond v. Diehr*, the Supreme Court found a process used to operate a rubber-molding press to be directed to patent-eligible subject matter where the process acts to transform "an article, in this case raw, uncured synthetic rubber, into a different state or thing."

450 U.S. 175, 184 (1981). As the Court recognized, "[t]ransformation and reduction of an article 'to a different state or thing' is the clue to the patentability of a process claim that does not include particular machines." *Id.* (quoting *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972)).

As properly construed, the present claims merely evaluate data and do not recite any transformation of material. Accordingly, we determine claim 1 is similar to those in *Flook*, which rely on various unknown variable (i.e., collected parameters) to compute a value (i.e., determine allocation and migration information) but does not apply that value, and bears little, if any, similarity to those found patent-eligible in *Diehr*, in which a material was transformed.

Furthermore, we agree with the Examiner's determination that the claimed "a processor and a memory communicatively connected to the processor, the processor configured to" receive parameters and determine information from the parameters specify only generic computers. Ans. 6; Final Act. 8. This claim limitation merely invokes computer functionality to do what a human might do mentally, similarly to the claims found to be abstract in *SmartGene Inc. v. Advanced Biological Laboratories SA*, 555 F. App'x 950 (Fed. Cir. 2014) (holding "section 101 did not embrace a process defined simply as using a computer to perform a series of mental steps that people, aware of each step, can and regularly do perform in their heads").

Appellant further contends that the claimed cloud resource migration parameter being considered in the determination of allocation of cloud resources is a specific improvement to the technology that puts the collected information (i.e., parameters) to *practical use* (i.e., determining cloud resource allocation in an improved manner). Reply Br. 5. According to

Appellant, the claimed parameters collected and information determined are not generic, but rather are important within the context of the claim. Reply Br. 6.

We are not persuaded by Appellant's argument. The Federal Circuit has held that "[i]f a claims' only 'inventive concept' is the application of an abstract idea using conventional and well-understood techniques, the claim has not been transformed into a patent-eligible application of an abstract idea." *BSG Tech LLC v. Buyseasons, Inc.*, No. 17-1980, 2018 WL 3862646 at *7 (Fed. Cir. August 15, 2018). Similar to *BSG*, the only alleged unconventional features in the present claims (i.e., the collected parameters and the determined allocation and migration information) are simply restating what we have already determined is an abstract idea (i.e., collecting information and analyzing it). *See BSG*, 2018 WL 3862646 at *7 ("As a matter of law, narrowing or reformulating an abstract idea does not add 'significantly more' to it.").

Accordingly, we sustain the Examiner's rejection of independent claim 1 as being directed to patent-ineligible subject matter, as well as commensurate independent claims 11 and 21 and dependent claims 2–10 and 12–20, which are not separately argued and fall with the independent claims. *See* App. Br. 20; Reply Br. 9.

Section 102 Rejection

Claim 1 recites "receive a cloud resource request . . . comprising cloud resource request information . . . comprising a cloud resource allocation parameter associated with *allocation of requested cloud resources responsive to the cloud resource request*" and "a cloud resource migration

parameter associated with *migration of cloud resources allocated within the cloud system responsive to the cloud resource request*," and determining "cloud resource allocation information *specifying allocation of cloud resources within the cloud system responsive to the cloud resource request*" and "cloud resource migration information *specifying migration of cloud resources allocated within the cloud system responsive to the cloud resource request*" (emphasis added).

Appellant contends the claimed migration parameter is received as part of cloud resource request information of a cloud resource request configured to request allocation of cloud resources of the cloud system (i.e., migration of resources that have not yet been allocated). App. Br. 23; Reply Br. 10. Appellant argues Ponsford describes "migration of a virtual machine *that has already been allocated*," with the allocated virtual machine including a "migration requirement." App. Br. 21. According to Appellant, Ponsford's "migration of the virtual machines that has already been allocated is based on the migration requirement" and Ponsford does not describe "that a request for allocation of the virtual machine includes the migration requirement." *Id.*

We are not persuaded by Appellant's argument. We agree with the Examiner's findings that Ponsford describes a request for allocation of resources including a variety of requirements (i.e., parameters) associated with how the host handles the resource allocation and also how the host handles any resource migration. Ans. 10 (citing Ponsford ¶¶ 4, 83–85, 93). As cited by the Examiner (Ans. 10), Ponsford describes:

> When *requesting one or more resources*, a client system 2 may provide an *indication of the times at which lower or higher levels of the one or more resources will be required and the*

> *duration of these different levels of resource requirement.* This information may be *used by the migration module* 10 and/or one or more hypervisor modules 7 to *allocate one or more resources to reduce the likelihood of a conflict* for the one or more resources . . . In embodiments, information regarding the duration and timing of any low or high resource requirements is input by a client system 2 operator and *transmitted to the host system 1 with the request for one or more resources*.

Ponsford ¶ 93 (emphasis added). In other words, Ponsford describes a resource allocation request (i.e., when requesting one or more resources), providing parameters (i.e., indications, such as duration and timing information) that are associated with migration (i.e., indicate when there would be a likelihood of conflict for resources), including for not-yet-allocated resources (i.e., migration module considers when the resources would be in conflict).

Appellant has not persuasively argued why the claimed determining "cloud resource migration information *specifying migration of cloud resources allocated within the cloud system responsive to the cloud resource request*" that comprises "a cloud resource migration parameter associated with *migration of cloud resources allocated within the cloud system responsive to the cloud resource request*" precludes Ponsford's indications of likelihood for conflict (i.e., migration parameters) when requesting resources (i.e. responsive to the cloud resource request), and a migration module considering when resources would be in conflict (i.e., migration information for resources not yet allocated).

Accordingly, we sustain the Examiner's rejection of independent claim 1, along with the rejections of commensurate independent claims 11 and 21, for which Appellant relies on the same arguments as discussed

above for claim 1 (App. Br. 23), along with dependent claims 2–4 and 12–14, which are not argued separately (*id.*).

Section 103 Rejections

Appellant has provided no separate arguments towards patentability for claims 5–10 and 15–20. *See* App. Br. 23–24. Therefore, the Examiner's section 103 rejections of claims 5–10 and 15–20 are sustained for similar reasons as noted *supra*.

DECISION

For the above reasons, we affirm the Examiner's decisions rejecting claims 1–21.

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). *See* 37 C.F.R. § 41.50(f).

AFFIRMED