UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte AKRAM BOU-GHANNAM, STEVEN GARFINKLE, JOHN
WILLIAMS MILLER, and JAMSHID ABDOLLAHI VAYGHAN

Appeal 2016-004138
Application 12/392,328
Technology Center 3600

Before MURRIEL E. CRAWFORD, ANTON W. FETTING, and
ALYSSA A. FINAMORE, *Administrative Patent Judges.*

CRAWFORD, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134(a) of the
Examiner's final decision rejecting claims 1, 3–10, 12, 14–18, and 20–29.
We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

BACKGROUND

Appellants' invention is directed to systems, methods, and computer
program products for creating and using service dependency graphs to
automate the development and deployment of service oriented applications.
Spec. para. 1

Claim 1 is illustrative:

1.   A method, including:

identifying services in a domain;

identifying domain concepts within said domain, wherein said domain concepts are input and output of said services;

creating a network of said services including metadata of said services and relationship data of said services, said relationship data of said services including relationships of said services to one another and relationships of said services to said domain concepts;

creating a domain ontology including said domain concepts and relationship data of said domain concepts, said relationship data of said domain concepts including relationships of said domain concepts to one another and relationships of said domain concepts to said services, said domain ontology including computer-based resources that represent agreed domain semantics;

receiving a request from a user for a service that satisfies constraints based on said domain concepts;

selecting at least two services within said network that satisfy said constraints to create selected services based on said relationship data of said domain concepts in said domain ontology;

combining said selected services with a processor to create a combined service; and

notifying said user of said combined service.

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The Examiner relies on the following prior art references as evidence of unpatentability:

Reeder	US 5,852,812	Dec. 22, 1998
Bodin	US 2007/0043758 A1	Feb. 22, 2007
Hofmann	US 7,665,063 B1	Feb. 16, 2010
		(filed May 26, 2004)

The following rejections are before us on appeal:

Claims 1, 3–10, 12, 14–18, and 20–29 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claims 12, 14–17, and 28 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention.

Claims 1, 3–10, 12, 14–18, and 20–29 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1, 3–6, 9, 10, 12, 14, 15, 17, 18, and 20–23 are rejected under 35 U.S.C. § 102(e) as being anticipated by Hofmann.

Claims 7, 8, 24, and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hofmann in view of Bodin.

Claims 16 and 26–29 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Hofmann in view of Reeder.

PRINCIPLES OF LAW

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 implicit exceptions: "[l]aws of nature, natural phenomena, and abstract ideas" are not patentable. *E.g., Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014).

In determining whether a claim falls within the excluded category of abstract ideas, we are guided in our analysis by the Supreme Court's two-step framework, described in *Mayo* and *Alice. Id.* at 2355 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1296–97 (2012)). In accordance with that framework, we first determine whether the claim is "directed to" a patent-ineligible abstract idea. *See Alice*, 134 S. Ct. at 2356 ("On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk."); *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) ("Claims 1 and 4 in petitioners' application explain the basic concept of hedging, or protecting against risk."); *Diamond v. Diehr*, 450 U.S. 175, 184 (1981) ("Analyzing respondents' claims according to the above statements from our cases, we think that a physical and chemical process for molding precision synthetic rubber products falls within the § 101 categories of possibly patentable subject matter."); *Parker v. Flook*, 437 U.S. 584, 594–95 (1978) ("Respondent's application simply provides a new and presumably better method for calculating alarm limit values."); *Gottschalk v. Benson*, 409 U.S.

63, 64 (1972) ("They claimed a method for converting binary-coded decimal (BCD) numerals into pure binary numerals.").

The patent-ineligible end of the spectrum includes fundamental economic practices, *Alice*, 134 S. Ct. at 2357; *Bilski*, 561 U.S. at 611; mathematical formulas, *Parker*, 437 U.S. at 594–95; and basic tools of scientific and technological work, *Gottschalk*, 409 U.S. at 69. On the patent-eligible side of the spectrum are physical and chemical processes, such as curing rubber, *Diamond*, 450 U.S. at 184 n.7, "tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores," and a process for manufacturing flour, *Gottschalk*, 409 U.S. at 69.

If the claim is "directed to" a patent-ineligible abstract idea, we then consider the elements of the claim—both individually and as an ordered combination—to assess whether the additional elements transform the nature of the claim into a patent-eligible application of the abstract idea. *Alice*, 134 S. Ct. at 2355. This is a search for an "inventive concept"—an element or combination of elements sufficient to ensure that the claim amounts to "significantly more" than the abstract idea itself. *Id.*

In addition, the Federal Circuit has held that if a method can be performed by human thought alone, or by a human using pen and paper, it is merely an abstract idea and is not patent-eligible under § 101. *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1373 (Fed. Cir. 2011) ("[A] method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101."). Accordingly, the mental processes recited in claims, e.g., assimilating information, creating a hypothetical resource, mapping hypothetical and actual resources, determining a minimum parameter increase and reconciling a parameter

increase with a scheduling policy, remain unpatentable, even when automated to reduce the burden on the user of what once could have been done with pen and paper. *Id.* at 1375 ("That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*.").

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).

However, claims have been held not abstract when the invention recited in the claim does not use generic computer technology to perform data collection, analysis, and display and if the claims recite an improvement to a particular computer technology. *See, e.g., McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314–15 (Fed. Cir. 2016) (finding claims not abstract because they "focused on a specific asserted improvement in computer animation").

35 U.S.C. § 112, sixth paragraph

35 U.S.C. § 112, sixth paragraph is invoked to interpret a claim when there is a "means-plus-function" limitation recited therein. Under 35 U.S.C. § 112, sixth paragraph, the "means-plus-function" limitation must be "construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." *Personalized Media*

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Commc'ns, LLC v. Int'l Trade Comm'n, 161 F.3d 696, 703 (Fed. Cir. 1998). If the "means-plus-function" limitation recited in the claim does not have an adequate supporting disclosure, then the claim fails to particularly point out and distinctly claim the invention as required under 35 U.S.C. § 112, second paragraph. *See In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed. Cir. 1994) ("[I]f one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant . . . . If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112.").

In the context of software, the disclosed structure is a general purpose computer programmed to perform a disclosed algorithm. *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999) ("In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm."). A general purpose computer alone is insufficient if the specification fails to disclose an algorithm for performing the claimed function. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008).

Generic terms such as "mechanism," "element," "device," and other nonce words used in a claim can also be considered as a substitute for the "means-plus-function" limitation and, as such, may invoke the application of 35 U.S.C. § 112, sixth paragraph because these generic terms or nonce words "typically do not connote sufficiently definite structure." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1350 (Fed. Cir. 2015) (en banc). In

Ex parte Lakkala, No. 2011-001526 (PTAB Mar. 13, 2013) (expanded panel) (informative), we concluded that the term "processor" is used as merely a substitute for the "means-plus-function" limitation and, thus, invokes the application of § 112, sixth paragraph. In addition, we also concluded that because the Specification fails to disclose an algorithm for performing the functions recited in the "processor" limitation, the claim fails to describe sufficient corresponding structure as required for a limitation interpreted under 35 U.S.C. § 112, sixth paragraph, and, as such, is indefinite under 35 U.S.C. § 112, second paragraph.

The scope of limitations in claims determined to have invoked 35 U.S.C. §112, sixth paragraph is thusly defined by the respective structures disclosed in the specification and equivalents of those structures. *Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1331 (Fed. Cir. 2008). Therefore, a determination must be made whether Appellants' written description contains corresponding structure for the respective limitations. *Cf. id.* at ¶ 331. In computer-implemented inventions, the corresponding structure must include an "algorithm that transforms [a] general purpose microprocessor to a special purpose computer programmed to perform the disclosed algorithm." *Id* at 1338 (citation and internal quotation marks omitted).

ANALYSIS

Rejections under 35 U.S.C. § 112, first paragraph

The Examiner rejects claims 12, 14–17 and 28 because these claims recite a processor for combining at least two services but the Specification

does not include a description of how the computer is programmed to perform these functions. Fin. Act. 6–7. The Examiner determines the phrase "processor" is a generic place holder as it is a broad recitation rather than a specific structural component and, thus, invokes 35 U.S.C. § 112, sixth paragraph. The Examiner further finds that the written description fails to clearly link or associate the disclosed structure in the form of an algorithm to the claimed processor. The Examiner finds that the Specification must include a disclosure of a specific algorithm which is used to make a general purpose computer or server able to perform the function.

We agree with Appellants that the disclosure in paragraph 32 of the Specification that a new service is created by combining existing services whereby an old output of one service is used as the input to another service to form a new service is a disclosure of an algorithm and discloses how the processor performs the function of combining services. Therefore, we will not sustain this rejection.

The Examiner also rejects claims 1, 3–10, 12, 14–18 and 20–29 under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. Fin. Act. 7. The Appellants do not address this rejection in their Brief, and, therefore, we summarily affirm this rejection.

Rejection under 35 U.S.C. § 112, second paragraph

According to the Examiner, because Appellants' Specification does not disclose sufficient corresponding structure, i.e., an algorithm for performing the functions recited in the "processor" limitation, claims 12, 14–17, and 28 are indefinite under 35 U.S.C. § 112, second paragraph. We will not sustain this rejection for the same reasons given above in our

discussion of the rejection under 35 U.S.C. § 112, first paragraph of claims 12, 14–17 and 28.

Rejection under 35 U.S.C. § 101

We are not persuaded of error on the part of the Examiner by Appellants' argument that the claimed features are neither routine nor conventional because the art fails to teach many features of the claimed invention.

To the extent Appellants argue that the pending claims recite "significantly more" because the claimed invention is "novel" and "non-obvious," Appellants misapprehend the controlling precedent. Although the second step in the *Alice/Mayo* framework is termed a search for an "inventive concept," the analysis is not an evaluation of novelty or non-obviousness, but rather, a search for "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*, 134 S. Ct. at 2355. A novel and non-obvious claim directed to a purely abstract idea is, nonetheless, patent-ineligible. *See Mayo*, 132 S. Ct. at 1304. *See, e.g., Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) ("[A] claim for a *new* abstract idea is still an abstract idea.").

In view of the foregoing, we will sustain this rejection as it is directed to claim 1. We will also sustain the rejection as it is directed to the remaining claims subject to this rejection because Appellants do not argue the separate patent eligibility of these claims.

Rejection under 35 U.S.C. § 102(e)

We are not persuaded of error on the part of the Examiner by Appellants' argument that Hofmann does not disclose "combining said selected services with a processor to create a combined service" as recited in claim 1.

Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 102 begins with a determination of the scope of the claim. We determine the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). The properly interpreted claim must then be compared with the prior art.

Appellants' Specification discloses that a new service is created by combining existing services (200, 300 etc.). The Specification explains that a service 301 is added whereby the old output of the service 300 is now input into the service 301. Spec. para. 32. As such, we agree with the Examiner that, in light of Appellants' Specification, the broadest reasonable interpretation of "combining said selected services with a processor to create a combined service" includes the creation of a combined service by taking the output of a previous service and using it as input for the next service.

We also agree with the Examiner's findings in regard to Hofmann. More specifically, we agree with the Examiner's response to Appellants' argument found on page 15 of the Answer, that Figure 4 of Hofmann depicts combining services, i.e., Rule 1 and Rule 2, to create a combined service.

In view of the forgoing, we will sustain the rejection as it is directed to claim 1. We will also sustain the rejection as it is directed to claims 9, 12, and 18 because the Appellants advance the same arguments regarding the patentability of these claims as is advanced in regard to the patentability of claim 1.

We will also sustain the rejection as it is directed to the remaining claims subject to this rejection because the Appellants do not advance arguments directed to the separate patentability of these claims other than to say that the claims are similarly patentable not only because of their dependency on the independent claims but also because of the additional features of the invention they recite. The Appellants do not discuss these additional features. We note that Appellants make no attempt to point out where the Examiner's findings relative to the presence of those additional features in the prior art are deficient. Such arguments are insufficient to apprise us of error in the rejection. *In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) ("[W]e hold that the Board reasonably interpreted Rule 41.37 to require more substantive arguments in an appeal brief than a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art."). Therefore, we sustain the rejection of the remaining claims subject to the rejection as well.

Rejections under 35 U.S.C. § 103

We will sustain the 35 U.S.C. § 103 rejections because the Appellants make the same arguments in response to these rejections as is made in regard to the 35 U.S.C. § 102(e) rejection.

DECISION

We do not affirm the Examiner's §112, first paragraph of claims 12, 14–17 and 28.

We affirm the Examiner's § 112, first paragraph rejection of claims 1, 3–10, 12, 14–18 and 20–29.

We do not affirm the Examiner's § 112, second paragraph rejection of claims 12, 14–17, and 28.

We affirm the Examiner's § 101 rejection of claims 1, 3–10, 12, 14–18, and 20–29.

We affirm the Examiner's § 102(e) rejection of claims 1, 3–6, 9, 10, 12, 14, 15, 17, 18, and 20–23.

We affirm the Examiner's § 103 rejections of claims 7, 8, 16, and 24–29.

TIME PERIOD

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) (2009).

ORDER

AFFIRMED