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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
13/518,066 06/21/2012 Amy Oi Mee Cheung 2009P01704WOUS 1058

24737 7590 11/07/2016
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
465 Columbus Avenue
Suite 340
Valhalla, NY 10595

Table with 1 column: EXAMINER

CERIONI, DANIEL LEE

Table with 2 columns: ART UNIT, PAPER NUMBER

3736

Table with 2 columns: NOTIFICATION DATE, DELIVERY MODE

11/07/2016

ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte AMY OI MEE CHEUNG, JASPER KLEWER, and
MARYAM ATAKHORRAMI

Appeal 2015-002016
Application 13/518,066
Technology Center 3700

Before ERIC B. GRIMES, ULRIKE W. JENKS, and
ROBERT A. POLLOCK, *Administrative Patent Judges*.

PER CURIAM

DECISION ON APPEAL

This is a decision on appeal¹ under 35 U.S.C. § 134 from the Examiner’s rejection of claims 1–5, 8, 11, 15–20, 23, and 26. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

STATEMENT OF THE CASE

The Specification discloses that “Chronic Obstructive Pulmonary Disease (COPD) is a respiratory disease that is characterized by inflammation of the airways” (Spec. ¶ 3). “Exacerbations are the worsening

¹ Appellants identify the Real Party in Interest as Koninklijke Philips Electronics N.V. (App. Br. 2).

of COPD symptoms” (*id.* ¶ 4). The Specification discloses “a method for predicting an onset of an exacerbation in a patient” based on a relationship, or a change in relationship, between the core body temperature and breath temperature (*id.* ¶ 8).

Claims 1 and 16 are representative of the claims on appeal and read as follows:

1. A processor-implemented method for predicting an onset of an exacerbation in a patient, the method being performed at least in part using one or more processors configured to execute program modules, the method comprising:
 - monitoring core body temperature of the patient;
 - monitoring exhaled breath temperature of the patient outside of the patient’s mouth;
 - calculating from the monitored core body temperature and the monitored exhaled breath temperature, using one or more processors, a relationship, or a change in relationship, between the core body temperature and the breath temperature of the patient; and
 - detecting, using one or more processors, the onset of the exacerbation responsive to the calculated relationship, or a change in relationship, satisfying a predetermined criteria.

16. A system for predicting an onset of an exacerbation in a patient, the system comprising:
 - a temperature sensor configured to monitor core body temperature of the patient;
 - a breath temperature sensor configured to monitor exhaled breath temperature of the patient outside of the patient’s mouth; and
 - one or more processors configured to perform one or both of: a) calculating from the monitored core body temperature and the monitored exhaled breath temperature, a relationship, or a change in relationship, between the core body temperature and the breath temperature of the patient, or b)

detecting an onset of the exacerbation responsive to a calculated relationship, or a change in relationship, between the monitored core body temperature and the monitored breath temperature of the patient satisfying a predetermined criteria.

The claims stand rejected as follows:

- Claims 1–5, 8, 11, 15–20, 23, and 26 under 35 U.S.C. § 103(a) in view of Casscells² and Ensign;³ and
- Claims 1–5, 8, 11, and 15 under 35 U.S.C. § 101.

I.

Issue

The Examiner has rejected claims 1–5, 8, 11, 15–20, 23, and 26 as obvious in view of Casscells and Ensign (Ans. 4–12).

The issue presented is: Does the evidence of record support the Examiner’s conclusion that Casscells and Ensign would have made obvious a method for predicting an onset of an exacerbation in a patient based on calculating “a relationship, or a change in relationship, between the core body temperature and the breath temperature . . . and detecting the onset of the exacerbation responsive to the calculated relationship, or a change in relationship”?

Findings of Fact

1. Casscells discloses a device for “detecting a significant worsening of condition of a CHF [congestive heart failure] patient and

² Casscells, III et al., US 2003/0092975 A1, issued May 15, 2003.

³ Ensign, US 4,453,552, issued June 12, 1984.

issuing an alert so that . . . therapies and interventions can be summoned” (Casscells ¶ 11).

2. Casscells discloses methods and systems for “continuously monitoring a CHF patient against a cut-off point set for rate of fall of body temperature as at least one temperature attribute of the very mild hypothermia that is an indicator of imminent death in CHF patients” (*id.* ¶ 15). “[H]ypothermia emerged as a strong predictor of death in patients admitted with congestive heart failure” (*id.* ¶ 44).

3. Casscells states that “the words ‘rate of fall of body temperature’ or ‘hypothermic body temperature’ are intended to include within their meaning any transformation of those attributes” (*id.* ¶ 67). “By ‘transformation’ is meant any . . . mathematical treatment founded on a primary measure of temperature or determined fall of temperature” (*id.*).

4. Casscells discloses “adapting absolute criteria to personalized criteria, that is, relative to the temperature baseline of the patient monitored as contrasted to relative to the temperature baseline of a patient cohort study” (*id.* ¶ 72). “[S]ince very small temperature changes can be an indicator of imminent death among CHF patients, it is important to determine changes against the patient’s personal temperature set-point as contrasted to the average of the general population” (*id.*).

5. Casscells discloses “output of an alert if a temperature has attained or crossed the cut-off point or if core and peripheral temperatures of a patient are both moving in the direction of a cut-off point, or if a patient is determined to have an inadequate response to exposure to a cold environment” (*id.* ¶ 94).

6. Casscells discloses that “[b]ody sites to measure body temperature can be characterized as ‘core’ or ‘peripheral’ sites, meaning deep inside the body or near the surface” (*id.* ¶ 96).

7. Casscells discloses that the “infrared and encapsulated radio frequency oscillator sensors sense core temperatures. Alternatively, or in addition, surface temperatures may be detected” (*id.* ¶ 105).

8. Casscells discloses that, “microprocessor 18 accesses data memory 20 and retrieves the last 12 five minute average temperatures, averages them, and calculates a measure of central tendency” (*id.* ¶ 115). “[M]icroprocessor 18 determines the rate of any change of temperature over the same one hour interval (dT/dt)” (*id.*). “[M]icroprocessor 18 compares the determined rate of any change of temperature over the same one hour interval to a preset cutoff point for rate of fall of body temperature . . . to determine whether the determined rate of any change of temperature . . . has attained or has crossed that preset cut-off point” (*id.*). “If it has, microprocessor 18 outputs a signal as indicated at 72 to issue an alert” (*id.*).

9. Ensign discloses “devices for indicating the temperature of the human body” (Ensign 1:7–8).

10. Ensign discloses “a device comprising a thermocouple with a hot junction directly bathed by the patient’s expelled breath, reaching full breath temperature in a small fraction of a second” (*id.* at 1:52–55).

11. Ensign states that “[s]ince air leaving the lungs has been proven to accurately correspond to body core temperature, and the peak temperature of exhaled air at the mouth is predictably offset therefrom, an accurate readout display [] is produced” (*id.* at 3:27–31).

Analysis

The Examiner finds that Casscells discloses “a processor-implemented method for predicting an onset of an exacerbation in a patient,” where the method is performed using one or more processors to execute program modules (Ans. 4). The Examiner finds that Casscells’ method comprises most of the limitations of claim 1, including outputting an alert when core body temperature and breath temperature (i.e., core and peripheral temperatures) are both moving toward a cut-off point (*id.* at 5).

The Examiner finds that Casscells does not “disclose that the breath temperature is an exhaled breath temperature outside the patient’s mouth,” but Ensign discloses this limitation (*id.* at 6). The Examiner concludes that it would have been obvious to modify Casscells’ method to include “monitoring exhaled breath temperature outside of a patient’s mouth . . . for the obvious advantage of improving the accuracy of oral cavity temperature as a ‘peripheral’ site” (*id.*). The Examiner also concludes that it would have been obvious “to modify Casscells to include calculating from both the monitored core body temperature and the monitored breath temperature . . . for the obvious advantage of more accurately determining whether an alert should be issued” (*id.* at 10).

We agree with the Examiner’s reasoning and conclusions. “[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.” *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000). However, limitations from the Specification cannot be read into the claims. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993); *see also Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 867 (Fed.

Cir. 1985) (“Generally, particular limitations or embodiments appearing in the specification will not be read into the claims.”)

Here, claim 1 recites calculating “a relationship, or a change in relationship, between the core body temperature and the breath temperature of the patient” without limiting the nature of the relationship. We agree with the Examiner that Casscells’ disclosure that CHF exacerbation can be detected if core body temperature and peripheral temperature both toward a cut-off point suggests that an exacerbation can be detected based on a relationship between different temperature measurements.

Appellants argue that the references “do not teach or suggest calculating a relationship between a core body temperature and an exhaled breath temperature (or any peripheral body temperature)” (App. Br. 6). Appellants argue that Casscells “teaches that an alarm is generated if two separate criteria are satisfied. That is, if the core body temperature is moving toward a cut-off point, *and* the peripheral body temperature is moving toward the cut-off point, then an alarm is generated” but “[s]atisfaction of these two separate criteria does not entail calculation of a relationship between the core and peripheral body temperatures” (*id.* at 10). Appellants also argue that Casscells does not describe “calculating an average (or performing any other calculation) *between* the core and peripheral temperatures” (*id.*).

The Examiner responds that, “[d]uring examination, the claims must be interpreted as broadly as their terms reasonabl[y] allow” (Ans. 18) and Appellants’ arguments impermissibly “import claim limitations from the specification” (*id.* at 19). The Examiner finds that the Specification does not

“give an explicit definition of the claim term ‘relationship,’ . . . [and] Merriam-Webster defines ‘relationship’ as ‘the way in which two or more people or things are connected’” (*id.* at 21). The Examiner reasons that interpreting the term *relationship* of claim 1 according to the Merriam-Webster definition is “‘reasonable’ because it is consistent [with] and does not contradict Appellants’ use of the term ‘relationship’ in the specification” (*id.*). The Examiner reasons that “the claimed ‘relationship’ is the way that the core body temperature and the (exhaled) breath temperature are connected” (*id.*).

We agree with the Examiner’s reasoning. Claim 1 does not require any specific relationship between core body temperature and exhaled breath temperature, nor does it require any specific type of calculation to determine the recited relationship. As noted by the Examiner, the Specification does not define either the relationship or the calculating so as to limit the scope of these terms. Thus, when we give the claim language its broadest reasonable interpretation consistent with the Specification, we agree with the Examiner that determining a consistent change over time with respect to both core temperature and peripheral temperature (i.e., both moving toward a cut-off point) satisfies the requirement for calculating a relationship between the two.

Thus, we affirm the rejection of claim 1 under 35 U.S.C. § 103(a). Claims 2, 4, 5, 8, 11, and 15 have not been argued separately and therefore fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Appellants’ arguments with respect to claim 16 are the same as for claim 1 (App. Br. 12), and are unpersuasive for the same reasons. Thus, we

affirm the rejection of claim 16 under 35 U.S.C. § 103(a). Claims 18–20, 23, and 26 have not been argued separately and therefore fall with claim 16. 37 C.F.R. § 41.37(c)(1)(iv).

Appellants argue claims 3 and 17 separately from claim 1. Claim 3 reads as follows (emphasis added):

3. The method according to claim 1, further comprising detecting the onset of the exacerbation responsive to *the relative percentage change of the breath temperature being greater than the relative percentage change of the core body temperature.*

Claim 17 depends from claim 16 and adds the same limitation as recited in claim 3.

The Examiner finds that Casscells discloses that “any mathematical treatment founded on a primary measure of temperature or determined fall of temperature that a programmed digital microcomputer can make . . . [is] within the ambit of that invention” (Ans. 7). The Examiner concludes that it “would have been obvious to a skilled artisan to optimize . . . Casscells’ method to include detecting the onset of the exacerbation responsive to the relative percentage change of the breath temperature being greater than the relative percentage change of the core body temperature” because “Casscells recognizes that any mathematical treatment may be applied to one or more measured temperatures to make the necessary determination(s) of predicting an exacerbation” (*id.* at 7).

Appellants argue that the cited references do not teach or suggest detecting the onset of the exacerbation based on “the relative percentage change of the breath temperature being greater than the relative percentage change of the core body temperature” (App. Br. 14–15). Appellants argue

that Casscells' disclosure that “any other mathematical treatment founded on a primary measure of temperature or determined fall of temperature' to make the 'necessary determinations'” does not suggest this limitation (*id.*).

We agree with Appellants that the Examiner has not persuasively shown that the disputed limitation would have been obvious based on the cited references. Casscells discloses that exacerbations of CHF are detected in response to consistent changes in core and peripheral temperature (i.e., both moving toward a cut-off point), rather than one change being greater than the other (FF 5). The Examiner's reasoning that a method and system could be configured to perform this function is not sufficient to support a conclusion of obviousness. Thus, we reverse the rejection of claims 3 and 17 under 35 U.S.C. § 103(a).

Conclusion of Law

The evidence of record supports the Examiner's conclusion that Casscells and Ensign would have made obvious the method and system of claims 1 and 16. The evidence of record does not support the Examiner's conclusion that Casscells and Ensign would have made obvious the method and system of claims 3 and 17.

II.

Issue

The Examiner has rejected claims 1–5, 8, 11, and 15 under 35 U.S.C. § 101 (Ans. 12–16).

The issue presented is: Did the Examiner err in finding that the method of claim 1 is directed to a patent-ineligible abstract idea?

Analysis

The Examiner finds that claim 1 is “is not directed to patent eligible subject matter” (Ans. 12) because, under the test set out in *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S.Ct 2347, 2354 (2014), it “encompasses an abstract idea” (*id.* at 15). The Examiner finds that the claimed steps of monitoring body and breath temperatures are “‘pre-solution activity’ that are not directed to the novelty of claim 1” and “do not bring a patent-ineligible idea into the realm of patentable subject matter” (*id.*).

The Examiner finds that the remaining elements—calculating a relationship between core and breath temperature and predicting onset of an exacerbation based on it—“are (i) mere instructions to implement the idea on a computer, and/or (ii) recitation of generic computer structure that serves to perform generic computer functions that are well-understood, routine, and conventional” (*id.* at 16). The Examiner reasons that, therefore, claim 1 does not “recite patent-eligible subject matter under 35 U.S.C. 101” (*id.*).

Appellants argue that the *Alice Corp.* Court stated that an invention is not patent-ineligible simply because it involves an abstract concept (Reply Br. 13). Appellants argue that the claims recite “processors configured to execute computer program modules. Processors and the medium used to store processor executable instructions/ modules are not abstract ideas” (*id.*). Appellants argue that the Examiner “has failed to establish that the claims recite an abstract idea” (*id.* at 14).

Appellants also argue that claim 1 does not “merely instruct a practitioner to apply an abstract idea to a general purpose computer. . . . [T]he claims recite a special purpose computer (i.e., the processor is

programmed with instructions in such a way to transform the general purpose computer into a special purpose one)” (*id.*). Appellants argue that, in *Alice Corp.*, “the Court’s focus was on [a] claim to an abstract idea and a **general purpose computer**” (*id.* at 15). Appellants argue that the instant claims “do not claim a general purpose computer. Thus, they are distinguishable from those in *Alice*” (*id.* at 15–16).

Appellants argue that the Examiner has not shown that the [steps of claim 1 are “well-understood, routine, and conventional activity of a computer previously known to the industry” (*id.* at 17). Appellants argue that, in combination, the features of claim 1 “are not well-understood, routine, conventional activities” (*id.* at 18).

Finally, Appellants argue that the method of claim 1 improves “the technical field of patient monitoring systems, transforming any alleged abstract idea into a patent-eligible subject matter” because it “allow[s] for effective determinations by a monitoring system of the worsening of a patient’s symptoms before they actually occur” (*id.* at 19–20).

Principles of Law

In *Alice Corp.*, the Supreme Court referred to the two-step analysis set out in *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S.Ct. 1289 (2012), as providing “a framework 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. Under that analysis, “[w]e must first determine whether the claims at issue are directed to a patent-ineligible concept.” *Id.* Next, “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.*

Under *Mayo*, to be patentable, a claim must do more than simply state the law of nature or abstract idea and add the words “apply it.” *Mayo*, 132 S.Ct. at 1294. For example, “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” *Alice Corp.*, 134 S.Ct. at 2358. “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.” *Alice Corp.*, 134 S.Ct. at 2358 (internal citation omitted).

Thus, the first question is whether claim 1 encompasses an abstract idea. The *Mayo* Court concluded that the claim at issue there “set forth laws of nature—namely, relationships between concentrations of certain metabolites in the blood and the likelihood that a dosage of a thiopurine drug will prove ineffective or cause harm.” *Mayo*, 132 S.Ct. at 1296. Similarly here, claim 1 sets forth a law of nature: namely, the relationship between core temperature, exhaled breath temperature, and the likelihood that a patient will suffer an exacerbation.

Regarding the second prong of the *Alice Corp.* test, we consider the elements of claim 1 “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 Corp.*, 134 S.Ct. at 2355 (quoting *Mayo*, 132 S.Ct. at 1297, 1298). In this case, monitoring core body temperature and exhaled breath temperature are conventional in the art, as shown by Casscells and Ensign.

Claim 1 also recites using processors to calculate the relationship between core and breath temperatures, and to detect an exacerbation based on that relationship. However, “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” *Alice Corp.*, 134 S.Ct. at 2358. *See also id.* (“Stating an abstract idea while adding the words ‘apply it with a computer’ simply combines” the steps of “applying” the abstract idea and limiting it to a particular technological environment, neither of which impart patent eligibility.).

Appellants’ argument that claim 1 does not simply instruct a practitioner to use a general purpose computer to apply an abstract idea but instead recites the use of a special purpose computer is not persuasive because claim 1 only specifies that the method steps are to be performed using a processor. Neither the claim nor the Specification recite any special structure for the processor(s) recited in the claim, nor do they recite any particular algorithms for the “calculating” and “detecting” steps of the claimed method. Thus, claim 1’s recitation of a processor “amounts to a mere instruction to ‘implemen[t]’ an abstract idea ‘on . . . a computer,’” and does not impart patent eligibility. *Alice Corp.*, 134 S.Ct. at 2358.

Thus, we affirm the rejection of claim 1 under 35 U.S.C. § 101. Claims 2–5, 8, 11, and 15 have not been argued separately and therefore fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

SUMMARY

We affirm the rejection of claims 1, 2, 4, 5, 8, 11, 15, 16, 18–20, 23, and 26 under 35 U.S.C. § 103(a).

We reverse the rejection of claims 3 and 17 under 35 U.S.C. § 103(a).

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Application 13/518,066

We affirm the rejection of claims 1–5, 8, 11, and 15 under 35 U.S.C. § 101.

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART