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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/587,550	12/31/2014	Jooman HAN	0203-1505	1158
68103	7590	03/16/2020	EXAMINER	
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			ART UNIT	PAPER NUMBER
			3793	
			NOTIFICATION DATE	DELIVERY MODE
			03/16/2020	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOOMAN HAN and JONGMIN CHOI

Appeal 2019-005066
Application 14/587,550
Technology Center 3700

Before JENNIFER D. BAHR, MICHELLE R. OSINSKI, and
SEAN P. O’HANLON, *Administrative Patent Judges*.

O’HANLON, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ appeals under 35 U.S.C. § 134(a) from the Examiner’s decision to reject claims 12 and 15–20.² We have jurisdiction over this appeal under 35 U.S.C. § 6(b). We REVERSE.

In explaining our Decision, we refer to the Specification filed December 31, 2014 (“Spec.”), the Final Office Action mailed August 25,

¹ We use the term “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Samsung Electronics Co., Ltd. Appeal Br. 2.

² Claims 1–11 are withdrawn, and claims 13 and 14 are canceled. Appeal Br. 10–12 (Claims App.).

2017 (“Final Act.”), the Appeal Brief filed March 8, 2018 (“Appeal Br.”), the Examiner’s Answer mailed April 25, 2019 (“Ans.”), and the Reply Brief filed June 17, 2019 (“Reply Br.”).

SUMMARY OF THE INVENTION

Appellant’s claimed invention relates to “measuring a photoplethysmogram, calculating and displaying a heart rate.” Spec. ¶ 2. Claim 12, the sole independent claim on appeal, is reproduced below from page 12 (Claims Appendix) of the Appeal Brief:

12. An electronic device comprising:
 - an optical sensor configured to detect a photoplethysmography (PPG) signal;
 - a processor configured to:
 - produce a first heart rate (HR) and a second HR from the PPG signal,
 - analyze the first HR and the second HR,
 - compare an analyzed value with a threshold,
 - determine, if the analyzed value is greater than the threshold, a resultant HR as the first HR, and
 - determine, if the analyzed value is less than the threshold, the resultant HR as the second HR; and
 - a display configured to display the resultant HR.

REFERENCES

The Examiner relies on the following prior art references in rejecting the claims on appeal:

Watson	US 2011/0077486 A1	Mar. 31, 2011
Lusted	US 2013/0183646 A1	July 18, 2013

REJECTIONS

- I. Claim 15 stands rejected under 35 U.S.C. § 112(a) as failing to comply with the written description requirement.

- II. Claim 15 stands rejected under 35 U.S.C. § 112(b) as being indefinite.
- III. Claims 12 and 15–20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Watson and Lusted.

ANALYSIS

Rejection I – Written Description

Claim 15 recites, in relevant part, “a light emitter configured to illuminate the skin with light to measure the PPG signal; and a light receiver configured to receive light from the skin.” Appeal Br. 12 (Claims App). The Examiner finds that “[t]he limitations ‘emitter’ and ‘receiver’ do not appear in the disclosure at all nor are the elements supported by structure in the disclosure.” Final Act. 3.

Appellant traverses the rejection, arguing that the Examiner “appears to be requiring literal support for the” limitations in question. Appeal Br. 3. Appellant asserts that

FIG. 3A illustrates light emitting diodes (LEDs), which are well known to emit light (i.e., a light emitter), and a photodiode, which is well known to receive light (i.e., a light receiver). Therefore, a person of skill in the art, having read the instant [S]pecification, would readily understand that LEDs are an example of a light emitter and a photodiode is an example of a light receiver.

Id. at 3–4.

In order to comply with the written description requirement, the Specification “must describe the invention sufficiently to convey to a person of skill in the art that the [applicant] had possession of the claimed invention at the time of the application, i.e., that the [applicant] invented what is claimed.” *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). The Federal Circuit has explained that:

The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. The content of the drawings may also be considered in determining compliance with the written description requirement.

In re Kaslow, 707 F.2d 1366, 1375 (Fed. Cir. 1983) (citations omitted).

We are persuaded that Appellant's Specification provides support for the limitations in question sufficient to satisfy the written description requirement of 35 U.S.C. § 112(a). In particular, the Specification describes, “[r]eferring to FIG. 3A, [that] the optical sensor 220 includes a light emitting unit 310 for emitting light and a light receiving unit 315 for receiving light. For example, the light emitting unit 310 and the light receiving unit 315 may be an LED and a photodiode, respectively” Spec. ¶ 65; *see also* Drawings, Fig. 3A (depicting an LED emitting light and a photodiode receiving light). Thus, the Specification provides adequate disclosure to reasonably convey to one having ordinary skill in the art, as of the filing date, that Appellant possessed the claimed subject matter of “a light emitter” and “a light receiver,” as recited in claim 15.

Accordingly, we do not sustain the rejection of claim 15 as failing to comply with the written description requirement.

Rejection II – Indefiniteness

The Examiner's stated basis for rejecting claim 15 as being indefinite is that “[t]he limitations ‘emitter’ and ‘receiver’ do not appear in the disclosure at all nor are the elements supported by structure in the disclosure.” Final Act. 4.

Appellant argues that the Examiner “has not set for[th] the requirements under 35 U.S.C. § 112(b) to demonstrate that the claims are not clear.” Appeal Br. 4. In particular, Appellant asserts that the Examiner “has not identified why a person of skill in the art would not find the term ‘light emitter’ and ‘light receiver’ to be ‘precise, clear, correct, and unambiguous,’ as required.” *Id.*

A claim is indefinite when it contains language that is “ambiguous, vague, incoherent, opaque, or otherwise unclear in describing and defining the claimed invention.” *In re Packard*, 751 F.3d 1307, 1311 (Fed. Cir. 2014); *see also Ex parte McAward*, Appeal No. 2015-006416, at 4–12 (PTAB Aug. 25, 2017) (designated precedential). The indefiniteness determination is “based on the perspective of one of ordinary skill in the art in view of the entire written description and developing prosecution history.” *Packard*, 751 F.3d at 1312.

Here, the Examiner does not offer any explanation as to why the identified claim limitations are unclear, but, rather, only alleges that these limitations are not supported by Appellant’s disclosure. *See* Final Act. 4. We note that the issue of whether the present application provides written description support for the identified claim limitations under § 112(a) is distinct from the issue of whether such limitations are indefinite under § 112(b). In other words, even assuming, *arguendo*, that the identified claim limitations lacked support in the original disclosure, this would not explain why the limitations would have been “ambiguous, vague, incoherent, opaque, or otherwise unclear” to one of ordinary skill in the art. *Packard*, 751 F.3d at 1311.

Accordingly, we do not sustain the rejection of claim 15 as being indefinite.

Rejection III – Obviousness based on Watson and Lusted

The Examiner finds that Watson discloses, in relevant part, “a processor configured: to produce a first heart rate (HR) and a second HR from the detected PPG signal.” Final Act. 5 (citing Watson ¶ 34).

Appellant argues that “*Watson* fails to teach or suggest ‘produc[ing] a first HR **and a second HR** from the PPG signal,’ as recited in claim 12.” Appeal Br. 7 (alteration in original). In particular, Appellant asserts that “*Watson* only uses the PPG signal to determine a single heart rate.” Reply Br. 3 (underlining omitted); *see also id.* at 4 (asserting that, “at best, *Watson* produces a single heart rate, which is then used to determine the blood pressure.”). We are persuaded by Appellant’s arguments.

Watson teaches that “microprocessor 48 may determine the patient’s physiological parameters, such as blood pressure, SpO₂, and pulse rate, using various algorithms and/or look-up tables based on the value of the received PPG signals and/or data corresponding to the light received by detector 18.” Watson ¶ 37. The Examiner takes the position that “[e]ach PPG signal (of the recited ‘received PPG signals’) can be analyzed to determine a multitude of pulse rates without any modification to Watson.” Ans. 5. The Examiner also states that

[a] recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Id. In this regard, the Examiner appears to interpret the limitation “a processor configured to: produce a first heart rate (HR) and a second HR from the PPG signal” in claim 12 as a recitation of intended use. We disagree with this interpretation.

The “configured to” language recited in claim 12 imposes a structural limitation on the processor of the claimed device and, therefore, is not simply a recitation of its intended use. *See In re Noll*, 545 F.2d 141, 148 (CCPA 1976) (“[T]he claimed invention . . . comprises physical structure, including storage devices and electrical components uniquely configured to perform specified functions through the physical properties of electrical circuits to achieve controlled results. Appellant’s programmed machine is structurally different from a machine without that program.”). When functional language is associated with programming or some other structure required to perform the function, that programming or structure must be present in order to meet the claim limitation. *See Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1380 (Fed. Cir. 2011). Here, the Examiner finds that Watson’s microprocessor is *capable* of producing a second HR, but the Examiner does not point to, nor do we discern, adequate disclosure in Watson that the microprocessor is *programmed* to produce a second HR, as required by the claim. Thus, the Examiner has not explained adequately how Watson’s processor is configured to produce first and second heart rates from the PPG signal as required by claim 12.

For the above reasons, the Examiner’s conclusion of obviousness is based on an inadequately supported finding as to the disclosure of Watson. The Examiner relies on Lusted for teaching additional recited features, but does not articulate any findings or reasoning that would cure the

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aforementioned deficiency in the disclosure of Watson. Accordingly, we do not sustain the rejection of claim 12, or its dependent claims 15–20, as unpatentable over Watson and Lusted.

CONCLUSION

In summary,

Claim(s) Rejected	35 U.S.C. §	References/Basis	Affirmed	Reversed
15	112(a)	Written Description		15
15	112(b)	Indefiniteness		15
12, 15–20	103	Watson, Lusted		12, 15–20
Overall Outcome				12, 15–20

REVERSED