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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/481,020	09/09/2014	Jung Ook Hong	FTBTP012D1/FB-0023D1	7246

119042 7590 09/14/2018

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ART UNIT	PAPER NUMBER
3736	

NOTIFICATION DATE	DELIVERY MODE
09/14/2018	ELECTRONIC

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JUNG OOK HONG, ANDREW COLE AXLEY, and SHELTON GEE JAO YUEN[1]

Appeal 2017-006708
Application 14/481,020
Technology Center 3700

Before FRANCISCO C. PRATS, JOHN E. SCHNEIDER, and TIMOTHY G. MAJORS, *Administrative Patent Judges*.

SCHNEIDER, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to biometric monitoring devices, which have been rejected as obvious, as indefinite, and as directed to ineligible subject matter. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

STATEMENT OF THE CASE

Biometric sensors are often used to track the activities of the user. Spec. 1. Miniaturized biometric sensors can be used to collect a variety of

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[1] Appellants identify the Real Party in Interest as Fitbit, Inc. Appeal Br. 3.

information for the user including "step counts, ambulatory speed, distance traveled cadence, heart rate, calorie burn, floors climbed and/or descended, location and/or heading, elevation, etc." Spec. 2. Miniature biometric devices, however, have a limited power supply which limits the usefulness of the biometric device. Spec. 12. The Specification describes biometric devices that achieve computation speed and accuracy while maintaining energy efficiency. Spec. 2.

Claims 20–22, 24–26, 29, 35–42, and 44–49 are on appeal. Claims 20 and 46 are illustrative and read as follows:

> 20. A biometric monitoring device comprising:
> one or more sensors providing sensor output data comprising information about a user's physiological activity when the biometric monitoring device is worn by the user;
> a display device configured to display values of physiological metrics generated for the user; and
> one or more processors configured to:
> (a) operate the one or more sensors to provide the sensor output data when the biometric monitoring device is worn by the user;
> (b) determine that a first portion of the sensor output data includes data indicative of the user being engaged in a first activity, wherein the first activity is walking and/ or running;
> (c) update, based at least in part on the determination that the first portion of the sensor output data includes data indicative of the user being engaged in the first activity, a heart rate metric using information obtained from a time domain analysis of the first portion of the sensor output data;
> (d) determine that a second portion of the sensor output data includes data indicative of the user being engaged in a second activity, wherein the second activity is selected from the group consisting of: elliptical machine exercise, stair machine exercise, cardio exercise machines, weight training, driving,

swimming, biking, sleeping, driving, stair climbing, rock climbing, and any combination

thereof;

(e) update, based at least in part on the determination that the second portion of the sensor output data includes data indicative of the user being engaged in the second activity, the heart rate metric using information obtained from a frequency domain analysis of the second portion of the sensor output data;

(f) repeat (b) through (e) for additional portions of the sensor output data; and

(g) control the display device of the biometric monitoring device to display the heart rate metric.

46. (Previously Presented) A biometric monitoring device comprising:

one or more heart rate sensors providing heart rate data comprising information about a user's physiological activity when the biometric monitoring device is worn by the user;

a display device configured to present display values of heart rate metrics generated for the user, and

one or more processors configured to:

(a) operate the one or more heart rate sensors to provide the heart rate data when the biometric monitoring device is worn by the user;

(b) determine that a signal strength characteristic for a first portion of the heart rate data is higher than a first threshold value;

c) update, based at least in part on the determination that the signal strength characteristic for the first portion of the heart rate data is higher than the first threshold value, a heart rate metric using information obtained from a time domain analysis of the first portion of the heart rate data;

(d) determine that the signal strength characteristic for a second portion of the heart rate data is less than or equal to a second threshold value;

(e) update, based at least in part on the determination that the signal strength characteristic for the second portion of the

heart rate data is less than or equal to a second threshold value, the heart rate metric using information obtained from a frequency domain analysis of the second portion of the heart rate data;

(f) repeat (b) through (e) for additional portions of the heart rate data; and

(g) control the display device of the biometric monitoring device to display the heart rate metric.

The claims stand rejected as follows:

Claims 20–22, 24–26, 29, 35, 38, 42, and 44–49 have been rejected under 35 U.S.C. § 112, second paragraph as indefinite.

Claims 20–22, 24, 26, 29–35, 38, and 42–49 have been rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter.

Claims 20-22, 24, 26, 27, 29, 35, 42, and 44–49 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Drysdale[2] in view of Meger.[3]

Claim 38 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Drysdale in view of Meger in further view of Fernstrom.[4]

Claims 20 and 46 have been rejected under 35 U.S.C. § 1-3(a) as unpatentable over Stirling[5] in view of Meger.

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[2] Drysdale at al., US 2013/0173171 A1, published July 4, 2013 ("Drysdale").
[3] Meger et al., US 2011/0112442 A1, published May 12, 2011 ("Meger").
[4] Fernstrom et al., US 2009/0012433 A1, published Jan. 8, 2009 ("Fernstrom").
[5] Stirling et al., US 2008/0214360 A1, published Sept. 4, 2008 ("Stirling").

INDEFINITENESS

1st Section 112 rejection

Claim 20 contains a limitation calling for "one or more sensors providing sensor output data comprising information about a user's physiological activity when the biometric monitoring device is worn by the user." Appeal Br. 40. Claim 46 contains a similar limitation, except that the sensors are heart rate sensors that provide heart rate data. *Id.* at 43.

The Examiner contends that both limitations are ambiguous. Final Act. 3. The Examiner contends that it is unclear what comprises the information about the physiological activity. *Id.* The Examiner concludes that the claims and their dependent claims are indefinite. *Id.*

Appellants argue that the claims are not indefinite in that a proper reading of the term would lead one skilled to interpret the term to mean that the sensor output data comprises information about a user's physiological activity. Appeal Br. 8–9.

We agree with Appellants that the claims are not indefinite. A proper reading of the claim shows that it is the *sensor output data* that comprises the information about a user's physiological activity. The phrase "information about a user's physiological activity" further defines the type of sensor output data provided by the sensors. We do not find the term to be ambiguous.

2nd Section 112 Rejection

The Examiner has found that the phrase in claim 20 "wherein the first activity is walking and/or running" to be ambiguous because it is unclear how one activity can be both running and walking. Final Act. 4. The

Examiner finds that an activity cannot be both walking and running at the same time. Ans. 24–25.

Appellants contend that the claim phrase is not indefinite. Appeal Br. 9. Appellants argue that the phrase should be construed as an activity which comprises both walking and running. Appeal Br. 9, Reply Br. 6

Again we agree with Appellants. "[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). Under this standard, we interpret the term "first activity is walking and/or running" to mean an activity that includes or comprises walking and/or running. As the Examiner points out, this can include an activity such as basketball where a player may alternate between running and walking. Ans. 24–25. The Examiner has not persuasively shown why the claim limitation should be interpreted in a nonsensical manner as requiring running and walking to occur simultaneously.

3rd Section 112 Rejection

The Examiner has rejected claim 22 as indefinite because the term analyzing the sensor output data in (a) lacks an antecedent basis. Final Act. 4. Appellants do not present any arguments with respect to this rejection. Therefore, we affirm this rejection.

NON-STATUTORY SUBJECT MATTER

The Examiner has rejected claims 20–22, 24, 26, 29–35, 38, and 42–49 as being directed to non-statutory subject matter. Final Act. 4. The Examiner finds that the claims are directed to an abstract idea that involves

taking signal data and then determining what kind of activity a user is engaged in based on calculations performed using the signal data. *Id.* at 5. The Examiner also finds that the claims do not recite additional elements that amount to something significantly more than the abstract idea. *Id.*

Appellants contend that the claims are directed to patent eligible subject matter. Appeal Br. 10. Appellants argue that the claims are directed to an improved wearable biometric monitoring device and not an abstract idea. *Id.* Appellants also argue that even if the claims were directed to an abstract idea, the additional claim elements are sufficient to transform the invention into patent eligible subject matter.

As stated in *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992):

> [T]he examiner bears the initial burden . . . of presenting a *prima facie* case of unpatentability. . . .
>
> After evidence or argument is submitted by the applicant in response, patentability is determined on the totality of the record, by a preponderance of evidence with due consideration to persuasiveness of argument.

Appellants persuade us that a preponderance of the evidence fails to support the Examiner's conclusion that the rejected claims recite subject matter ineligible for patenting under 35 U.S.C. § 101.

Section 101 states that "[w]hoever 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."

The Supreme Court has "long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and

abstract ideas are not patentable." *Alice Corp. Pty. Ltd. v. CLS Bank Intern.*, 134 S.Ct. 2347, 2354 (2014).

The Federal Circuit has summarized the Supreme Court's two-part test for distinguishing between claims to patent-ineligible exceptions, and claims to patent-eligible applications of those exceptions, as follows:

> Step one asks whether the claim is "directed to one of [the] patent-ineligible concepts." [*Alice*, 134 S.Ct. at 2354]. If the answer is no, the inquiry is over: the claim falls within the ambit of § 101. If the answer is yes, the inquiry moves to step two, which asks whether, considered both individually and as an ordered combination, "the additional elements 'transform the nature of the claim' into a patent-eligible application." *Id.* (quoting *Mayo* [*Collaborative Services v. Prometheus Labs, Inc.*, 132 S.Ct. 1289, 1297 (2012)]).
>
> Step two is described "as a search for an 'inventive concept.'" *Id.* (quoting *Mayo*, 132 S.Ct. at 1294). At step two, more is required than "well-understood, routine, conventional activity already engaged in by the scientific community," which fails to transform the claim into "significantly more than a patent upon the" ineligible concept itself. *Mayo*, 132 S.Ct. at 1298, 1294.

Rapid Litigation Mgmt. Ltd. v. CellzDirect, Inc., 827 F.3d 1042, 1047 (Fed. Cir. 2016) (paragraphing added).

In applying step one of the test recited above, it is important to not only see if there is a patent-ineligible concept within the claim but we must determine if the patent eligible concept is what the claim is directed to. *Vanda Pharm. Inc. v. West Ward Pharm. Int'l Ltd.*, 887 F.3d 1117, 1134. If we find that the claims are not directed to a patent ineligible concept, we need not proceed to step two. *Id.*

We agree with Appellants that the invention, when viewed as a whole, is directed to patent eligible subject matter, namely a biometric device. The claims call for one or more sensors, a display device and one or more processors configured to form a biometric device. While the device may use certain abstract concepts in its operation, the device, when viewed as a whole, is directed to patent eligible subject matter.

Having determined that the claims are directed to patent eligible subject matter, we need not reach the second step of the patent eligible subject matter analysis.

OBVIOUSNESS

Drysdale Combined with Meger

Issue

The issue with respect to this rejection is whether a preponderance of the evidence supports the Examiner's conclusion that the subject matter of claims 20–22, 24, 26, 27, 29, 35, 42, and 44–49 would have been obvious over Drysdale combined with Meger.

The Examiner finds that Drysdale discloses a biometric sensor comprising one or more sensors that provide sensor output data wherein the data comprises information about a user's physiological activity; a display device and one or more processors. Final Act. 11. The Examiner finds that the processors in the device of Drysdale are configured to: use the sensor output data to determine that the user is engaged in a first activity, which can be walking and/or running; update a heart rate metric based on the output data; determine when the user is engaged in a second activity; update the heart rate metric using data about the second activity; and then repeat the

step. Final Act. 11–12. The Examiner finds that while Drysdale does not teach using a time domain analysis for the first portion of the output data and a frequency analysis for the second portion of the output data, this is taught by Meger. Final Act. 12. The Examiner concludes

> It would have been obvious to a skilled artisan to modify Drysdale to include one or more processors configured to: update a heart rate metric using information obtained from a time domain analysis of the first portion of the sensor output data; update a heart rate metric using information obtained from a frequency domain analysis of the second portion of the sensor output data; and control the display device of the biometric monitoring device to display the heart rate metric, in view of the teachings of Meger, for the obvious advantage of tailoring the type of analysis to the level of subject activity so that the analyses will not erroneously detect a heart rate metric or other physiological metric (see para [0254], [0328], and [0329] of Meger).

Final Act. 12–13.

Appellants argue that Drysdale does not teach the use of one or more processors configured to update a heart metric using either a time domain analysis or a frequency domain analysis. Appeal Br. 31–32. Appellants contend that Meger does not remedy the deficiencies of Drysdale. Appeal Br. 32. Appellants argue that Meger is directed to be used in bed for bed-bound patients as compared to the wearable device of Drysdale. *Id.* at 33. Appellants contend that there is no motivation to combine the system of Meger with the device of Drysdale.

With respect to claim 46, Appellants contend that, in addition to the arguments raised above, neither Drysdale nor Meger teach updating the heart rate metric using either time domain analysis or frequency domain analysis

based on the signal strength characteristics of the heart rate data. Appeal Br. 33–34.

Finally, with respect to claims 22 and 47, Appellants argue that neither Drysdale nor Meger teach the additional elements recited in these claims. Appeal Br. 34–35.

Findings of Fact

We adopt the Examiner's findings as our own, including with regard to the scope and content of, and motivation to modify or combine, the prior art. The following findings are included for emphasis and reference purposes.

FF1. Drysdale teaches a wearable data capture device having one or more sensors to capture data from different sources. Drysdale ¶ 50.

FF2. Drysdale teaches

> To illustrate action and event processing of a strapband, consider the following examples. First, consider a person is performing an activity of running or jogging, and enters an active mode at **1702**. The logic of the strap band analyzes user characteristics at **1704**, such as sleep patterns, and determines that the person has been getting less than a normal amount of sleep for the last few days, and that the person's heart rate indicates the user is undergoing strenuous exercise as confirmed by detected motion in **1706**.

Id. at ¶ 125.

FF3. Drysdale also teaches

> As a second example, consider a person is performing an activity of sleeping and has entered a sleep mode at **1702**. The logic of the strap band analyzes user characteristics at **1704**, such as heart rate, body temperature, and other user characteristics relevant to the determination whether the person

> is in REM sleep. Further, the person's motion has decreased sufficiently to match that typical of periods of deep or REM sleep as confirmed by detected motion (or lack thereof) at **1706**.

Id. at ¶ 126.

FF4. Meger teaches

> In an embodiment of the present invention, system **10** switches between different algorithms for calculating respiratory rates or heart rates between sleep and wake mode, and/or between low activity level and high activity level. For example, for some applications, it is more effective to use a time domain algorithm for calculating respiratory rate when the subject is awake and a frequency domain algorithm when the subject is asleep. Alternatively, the system switches between the different algorithms according to a level of subject activity and/or restlessness.

Meger ¶ 358.

Principles of Law

> [T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.
>
> If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant. After evidence or argument is submitted by the applicant in response, patentability is determined on the totality of the record, by a preponderance of evidence with due consideration to persuasiveness of argument.

In re Oetiker, 977 F.2d at 1445.

Analysis

We find the Examiner has established that the subject matter of claims 20-22, 24, 26, 27, 29, 35, 42, and 44, and 45 would have been obvious to

one of ordinary kill in the art at the time the invention was made over Drysdale combined with Meger. Appellants have not produced evidence showing, or persuasively argued, that the Examiner's determinations on obviousness of these claims are incorrect. Only those arguments made by Appellants in the Briefs have been considered in this Decision. Arguments not presented in the Briefs are waived. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2015). We have identified claim 20 as representative. We address Appellants' arguments below.

Appellants contend that Drysdale does not teach or suggest updating a heart rate metric using a time domain analysis to determine that the user is walking and/or running nor does it teach using a frequency based analysis to determine if the user is engaged in a second activity, which includes elliptical machine exercise, stair machine exercise, cardio exercise machines, weight training, driving, swimming, biking, sleeping, driving, stair climbing, or rock climbing using a frequency domain analysis. Appeal Br. 31–32. We are not persuaded.

The Examiner does not rely on Drysdale to teach the use of time domain analysis or frequency domain analysis. Ans. 34–35. Instead, the Examiner cites Meger as evidencing this teaching. *Id.* It is the combined teaching of the references that renders the claimed subject matter obvious. "The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art." *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991).

Appellants next contend that Meger does not provide the motivation to combine its teachings with those of Drysdale. Appeal Br. 33. Appellants

point to the fact that Meger is directed to a system implemented in a bed for bed-bound patients whereas Drysdale is a wearable device designed for ambulatory users. *Id.* We find Appellants' arguments unpersuasive.

Drysdale teaches a biometric device that uses physiological parameters, such as a subject's heart rate, to detect and analyze a subject's sleep patterns, and also detect whether the subject has entered an active mode (e.g., jogging). FF 2 and 3. Turning to Meger, it teaches a system that advantageously switches between different algorithms for calculating a subject's heart rate or respiratory rate "between sleep and wake mode, and/or between low activity level and high activity level." FF 4. Further to this point, Meger specifically teaches that it may be "more effective" to use a time domain algorithm for purposes of making the calculations when the subject is awake — and thus in a more active state — and that a frequency domain algorithm should be used when the subject is asleep. *Id.* Moreover, Meger suggests switching between the respective algorithms according to the subject's activity levels. *Id.* Accordingly, we agree with the Examiner that the skilled artisan would have been motivated to apply Meger's teaching (e.g., providing improved monitoring of physiological parameters using a time domain algorithm for purposes of calculations made during higher activity levels, and using a frequency domain algorithm for calculations made during sleep) to the device of Drysdale. Ans. 11–12, 35. And notably, this modification of Drysdale corresponds to the processing and monitoring encompassed by the device of claim 20 where heart rate calculations are updated based on a time domain analysis of sensor output data taken during "walking and/or running" by a subject, and heart rate calculations are

updated based on a frequency domain analysis of sensor output taken during, for example, certain lower level activities such as "sleeping." *See* claim 20.

With respect to claim 22, Appellants argue that neither Drysdale nor Meger teach the limitation calling for "characterizing the sensor output data based on a signal norm, a signal energy/power in certain frequency bands, a wavelet scale parameter, and/or a number of samples exceeding one or more thresholds." Appeal Br. 34. Appellants' argument is unpersuasive.

Drysdale teaches "Motion capture manager **1561** continues to monitor and capture motion until, for example, motion capture manager **1561** detects no significant motion (i.e., below a threshold) or an activity or mode is ended." Drysdale ¶ 121. We agree with the Examiner that this teaches that motion is monitored and characterized when a number of samples exceeds a threshold as recited in claim 22.

Appellants argue that even if Drysdale does teach capturing motion when a number of samples exceeds a threshold, Drysdale does not teach characterizing the sensor output data. Reply Br. 23. We remain unpersuaded. As the Examiner points out, Drysdale teaches characterizing the sensor output data. Final Act. 13; Drysdale ¶¶ 119–121.

Turning to claims 46–49, Appellants argue that

> *Drysdale* does not disclose or otherwise suggest updating a heart rate metric using a time domain analysis based on determining that a signal strength characteristic of the heart rate data is higher than a first threshold value. Neither does *Drysdale* disclose or otherwise suggest updating the heart rate metric using a frequency domain analysis based on determining that the signal strength characteristic of the heart rate data is less than or equal to a second threshold value.

Appeal Br. 34. Appellants also argue that Meger does not remedy the deficiency of Drysdale. *Id.*

The Examiner contends that Meger teaches switching between time domain and frequency domain analyses based on signal strength. Ans. 37.

We find that Appellants have the better argument. While we agree with the Examiner that Meger discloses switching between analytical techniques when a threshold is met, the Examiner has not pointed to any teaching in either reference that teaches analyzing data when the signal strength is at or below a *second* threshold. Therefore the Examiner has not shown that the combined references teach all of the elements of claim 46 and the claims that depend on claim 46,

Conclusion of Law

We conclude that a preponderance of the evidence supports the Examiner's conclusion that claims 20 and 22 would have been obvious over Drysdale combined with Meger.

Claims 21, 24–26, 29, 35, 42, 44, and 45 have not been argued separately and therefore fall with claim 20. 37 C.F.R. § 41.37(c)(1)(iv).

We conclude that a preponderance of the evidence does not support the Examiner's conclusion that claims 46–49 would have been obvious over Drysdale combined with Meger.

Drysdale combined with Meger and Fernstrom

Issue

The issue with respect to this rejection is whether a preponderance of the evidence supports the Examiner's conclusion that the subject matter of

claim 38 would have been obvious over Drysdale combined with Meger and Fernstrom.

The Examiner reiterates his finding with respect to Drysdale and Meger. Final Act. 18. The Examiner finds that Fernstrom teaches performing frequency domain analysis finding spectral peaks that are a function of an average step rate. *Id.* at 19. The Examiner concludes "It would have been obvious to a skilled artisan to modify Drysdale wherein the frequency domain analysis comprises finding any spectral peak/peaks that is/are a function of an average step rate, in view of the teachings of Fernstrom, for the obvious advantage of more accurately determining energy expenditure and/or pulse rate (see para [0112] of Fernstrom)." *Id.*

Appellants contend that while Fernstrom discloses a device for monitoring food intake and physical activity of an individual and does not teach finding spectral peak/peaks that is/are a function of an average step rate. Appeal Br. 35.

We find that the preponderance of the evidence supports the Examiner. As the Examiner points out, Fernstrom specifically teaches monitoring step counting and distance traveled which equates to average step rate. Ans. 38; Fernstrom ¶ 112. Fernstrom also teaches measuring pace frequency. ¶ 49.

We conclude that a preponderance of the evidence supports the Examiner's conclusion that the subject matter of claim 38 would have been obvious over Drysdale combined with Meger and Fernstrom.

Stirling combined with Meger

Claims 20 and 46 have been rejected as unpatentable over Stirling combined with Meger. The Examiner finds that Stirling teaches each of the elements of the claims with the exception of one or more processors which "update a heart rate metric using information obtained from a time domain analysis of the first portion of the sensor output data; update a heart rate metric using information obtained from a frequency domain analysis of the second portion of the sensor output data." Final Act. 20–21. The Examiner Finds that Meger teaches this limitation. *Id.* at 21. The Examiner concludes

> It would have been obvious to a skilled artisan to modify Stirling to include one or more processors configured to: update a heart rate metric using information obtained from a time domain analysis of the first portion of the sensor output data; update a heart rate metric using information obtained from a frequency domain analysis of the second portion of the sensor output data, in view of the teachings of Meger, for the obvious advantage of tailoring the type of analysis to the level of subject activity so that the analyses will not erroneously detect a heart rate metric or other physiological metric (see para [0254], [0328], and [0329] of Meger).

Id.

Appellants contend that Stirling does not teach "one or more processors configured to update the heart rate metric using a time domain analysis or a frequency domain analysis based on a first activity or a second activity as recited in claim 20." Appeal Br. 36–37. Appellants contend that Meger does not remedy the deficiency of Stirling as Meger is directed to monitoring a patient's bed status and is not a portable device for monitoring a user's activities. Appeal Br. 37.

With respect to claim 46, Appellants also argue that Stirling

> does not disclose or otherwise suggest updating a heart rate metric using a time domain analysis based on determining that a signal strength characteristic of the heart rate data is higher than a first threshold value. Neither does *Stirling* disclose or otherwise suggest updating the heart rate metric using a frequency domain analysis based on determining that the signal strength characteristic of the heart rate data is less than or equal to a second threshold value.

Appeal Br. 38. Appellants argue that Meger does not cure this deficiency of Stirling. *Id.*

With respect to claim 20, we find that the Examiner has established that the subject matter of the claim would have been obvious over Stirling combined with Meger. Appellants' arguments do not convince us otherwise. While we agree with Appellants that Stirling does not teach the use of time domain analysis coupled with frequency domain analysis, this element is taught by Meger. FF4. "The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art." *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991).

With respect to Stirling and Meger being directed to different applications, both references teach monitoring sleep activity. Stirling ¶ 105, Meger ¶ 358. Given that both Stirling and Meger teach devices to monitor sleep activity, we find that that one skilled in the art would have been motivated to use the data analysis techniques of Meger to analyze the data measured by the device of Drysdale.

As to claim 46, we reach a different conclusion. As discussed above, claim 46 refers to two separate thresholds for applying time domain analysis versus frequency domain analysis. While we agree with the Examiner that

Meger teaches switching between the two types of analyses and that one skilled in the art would logically conclude that this occurs when a threshold is met, Ans. 37, the Examiner has pointed to nothing in either reference that teaches the use of two separate thresholds as required by claim 46.

We conclude that a preponderance of the evidence supports the Examiner's conclusion that claims 20 would have been obvious over Stirling combined with Meger, but does not support the conclusion that claim 46 would have been obvious over Stirling combined with Meger.

SUMMARY

We reverse the rejections under 35 U.S.C. § 112, second paragraph, except as to claim 22, which we affirm.

We reverse the rejection under 35 U.S.C. § 101.

We affirm the rejection of claims 20–22, 24, 26, 27, 29, 35, 42, 44, and 45 under 35 U.S.C. § 103(a) as unpatentable over Drysdale combined with Meger.

We reverse the rejection of claims 46–49 under 35 U.S.C. § 103(a) as unpatentable over Drysdale combined with Meger.

We affirm the rejection of claim 38 under 35 U.S.C. § 103(a) as unpatentable over Drysdale combined with Meger and Fernstrom.

We affirm the rejection of claim 20 under 35 U.S.C. § 103(a) as unpatentable over Stirling combined with Meger.

We reverse the rejection of claim 46 under 35 U.S.C. § 103(a) as unpatentable over Stirling combined with Meger.

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