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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROBERT COURONNE, STEPHAN BODE,
STEFAN ASCHENBRENNER, and HANS-JOACHIM MOERSDORF[1]

Appeal 2014-009010
Application 11/749,668
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 appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 1–22, 26, and 28–30. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

The Specification discloses "a sensor, processing means and a computer program for providing information on a vital parameter of a living being . . . [including] transmission plethysmography sensitive to movement

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[1] Appellants identify the Real Party in Interest as Fraunhofer-Gesellschaft zur Foerderung der angewandten Forschung e.V. (App. Br. 3).

artifacts performed at the wrist" (Spec. 1:15–19). "[A] plethysmogram is . . . used to represent volume changes of arterial blood vessels in the human body" (Spec. 1:32–34). "For recording a plethysmogram . . . a sensor device is typically used which contains a light source and a photoreceiver . . . such that light passes the tissue layers and the remaining light intensity is measured by the photoreceiver" (Spec. 1:35–2:1). In one embodiment, the "invention provides a sensor for providing information on a vital parameter [] less sensitive to vibration than conventional sensors and making reliable recording and evaluation of a plethysmogram considerably easier." *Id.* at 6:6–10.

Claim 1 is illustrative:

1. A sensor for providing information on a vital parameter of a living being, comprising:
a mounter for attaching the sensor to the living being;
a light source connected to the mounter for radiating light into a part of the body of the living being;
a light receiver connected to the mounter and implemented to receive part of the light radiated to provide, in dependence on an intensity of the light received, a light intensity signal depending on the vital parameter;
an acceleration sensor connected to the mounter and implemented to provide an acceleration signal in dependence on an acceleration in at least one direction; and
a light source driver implemented to switch off the light source when the acceleration signal indicates that the acceleration is greater than a maximally allowed acceleration;
wherein the sensor is implemented to transfer the light intensity signal and the acceleration signal to a processor for a combining processing of the light intensity signal and the acceleration signal.

The claims stand rejected as follows:

claims 26 and 28 under 35 U.S.C. § 101 as being abstract;

claim 26 under 35 U.S.C. § 112, first paragraph, as lacking enablement;

claims 1, 2, 4, 5, 10, 14, and 15 under 35 U.S.C. § 102(b) in view of Vetter[2];

claims 1, 3, 11, 13, and 18 under 35 U.S.C. § 103(a) in view of Vetter and Niwa[3];

claims 1, 6, 7, 11, 12, and 23 under 35 U.S.C. § 103(a) in view of Vetter and Banet[4];

claim 9 under 35 U.S.C. § 103(a) in view of Vetter, Banet, and Asada[5];

claims 1 and 19 under 35 U.S.C. § 103(a) in view of Vetter and Nazarian[6];

claims 20 and 21 under 35 U.S.C. § 103(a) in view of Vetter, Nazarian, and Ruchti[7];

claims 1, 17, 18, 26, and 28 under 35 U.S.C. § 103(a) in view of Vetter and Kimball[8];

claim 22 under 35 U.S.C. § 103(a) in view of Vetter, Kimball, Nazarian;

claim 16 under 35 U.S.C. § 103(a) in view of Vetter and Hanna[9];

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[2] Rolf Vetter et al., US 2003/0065269 Al, Apr. 3, 2003 ("Vetter").
[3] Minoru Niwa, US 5,025,791, June 25, 1991.
[4] Matthew J. Banet et al., US 7,238,159 B2, July 3, 2007 ("Banet").
[5] Haruhiko H. Asada, WO 98/17172, published April 30, 1998.
[6] Richard A. Nazarian, US 2006/0084879 A1, published Apr. 20, 2006.
[7] Timothy L. Ruchti, US 2004/0068163 A1, published Apr. 8, 2004.
[8] Victor E. Kimball, US 6,879,850 B2, issued Apr. 12, 2005.
[9] D. Alan Hanna et al., US 6,408,198 B1, issued June 18, 2002 ("Hanna").

claim 8 under 35 U.S.C. § 103(a) in view of Vetter and Taylor[10]; and

claims 28–30 under 35 U.S.C. § 103(a) in view of Vetter and Gerhard.[11]

I.

The Examiner rejects claims 26 and 28 under 35 U.S.C. § 101. Final Rej. 3; [12] *see* Ans. 2.

According to the Examiner, claims 26 and 28 are "directed to an abstract idea," insofar as they "do not integrate the processing method steps with a particular machine." Final Rej. 3. In particular, the Examiner finds that the light sensor and accelerometer recited in the claims "do nothing more than mere data gathering . . . [which] is extra-solution activity." *Id.* According to the Examiner, the "actual determination of when to turn off the sensor must be tied to a machine that is integral to the operation and not merely extra-solutional [activity]." *Id.* The Examiner, thus, rejects claims 26 and 28 as drawn to non-patent eligible subject matter because "[t]he sensor . . . does not process the acceleration data." *Id.*

As Appellants have not responded to the Examiner's rejection, we summarily affirm the rejection of claims 26 and 28 under 35 U.S.C. § 101.

II.

The Examiner rejects claim 26 under 35 U.S.C. § 112, first paragraph, as lacking enablement because it is "unclear how the acceleration sensor

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[10] James H. Taylor et al., US 5,919,133, issued July 6, 1999 ("Taylor").
[11] Klamser Gerhard, US 5,517,988, issued May 21, 1996.
[12] Office Action mailed June 21, 2013.

processes the signal as sensors are generally used for only data collection and transmission unless otherwise stated to have processing means." Final Rej. 4; *see* Ans. 2.

Appellants respond that the rejection is in error "because it is not clear which objection the Examiner raises under 35 USC §112" App. Br. 22. Appellants further argue that "it is not apparent that claim 26 claims that the acceleration sensor processes any signal. Moreover . . . there are naturally intelligent sensors available, such that it would even be possible to process a signal using a sensor." App. Br. 22.

We agree with Appellants that the Examiner has not adequately explained the rejection of claim 26 for lack of enablement. Claim 26 recites the steps of "determining information on an acceleration of the light source, the light receiver or the mounter using an acceleration sensor" and switching off the light source if the information on the acceleration indicates that the acceleration exceeds a predetermined acceleration limit. Thus, claim 26 only requires that the information on acceleration is determined by the accelerometer, but does not specify any other processing requirements for the accelerometer. Accordingly, we reverse the rejection of claim 26 under 35 U.S.C. § 112, first paragraph, for lack of enablement.

III.

Issue

The Examiner rejects claims 1, 2, 4, 5, 10, 14, 15, and 26 under 35 U.S.C. § 102(b) as anticipated by Vetter. Final Rej. 4–7, Ans. 2.

The issue presented is: Does a preponderance of the evidence support the Examiner's finding that Vetter discloses "a light source driver

implemented to switch off the light source when the acceleration signal indicates that the acceleration is greater than a maximally allowed acceleration," as required by claim 1?

Analysis

We have reviewed Appellants' contentions that the Examiner erred in rejecting claims 1, 2, 4, 5, 10, 14, and 15as anticipated by Vetter. App. Br. 17–20. We disagree with Appellants' contentions and adopt the findings concerning the scope and content of the prior art set forth in the Examiner's Answer and Final Rejection. For emphasis, we highlight and address the following:

1. Vetter discloses "a device and a method for detecting the pulse rate," wherein:

> The measuring principle consists of emitting radiant energy at . . . human body tissue (**5**) by means of a light-emitting source (**10**), measuring the intensity of the radiant energy after propagation through the human body tissue by means of at least first and second light detectors . . . and providing first and second input signals ($y_1(t)$, $y_2(t)$) representative of this propagation. Simultaneously, a motion detecting device (**40**), such as a three dimensional accelerometer[], provides a motion reference signal ($a_x(t)$, $a_y(t)$, $a_z(t)$) representative of motion of the detecting device. . . . The input signals are then processed in order to remove motion-related contributions due to motion of the detecting device (**1**) on and with respect to the human body tissue (**5**) and to produce first and second enhanced signals. . . . Pulse rate is then extracted from the enhanced signals.

Vetter, Abstract.

2. Figure 2 of Vetter is shown below:

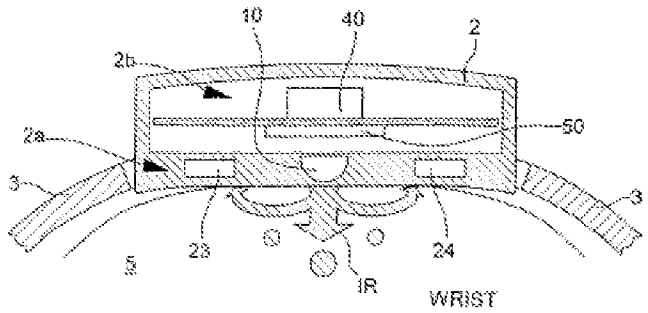

Figure 2 shows schematic side view of "a portable pulse rate detecting device . . . which is adapted to be worn on the wrist and compris[es] a light source and two pairs of light detectors," and which further comprises an accelerometer. Vetter ¶¶ 26 and 27. "Housing **2** comprises . . . a light source **10** for emitting radiant energy at the surface of (or through) the human body tissue, designated by reference numeral **5**." Vetter ¶ 33. "[H]ousing **2** further includes two pairs of light detectors **21**, **22** and **23**, **24** for detecting the intensity of the radiant energy after propagation through the human body tissue." Vetter ¶ 34.

3. Vetter discloses that "optical signals $y_1(t)$, $y_2(t)$ are enhanced using nonlinear, model-based noise cancelling techniques . . . . For this to be achieved . . . an accurate motion reference signal . . . is provided by the accelerometer." Vetter ¶ 50.

4. Vetter discloses that prior model-based noise reduction and artifact cancellation methods "are not able to cope with highly non-stationary signals such as the one resulting from random irregular movements." Vetter ¶ 62. "In order to avoid this drawback, a method is . . . included for determining non-stationary signal segments in the motion reference signals." Vetter ¶ 63.

5. Vetter further discloses that "since signal non-stationarity is caused by irregular random movement of short duration, missing probe values can be obtained through methods based on signal prediction." Vetter ¶ 68. Accordingly, "the light-emitting source . . . may be disabled when non-stationary signal segments are detected, this being advantageous in terms of power consumption since processing of the signals is not unnecessarily performed in highly unstable environments." Vetter ¶ 68.

The Examiner interprets the phrase "maximally allowed acceleration" in claim 1 as encompassing "some signal measure indicative of the acceleration," not limited to a "'magnitude of acceleration.'" Ans. 3. Applying this definition, the Examiner finds that Vetter discloses a sensor comprising "a light source driver implemented to switch off the light source when the acceleration signal indicates that the acceleration is greater than a maximally allowed acceleration [] wherein the light source can be turned off when motion noise is too high." Final Rej. 5, citing Vetter ¶ 68. In particular, the Examiner finds that Vetter's sensor transfers "the light intensity signal and the acceleration signal [to a] processor . . . [wherein] the acceleration signal is used to remove motion artifacts in the [photoplethysmography] signal." Final Rej. 5, citing Vetter ¶¶ 37, 50, and 52 and Figs. 1–3.

Appellants argue that Vetter fails to disclose switching off a light source when acceleration is too fast, because Vetter teaches a system responsive to "an estimation <u>of the variance</u> of the activity signals" and "<u>the determination of the variance is substantially different from the determination whether the acceleration is greater than a maximally allowed acceleration</u>." App. Br. 17–18 (citing Vetter ¶¶ 64–68). According to

Appellants, Vetter's method of evaluating the variance of activity signals "indicates an irregular random movement" whereas evaluation of acceleration, as required by claim 1, "indicates a regular, accelerated movement." App. Br. 20.

We agree with the Examiner that Vetter discloses the sensor of claim 1. Applying the broadest reasonable interpretation in light of the Specification, claim 1 only requires comparing an "acceleration signal" to "a maximally allowed acceleration." *See* Spec. 5:25–31 (disclosing the "advantage for the light intensity signal to be generated in dependence on the acceleration signal, i.e. exemplarily, with an acceleration outside an allowed region, generating either no light intensity signal at all (exemplarily by switching off the light source").

Vetter discloses that non-stationary segments are assessed for relative increments of variance in acceleration that are larger than a determined threshold of variance. FFs 4–5. Therefore, in Vetter, the acceleration signal is evaluated at any point in time to determine whether the change in acceleration is greater than the maximally allowed change in acceleration, i.e., whether the currently measured acceleration is greater than an acceleration allowed by the threshold of variance.

A preponderance of the evidence supports the Examiner's finding that Vetter discloses a sensor that comprises "a light source driver implemented to switch off the light source when the acceleration signal indicates that the acceleration is greater than a maximally allowed acceleration," as required by claim 1. Thus, we affirm the rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Vetter.

Claims 2, 4, 5, 10, 14, 15, and 26 have not been argued separately and therefore fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

IV.

Issue

The Examiner rejects claims 1, 3, 6–9, 11–13, 16, 18–21, and 23 under 35 U.S.C. § 103(a) as obvious in view of Vetter, and further in view of one of Niwa (claims 1, 3, 11, 13, and 18, Final Rej. 8–11; Ans. 2), Banet (claims 1, 6, 7, 11, 12, and 23, Final Rej. 11–14; Ans. 2), Nazarian (claims 1 and 19, Final Rej. 18–20; Ans. 2), Hanna (claim 16, Final Rej. 20–21; Ans. 2), Taylor (claim 8, Final Rej. 21; Ans. 2), Banet and Asada (claim 9, Final Rej. 21–22; Ans. 2), or Nazarian and Ruchti (claims 20 and 21, Final Rej. 22–23; Ans. 2).

Analysis

We have reviewed Appellants' contentions that the Examiner erred in rejecting claims 1, 3, 6–9, 11–13, 16, 18–21, and 23 as obvious over the cited art. App. Br. 20. We disagree with Appellants' contentions and adopt the findings concerning the scope and content of the prior art set forth in the Examiner's Answer and Final Rejection.

Appellants argue that the Examiner acknowledged that none of Niwa, Banet, or Nazarian disclose "turning off the light source when the acceleration signal is too high" (App. Br. 20). Appellants argue that, therefore, "even a combination of Vetter and any of the other prior art documents cannot render obvious the subject matter as defined by independent claim 1" (App. Br. 20).

Appellants' arguments are not persuasive for the reasons discussed above (III) with respect to the anticipation rejection based on Vetter. Thus, we affirm the rejection of claims 1, 3, 11, 13, and 18 in view of Vetter and Niwa, the rejection of claims 1, 6, 7, 11, 12, and 23 in view of Vetter and Banet, and the rejection of claims 1 and 19 in view of Vetter and Nazarian.

Appellants have not presented any arguments directed to the Hanna, Taylor, Asada, or Ruchti references. Thus, we also affirm the rejection of claim 16 in view of Vetter and Hanna, the rejection of claim 8 in view of Vetter and Taylor, the rejection of claim 9 in view of Vetter, Banet, and Asada, and the rejection of claims 20 and 21 in view of Vetter, Nazarian, and Ruchti.

V.

Issue

The Examiner rejects claims 1, 17, 18, 26, and 28 under 35 U.S.C. § 103(a) as obvious in view of Vetter and Kimball (Final Rej. 14–18; Ans. 2). The Examiner also rejects claim 22 under 35 U.S.C. § 103(a) as obvious in view of Vetter and Kimball, and further in view of Nazarian. Final Rej. 23–24. The same issue is dispositive for both of these rejections and we will consider them together.

Analysis

We have reviewed Appellants' contentions that the Examiner erred in rejecting claims 1, 17, 18, 26, and 28 as obvious over the cited art. App. Br. 20–22. With regard to claims 1, 18, and 26, we disagree with Appellants' contentions and adopt the findings concerning the scope and content of the prior art set forth in the Examiner's Answer and Final Rejection. With

regard to claims 17 and 28, we agree with Appellants that the Examiner has not adequately explained how the combination of Vetter and Kimball would have made obvious the inventions recited in these claims, and we reverse the rejection of claims 17 and 28.

For emphasis, we highlight and address the following:

6. Kimball discloses a need in the art "for a technique to compensate for, or eliminate, motion-induced artifacts in patient-attached critical care monitoring instruments." Kimball, Abstract. Kimball discloses an improvement in "pulse-oximetry by incorporating additional signals to aid in the triggering of the pulse-oximeter or in analyzing the data received by the pulse oximeter. This includes detecting when the patient moves and analyzing the pulse-oximetry data in light of the detected movement." Kimball, Abstract.

7. Kimball discloses "a pulse oximeter system **100** attached to a patient's fingertip **102** . . . The patient's hand **104** is typically not immobilized and is free to move throughout the measurement time interval." Kimball, col. 5, ll. 6–9. "The system may include a data display **112** for displaying the measured level of hemoglobin oxygen saturation, and any other information." Kimball, col. 5, ll. 14–16. The system includes a "sensor head unit **302**[, which] may contain the first light source **306** and the second light source **308** and a photodetector **310**, arranged so that light **316** and **318** from the light sources **306** and **308** illuminates the patient's finger **304**." Kimball, col. 7, ll. 21–25.

8. Kimball's "sensing head **606** may incorporate a motion sensor, such as a linear accelerometer, which may sense erratic motion, periodic motion (such as tapping), or even violent motion." Kimball, col. 13, ll. 63–

66. "Where the detected motion lies above a particular threshold . . . the signal from the motion sensor may be used to generate a blanking command in the main signal processing unit **608** to disregard data collected during those incidents." Kimball, col. 14, ll. 1–7. "[D]uring periods where the sensing head **606** is stationary, the signal from the motion sensor may be used as a gating command to validate raw data as acceptable for downstream processing." Kimball, col. 14, ll. 7–10. "In another approach, the main signal processing unit may be programmed to not take pulse-oximetry data while the motion sensor detects motion that exceeds a particular threshold." Kimball, col. 14, ll. 10–13.

9. Kimball discloses that the "unit display **622** may indicate that the patient's movement has exceeded a certain threshold and, for example, may be sufficient to adversely affect the pulse-oximetry measurement." Kimball, col. 14, ll. 25–28.

10. Kimball discloses that the

> blanking signal **1104** may be used for any process used in analyzing the data that is related to the patient's motion. For example, the blanking data may be used to tag data taken during periods of motion deemed to be too excessive to make accurate pulse-oximetry readings, so those data taken during periods of excessive motion may be ignored when producing a pulse-oximetry result.

Kimball, col. 14, ll. 42–48. "[T]he unit may analyze the motion signal **1102** to determine the frequency or frequencies of the patient's motion and then, when analyzing the pulse-oximetry data, may filter out those artifacts having a frequency or frequencies corresponding to the motion frequencies." Kimball, col. 14, ll. 50–55.

Claims 1, 17, 18, and 26

According to the Examiner, Kimball's sensor transfers "the light intensity signal and the acceleration signal to a processor . . . to generate the light intensity signal in dependence on the acceleration signal." Final Rej. 15, citing Kimball, col. 14, ll. 3–13. The Examiner finds that Kimball discloses "not using measurements in periods of excessive movement." Final Rej. 15, citing Kimball, col. 14, ll. 1–9 and 42–55. Noting that Kimball does not disclose turning off "the light source when the acceleration/motion signal is too high," the Examiner looks to Vetter as disclosing that "it is beneficial to turn off the light source when non-stationary signals are detected or . . . when the motion signal is too high." Final Rej. 15, citing Vetter ¶ 68. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to combine Kimball's device "with the teachings of Vetter in order to conserve power consumption of the device." Final Rej. 16.

Appellants argue that in light of the Examiner's acknowledgment that Kimball does not disclose "turning off the light source when the acceleration signal is too high," a combination of Vetter and Kimball "cannot render obvious the subject matter as defined by independent claim 1" or independent claim 26. App. Br. 20.

Appellants' arguments are not persuasive. As discussed, Vetter discloses turning off the light source when the acceleration signal is too high. *See* FF 5. Thus, we affirm the rejection of independent claims 1 and 26 under
35 U.S.C. § 103(a) as obvious in view of Vetter and Kimball. Claims 17 and 18 have not been argued separately and therefore fall with claim 1. *See*

37 C.F.R. § 41.37(c)(1)(iv).

Claim 28

Independent claim 28 is directed to "[a] non-transitory digital storage medium comprising a computer program for performing a method for providing information on a vital parameter of a living being." Claim 28 includes the following limitations:

> wherein the information on the vital parameter is only determined . . . if the information on the acceleration indicates that the acceleration is within a predetermined allowed region, and
>
> wherein otherwise, *instead of current information on the vital parameter, information, determined before, on the vital parameter is provided, when the computer program runs on a computer*.

The Examiner finds that Kimball discloses that, if "the acceleration is greater than a predetermined maximally allowed acceleration . . . the processor [provides a blanking function that] ignores . . . the signal points [acquired] during periods of excessive movement and does not use these points . . . , thereby interrupting the generation of the vital parameter information." Final Rej. 17, citing Kimball, col. 13, ll. 63–67 and Fig. 6. According to the Examiner, Kimball discloses that

> the information on the vital parameter is only determined from the light intensity signal or output if the information on the acceleration indicates that the acceleration is with[in] a predetermined allowed region and wherein otherwise, instead of current information on the vital parameter, information determined before[] on the vital parameter is provided.

Final Rej. 17–18, citing Kimball, col. 14, ll. 1–13 and 42–55. The Examiner reasons that the "blanking signal eliminate[es] the ability of the processor to

determine the parameter for the current state and as there is no mention of changing the output[,] the output would remain as the previously calculated segments without the removed/blanked data." Final Rej. 18.

Appellants argue that, although Kimball, at column 14, provides "that a signal from a motion sensor may be used to generate a blanking command in a main signal processing unit to disregard data collected during those incidents," the reference "does not indicate that, if the acceleration signal is not within a predetermined allowed region, <u>information, determined before, on the vital parameter</u> is provided. Rather, the 'blanking' [function] mentioned by Kimball implies that [] blanked information (for example, a value of 0) is provided when there is excessive motion." App. Br. 21–22.

The Examiner responds that Kimball discloses "inhibiting the processor from using the current readings to calculate the parameter during times of excessive acceleration, specifically through the use of a blanking function." Ans. 4, citing Kimball, col. 14, ll. 1–9 and 42–55. According to the Examiner, Kimball's "processor ignores, using the blanking function, the signal points during periods of excessive movement and does not use these points to calculate the vital parameter, thereby interrupting the generation of the vital parameter information." Ans. 4. According to the Examiner, "Vetter is relied upon to specifically teach the threshold and deactivation of the light source." Ans. 4. According to the Examiner, "Kimball discloses blanking the contaminated segments wherein the blanking signal is not a zero as Appellant argues." Ans. 4, citing Kimball, col. 14, ll. 1–16 and Fig. 11. According to the Examiner, "the blanking signal flags the data to be disregarded or stops the sensor from taking readings during those periods[] [and] Kimball discloses that . . . blanking is used to disregard data collected

in further downstream processing of the data to be calculated and output by the device." Ans. 4, citing Kimball, col. 14, ll. 1–15 and 42–55. According to the Examiner, "the device displays a graph of the waveform . . . so if the blanking signal disregards the motion contaminated signal parts and the display shows the waveform then the previous data . . . is displayed and the current data is not." Ans. 4, citing Kimball, col. 6, ll. 46–56.

We agree with Appellants that the Examiner has not adequately explained how the combination of Vetter and Kimball would have made obvious "a computer program for performing a method for providing information on a vital parameter of a living being" that operates to provide earlier determined information on a vital parameter, rather than current information or an error signal, if the acceleration is not within a predetermined allowed range. Thus, we reverse the obviousness rejection of claim 28 in view of Vetter and Kimball.

The Examiner also rejects claim 22 under 35 U.S.C. § 103(a) as obvious in view of Vetter and Kimball, and further in view of Nazarian. Claim 22 depends from independent claim 1 indirectly. Appellants have not presented any separate arguments based on Nazarian, accordingly we affirm this rejection for the reasons set out by the Examiner. Final Rej. 23–24.

VI.

The Examiner rejects claims 28–30 under 35 U.S.C. § 103(a) as obvious in view of Vetter and Gerhard (Final Rej. 24–29; Ans. 2).

In the Appeal Brief, Appellants indicate that the rejection of claims 28–30 in view of Vetter and Gerhard is a ground of rejection to be reviewed

on appeal but present no arguments directed toward the rejection. (App. Br. 16).

Accordingly, we affirm the rejection of claims 28–30 as obvious in view of Vetter and Gerhard for the reasons set out by the Examiner.

SUMMARY

We affirm the rejection of claims 26 and 28 under 35 U.S.C. § 101.

We reverse the rejection of claim 26 under 35 U.S.C. § 112, first paragraph.

We affirm the rejection of claims 1, 2, 4, 5, 10, 14, and 15under 35 U.S.C. § 102(b).

We affirm the rejection of claims 1, 3, 6–9, 11–13, 16–22, 26, and 28–30 under 35 U.S.C. § 103(a).

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