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14/632,731	02/26/2015	Daniel E. Pesantez	G&C 130.119-US-01	9217

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DANIEL E. PESANTEZ, JIA YAO, BRADLEY C. LIANG,
and RAJIV SHAH

Appeal 2019-005070
Application 14/632,731
Technology Center 1700

Before BEVERLY A. FRANKLIN, N. WHITNEY WILSON, and
JANE E. INGLESE , *Administrative Patent Judges.*

FRANKLIN, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the
Examiner's decision to reject claims 1, 3–5, 8, 25, and 30. Claims 2, 6, 7, 9–
24, and 26–29 have been cancelled (Appeal Br. Claims Appendix). We have
jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] We use the word Appellant to refer to "applicant" as defined in 37 C.F.R.
§ 1.42(a). Appellant identifies the real party in interest as Medtronic
MiniMed, Inc. Appeal Br. 2.

CLAIMED SUBJECT MATTER

Claim 1 is illustrative of Appellant's subject matter on appeal and is set forth below:

1. An amperometric glucose sensor system comprising:
a base;
a plurality of electrodes disposed on the base including:
a working electrode, wherein the working electrode:
    is coated with glucose oxidase to sense glucose; and
    is adapted to sense changes in pH at the working electrode;
a counter electrode;
a reference electrode;
a processor; and
    a computer-readable program having instructions which cause the processor to assess signal data obtained from the working electrode; wherein:
    the working electrode and the processor are coupled so that the working electrode monitors glucose within the sensor system;
the working electrode and the processor are coupled so that the working electrode monitors pH within the sensor system; and
    the processor uses a first algorithm to calculate a concentration of glucose when the pH of the sensor system is at or above pH 7.1; and
    the processor uses a second algorithm to calculate a concentration of glucose when the pH of the sensor system is below pH 6.9.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Rauh	US 5,922,183	July 13, 1999
Shah	US 2012/0097554 A1	Apr. 26, 2012
Masao[2]	JPH10227756 (A)	Aug. 25, 1998

REJECTIONS

1. Claims 1, 5, and 8 are rejected under 35 U.S.C. § 103 as being unpatentable over Masao in view of Rauh and Shah.

2. Claims 3, 4, 25, and 30 are rejected under 35 U.S.C. § 103 as being unpatentable over Masao in view of Rauh as applied to claim 1 above, and further in view of Shah.

OPINION

We review the appealed rejections for error based upon the issues Appellant identifies, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (cited with approval in *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) ("[I]t has long been the Board's practice to require an applicant to identify the alleged error in the examiner's rejections."). After considering the

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[2]   The Examiner refers to this reference as "Goto," but we use the inventor's last name ("Masao") as identification.

argued claims and each of Appellant's arguments, we are not persuaded of reversible error in the appealed rejections.

Appellant does not make separate arguments in support of patentability of any particular claim or claim grouping. Accordingly, the claims subject to each ground of rejection will stand or fall with claim 1. *See* 37 C.F.R. § 41.37(c)(iv). We can focus on the Masao reference in making our determinations herein because it is the teachings of Masao which are dispositive for the issues raised in the record. Also, our determination with regard to Rejection 1 is dispositive for Rejection 2 (Appellant relies upon the same arguments for each rejection (Appeal Br. 6)).

Upon consideration of the evidence and each of the respective positions set forth in the record, we find that the preponderance of evidence supports the Examiner's findings and conclusion that the subject matter of Appellant's claims is unpatentable over the applied art. Accordingly, we sustain each of the Examiner's rejections on appeal essentially for the reasons set forth in the Final Office Action and in the Answer, and affirm, with the following emphasis.

We refer to 3–7 of the Answer regarding the statement of the rejection for Rejection 1.

Appellant first argues that the applied art fails to teach a sensor system whereby a processor uses a first algorithm to calculate a concentration of glucose when the pH of the sensor system is at or above pH 7.1, and uses a second algorithm to calculate a concentration of glucose when the pH of the sensor system is below pH 6.9. Appeal Br. 3. Appellant also argues that

Masao does not teach or suggest the use of multiple algorithms. Appeal Br. 4.

We are unpersuaded by the aforementioned arguments. As explained by the Examiner, Masao recognizes that enzyme activity depends on pH (Masao, ¶¶ 2, 20) and selects a calibration curve (algorithm) based on measured pH (Masao, ¶¶ 4, 17, 18, 26 –29). The Examiner states that in paragraph 18 of Masao, Masao teaches "a calibration curve of a glucose sensor corresponding to each pH and a pH calibration curve is first stored in a measuring instrument circuit, a calibration curve corresponding to the measured pH is selected in the measuring instrument." Ans 14–15.

The Examiner concludes that it would have been obvious to have used a different calibration curve (algorithm) when the pH is 6.9 as opposed to the calibration curve (algorithm) used when the pH is 7.1 because Masao teaches "a calibration curve of a glucose sensor corresponding to each pH and a pH calibration curve is first stored in a measuring instrument circuit, a calibration curve corresponding to the measured pH is selected in the measuring instrument." Masao, ¶ 18; Ans. 15. Hence, separate calibrations curves are provided in Masao for respective pH values, used for more precise measurement. Masao, Abstract.

Appellant next argues that the rejection lacks a rational underpinning for the reasons provided on pages 4–6 of the Appeal Brief and on pages 2–5 of the Reply Brief. We are unpersuaded by the arguments therein. As mentioned *supra*, based upon the Examiner's findings, the Examiner reasonably concludes that it would have been obvious to have used a different calibration curve (algorithm) when the pH is 6.9 as opposed to the

calibration curve (algorithm) used when the pH is 7.1 because
Masao teaches "a calibration curve of a glucose sensor corresponding to
each pH and a pH calibration curve is first stored in a measuring instrument
circuit, a calibration curve corresponding to the measured pH is selected in
the measuring instrument." Masao, ¶ 18. Separate calibrations curves are
provided in Masao for respective pH values, used for more precise
measurement. Masao, Abstract.

Appellant points out that during *in vivo* operation of such glucose
sensor systems, the accumulation of enzymatic generated products such as
gluconic acid and hydrogen peroxide lower the local pH within the sensor
chemistry layers of the claimed sensors. Appeal Br. 2. Appellant states that
this drop in pH can affect sensor sensitivity, and in view of this, the claimed
sensor systems include a processor that uses a first algorithm to calculate a
concentration of glucose when the pH of the sensor system is at or above pH
7.1; and further a second algorithm to calculate a concentration of glucose
when the pH of the sensor system is below pH 6.9. Appellant states that in
this way, the claimed systems include a pH specific determinations of
amperometric current observed at the glucose oxidase coated working
electrode in the present of glucose. Appeal Br. 2. Appellant argues that
these pH values are important as it is in this range that there is a fluctuation
in the pH. Reply Br. 3–4. We are unpersuaded by this line of argument.

As stated by the Examiner, Masao recognizes that enzyme activity
depends on pH (Masao, ¶¶ 2, 20; Ans. 4), and in an effort to obtain more
precise measurements, Masao teaches to use a respective calibration curve
for a respective pH value. Masao, Abstract. While Appellant states that pH

values of 7.1 and 6.9 are important (Reply Br. 4–5), Matsuo teaches that each pH value is important and teaches to use a respective calibration curve for more accurate measurements for each pH value, so we thus agree with the Examiner that the applied art makes obvious the claimed subject matter, and are unpersuaded by Appellant's arguments in this regard.

In view of the above, we affirm each rejection.

CONCLUSION

We affirm the Examiner's decision.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 5, 8	103	Masao in view of Rauh and Shah	1, 5, 8	
3, 4, 25, 30	103	Masao in view of Rauh and Shah	3, 4, 25, 30	
Overall Outcome			1, 3–5, 8, 25, 30	

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). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED