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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRISTOPHER C. COSSE

Appeal 2018-009017
Application 14/694,453¹
Technology Center 3700

Before MURRIEL E. CRAWFORD, PHILIP J. HOFFMANN, and
BRADLEY B. BAYAT, *Administrative Patent Judges*.

HOFFMANN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant appeals from the Examiner’s rejection of claims 1–26. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE and enter a NEW GROUND OF REJECTION.

According to Appellant, the invention “is directed to electromechanical systems, methods, and tools for adjusting orthodontic prescriptions of orthodontic brackets with adjustable archwire passages.”

¹ “Christopher C. Cosse . . . is the real party in interest.” Appeal Br. 1.

Spec. 1, ll. 10–11. Claims 1, 9, 10, and 26 are the independent claims on appeal. We reproduce claims 1 and 10, below, as illustrative of the appealed claims.

1. An electronic orthodontic adjustment tool configured to selectively adjust an orientation of an archwire slot that is defined by an orthodontic bracket relative to a reference orientation while the orthodontic bracket is operatively attached to a patient's tooth, the tool comprising:

an engagement structure including a means for operatively engaging the orthodontic bracket to selectively adjust the orientation of the archwire slot relative to the reference orientation;

an orientation-determining structure including a means for electronically determining the orientation of the archwire slot relative to the reference orientation; and

an orientation indicator including a means for electronically indicating the orientation of the archwire slot relative to the reference orientation.

10. A method of adjusting an orthodontic bracket that includes an archwire slot while the orthodontic bracket is operatively attached to a patient's tooth, the method comprising:

operatively engaging the orthodontic bracket with an engagement structure of an electronic orthodontic adjustment tool;

electronically determining a present orientation of the archwire slot relative to a reference orientation at a given point in time;

displaying a displayed orientation of the archwire slot with the electronic orthodontic adjustment tool, wherein the displayed orientation is based, at least in part, on the present orientation; and

adjusting the orientation of the archwire slot relative to the reference orientation based, at least in part, on the displaying.

REJECTIONS AND PRIOR ART

The Examiner rejects the claims as follows:

- I. Claims 1–7, 9–12, and 14–24 under 35 U.S.C. § 102(a)(1) as anticipated by, or alternatively under 35 U.S.C. § 103 as unpatentable over, Banker et al. (WO 2011/141937 A1, pub. Nov. 17, 2011) (hereinafter “Banker”);
- II. Claims 8 and 13 under 35 U.S.C. § 103 as unpatentable over Banker and Angle (US 1,299,103, iss. Apr. 1, 1919);
- III. Claim 25 under 35 U.S.C. § 103 as unpatentable over Banker and Cosse et al. (US 2014/0272751 A1, pub. Sept. 18, 2014) (hereinafter “Cosse”); and
- IV. Claim 26 under 35 U.S.C. § 103 as unpatentable over Banker and Sears et al. (US 2009/0074251 A1, pub. Mar. 19, 2009) (hereinafter “Sears”).

ANALYSIS

Rejection I

Independent claim 10, and dependent claims 11, 12, and 14–24

With respect to claim 10, the Examiner finds that Banker’s Figure 17 illustrates an electronic orthodontic adjustment tool, capable of selectively adjusting an orientation of an archwire slot, and an orientation determining means, “capable of electronically determining that orientation of the archwire slot relative to the reference orientation.” Final Act. 5–6.

Appellant argues that the Examiner’s finding is erroneous, because although “Banker discloses determining coordinates and/or angles *of the tooth*,”

Banker “fails to disclose or suggest determining the bracket orientation.”

Appeal Br. 9.

In response, the Examiner determines that “one having ordinary skill in the art would understand that the angle measured of the cup-cone assembly was in relation to the reference x,y,z coordinates of the tooth. The device does not only measures the x,y,z orientation of the tooth, but also measures the angle of the cup-cone bracket assembly as recited in the title and seen in [F]igure 18.” Answer 4. However, asserting that “Fig[ure] 17 represents an entirety of the disclosure of Banker regarding the sensor assembly,” Appellant argues that “Banker does not disclose that the screw head tip determines the orientation of the archwire slot,” because Banker’s “Fig[ure] 18 . . . simply illustrates the structural range of potential movement of the cup and cone of Banker relative to one another,” and Banker fails to describe using the tool to measure the angles displayed in Figure 18. Reply Br. 6–7. Based on our review, we agree with Appellant.

Banker’s Figure 17 shows a device that is used to determine the x, y, and z coordinates of a tooth. Banker describes that “Fig[ure] 17 [shows] a screw-driver [that] can tighten the screw after adjustment [and] hold the new position in place. The screw[-]driver also acts as a measuring device, which when attached to a computer can show the 3 co-ordinates [and] 3 different angles.” Banker 9, ll. 1–4. However, Banker does not disclose specifics of the computer, such as any algorithm for determining angles run on the computer, or which three angles are shown on the computer. Because there is no other description of how Banker determines archwire slot angles from a location on a tooth, the Examiner does not establish that Banker discloses

“electronically determining a present orientation of the archwire slot relative to a reference orientation,” as claimed.

Thus, based on the foregoing, the Examiner fails to support adequately the finding that Banker discloses or renders obvious independent claim 10’s recitation of “determining a present orientation of the archwire slot.” Therefore, we do not sustain either the Examiner’s anticipation or obviousness rejection of claim 10, or of claims 11, 12, and 14–24 that depend from, and which the Examiner rejects with, claim 10.

Independent claims 1 and 9, and dependent claims 2–7

Independent claims 1 and 9 differ in scope from independent claim 10, discussed above. Specifically, independent claims 1 and 9 recite “an orientation-determining structure including a means for electronically determining the orientation of the archwire slot relative to the reference orientation.” Appeal Br., Claims App.

In support of the limitation in claim 1, Appellant explains that “[e]xamples of the means for electronically determining the orientation of the archwire slot are discussed in detail at least on page 21, lines 6–11, and on page 28, line 11, to page 29, line 10, of the as-filed [Specification].” Appeal Br. 3. The first cited portion of Appellant’s Specification describes that

[o]rientation-determining structure 130 may be adapted, configured, designed, and/or constructed to determine the orientation of archwire slot 72 when tool 100 is operatively engaged with bracket 50. This may include determining the orientation of the archwire slot relative to the reference orientation thereof and may be accomplished in any suitable manner, including those disclosed herein.

Spec. 21:7–11. Thus, this portion of Appellant’s Specification describes the function of the structure, but not the structure itself. The same is true for the portion of Appellant’s Specification extending from page 28, line 11, to page 29, line 10. In fact, based on our review of the entire Specification, we do not ascertain the disclosure of any structure for determining orientation of an archwire.

The Examiner determined that claims which recite “means for” invoke 35 U.S.C. § 112(f), and finds that the structure of the means for determining an orientation, as independent claims 1 and 9 recite, is disclosed on pages 15–16 and 21 of Appellant’s Specification. Final Action 2–4. Appellant does not dispute the interpretation of these claims under § 112(f), but asserts that support for the claims is provided by the Specification “at least on page 5, lines 10–12, page 13, line 17 to page 16, line 2, page 21, lines 6–11, [and] page 40 lines 1–13,” as well as “in Fig[ures] 3 [and] 4.” Reply Br. 2.

As with pre-AIA 35 U.S.C. § 112, sixth paragraph, post-AIA 35 U.S.C. § 112(f) is invoked to interpret a claim when there is a “means-plus-function” recitation. Under 35 U.S.C. § 112(f), the “means-plus-function” recitation must be “construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” *Personalized Media Commc’ns, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 703 (Fed. Cir. 1998). “Corresponding structure” is structure disclosed in the Specification which is clearly linked or associated with the function recited in the claim. *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). If the “means-plus-function” limitation recited in the claim does not have an adequate supporting disclosure, then the claim fails to

particularly point out and distinctly claim the invention as required under 35 U.S.C. §112(b). *See In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed. Cir. 1994) (“[I]f one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112.”).

The cited section of the Specification at page 5 does not disclose any structure, but only describes a function. Spec. 5, ll. 10–12 (“The tool also includes an orientation-determining structure that is configured to electronically determine the orientation of the archwire slot relative to the reference orientation.”). On page 13, Appellant’s Specification describes that “[o]rientation-determining structure 90 may be configured to detect and/or otherwise determine the orientation of archwire slot 72,” but this is not a description of a structure, and is followed by descriptions of functions. Spec. 13, ll. 19–23. Page 14 of the Specification describes an “orientation indication signal 99,” but this conveys orientation information, rather than a structure to determine orientation. Spec. 14, ll. 1–17. Appellant’s Specification then describes that “[o]rientation-determining structure 90 may include any suitable structure that may be adapted, configured, designed, and/or constructed to determine the orientation of archwire slot 72, directly and/or indirectly.” Spec. 14, ll. 18–20. This does not disclose a structure. The Specification describes that the orientation-determining structure may be a “rotation-determining structure,” or a “translation-determining structure,” without describing the structure of either. Spec. 15, ll. 6–15.

Next, Appellant’s Specification describes that “orientation-determining structure 90 may include one or more magnets 92 and at least one sensor 94. Sensor 94 may be configured to detect magnets 92 (or a location thereof and/or a proximity thereto) to determine the orientation of archwire slot 72 relative to the reference orientation.” Spec. 15, ll. 16–19. A sensor that must be configured operates much like a general-purpose computer that is programmed to perform a function. In this case, the Specification must disclose the algorithm with which the sensor is configured. *See WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999) (“In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.”). A general purpose computer alone is insufficient if the specification fails to disclose an algorithm for performing the claimed function. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008). However, Appellant’s Specification discloses no such algorithm with which the sensor is configured.

The Specification provides a list of possible devices as structures, in that “orientation-determining structure 90 may utilize any suitable sensor, detector, emitter, comparator, mechanism, inductor, capacitor, strain gauge, etc. to determine the orientation of the body relative to the base.” Spec. 15, ll. 22 – 16, ll. 2. This list of possible devices that the structure “may utilize” fails to describe structure sufficient to perform the claimed function in its entirety. *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1375 (Fed. Cir. 2003). For example, it is unclear how one would utilize a “strain

gauge” to measure an angle, and it is unclear how one would utilize “a mechanism” if we are unsure, as here, what the “mechanism” is.

Appellant’s Figures 3 and 4 disclose a polygonal shape that is labeled “130,” which the Specification states is the orientation-determining means. *See* Figs. 3, 4; *see* Spec. 21, ll. 6–7. However, the shape shown in these figures does not illustrate sufficiently a structure that may perform the claimed function.

There being no disclosed structure in the Specification that is linked to the claimed orientation-determining means, sufficient to perform the claimed orientation determining in its entirety, we find that independent claims 1 and 9 are indefinite. Thus, we designate a NEW GROUND OF REJECTION of independent claims 1 and 9, and claims 2–7 that depend from independent claim 1, under 35 U.S.C. § 112(b).

Further, because claims 1–7 and 9 are indefinite, we cannot adjudicate the outstanding anticipation or obviousness rejection of the claims. *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970) (“If no reasonably definite meaning can be ascribed to certain terms in the claim, the subject matter does not become obvious—the claim becomes indefinite”); *see also In re Steele*, 305 F.2d 859, 862–63 (CCPA 1962) (determinations of obviousness cannot be made for claims where a determination of claim scope requires considerable speculation and assumptions). Thus, as a result of the indefiniteness of the claims, we reverse, *pro forma*, the Examiner’s anticipation or obviousness rejection of the claims.

Rejection II

Claim 8

Claim 8 depends from independent claim 1, the obviousness rejection of which we reverse, *pro forma*. Thus, we reverse *pro forma* the Examiner's obviousness rejection of claim 8.

Further, because claim 8 depends from independent claim 1, and we designate a NEW GROUND OF REJECTION of independent claim 1 under 35 U.S.C. § 112(b), based on indefiniteness, we also designate the NEW GROUND OF REJECTION based on indefiniteness for claim 8.

Claim 13

Claim 13 depends from independent claim 10, the obviousness rejection of which we reverse on the merits. Thus, we reverse the Examiner's obviousness rejection of claim 13 on the merits as well.

Rejection III

Claim 25 depends from independent claim 10, the obviousness rejection of which we reverse on the merits. Thus, we reverse the Examiner's obviousness rejection of claim 25 on the merits as well.

Rejection IV

Independent claims 26 differs in scope from independent claim 10, discussed above in the section regarding *Rejection I*. Specifically, independent claim 26 recites "an orientation-determining structure configured to determine the orientation of the archwire slot relative to the reference orientation." Appeal Br., Claims App. Appellant argues that

support of this recitation is disclosed in the Specification from page 13, line 17 to page 14, line 3. Appeal Br. 6. However, as we explain above in the section regarding *Rejection II*, this portion of the Specification does not describe any structure, but instead describes only functions.

There being no disclosed structure in the Specification that is linked to the claimed orientation-determining structure, sufficient to perform the claimed orientation determining in its entirety, we find that independent claim 26 is indefinite. Thus, we designate a NEW GROUND OF REJECTION of claim 26 under 35 U.S.C. § 112(b).

Further, because claim 26 is indefinite, we cannot adjudicate the outstanding obviousness rejection of the claim. *In re Wilson*, 424 F.2d at 1385; *see also In re Steele*, 305 F.2d at 862–63. Thus, as a result of the indefiniteness of the claims, we reverse, *pro forma*, the Examiner’s obviousness rejection of this claim.

DECISION

We REVERSE the Examiner’s anticipation and obviousness rejections of claims 10–25, on the merits.

We REVERSE *pro forma* the Examiner’s anticipation and obviousness rejections of claims 1–9 and 26.

We enter a NEW GROUND OF REJECTION for claims 1–9 and 26 under 35 U.S.C. § 112(b), as indefinite.

Thus, this Decision contains new grounds of rejection pursuant to 37 C.F.R. § 41.50(b) (2008), which provides that “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 C.F.R. § 41.50(b) also provides that the Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new [e]vidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner.

(2) Request rehearing. Request that the proceeding be reheard under § 41.52 by the Board upon the same [r]ecord.

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).

REVERSED; 37 C.F.R. § 41.50(b)