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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MILAN BOZIC

Appeal 2018-002624
Application 14/342,492
Technology Center 3700

Before BENJAMIN D. M. WOOD, RICHARD H. MARSCHALL, and
PAUL J. KORNICZKY, *Administrative Patent Judges*.

WOOD, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ appeals under 35 U.S.C. § 134 from a February 22, 2017 non-final rejection (“Non-Final Rej.”) of claims 1 and 3–20. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ “Appellant” refers to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Robert Bosch GmbH. Appeal Brief (“App. Br.”) 2.

THE INVENTION

The claims are directed to a saw blade for a machine tool. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1 A saw blade, comprising:
a circular-segment-shaped or at least approximately rectangular saw-blade body, the saw-blade body having an arcuate cutting edge, wherein the arcuate cutting edge is in the form of a part-circle having a cutting edge radius that is greater than a radius of a circular arc that corresponds to a distance between a rotation axis of the saw blade and the arcuate cutting edge, wherein the cutting edge radius is 1.25-2 times greater than said radius of the circular arc.

REFERENCES

Bent	US 3,943,934	Mar. 16, 1976
Walker	US 2003/0070307 A1	Apr. 17, 2003
Gundlapalli	US 2008/0027449 A1	Jan. 31, 2008
Steiger	US 2010/0288099 A1	Nov. 18, 2010

REJECTIONS

Claims 1 and 3–20 are rejected under 35 U.S.C. § 112(b) as indefinite.

Claim 3 is rejected under 35 U.S.C. § 112(d) as being of improper dependent form.

Claim 18 is rejected under 35 U.S.C. § 102 as anticipated by Walker.

Claims 1, 4–8, and 9–12 are rejected under 35 U.S.C. § 103 as unpatentable over Walker.

Claim 3 is rejected under 35 U.S.C. § 103 as unpatentable over Walker and Steiger.

Claims 1, 9, 13, 14, 16, 18, and 19 are rejected under 35 U.S.C. § 103 as unpatentable over Gundlapalli and Walker.

Claims 15, 17, and 20 are rejected under 35 U.S.C. § 103 as unpatentable over Gundlapalli, Walker, and Bent.

ANALYSIS

Claims 1 and 3–20—Rejected as Indefinite

Independent Claims 1, 9, and 18

The Examiner determines that the term “approximately rectangular” is indefinite. Non-Final Act. 5. According to the Examiner, it is “unclear” what structure would be considered “approximately rectangular” rather than “rectangular.” *Id.* Appellant does not dispute the Examiner’s characterization of “approximately rectangular” as unclear, but notes that it attempted to amend claims 1, 9, and 18 to delete the word “approximately.” App. Br. 7. The Examiner did not enter this amendment, however, because “removing the term ‘approximately’ changes the scope of all the claims and would require a different prior art rejection on the merits.” Oct. 23, 2017 Adv. Act., 2.²

During prosecution, a claim may be rejected as indefinite “when it contains words or phrases whose meaning is unclear,” MPEP § 2173.05(e), or if it is “amenable to two or more plausible claim constructions,” *Ex. Parte Miyazaki*, 89 USPQ2d 1207, 1211 (BPAI 2008) (precedential). Because Appellant does not dispute the Examiner’s characterization of “approximately rectangular” as unclear, we sustain the Examiner’s rejection of claims 1 and 3–20 as indefinite.

² The Examiner’s refusal to enter this amendment is not appealable to the Board. MPEP § 1002.02(c), Item 3.d.

Claim 3

Claim 3 depends from claim 1 and additionally recites “wherein an origin of the radius of the cutting edge is located on a center axis through the saw blade between the rotation axis and the arcuate cutting edge.” App. Br. 18 (claims app.).³ The Examiner asserts that:

It is unclear how the radius of the cutting edge is between the rotation axis and the arcuate cutting edge, when claim 1 discloses the cutting edge radius is greater than a radius of a circular arc that corresponds to a distance between a rotational axis of the saw blade and the arcuate cutting edge. In other words, the origin of the cutting edge is not both greater than a radius of a circular arc and between a rotation axis and the arcuate cutting edge.

Non-Final Act. 5. Appellant responds that claim 3 recites that it is the *center axis*, rather than “an origin of the radius of the cutting edge,” that is “between the rotation axis and the cutting edge.” App. Br. 7.

We agree with the Examiner that claim 3 is indefinite. The Examiner’s interpretation of this limitation is plausible, and perhaps more reasonable than that proffered by Appellant. Appellant does not explain why the Examiner’s interpretation is unreasonable, but instead presents its own interpretation. Even if we were to agree that “between the rotation axis and the cutting edge” can plausibly be read to modify “center axis” rather than “the origin of the radius of the cutting edge,” the claim would be amenable to multiple plausible constructions, which, as noted above, justifies the rejection of this claim as indefinite. *See Ex. Parte Miyazaki*,

³ The dependency of claims 3 and 4 was changed from claim 2 (which had been canceled) to claim 1 by amendment dated July 17, 2017. *See* Oct. 23, 2017 Advisory Action, 1–2. This amendment renders moot the Examiner’s indefiniteness rejection of claims 3 and 4 based on “unclear” dependency. Non-Final Act. 5.

supra. Accordingly, we sustain the Examiner's rejection of claim 3 as indefinite.

Claim 6

Claim 6 depends from claim 1 and additionally recites, "wherein the cutting edge is in the form of a polygon." App. Br. 18 (claims app.). The Examiner contends that "[i]t is unclear how an arcuate cutting edge is in the form of a polygon," which the Examiner defines as "a plane figure with at least three straight sides and angles." Non-Final Act. 2, 6. In response, Appellant refers to Figure 4, which the Specification describes as follows:

Figure 4 shows the cutting edge portion of a saw blade 1' in which the cutting edge 4' is in the form of a polygon. The cutting edge 4' thus includes generally linear segments X1, X2, . . . Xn that form the polygon shape. The segments Xn follow the arc of the radius R illustrated in Figure 2.

Spec. 6.⁴ Appellant contends that "the segments are clearly identified as being linear, while it is the entire cutting edge that is identified as being a polygon." App. Br. 5. Appellant further contends that "[t]he base of this polygon extends across the blade from the end of the first and last tooth of the cutting edge." *Id.*

When claim 6 is read in light of the Specification, one of ordinary skill in the art would understand, with reasonable certainty, that "the cutting edge is in the form of a polygon" refers to the configuration depicted in Figure 4, i.e., a plurality of linear segments arranged to approximate an arcuate shape. Therefore, we do not sustain this rejection.

Claims 5 and 18

⁴ Figure 4 and its description were added to the Specification by amendment dated February 5, 2016. *See* Feb. 5, 2016 Amdt. 3.

The Examiner rejects claims 5 and 18 because the term “the origin of the radius of the cutting edge,” which appears in both claims, lacks antecedent basis. Non-Final Act. 6. Appellant responds that “an origin is an inherent element of a radius, so the reference to ‘the origin’ of that radius is supported by the reference to a radius.” App. Br. 8. The Examiner does not reply to this argument or otherwise dispute that an origin is an inherent element of a radius.

Inherent components of recited elements have antecedent basis in the recitation of the elements themselves. MPEP § 2173.05(e); *see Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1359 (Fed. Cir. 2001) (holding that recitation of “an ellipse” provides antecedent basis for “an ellipse having a major diameter” because “[t]here can be no dispute that mathematically an inherent characteristic of an ellipse is a major diameter”). There is no dispute that a radius inherently has “an origin.” Therefore, the recitation in claim 1 (from which claim 5 depends) and 18 of “a cutting edge radius” provides antecedent basis for the subsequent recitation of “the origin of the radius of the cutting edge” in claims 5 and 18. Accordingly, we do not sustain this rejection.

*Claim 3—Rejected under 35 U.S.C. § 112(d) as
Being of Improper Dependent Form*

Section 112(d) of the Patent Statute states that “a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed.” The Examiner rejects claim 3, which depends from claim 1, under 35 U.S.C. § 112(d) because “the phrase ‘an origin of the radius of the cutting edge is located . . . between the rotation axis and the arcuate cutting edge’ does not further limit

claim 1.” Non-Final Act. 6. The Examiner reasons that claim 1 requires the radius of the arcuate cutting edge be greater than the distance between the rotation axis and the cutting edge, which is inconsistent with claim 6 requiring the arcuate edge radius to lie between the rotation axis and the edge. *Id.*

We determined above that claim 3 is indefinite. As such, we cannot determine the scope of this claim, and thus cannot determine whether claim 3 further limits claim 1. Therefore, we reverse, *pro forma*, the Examiner’s rejection of claim 3 under 35 U.S.C. § 112(d). *Cf. In re Steele*, 305 F.2d 859, 862 (CCPA 1962) (A prior art rejection cannot be sustained if the hypothetical person of ordinary skill in the art would have to make speculative assumptions concerning the meaning of claim language.).

Claim 18—Rejected as Anticipated by Walker

The Examiner finds that the saw blade depicted in Figure 5 of Walker anticipates claim 18. Non-Final Act. 8 (citing Walker ¶¶ 37, 40, Fig. 5). Appellant responds that the blade body of Walker’s blade is not “affixed” to its fastening section, as required by claim 18. Appellant contends that “[t]he ordinary meaning of the term ‘affix’ is to ‘stick, attach or fasten something to something else.’” App. Br. 9 (citing Merriam, Webster dictionary). According to Appellant, “it is apparent from the drawing in Fig. 5 [of Walker] that the entire blade (40) is formed of a single piece, with the cutting edge (54) being integral with the body of the blade (40) as well as the fastening section of the blade adjacent the circular recess (52).” *Id.* The Examiner counters that “[t]he plain and ordinary meaning of the term ‘affixed’ means to attach in any way,” and “attach” means “to be or become joined or connected/to associate or connect one thing with another.” Ans.

18. The Examiner contends that “[t]he cutting edge of the blade of Walker is attached or connected to the fastening section as an integral structure.” *Id.*

In *Regents of University of Minnesota v. AGA Medical Corp.*, our reviewing court relied on dictionary definitions of “affixed” that are substantially the same as those proposed by the Examiner to “support the conclusion that when a physical object is described as having been ‘affixed,’ . . . to another object, it means that those objects were previously separate.” 717 F.3d 929, 937–38 (Fed. Cir. 2013). Thus, the term in claim 18 reciting a saw-blade body “affixed” to a fastening section means that the saw-blade body and the fastening section must have been “previously separate,” i.e., separate structures prior to being affixed together. There does not appear to be any dispute that for Walker’s saw blade depicted in Figure 5, the saw-blade body and fastening section are a single, integral unit, and the blade body was not “previously separate” from the fastening section.

“Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.” *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984). Because we are not persuaded that Walker discloses a saw blade comprising a saw-blade body *affixed* to a fastening section, we do not sustain this rejection.⁵

⁵ We leave it to the Examiner to determine whether claim 18 should be rejected under 35 U.S.C. § 103 as unpatentable over Walker alone or Walker and Gundlapalli. *See, e.g.*, Gundlapalli, Fig. 3.

*Claims 1, 4–8, and 9–12—Rejected under 35 U.S.C. § 103 as
Unpatentable over Walker*

The Examiner finds that Walker teaches all of the limitations of independent claims 1 and 9, including teaching a cutting edge radius that is greater than the distance between the rotation axis and the cutting edge. Non-Final Act. 11. The Examiner acknowledges, however, that “[w]hile the cutting edge radius appears to be about 25% greater than the radius of the circular arc, Walker does not disclose details regarding the length of the saw and the radii.” *Id.* The Examiner therefore finds that “[i]t would have been obvious to one having ordinary skill in the art at the time of invention to . . . shape of [sic] the blade of Walker longer along the line of intended cut than any other dimension to help achieve rigidity of the blade along its line of cutting for cutting thick or rigid workpieces without distortion.” *Id.* (citing Walker ¶ 40). The Examiner further determines that “[o]ne having ordinary skill in the art at the time of invention would have been prompted from the teachings of Walker to try various shaped cutting blades with various radii before finding the optimal cutting edge radius of 1.25–2 times greater than the radius of the circular arc to shape the blade.” *Id.*

Appellant responds that “Walker does not disclose any specific dimensions or dimensional relationship between a pivot radius and the radius of the cutting edge.” App. Br. 10. According to Appellant, Walker “simple states that the blade is longer than it is wide, and that it is this feature that improves rigidity of the blade along the line of cutting.” *Id.*

We are not persuaded that Walker teaches or suggests a blade with a cutting edge radius 1.25–2 times greater than a radius of a circular arc that corresponds to a distance between a rotation axis of the saw blade and the

arcuate cutting edge (hereinafter, “the cutting edge radius limitation”). First, we disagree that this claimed dimension can be gleaned from Figure 5 of Walker, because Walker does not indicate that Figure 5 is drawn to scale. *See Nystrom v. TREX Co.*, 424 F.3d 1136, 1149 (Fed. Cir. 2005) (holding that “arguments based on drawings not explicitly made to scale in issued patents are unavailing”). Second, paragraph 40 of Walker, on which the Examiner relies, does not discuss the radius of the cutting edge. Instead, it teaches making the blade “longer along [its] line of intended cutting than along any other dimension.” Walker ¶ 40. The Examiner does not explain how the length of the blade is relevant to the radius of the blade’s cutting edge, and we do not discern any relationship between these parameters from our review of the record.

Finally, we are not persuaded that the record supports a finding of routine optimization. A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of the variable can be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977). Walker does not discuss the cutting edge radius at all, much less teach that it can be varied to obtain a particular result. Therefore, we do not sustain the Examiner’s rejection of independent claims 1 and 9, and their dependent claims 4–8 and 10–12, as obvious over Walker.

*Claim 3—Rejected under 35 U.S.C. § 103 as
Unpatentable over Walker and Steiger*

The Examiner’s rejection of claim 3 as unpatentable over Walker and Steiger relies on the erroneous determination that claim 1, from which claim

3 depends, would have been obvious over Walker. Steiger is not relied upon to cure this deficiency. Therefore, we do not sustain this rejection.

Claims 1, 9, 13, 14, 16, 18, and 19—Rejected under 35 U.S.C. § 103 as Unpatentable over Gundlapalli and Walker; Claims 15, 17, and 20—Rejected as Unpatentable over Gundlapalli, Walker, and Bent

The rejections of claims 1, 9, 13, 14, and 16 as unpatentable over Gundlapalli and Walker, and of claims 15 and 17 as unpatentable over Gundlapalli, Walker, and Bent, rely on the Examiner's erroneous finding that Walker teaches or suggests the cutting edge radius limitation. Non-Final Act. 14–16. Neither Gundlapalli nor Bent is relied on to cure this deficiency. Therefore, we do not sustain the rejection of independent claims 1 and 9, and dependent claims 13–17, as unpatentable over Gundlapalli and Walker.

The rejection of claims 18 and 19 as unpatentable over Gundlapalli and Walker, and of claim 20 as unpatentable over Gundlapalli, Walker, and Bent, rely on the erroneous finding that Walker teaches a saw blade with a saw blade body “affixed” to a fastening section. Non-Final Act. 14, 16. Neither Gundlapalli nor Bent is not relied on to cure this deficiency. Therefore, we do not sustain these rejections.

Objections to Drawings

The Non-Final Rejection includes objections to certain drawings. Non-Final Act. 2–4. Although Appellant responded to these objections (App. Br. 5–7), they are not appealable, but are petitionable to the Technology Center Director. *See* MPEP § 1002.02(c) (Item 4: Petitions under 37 C.F.R. § 1.113 relating to objections or requirements made by the examiners). Accordingly, the Examiner's objections are not addressed here.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 3–20	112(b)	Indefinite	1, 3–20	
3	112(d)	Improper dependent form		3
18	102	Walker		18
1, 4–8, 9–12	103	Walker		1, 4–8, 9–12
3	103	Walker, Steiger		3
1, 9, 13, 14, 16, 18, 19	103	Gundlapalli, Walker		1, 9, 13, 14, 16, 18, 19
15, 17, 20	103	Gundlapalli, Walker, Bent		15, 17, 20
Overall Outcome:			1, 3–20	

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