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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte VAREL INTERNATIONAL¹

Appeal 2019-001598
Reexamination Control 90/014,100
Patent No. US 8,544,568 B2²
Technology Center 3900

Before DANIEL S. SONG, BRETT C. MARTIN, and
JEREMY M. PLENZLER, *Administrative Patent Judges*.

PLENZLER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Claims 1, 16, 17, and 22 are subject to reexamination and stand rejected. Patent Owner appeals under 35 U.S.C. §§ 134(b) and 306 from a Final Rejection of these claims. Appeal Br. 10. We have jurisdiction under 35 U.S.C. §§ 134(b) and 306.

We REVERSE.

¹ Cary Andrew Maurstad and Zane Michael Pettiet are listed as inventors.

² Issued October 1, 2013 (hereinafter the “568 Patent”).

CLAIMED SUBJECT MATTER

Claims 1, 16, 17, and 22 are independent. Claim 1 is reproduced below:

1. A PDC bit, comprising:

a plurality of primary blades comprising a first blade of the plurality of primary blades including first primary PDC cutters set in a first primary cutter row and first backup PDC cutters set in a first secondary cutter row,

wherein a radial position of each first backup PDC cutter in the first secondary cutter row is offset from a radial position of each first primary PDC cutter in the first primary cutter row, and

wherein at least one first primary PDC cutter only partially overlies a corresponding radially offset secondary PDC cutter such that a peripheral edge of the radially offset secondary PDC cutter is exposed outside of the at least one first primary PDC cutter in a bit profile of said first blade,

wherein the first backup PDC cutters are set in a shoulder region of the bit adjacent a gage region of the bit outside of a nose region of the bit,

wherein all backup PDC cutters of the bit are positioned in the shoulder region, and

wherein the plurality of primary blades comprises at least three primary blades.

REJECTIONS^{3,4}

1. Claims 1, 16, 17, and 22 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

2. Claims 1 and 16 are rejected under 35 U.S.C. § 102(b) as anticipated by Grappendorf (US 4,586,574, issued May 6, 1986).

3. Claims 1, 16, 17, and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Grappendorf and Cisneros (US 2007/0261890 A1, published Nov. 15, 2007).

OPINION

Written Description

Claims 1, 16, 17, and 22 each recite “primary blades” having “primary PDC cutters” and “backup PDC cutters.” The Examiner rejects these claims as having inadequate written description support because “[t]here does not appear to be a description of a ‘primary blade’ having primary and backup cutters.” Final Act. 3. The Examiner acknowledges that “[t]he prior art of Fig. 2 does include structurally defined blades 30, but Figs. 4 and 5 do not depict such structure.” *Id.* That is, the Examiner takes issue with Figures 4 and 5 not specifically illustrating, and the Specification not specifically describing, a set of blades as “primary blades” with the “primary PDC cutters” and “backup PDC cutters.”

³ The rejection of claims 1, 16, 17, and 22 under 35 U.S.C. § 112, second paragraph, has been withdrawn. Ans. 3–4.

⁴ Gavia (US 2008/0179106 A1, published July 31, 2008) is also referenced by Appellant and the Examiner in the discussion of how one skilled in the art would understand certain claim terms.

Figure 2, referenced by the Examiner, is Appellant’s depiction of the prior art, and is reproduced below for reference, along with Appellant’s Figure 4.

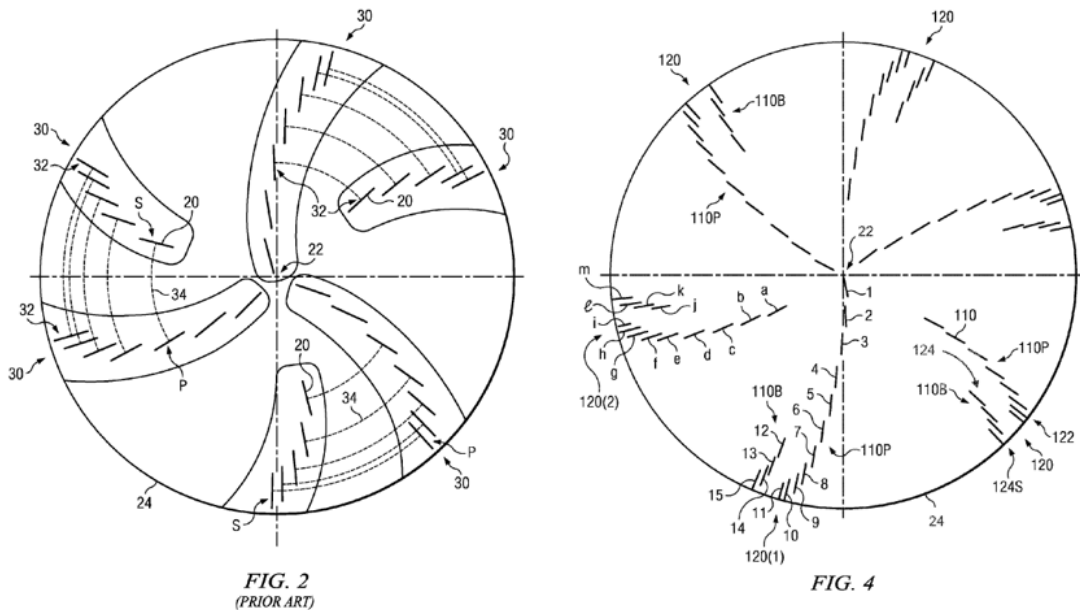


Figure 2 illustrates “a cutter layout diagram for an exemplary six-blade bit having cutters positioned in a ‘plural set’ configuration.” ’568 Patent 3:20–21. Figure 4 illustrates “a cutter layout diagram for an exemplary six-blade bit having cutters positioned in a setting configuration using secondary backup cutters offset from the primary cutters.” *Id.* at 3:25–27.

Appellant responds that “the discussion of Figure 2 . . . identifies the blades 30 having a primary cutter P as primary blades (three primary blades shown) and the blades 30 having a secondary cutter S as secondary blades (three secondary blades shown).” Appeal Br. 11 (citing ’568 Patent, 1:44–48). Appellant explains that “[t]he difference in the depiction of the blades between Figure 2 and Figures 4 and 5 is no more than an outline of the blades” and “in Figures 4 and 5, each cutter of the blades 120(1) and 120(2)

has a specific number or letter and omission of the blade outlines improves the clarity thereof.” *Id.* Appellant explains that “[t]he term ‘primary blade’ is well understood by one of ordinary skill in the art” as the blades that “extend to or adjacent to the center axis” and “secondary blades . . . do not.” *Id.* at 11–12 (citing *Cisneros* ¶ 7, *Gavia* ¶ 83). Appellant identifies, for example, blade 120(1) as a primary blade and blade 120(2) as a secondary blade in Figure 4. *Id.* at 12.

The Examiner attempts to address Appellant’s explanation by simply concluding that “it is the examiner’s position that ‘one of ordinary skill in the art’ would not find in [the ’568 Patent’s] description . . . an invention embodying ‘primary blades.’” Ans. 8 (emphasis omitted).

Appellant has the better position. “[T]he test for sufficiency [of written description] is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010). Here, the Examiner has failed to establish sufficiently that Appellant lacked possession of “primary blades” having “primary PDC cutters” and “backup PDC cutters.”

Based on the record before us, we are persuaded that one skilled in the art would appreciate that Appellant had possession of “primary blades” having “primary PDC cutters” and “backup PDC cutters” at the time of filing. There can be no dispute that the ’568 Patent depicts blades that include “primary PDC cutters” and “backup PDC cutters.” *See* ’568 Patent Figure 4 (blade 120(1) with primary cutters 110P and backup cutters 110B).

Similar to the arrangement in Figure 4, Figure 2 of the '568 Patent depicts six blades, three extending further radially inward than the other three. The blades extending further radially inward in Figure 2 are referred to as primary blades, and the other blades are referred to as secondary blades. *Id.* at 1:37–48. The portions of Cisneros and Gavia cited by Appellant, as noted above, are consistent with this understanding of primary and secondary blades. Accordingly, we are persuaded that one skilled in the art would appreciate that the three blades arranged like blade 120(1) in Figure 4 of the '568 patent are primary blades and those arranged like blade 120(2) are secondary blades.

For at least these reasons, we do not sustain the Examiner's decision to reject claims 1, 16, 17, and 22 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Anticipation

The Examiner finds that Grappendorf discloses each limitation of claims 1 and 16. Final Act. 5–6. Claims 1 and 16 each require that “all backup PDC cutters of the bit are positioned in the shoulder region.” The Examiner finds that Grappendorf discloses “a row of backup/secondary PDC cutters 93, 97” and explains that those “backup cutters are set in a shoulder region 62 adjacent a gage region 64 and outside of a nose region 60.” *Id.* at 5. The Examiner explains that “the claim terminology ‘shoulder region’ and ‘taper region’ is not precisely delineated in [the '568 Patent] where Fig. 6 (for example) appears to depict a continuous curvature encompassing both regions.” *Id.* at 5–6. Initially, we note that “taper region” does not appear in claim 1 or 16, but does appear in the Specification of the '568 Patent, as

discussed below. The Examiner reads the claim term “shoulder region” as being the entire region between the “nose region” and the “gage region,” which includes the “taper region” in the ’568 Patent.

Figure 6 of the ’568 Patent is reproduced below for purposes of discussion.

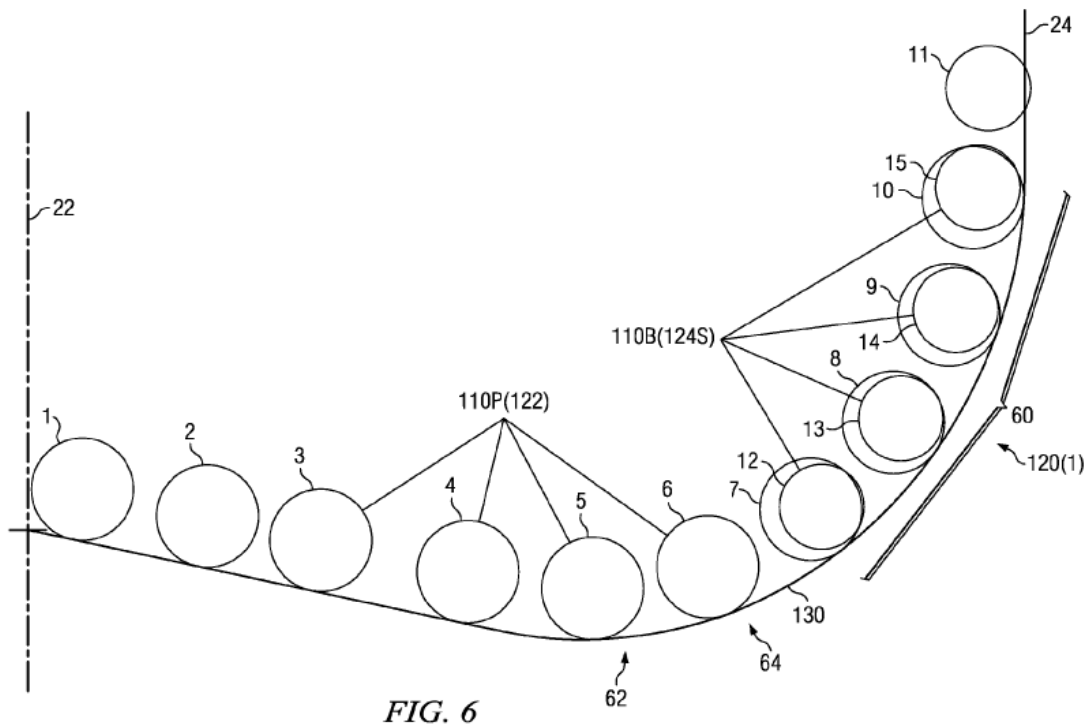


Figure 6 is an illustration of a bit profile. ’568 Patent 3:32–33. Figure 6 illustrates the regions of blade 120(1) including gage 24, shoulder region 60, taper region 64, and bit nose 62. *Id.* at 5:18–25. As seen above, all backup PDC cutters 110B are located in shoulder region 60. Taper region 64 is a separate region between shoulder region 60 and bit nose 62. We do not see, nor does the Examiner direct us to, any disclosure in the ’568 Patent or any

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compelling reason why one skilled in the art would consider taper region 64 as part of shoulder region 60.

Appellant contends that “Grappendorf does not teach, suggest, or disclose that all backup PDC cutters of the bit are positioned in the shoulder region,” and “the Examiner’s rejection is based on a construction of the claim term ‘shoulder region’ that is broader than bit shoulder 62 as identified by Grappendorf.” Appeal Br. 13; *see also id.* at 14 (arguing that “[t]he term ‘shoulder region’ is a term of art”). The Examiner responds that “it is unclear from the argument . . . as to how Grappendorf has been distinguished.” Ans. 11–12.

Appellant has the better position. Figure 5a of Grappendorf, reproduced below, clearly shows tooth 97 (considered a backup cutter by the Examiner) outside of shoulder region 62.

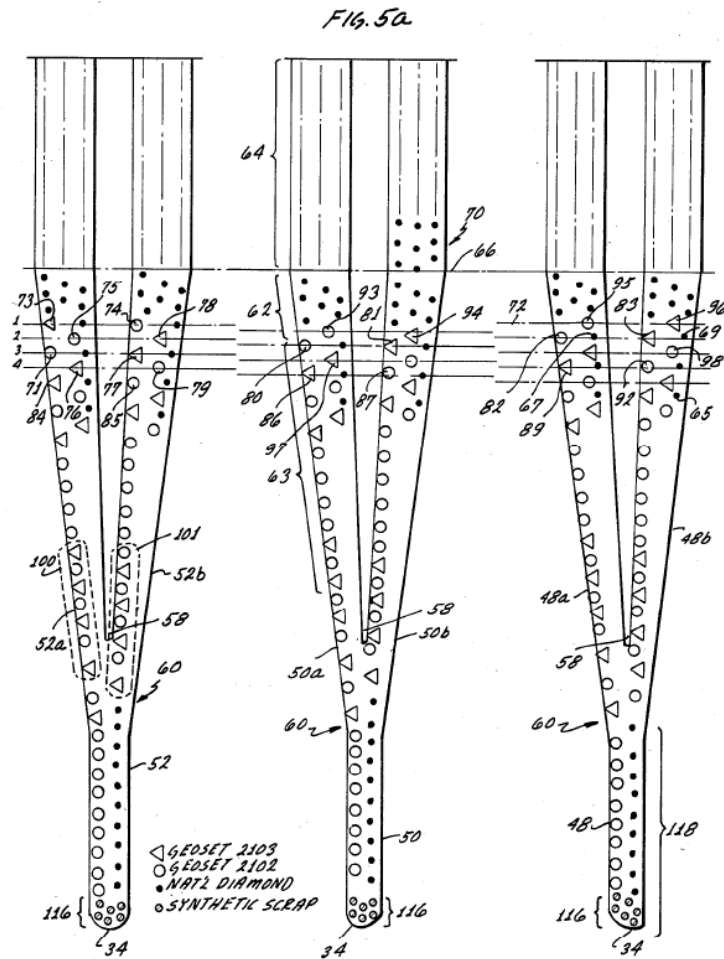


Figure 5a is a “diagram showing the placement of diamond cutting elements of the primary pads from the apex through the shoulder to the gage of the bit.” Grappendorf, 4:53–56. Tooth 97 is located in what Grappendorf describes as flank 63. *Id.* at 7:43–46.

Although the criteria for determining where a shoulder region of a bit profile ends and a taper or flank region begins may not be entirely clear from the record, Grappendorf clearly illustrates tooth 97 outside of its shoulder region. The Examiner does not dispute that the '568 Patent, Grappendorf, Cisneros, and Gavia each use the term “shoulder region” or its variants when

describing their respective bit profiles. Rather, the Examiner offers only unsupported assertions that the term “shoulder region” can be construed more broadly than it is used in the ’568 Patent and the cited art. Whatever the exact contours of a shoulder region may be, the Examiner has failed to establish sufficiently that all of Grappendorf’s backup PDC cutters are located in its shoulder region.

For at least these reasons, we do not sustain the Examiner’s decision to reject claims 1 and 16 as anticipated by Grappendorf.

Obviousness

The Examiner finds that “Grappendorf relates to the claimed subject matter in the manner discussed above” in the anticipation rejection. Final Act. 6. This rejection, however, is unclear at best. For example, the rejection is directed to claims 1, 16, 17, and 22, but only addresses specifically claims 1 and 17. *See id.* at 6–7. The specific treatment of claims 1 and 17 is also unclear.

With respect to claim 1, the Examiner states that

alternative to the discussion above regarding the claim terminology “shoulder region” and “taper region[,]” Grappendorf also indicates that the teaching to provide offset cutters to increase bit cutting capacity and bit life (cols. 10–11, ll. 50–10) can be implemented with a bit which exhibits a different cutting face configuration (col. 12, ll. 54–65). Consequently, it would have been obvious to employ the offset cutters teaching in Grappendorf with a bit of the type having a cone region, a shoulder region and a gage region, for example. The Cisneros reference is cited here to evidence a bit of the type having a cone region, a shoulder region, and a gage region (par. [0014]).

Id. To the extent we can discern what the Examiner proposes in this rejection, it amounts to no more than a conclusory statement of obviousness. There is no explanation as to why one skilled in the art would have modified Grappendorf to include “all backup PDC cutters of the bit are positioned in the shoulder region” if, in fact, that is what the Examiner proposes. Accordingly, we do not sustain the Examiner’s decision to reject claim 1 or claim 16.

Method claims 17 and 22 also require, for example, that “all backup PDC cutters of the bit are positioned in the shoulder region.” The rejection of method claims 17 and 22 suffers from deficiencies similar to those discussed above relative to claim 1.

Accordingly, we do not sustain the Examiner’s decision to reject claims 1, 16, 17, and 22 as unpatentable over Grappendorf and Cisneros.

DECISION

We REVERSE the Examiner’s decision to reject claims 1, 16, 17, and 22 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

We REVERSE the Examiner’s decision to reject claims 1 and 16 under 35 U.S.C. § 102(b).

We REVERSE the Examiner’s decision to reject claims 1, 16, 17, and 22 under 35 U.S.C. § 103(a).

REVERSED