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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* TIMOTHY ROLF VAN DER VEEN and TOBIAS NILSSON

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Appeal 2020-001244
Application 13/062,430
Technology Center 3700

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Before BRETT C. MARTIN, LYNNE H. BROWNE, and
PAUL J. KORNICZKY, *Administrative Patent Judges.*

KORNICZKY, *Administrative Patent Judge.*

DECISION ON APPEAL

## STATEMENT OF THE CASE[1]

Pursuant to 35 U.S.C. § 134(a), Appellant[2] appeals from the Examiner's decision to reject claims 12, 13, 16–18, 21, 23, 27, 28, 30–33, and 35–41. Final Act. 1, 5. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

## CLAIMED SUBJECT MATTER

The claims are directed to a double row abrasive disc. Claim 12, reproduced below, is illustrative of the claimed subject matter:

> 12. An abrasive disc comprising:
>
> a plurality of fixing means for mounting detachably mountable carrier plates, each with abrasive elements, to a grinding side of the abrasive disc,
>
> each carrier plate having a specific fixing geometry,
>
> the fixing means consisting of a first set of fixing means disposed at a first predetermined radial distance from the center and a second set of fixing means disposed at a second predetermined radial distance from the center, said second predetermined distance being shorter than the first predetermined distance, so that the carrier plates will be arranged in two rows, a first outer row and a second inner row,
>
> wherein each fixing means of the first and second sets of fixing means includes an elongated groove formed in the abrasive disc, and extending through an entire thickness of the abrasive disc,
>
> wherein each elongated groove comprises a first end facing the outer circumference of the abrasive disc and a second

[1] In this Decision, we refer to (1) the Examiner's Final Office Action dated March 21, 2019 ("Final Act.") and Answer dated October 3, 2019 ("Ans."), and (2) Appellant's Appeal Brief dated August 21, 2019 ("Appeal Br.") and Reply Brief dated December 3, 2019 ("Reply Br.").

[2] We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Husqvarna AB. Appeal Br. 1.

end opposite the first end and facing the center of the abrasive disc,

wherein each elongated groove is further defined by a first sidewall and a second sidewall extending through the entire thickness of the abrasive disc,

wherein each of the first outer row and the second inner row has an equal number of elongated grooves disposed equidistant around the abrasive disc, and

wherein the second end of at least one groove opens up into an opening at the center at the abrasive disc.

REFERENCES

The prior art relied upon by the Examiner is:

| **Name** | **Reference** | **Date** |
|---|---|---|
| Bouvier | US 3,517,466 | June 30, 1970 |
| Sexton | US 5,567,503 | Oct. 22, 1996 |
| Bergstrand | WO 2007/011289 Al | Jan. 25, 2007 |

REJECTIONS

1. Claims 12, 13, 16, 18, 21, 23, 27, 28, 30–33, and 35–41 stand rejected under pre–AIA 35 U.S.C. § 103(a) as being unpatentable over Bergstrand and Bouvier. Final Act. 2.

2. Claim 17 stands rejected under pre–AIA 35 U.S.C. § 103(a) as being unpatentable over Bergstrand, Bouvier, and Sexton. Final Act. 5.

Appellant seeks our review of these rejections.

OPINION

*Rejection 1: Claims 12, 13, 16, 18, 21, 23, 27, 28, 30–33, and 35–41 as Unpatentable over Bergstrand and Bouvier*

Appellant argues claims 12, 13, 16, 18, 21, 23, 27, 28, 30–33, and 35–41 as a group. Appeal Br. 4–10. We select independent claim 12 as the representative claim, and claims 13, 16, 18, 21, 23, 27, 28, 30–33, and 35–41 stand or fall with claim 12. 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner finds that Bergstrand discloses all of the limitations of claim 12 except for (1) "the fixing means consisting of a first set of fixing means disposed at a first predetermined radial distance from the center and a second set of fixing means disposed at a second predetermined radial distance from the center," and (2) "each of the first outer row and the second inner row [having] an equal number of elongated grooves disposed equidistant around the abrasive disc." Final Act. 2. For these two missing limitations, the Examiner finds that Bouvier teaches two concentric rows of carrier plates/abrasive elements, wherein the rows are different distances from the center and each row has the same number of elements. *Id*. More specifically, the Examiner finds that Bouvier teaches "a grinding plate 6 having fixing means for detachably fixing grinding members 1," and "the grinding members 1 are spaced at two different distances from the center to form two concentric rows of evenly spaced abrasive elements, wherein the rows have the same number of elements (8) and the elements in one row are positioned between elements of the another row." *Id*.

The Examiner reasons that it would have been obvious to one of ordinary skill in the art

> to provide the grinding plate/apparatus of [Bergstrand] with two circular/concentric rows of abrasive elements (along with their

> fixing grooves), as taught by Bouvier, in order to decrease the size of abrasive elements while increasing abrasive coverage of plate to provide a more efficient grinding operation and to allow cost effective and easy replacement of smaller worn out elements. This arrangement of overlapping abrasive elements also includes overlapping fixing grooves since the grooves are same size and spacing as abrasive elements. In addition, two concentric rows of abrasive elements allows the grinding plate of Bergstrand to be larger with a greater number of elements in two rows which would provide more efficient grinding of larger floor areas. Bergstrand consists of one row. Bouvier teaches multiple rows. Bergstrand in view of Bouvier would teach one of ordinary skill in the art to form a disc with two or more concentric rows and therefore, to form a disc consisting of two rows, such as the outer two rows of Bouvier, which have equal number of grinding elements, would be within the level of ordinary skill.

*Id*. at 3–4. The Examiner further reasons that "[a]s shown by Bouvier, the different concentric rows are spaced at different amounts from outer row toward 2nd and 3rd inner row teaching that the spacing of abrasive elements and fixing means (taught by [Bergstrand]) is an obvious design expedient," and the "number of abrasive elements in either row and the pattern of elements would be an obvious design choice to one of ordinary skill dependent on machining parameters and would not produce an unexpected outcome and would have therefore constituted an obvious mechanical expedient at the time of [Appellant's] invention." *Id*. at 4.

Appellant argues that the Examiner's rejection is erroneous. Appeal Br. 4–10; Reply Br. 2–5. Appellant contends that claim 12's "use of the transitional phrase 'consists of' excludes any unrecited elements" so that "the fixing means include **only** a first set of fixing means at first distance from the center and a second set of fixing means at a second distance from the center." Appeal Br. 6. According to Appellant, the rejection is

erroneous because "none of the cited references, whether taken alone or in combination, disclose the exact claimed combination of first set of fixing means and a second set of fixing means." *Id*. Appellant argues that the only combination of fixing means taught by the references is Bergstrand's single set of fixing means 10 (Fig. 2) or more than two sets of fixing means 1 in Bouvier (Fig. 1). *Id*. at 6–7. Appellant also argues that two concentric fixing means "allows for flexibility of the placement of the carrier plates while reducing the occurrence of circular grinding tracks," and "[n]one of the cited references provide for the specific number of sets of fixing means claimed in independent claims leading to the noted advantages." Appeal Br. 8, 9 ("The specification does in fact make reference to the claimed feature serving an advantage/purpose, which is that the equal number of elongated grooves achieves a balanced disc during grinding and maximal use of the disc area (see page 3, lines 6–14).").

Appellant's arguments are not persuasive. We agree with the Examiner that Bergstrand consists of one row and Bouvier teaches multiple rows. Ans. 8. Appellant does not explain why the combination of Bergstrand and Bouvier would not teach one of ordinary skill in the art to form a disc with two or more concentric rows and, therefore, form a disc consisting of only two rows, such as the outer two rows of Bouvier, which have equal number of grinding elements. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420–21 (2007) ("in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle" and a "person of ordinary skill is also a person of ordinary creativity, not an automaton"). The Examiner persuasively explains why it would be within the level of ordinary skill to modify Bergstrand in light of Bouvier's

teachings because the exact number of rows of grooves (with attached abrasive elements) would depend on the size/diameter of disk being used for specific abrading processes, as well as the specific size of the attached abrasive elements distributed about the disc, and why a person of ordinary skill in the art would choose the correct size of disc dependent on application/abrading process and configuration of grooves/attached abrasive elements based on what is needed at time of abrading. Ans. 8–9. Choosing the correct size of disc and configuration of grooves/attached abrasive elements would include the option of only two rows if needed. *Id*.

As to the purported criticality of "only" two concentric rows, the Specification states that the claimed abrasive disc may have two or more concentric rows of fixing means. Spec., 1:36–2:3 ("wherein the fixing means are disposed at at [sic] least two separate distances from the centre of the disc, first fixing means at a first predetermined distance and second fixing means at a second predetermined distance, said second predetermined distance being shorter than the first, so that the carrier plates will be arranged in ***at least two rows***, a first outer row and a second inner row") (emphasis added), 5:5–8 ("Moreover, an abrasive disc according to the invention ***could comprise more than two fixing means*****,** preferably distributed evenly around an abrasive disc to balance the disc, and ***each having a certain*** predetermined distance to the center of a disc that is different from the distance of any other fixing means on the same disc.") (emphasis added). As to the purported criticality of an equal number of grooves in each row, Bouvier teaches the placement of eight members around two outer rows for proper balance. Bouvier, 3:11–20 (stating "to insure proper balance of the final body, these cavities should be located in

pairs directly across the axis and arbor hole C from one another and at equal distances from the axis of the disk. It is also important that the cavities be so placed that as the device rotates adjacent studs shall trace paths which overlap to a considerable degree but not completely, to assure uniform polishing and the elimination of grooves and scratches in the stone being polished.").

For the reasons above, the rejection of claim 12 is sustained. Claims 13, 16, 18, 21, 23, 27, 28, 30–33, and 35–41 fall with claim 12.

*Rejection 2: Claim 17*
*as Unpatentable over Bergstrand, Bouvier, and Sexton*

The Examiner finds that claim 17 is unpatentable over Bergstrand, Bouvier, and Sexton. Final Act. 5–7. Appellant argues that "Sexton fails to cure the above-noted deficiencies of Bergstrand and Bouvier . . . . [A]s claim 17 depends from claim independent claim 12, claim 17 is patentable over the Bergstrand, Bouvier, and Sexton, alone or in combination, for at least the same reasons given above for independent claim 12." Appeal Br. 10. For the reasons discussed above in connection with claim 12, Appellant's arguments are not persuasive. Thus, the rejection of claim 17 is sustained.

## CONCLUSION

The Examiner's rejections of claims 12, 13, 16–18, 21, 23, 27, 28, 30–33, and 35–41are AFFIRMED.

DECISION SUMMARY

In summary:

| **Claims Rejected** | **35 U.S.C. §** | **Reference(s)/Basis** | **Affirmed** | **Reversed** |
|---|---|---|---|---|
| 12, 13, 16, 18, 21, 23, 27, 28, 30–33, 35–41 | 103 | Bergstrand, Bouvier | 12, 13, 16, 18, 21, 23, 27, 28, 30–33, 35–41 | |
| 17 | 103 | Bergstrand, Bouvier, Sexton | 17 | |
| **Overall Outcome** | | | 12, 13, 16–18, 21, 23, 27, 28, 30–33, 35–41 | |

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