THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

Paper No. 10

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRIAN P. DEMAREY et al.

Appeal No. 1999-2062
Application No. 08/928,311[1]

ON BRIEF

Before ABRAMS, STAAB, and NASE, Administrative Patent Judges.
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 13 through 26, which are all of the claims pending in this application.

We REVERSE.

[1] Application for patent filed September 12, 1997.

BACKGROUND

The appellants' invention relates to a method of manufacturing a grinding roll. An understanding of the invention can be derived from a reading of exemplary claims 13 and 26 (the independent claims on appeal), which are reproduced below.

> 13. A method of manufacturing a grinding roll in order to thereby improve the energy efficiency thereof the grinding roll being of the type employed in a pulverizer having a grinding surface therewithin having solid material disposed thereon wherein the grinding roll is operative to coact with the grinding surface such that the solid material is pulverized through the coaction of the grinding roll with the grinding surface, comprising the steps of:
>
> a. forming from a first type of material a body portion embodying the configuration of a frustum of a right circular cone;
>
> b. providing on the body portion an external portion formed of a second type of material; and
>
> c. providing on the exterior of the external portion a tread surface capable of producing a gripping action therefrom sufficient to eliminate slippage between the grinding roll and the grinding surface, the tread surface being formed of a plurality of rib members extending in the longitudinal direction of the body portion with the spacing between adjacent ones of the plurality of rib members being established as a function of an angle passing through the center of the grinding roll and wherein this angle X is defined as:
>
> $$X = \text{ARC COS } \left[\frac{((O.5)(DM)) - ((.375)(ECD)}{(O.5)(DM)}\right]$$

wherein: DM = the mean diameter of the grinding roll
ECD = the estimated depth of solid material the mean diameter of the grinding roll.

26. A method of manufacturing a grinding roll in order to thereby improve the energy efficiency thereof, the grinding roll being of the type employed in a pulverizer having a grinding surface therewithin having solid material disposed thereon wherein the grinding roll is operative to coact with the grinding surface, comprising the steps of:

a. forming from a first type of material a body portion embodying the configuration of a frustum of a right circular cone;

b. providing on the body portion an external portion formed of a second type of material and having a pair of opposed axial ends, one of the opposed ends having a relatively smaller diameter than the other opposed end; and

c. providing on the exterior of the external portion a tread surface capable of producing a gripping action therefrom sufficient to eliminate slippage between the grinding roll and the grinding surface, the tread surface being formed by a plurality of rib members circumferentially spaced from one another on the external portion and each rib member extending in the axial direction of the external portion and extending radially outwardly from the external portion at a height which decreases in the direction from the smaller diameter end of the external portion toward the larger diameter end of the external portion.

The prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Hunt 1,009,520 Nov. 21, 1911

Claims 13 through 26 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hunt. The examiner's complete statement of this rejection is reproduced below.

> This patent discloses the formation of a grinding roll having a tread pattern on it's exterior. The manner in which the particular tread pattern is chosen is held to be within the scope of one in the art under the routine experimentation concept e.g. the pattern used would depend on several factors such as material being treated and desired end results. Thus, in order to use an appropriate pattern, it would have been obvious for one of ordinary skill in the art to modify Hunt by experimenting to choose a pattern since routine experimentation is within the scope of one skilled in the art. The remaining limitations are also rejected under this same concept e.g. the size of the tread rib members would depend on the desired results. (first Office action (Paper No. 4, mailed July 14, 1998), p. 3)

With respect to the rejection of claims 13 to 25, the appellants argue on page 5 of the brief (Paper No. 8, filed December 14, 1998) that the Hunt patent contains no teaching or even suggestion of providing a method of manufacturing a grinding roll which encompasses the step of manufacturing the grinding roll such that the manufacturing roll is provided

with a plurality of rib members with the spacing between adjacent ones of the plurality of rib members being established as a function of an angle passing through the center of the grinding roll and wherein this angle X is defined as:

$$X = \text{ARC COS } \left[\frac{((0.5)(DM)) - ((.375)(ECD)}{(0.5)(DM)}\right]$$

wherein: DM = the mean diameter of the grinding roll

ECD = the estimated depth of solid material the mean diameter of the grinding roll. With respect to the rejection of claim 26, the appellants argue on page 6 of the brief that the rejection over the Hunt reference is improper. Specifically, the appellants point out that Hunt does not disclose or suggest a method of manufacturing a grinding roll which includes a tread surface formed by a plurality of rib members which extend radially outwardly from the external portion at a height
which decreases in the direction from the smaller diameter end of the external portion toward the larger diameter end of the external portion.

In the answer (Paper No. 9, mailed January 22, 1999), the examiner response to the above-noted arguments of the appellants was that

> Hunt does not disclose is the exact configuration or size of the treads on the external body portion. However, the exact configuration or size of the treads **is an article design consideration only and not further limiting to the manufacturing process**. That is, as long as it is known to form treads on the surface, the process step is met except for the specific type of tread formed and this does not present patentability in a **process** claim.
>
> Concerning the particular formula used by appellants to determine the spacing between the treads, it should be noted that this too is an **article design consideration** and does not further patentably limit the process step of forming treads on the surface. Appellants cannot possibly expect patentability to be found **in a manufacturing process** every time a tread design is changed to accommodate a particular environment in which a roll is being used.
>
> The arguments presented by appellants regarding the patentable features of claim 26 are also not persuasive basically for the reasons given above. Furthermore, increasing the radial projections in one direction or the other **is an article design consideration** only once it is known to provide radial projections or treads on the surface as in Hunt.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art reference, and to the respective positions articulated by the appellants and the examiner. Upon evaluation of all the evidence before us, it is our conclusion that the evidence adduced by the examiner is insufficient to establish a prima facie case of obviousness with respect to the claims under appeal. Accordingly, we will not sustain the examiner's rejection of claims 13 through 26 under 35 U.S.C.
§ 103. Our reasoning for this determination follows.

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of obviousness is established by presenting evidence that would have led one of ordinary skill in the art to combine the relevant teachings of the references to arrive at the claimed invention. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) and In re Lintner, 458 F.2d 1013,

1016, 173 USPQ 560, 562 (CCPA 1972). Rejections based on § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. See In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968).

In addition, in determining obviousness/nonobviousness, an invention must be considered "as a whole," 35 U.S.C. § 103, and claims must be considered in their entirety. Medtronic, Inc. v. Cardiac Pacemakers, Inc., 721 F.2d 1563, 1567, 220 USPQ 97, 101 (Fed. Cir. 1983). Thus, to establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim

against the prior art." In re Wilson, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970).[2]

In applying the statutory test of obviousness to the art of record (i.e., Hunt), we conclude that the appellants process invention as claimed is not prima facie obvious in view of the applied prior art. Although the prior art reference to Hunt does suggest a method of manufacturing a grinding roll including a plurality of rib members, Hunt does not specifically teach or suggest that the rib members be spaced as set forth in claim 13 or have decreasing height as set forth in claim 26. The mere fact that Hunt's grinding roll is "similar" to the grinding roll manufactured by the claimed method does not establish that Hunt's grinding roll would be modified such that it would have either (1) the rib member spacing as recited in claim 13 or (2) the decreasing height of the rib members as recited in claim 2, unless the prior art suggested the desirability of such a modification. See In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.

[2] See also Manual of Patent Examining Procedure (MPEP) § 2143.03.

Cir. 1984). As is apparent from the examiner's rejection of claims 13 to 26 set forth above, the examiner discussed no reference or other evidence[3] containing any suggestion or motivation to have modified Hunt's grinding roll to arrive at the claimed invention. In short, the applied prior art contains nothing at all to support the examiner's conclusion that the particular methods recited in independent claims 13 and 26 were obvious at the time the invention was made to a person having ordinary skill in the art.

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[3] Evidence of a suggestion, teaching, or motivation to modify a reference may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, see Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), Para-Ordinance Mfg. v. SGS Imports Intern., Inc., 73 F.3d 1085, 1088, 37 USPQ2d 1237, 1240 (Fed. Cir. 1995), although "the suggestion more often comes from the teachings of the pertinent references," In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998). The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular. See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). A broad conclusory statement regarding the obviousness of modifying a reference, standing alone, is not "evidence." E.g., McElmurry v. Arkansas Power & Light Co., 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993); In re Sichert, 566 F.2d 1154, 1164, 196 USPQ 209, 217 (CCPA 1977). See also In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

For the reasons set forth above, the decision of the examiner to reject claims 13 through 26 is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 13 through 26 under 35 U.S.C. § 103 is reversed.

REVERSED

NEAL E. ABRAMS Administrative Patent Judge	)
LAWRENCE J. STAAB Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
JEFFREY V. NASE Administrative Patent Judge	)

ABB COMBUSTION ENGERINEERING SYSTEMS
COMBUSTION ENGERINEERING INC.
LEGAL DEPARTMENT 6506-2324
2000 DAY HILL ROAD
P.O. BOX 500
WINDSOR, CT 06095

APPEAL NO. 1999-2062 - JUDGE NASE
APPLICATION NO. 08/928,311

APJ NASE

APJ STAAB

APJ ABRAMS

DECISION: **REVERSED**

Prepared By: Gloria Henderson

DRAFT TYPED: 12 Nov 99

FINAL TYPED: