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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte YU ZHANG, ZHENG DUAN, and RICHARD R. GRAY, JR.

Appeal 2019-003566
Application 14/091,016
Technology Center 3700

Before CHARLES N. GREENHUT, MICHAEL J. FITZPATRICK, and
ANNETTE R. REIMERS, *Administrative Patent Judges*.

FITZPATRICK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant, Hypertherm, Inc.,¹ appeals under 35 U.S.C. § 134(a) from the Examiner's final decision rejecting claims 1–13 and 31–38. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

¹ Appellant is the assignee of the Application and the sole real party in interest. Appeal Br. 3.

STATEMENT OF THE CASE

The Specification

The Specification's disclosure "relates generally to thermal cutting torches (e.g., plasma arc torches), and more specifically to devices for gas cooling plasma arc torches and to related systems and methods." Spec. 1:9–11.

The Claims

Claims 1–13 and 31–38 are rejected. Final Act. 1. The remaining pending claims, claims 23–30, have been withdrawn from consideration. *Id.* Claim 1 is illustrative and reproduced below with emphasis added.

1. A shield for an air-cooled plasma arc torch, the shield comprising:

a body having a proximal end configured to mate with a torch body of the plasma arc torch, a distal end, and a central longitudinal axis defined between the proximal end and the distal end;

an exit orifice formed in the distal end of the body;

an interior of the shield comprising an interior shield flow surface that forms a portion of a shield gas flow channel, the shield gas flow channel directing a flow of shield gas along the interior shield flow surface in a flow direction from the proximal end to the exit orifice at the distal end of the body;

a flow directing flange extending from the body and away from the exit orifice in the distal end of the body, the flange being formed annularly around the central longitudinal axis and defining a first outer annular surface and an opposing second inner annular surface that is between the first outer annular surface and the exit orifice; and

an annular flow impingement surface, disposed between the interior shield flow surface and the first outer annular surface of the flange, that disrupts the flow direction of shield gas flowing towards the distal end of the body and directs the

flow of shield gas proximally along the first outer annular surface of the flange into a continuous annularly formed flow path defined by a circumferentially formed complementary recess of a corresponding nozzle thereby distributing the flow of shield gas substantially uniformly about the complementary recess,

the opposing second inner annular surface of the flange being configured to receive the substantially uniform flow of shield gas being re-directed and flowing distally from the circumferentially formed recess of the corresponding nozzle and out of the exit orifice.

Appeal Br. 34 (emphasis added).²

The Examiner's Rejections

The rejections before us for review are:

1. claims 1–13 and 31–38, under 35 U.S.C. § 112(b), as being indefinite (Final Act. 3); and
2. claims 1–13 and 31–38, under 35 U.S.C. § 103, as unpatentable over US 2006/0289398 A1, published Dec. 28, 2006 (“Cook”) (Final Act. 5).

Oral Hearing

An oral hearing was held October 1, 2019. A transcript of the hearing will be entered in due course.

DISCUSSION

Rejection 1—35 U.S.C. § 112(b)

Appellant argues, among other things, that the Examiner has failed to present a prima facie case of indefiniteness. Appeal Br. 31–32. We agree with Appellant.

² Two appeal briefs were filed—on August 19, 2016, and May 6, 2019. Our citations to the “Appeal Br.” are to the Appeal Brief filed May 6, 2019.

The rejection under 35 U.S.C. § 112(b) states, in entirety, the following:

It is not definite how the new/amended claimed structure of independent claims 1, 31 and 38 corresponds to the subject matter disclosed and shown in the drawings. It is also not definite how the new/amended claimed structure of independent claims 1, 31 and 38 is arranged and structurally interrelated or how the subject matter of the dependent claims is related to the new/amended claimed structure of independent claims 1, 31 and 38.

Final Act. 3.

Applicable law states:

Whenever, on examination, any claim for a patent is rejected, or any objection or requirement made, the Director shall notify the applicant thereof, *stating the reasons for such rejection*, or objection or requirement, *together with such information* and references *as may be useful in judging of the propriety of continuing the prosecution of his application*.

35 U.S.C. § 132(a) (emphasis added). “Section 132 is violated when a rejection is so uninformative that it prevents the applicant from recognizing and seeking to counter the grounds for rejection.” *Chester v. Miller*, 906 F.2d 1574, 1578 (Fed. Cir. 1990). Such is plainly the case here, and we accordingly reverse the § 112(b) rejection.

Rejection 2—35 U.S.C. § 103

Appellant again argues, among other things, that the Examiner has failed to present a prima facie case of unpatentability. Appeal Br. 26–28. We agree with Appellant.

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

“An examiner bears the initial burden of presenting a prima facie case of obviousness.” *See, e.g., In re Huai-Hung Kao*, 639 F.3d 1057, 1066 (Fed. Cir. 2011) (citations omitted); *see also* 35 U.S.C. § 132(a). The Examiner has not done so here.

The Examiner posited two theories of obviousness. In the first theory, the Examiner found that Cook explicitly discloses the entire subject matter of each rejected claim. Final Act. 5–12. In other words, under *Graham* factors (1) and (2), the Examiner found that the scope and content of Cook is such that there are not any differences between the claimed subject matter and the prior art. *See Graham*, 383 U.S. at 17–18. However, the Final Action does not adequately explain these findings. The Final Action merely reproduces every limitation of every rejected claim and, after each such reproduction, broadly cites to “Fig. 1–10 and para 1–72, including Fig. 3A, 5–6 and 8–10.” Notably, Cook paragraphs 1 through 72 and Figures 1 through 10 constitute the entire disclosure of Cook, apart from its claims. The Final Action does not explain how or why these blanket citations to Cook allegedly show disclosure of each limitation. This is not a prima facie case of obviousness. *Cf. Gechter v. Davidson*, 116 F.3d 1454, 1460 (Fed. Cir. 1997) (“[W]e expect the Board’s anticipation analysis be conducted on

a limitation by limitation basis, with specific fact findings for each contested limitation *and satisfactory explanations for such findings.*”) (emphasis added). In the second theory of obviousness, the Examiner found that Cook, at a minimum, discloses every limitation of every claim albeit not as arranged in the claims. In that regard, the Examiner found as follows:

To the extent that it may be argued that a single embodiment of Cook does not explicitly disclose all of the claimed subject matter, the other embodiments cited above further disclose the claimed subject matter (e.g., Cook: Fig. 1–10 and para 1–72, including Fig. 3A, 5–6 and 8–10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made (pre-AIA) or at the time before the effective filing date (post AIA) to modify an embodiment of Cook as suggested and taught by another embodiment of Cook in order to provide advantageous features such as improved cooling of the torch nozzle and/or circumscribing components such as shields, an increased useful life of the nozzle, increased axial momentum of flowing fluids, and increased arc stability, increased arc stability and/or increased axial momentum can lead to faster (e.g., high-speed) cutting of workpieces and thicker workpiece piercing capability among other benefits, increased arc stability can reduce surface roughness and waviness of workpieces processed during plasma arc torch operations, and to reduce noise associated with plasma arc torch operations, particularly noise generated by the plasma arc (e.g., Cook: para 25).

Final Act. 12–13 (bold typeface removed). This second theory of obviousness is wholly amorphous and, thus, also fails to present a prima facie case of obviousness. Appellant is left to guess what embodiment is the starting point and which feature(s) of other similarly unidentified embodiment(s) allegedly would have been incorporated into the starting point embodiment. *See* 37 C.F.R. § 1.104(c)(2) (“When a reference . . . shows or describes inventions other than that claimed by the applicant, the

particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.”).

For the foregoing reasons, we reverse the § 103 rejection. *See KSR*, 550 U.S. at 418 (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006); *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988) (“revers[ing] for failure to establish a prima facie case of obviousness”); 35 U.S.C. § 132(a) (requiring a statement of “the reasons for such rejection . . . together with such information and references as may be useful in judging of the propriety of continuing the prosecution of his application”).

SUMMARY

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
1–13, 31–38	112(b)	Indefiniteness		1–13, 31–38
1–13, 31–38	103	Cook		1–13, 31–38
Overall Outcome				1–13, 31–38

REVERSED