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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOHN M. WHITE, ROBIN L. TINER, and YEH KURT CHANG

Appeal 2015-003188
Application 12/749,172
Technology Center 1700

Before ROMULO H. DELMENDO, WESLEY B. DERRICK, and
BRIAN D. RANGE, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*.

DECISION ON APPEAL

The Applicants (hereinafter the “Appellants”)¹ appeal under 35 U.S.C. § 134(a) from a final decision of the Primary Examiner to reject claims 1–8 and 10–20.² We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

¹ The Appellants state that the real party in interest is “Applied Materials, Inc.” (Appeal Brief filed September 22, 2014, hereinafter “Appeal Br.” 3).

² Appeal Br. 1, 6–22; Final Office Action delivered electronically on September 5, 2014, hereinafter “Final Act.,” 1–34; Examiner’s Answer delivered electronically on November 14, 2014, hereinafter “Ans.,” 2–26.

BACKGROUND

The subject matter on appeal relates to a gas distribution apparatus for supporting a diffuser in a plasma processing chamber and to a plasma processing chamber (Specification hereinafter “Spec.,” ¶¶ 2, 19).

Representative claims 1 and 8 are reproduced from pages 24 and 25 of the Appeal Brief (Claims Appendix), with key disputed limitations highlighted in italics, as follows:

1. A gas distribution apparatus for a plasma processing chamber, comprising:
 - a backing plate;
 - a diffuser disposed downstream of the backing plate;
 - a frame structure disposed outside of the plasma processing chamber, the frame structure being spaced apart from the processing chamber by two or more support members; and
 - a diffuser support member coupled to the frame structure and the diffuser, the diffuser support member being movably disposed through and spaced apart from the backing plate such that a gap is present therebetween, *wherein the backing plate is movable independent of the diffuser when the diffuser is coupled with the diffuser support member and the frame structure.*

8. A plasma processing apparatus, comprising:
 - a chamber body including a bottom and walls;
 - a backing plate disposed over the chamber body;
 - a chamber interior volume bounded by the chamber body and the backing plate;
 - a frame structure disposed outside of the chamber body and spaced apart from the backing plate, *the frame structure comprising a length that is equal to a length or a width of the chamber body, and a width that is less than a width of the chamber body;*
 - a diffuser disposed within the chamber interior volume;

a coupling assembly disposed between the backing plate and the frame structure, and coupled to the frame structure by one or more fasteners; and

a diffuser support member coupled to the diffuser and the coupling assembly, the diffuser support member disposed between the diffuser and the coupling assembly and movably disposed through the backing plate and spaced apart from the backing plate such that a gap is present therebetween.

Claim 15, the only other independent claim, includes the same or similar limitations highlighted above in reproduced claims 1 and 8 (Appeal Br. 26).

THE REJECTIONS

On pages 3–34 of the Final Office Action, the Examiner rejected the claims on various grounds. Specifically, the Examiner rejected claims 8 and 10–20 under 35 U.S.C. § 112, ¶ 1, as failing to comply with the written description requirement (Final Act. 3). Additionally, the Examiner rejected claims 1–8, 11, and 15–20 under 35 U.S.C. § 102(b) as anticipated by Keller et al. (US 2006/0060138 A1, pub. Mar. 23, 2006; hereinafter “Keller”) (Final Act. 4–11). Furthermore, the Examiner rejected claims 1–8 and 10–20 under 35 U.S.C. § 103(a) on multiple grounds as unpatentable over Keller in view of one or more additional prior art references (*id.* at 11–34).

DISCUSSION

I. *Written Description*

Claim 8 was amended during prosecution to add the limitations “the frame structure comprising a length that is substantially equal to a length or a width of the chamber body, and a width that is less than a width of the chamber body” (Amendments filed on November 1, 2012 and September 18, 2013). Claim 15 was amended in a similar fashion (*id.*).

The Examiner found that the amended claims, which include the newly-added limitations, were not adequately supported by the original disclosure (Final Act. 3). Specifically, the Examiner stated that the added limitations “impl[y] the length and width of the chamber body are the same, [but] there is no support of such dimension in Applicants’ Specification” (*id.*). According to the Examiner (*id.*), “Applicants’ Specification discloses an example of ‘the dimensions of a diffuser are 2.3 meters in length and 2.0 meters in width’ ([0028]) which suggests the length and width of the chamber body are different.”³ These findings were repeated in the Examiner’s Answer (Ans. 2).

The Appellants argued that “the Figures in the original application are clear to one of skill in the art and that ‘a length’ is generally considered the longest extent of anything measured end to end” and “that ‘a width’ is generally considered to be perpendicular to the length” (Appeal Br. 7). Based on this general understanding, the Appellants contended that Figures 1–3, as originally filed, would reasonably convey to one skilled in the relevant art that the Appellants had possession of an apparatus with a frame structure 175, as shown in the figures, including the disputed limitations (*id.*).

In response to the Appellants’ argument, the Examiner agreed to withdraw the rejection (Ans. 19). Furthermore, the Examiner “note[d] [the] Appellants’ definition of ‘width’ in relationship to the argument” directed to the anticipation and obviousness rejections (*id.*).

³ The Examiner’s citation to paragraph 28 of the Specification for support of this finding appears to be erroneous.

Although the Examiner confused the issues by repeating the rejection on page 2 of the Answer (*see* Reply Brief filed January 14, 2015 at 3, stating that the Answer lacks clarity), the Examiner expressly agreed to withdraw the rejection (Ans. 19). Therefore, we consider the lack of written description issue—raised by the inapt repetition of the rejection in the Answer—to be moot.

II. *Anticipation*

A. *Claims 1 and 15*

The Examiner found that Keller’s Figure 15 discloses every limitation of claim 1 (Ans. 3; Final Act. 4–5). The Appellants contend, *inter alia*, that the Examiner failed to identify any disclosure in Keller of the relative movement of the diffuser and the backing plate as specified in claim 1 (i.e., “wherein the backing plate is movable independent of the diffuser when the diffuser is coupled with the diffuser support member and the frame structure”).

We agree with the Appellants that the Examiner’s rejection is not well-founded. Keller’s Figure 15 is reproduced below:

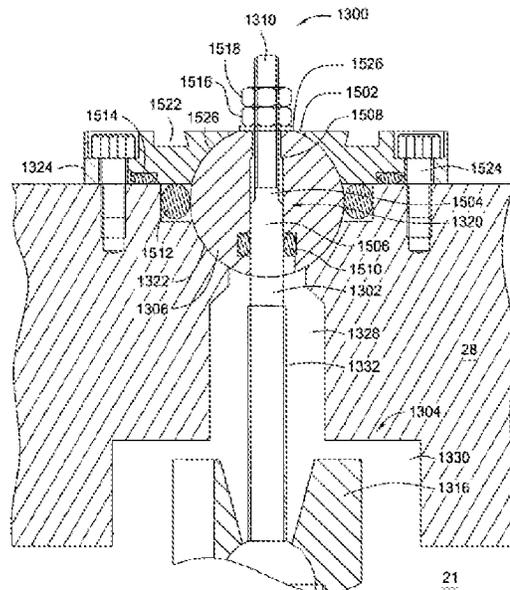


FIG. 15

Keller's Figure 15 above depicts a pivotal support 1300 for a gas distribution plate (not shown), wherein the pivotal support 1300 is coupled to a backing plate 28 to which a diffuser 20 (not shown) may be joined (Spec. ¶¶ 37, 83).

The Examiner stated that Keller's Figure 15 "shows ball stud 1302 spaced apart from the backing plate 28 by the bore 1328, [and] the claimed 'spaced apart from the backing plate such that a gap is present therebetween, wherein the backing plate is movable independent of the diffuser when the diffuser is coupled with the diffuser support member and the frame structure'" (Ans. 3; Final Act. 5) (emphases omitted). The Examiner further stated that Keller's Figure 15 is an enlarged view of Figure 13, "which clearly shows relative movement of the diffuser plate 20 and the backing plate" (Ans. 21) (citing Keller, ¶ 86).

The Examiner's finding is not supported by Keller's teachings. Consistent with the Appellants' position (*see, e.g.*, Reply Br. 5), we find that Keller's diffuser 20 in Figure 15 is joined to backing plate not only through pivotal support 1300, but also through components associated with longitudinal support block 50 through which gas is passed via longitudinal bore 19, which appears to be a necessary element in the prior art apparatus (Keller, Fig. 5; ¶¶ 61, 70, 78, 85).

For this reason, we cannot uphold the Examiner's rejection of claim 1 (and claims dependent from claim 1). Because claim 15 recites similar limitations, we reach the same result for claim 15 (and claims dependent from claim 15).

B. *Claim 8*

The Examiner's position appears to be that Keller's disclosure In Figure 1 of "the height of the cover plate 16 [being] much thinner than the height of the chamber 100" constitutes a description of the relative width limitation recited in claim 8 (Ans. 4; Final Act. 6–7) (emphasis omitted). According to the Examiner (Ans. 21), "'height' was never [re]cited in the claim" and "the claim has not set for[th] a rectangular shape in any planar direction" For the reasons given by the Appellants (Appeal Br. 11–12), we find no merit in the Examiner's unreasonably broad claim construction. A person skilled in the relevant art would understand that "height," "length," and "width" for a given orientation (normally relative to ground) are distinct.

Accordingly, we cannot affirm the rejection of claim 8 (and claims dependent from claim 8).

III. *Obviousness*

To the extent that the Examiner's obviousness rejections are premised on the same faulty anticipation findings, our discussion in section II above applies with equal force. In addition, to the extent that the Examiner relies on other references including, *inter alia*, Myo et al. (US 2005/0271812 A1, pub. Dec. 8, 2005) and Kurita et al. (US 2006/0201074 A1, pub. Sep. 14, 2006) (Final Act. 12–16), we adopt the reasons articulated by the Appellants in their briefs (Appeal Br. 13–22; Reply Br. 6–10).

SUMMARY

The Examiner's final decision to reject claims 1–8 and 10–20 is reversed.

REVERSED