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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TIEN FAK TAN, DMITRY LUBOMIRSKY, KIRBY H. FLOYD,
SON T. NGUYEN, DAVID PALAGASHVILI, ALEXANDER TAM and
SHAOFENG CHEN

Appeal 2019-003283
Application 14/747,367
Technology Center 1700

Before KAREN M. HASTINGS, MONTÉ T. SQUIRE, and
LILAN REN, *Administrative Patent Judges*.

HASTINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ requests our review under 35 U.S.C. § 134 of the Examiner's final decision rejecting claims 1, 2, 5–8, 13, 14, and 21–24 under 35 U.S.C. § 103 as being unpatentable over at least the combined prior art of Sajoto (US 6,035,101 issued Mar. 7, 2000), Dawson (US 2004/0187787 A1 published Sep. 30, 2004), Moschini (US 6,054,688 issued Apr. 25, 2000),

¹ 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 Applied Materials, Inc. (Appeal Br. 3).

and Johnsgard (US 6,902,622 B2 published Jun. 7, 2005).² We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

CLAIMED SUBJECT MATTER

Claim 1 is illustrative of the subject matter on appeal (emphasis added to highlight key limitation in dispute):

1. A pedestal heater for a processing chamber, comprising:
 - a temperature-controlled plate having a first surface and a second surface opposing the first surface, comprising:
 - a first zone comprising a first set of heating elements; and
 - a second zone comprising a second set of heating elements, the second zone surrounding the first zone;
 - a substrate receiving plate having a first surface and a second surface opposing the first surface, wherein the second surface of the substrate receiving plate is coupled to the first surface of the temperature-controlled plate;
 - a continuous annular thermal choke* disposed between the first zone and the second zone, wherein the thermal choke is a cut-out formed through the entire thickness of the temperature-controlled plate and into a thickness of the substrate receiving plate so that a portion of the substrate receiving plate disposed above the second zone is connected to a portion of the substrate receiving plate disposed above the first zone by a thin bridge;

² The Examiner applied additional references to various claims as listed in the summary table at the end of this decision. Discussion of these references, however, is not needed for disposition of this appeal.

a bore formed through the thin bridge, wherein the bore opens into the cut-out;
and
a lift pin sized to pass through the bore in the thin bridge.

(Claims App. Appeal Br. 20–21).

Independent claims 7 and 21 also recite pedestal heaters, similar to that of claim 1, although they do not explicitly recite “a continuous annular thermal choke” which is the focus of Appellant’s arguments (Appeal Br. 12–19). Claim 7 recites “a cut-out” (Appeal Br. 22) and claim 23 recites “an annular cut-out” (Appeal Br. 24).

ANALYSIS

We review the appealed rejection for error based upon the issues identified by Appellant and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential), *cited with approval in In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (“[I]t has long been the Board’s practice to require an applicant to identify the alleged error in the examiner’s rejections . . .”). After considering the evidence presented in this Appeal and each of Appellant’s arguments, we are not persuaded that Appellant identifies reversible error. Thus, we affirm the Examiner’s rejection for the reasons expressed in the Final Office Action and the Answer. We add the following for emphasis.

It has been established that “the [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a

person of ordinary skill in the art would employ.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007); *see also In re Fritch*, 972 F.2d 1260, 1264–65 (Fed. Cir. 1992) (explaining that a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in the art would have reasonably been expected to draw therefrom).

The Examiner finds that Sajoto discloses many of the claim limitations, but relies upon Dawson to exemplify the obviousness of making the annular choke/cut out 407 of Sajoto continuous, and relies upon Moschini to exemplify a continuous annular choke that forms a thin bridge, and Johnsgard as evidence that one of ordinary skill would have been motivated to plug the holes for lift pins in the thin bridge of a plate in order to reduce heat loss from the wafer and have a more uniform thermal profile (Final Action 4–7).

Appellant contends that “the thermal break of *Sajoto* cannot be modified with the continuous break of *Dawson*” (Appeal Br. 13) because the lift pin hole sleeves therein would prevent such a continuous annular choke and such a modification would render Sajoto “unsuited for its intended purpose” (Appeal Br. 14, repeated at Appeal Br. 16). Appellant also contends that the lift pin sleeves are required by Sajoto in order to seal the inner core inside the shell at the lift pin hole (Appeal Br. 13). This argument is reiterated in the Reply Brief.

Appellant’s arguments are not persuasive of reversible error as they fail to consider the applied prior art as a whole and the inferences that one of ordinary skill would have made. It has been established that “[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. . . . Rather,

the test is what the combined teachings of [those] references would have suggested to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *see also In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973) (“Combining the *teachings* of references does not involve an ability to combine their specific structures.”).

As the Examiner points out, Dawson exemplifies that thermal breaks may have various configurations in a substrate support and that preferably an annular thermal break may be continuous in a pedestal heater substrate support similar to that of Sajoto (as well as similar to Appellant’s claimed pedestal heater) (e.g., Ans. 24, 25). Appellant has not shown reversible error in the Examiner’s determination that one of ordinary skill in the art, using no more than ordinary creativity, would have modified, e.g., at least one of the inner plates depicted in Sajoto’s Fig. 5 to have a “continuous” annular choke as recited in claim 1. *KSR*, 550 U.S. at 417 (“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”). An artisan of ordinary skill would have weighed the advantages and disadvantages of these two known thermal break configurations (e.g., discontinuous annular break of Sajoto versus the continuous annular break of Dawson). “The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.” *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n. 8 (Fed. Cir. 2000).

Appellant has also not directed us to any explicit definition of a continuous annular choke that would preclude the presence of lift pin sleeves, especially in light of the continuous annular break depicted in the applied prior art and in Appellant's Specification which are at least interrupted by the lift pins when placed into their respective lift pin hole.

It is again noted that neither of independent claims 7 or 23 recite that the "cut-out" recited therein is continuous. Limitations not appearing in the claims cannot be relied upon for patentability. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982).

Appellant only presents arguments directed to claim 1. Accordingly all the claims stand or fall with claim 1, including those claims separately rejected.

Accordingly, we sustain the § 103 rejections of all of the claims on appeal for the reasons given above and presented by the Examiner.

CONCLUSION

The decision of the Examiner is affirmed.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 5, 6, 21, 23	103	Sajoto, Dawson, Moschini, Johnsgard	1, 2, 5, 6, 21	
7, 8, 14, 22, 24	103	Sajoto, Dawson, Moschini, Johnsgard, Heimanson	7, 8, 14, 22	
13	103	Sajoto, Dawson, Moschini, Johnsgard, Heimanson, Ootsuka	13	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1).

AFFIRMED