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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* JOSEPH CHARLES REED

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Appeal 2018-006790  
Application 13/187,300  
Technology Center 1700

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Before JEFFREY B. ROBERTSON, GEORGE C. BEST, and LILAN REN,  
*Administrative Patent Judges.*

BEST, *Administrative Patent Judge.*

DECISION ON APPEAL

The Examiner finally rejected claims 1–4, 6–18, and 21 of Application 13/187,300 under 35 U.S.C. § 103(a) as obvious.<sup>1</sup> Final Act. 2–3 (August 9, 2017). The Examiner also finally rejected claims 1–4 and 6–12 under 35 U.S.C. § 112, ¶ 2, as indefinite. *Id.* at 2. Appellant<sup>2</sup> seeks reversal

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<sup>1</sup> The '300 Application was filed on July 20, 2011, which is before the effective date of the America Invents Act. Accordingly, the pre-AIA version of the statute applies.

<sup>2</sup> 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 ASM America, Inc. Appeal Br. 4.

of these rejections pursuant to 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6(b).

For the reasons set forth below, we *affirm*.

## BACKGROUND

The '300 Application describes apparatus for measuring process pressure in semiconductor processing tools. As the Specification describes, it can be difficult to measure the process pressure in such apparatus. Spec. ¶ 1. In particular, “process gases and byproducts present in some film deposition processes may restrict gas flow in sampling ports used by some pressure measurement devices.” *Id.* This leads to inaccurate pressure readings obtained from pressure gauges connected to such ports. *Id.* According to the Specification, the apparatus described in the '300 Application mitigates this problem.

Claim 1 is representative of the '300 Application's claims and is reproduced below from the Claims Appendix of the Appeal Brief.

1. A semiconductor processing module for processing a substrate with a reactive process gas in a vacuum chamber, the semiconductor processing module comprising:

a reactor positioned within the vacuum chamber for processing the substrate with the reactive process gas; and

a pressure-sensitive structure located within a processing environment of the reactor operative to transmit a pressure transmission fluid pressure to a pressure sensor exterior to the vacuum chamber, such pressure transmission fluid pressure varying in response to a pressure of the reactive process gas in contact with the pressure-sensitive structure,

the pressure-sensitive structure comprising a displaceable diaphragm comprising one or more of stiffening structures and surface textures,

wherein the pressure-sensitive structure has a process side being exposed to the low-pressure substrate processing environment, *the process side being mounted flush with a top surface of the bottom plate.*

Appeal Br. 20 (emphasis added).

## REJECTIONS

On appeal, the Examiner maintains the following rejections:

1. Claims 1–4 and 6–12 are rejected under 35 U.S.C. § 112, ¶ 2, as indefinite. Answer 3.
2. Claims 1–4, 6–18, and 21 are rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Reed,<sup>3</sup> Mohn,<sup>4</sup> and Rosemount.<sup>5</sup> Answer 4.

## DISCUSSION

**Rejection 1.** In the Appeal Brief, Appellant states that it does not challenge the rejections of claims 1–4, 6–18, and 21 as indefinite. Appeal Br. 19. In the Reply Brief, however, Appellant acknowledges that it did not appeal the indefiniteness rejections but seeks to amend claims 1 and 13. Reply Br. 2 (citing 37 C.F.R. §§ 41.39(b)(1), 41.50(a)(2)(i), or 41.50(b)(1) as providing authority for this request).

We begin by noting that the Examiner did not reject claims 13–18 and 21 as indefinite. *See* Final Act. 2.

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<sup>3</sup> US 2010/0202860 A1, published August 12, 2010.

<sup>4</sup> US 2012/0161405 A1, published June 28, 2012.

<sup>5</sup> Rosemount Inc., *Rosemount 1199 Diaphragm Seal Systems* (January 2008).

Next, we turn to Appellant's request to amend claims 1 and 13. We deny this request. None of the regulatory provision cited by Appellant provide Appellate with the opportunity to amend claims at this point in the prosecution of the '300 Application. Each of these provisions provides an appellant a chance to amend claims in the event of the entry of a new ground of rejection.

In view of the foregoing, we affirm the rejection of claims 1–4 and 6–12 as indefinite.

**Rejection 2.** The Examiner rejected claims 1–4, 6–18 and 21 as unpatentable over the combination of Reed, Mohn, and Rosemount. Final Act. 2–14.

**Claim 1.** Appellant argues that claim 1 is patentable over this combination of references because the Examiner has not established a prima facie case of obviousness. Appeal Br. 11–14. In particular,

Appellant argues that the prior art does not describe or suggest the claim limitation requiring that “the pressure-sensitive structure has a process side being exposed to the low-pressure substrate processing environment, the process side being mounted flush with a top surface of the bottom plate.” *Id.*

In rejecting claim 1, the Examiner found that Mohn describes mounting pressure sensors to the interior wall of the reactor at one or more locations inside the reactor. Final Act. 3. The Examiner further found that Mohn describes pressure sensors that “may also be mounted at an elevation approximately coincident with the plane of wafer 410 when wafer 410 is undergoing a deposition process.” *Id.* at 4 (citing Mohn ¶ 171). According to the Examiner, this description “is equivalent to ‘on a surface of the bottom plate’ (see Figure 1 of the present invention). Alternately, it would be

obvious to place the pressure sensor on the top surface of the bottom plate to allow measurement of the pressure ‘coincident’ with the plane of the wafer.”  
*Id.*

Appellant argues that ’300 Application’s Specification “teaches away from *Mohn*” because it states that “placing pressure sensors within a process region, and particularly, the pressure sensors being exposed to the low-pressure substrate processing environment and/or being mounted flush with a top surface of the bottom plate would be problematic.” Appeal Br. 13.

This argument is not persuasive of the existence of reversible error. “Teaching away” is an argument that *the prior art references* used in the rejection contain information that would discourage a person of ordinary skill in the art at the time of the invention for making the combination proposed in the rejection. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). Appellant’s reliance upon its Specification in arguing that the combination of Reed, Mohn, and Rosemount is discouraged is misplaced.

Moreover, Appellant’s argument is based upon the limitations of the particular type a sensor described in Mohn. Appeal Br. 13–14. In the rejection, however, the Examiner relies upon Rosemount for its description of types of pressure sensors that overcome the limitations of Mohn’s pressure sensor. Final Act. 5–6. Thus, Appellant’s argument amounts to an attack individual reference rather than on the entirety of the proposed combination. Such arguments do not establish reversible error. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981); *In re McLaughlin*, 443 F.2d 1392,

1395 (CCPA 1971) (“[T]he test for combining references is not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art.”).

In view of the foregoing, we affirm the rejection of claim 1.

**Claims 2–4 and 6–12.** Appellant first argues that dependent claims 2–4 and 6–12 are patentable because they depend from allowable independent claim 1. Appeal Br. 14–15. Because we have affirmed the rejection of claim 1, we do not reverse the rejection of claims 2–4 and 6–12 on this basis.

Appellant separately discusses claims 2, 6, and 7. *Id.* at 15. Appellant’s discussion of these claims is a recitation of a claim limitation followed by a naked assertion that the references do not teach or suggest that claim limitation. *Id.* This is insufficient to amount to a separate arguments for patentability of these claims.

Appellant also separately discusses claim 11:

Applicant submits a claim 11 is additionally allowable over the cited art, because none of the references teach or suggest “wherein the transmission side comprises projections.” The [Final] Action relies on *Rosemount* for purportedly disclosing projections. *See* [Final] Action, p. 8. Applicant disagrees. Applicant submits that the illustration on p. 35 of *Rosemount* is an artifact of enlarging a view and does not disclose any projections.

*Id.*

The Examiner responds that that the projections shown in the figure on page 35 of *Rosemount* are not an artifact of enlargement and reproduction. Answer 22. The Examiner also identifies additional figures that depict the claimed projections. *Id.* (citing *Rosemont* 39, 40, 44, 45, 48, 51, and 54).

Appellant does not address the Examiner's Answer in the Reply Brief.

We have reviewed the figure on page 35 of Rosemount and are not persuaded that the Examiner reversibly erred by finding that Rosemount discloses a transmission side comprising projections. Accordingly, we do not reverse the rejection of claim 11.

For the reasons set forth above, we affirm the rejection of claims 2–4 and 6–12.

**Claim 13.** Appellant argues that independent claim 13 is patentable over the combination of Reed, Mohn, and Rosemount because the Examiner has not established a prima facie case of obviousness. Appeal Br. 15–16. Appellant argues that the cited prior art does not teach or suggest the claimed “displaceable diaphragm included in the bottom plate, the displaceable diaphragm adapted to transmit process pressure information to a pressure sensor located exterior the reactor for the low-pressure substrate processing environment responsive to the movement of the displaceable diaphragm, wherein the displaceable diaphragm comprises one or more of stiffening structures and a surface texture, wherein the pressure-sensitive structure has a process side being exposed to the low-pressure substrate processing environment, the process side being mounted flush with a top surface of the bottom plate.” *Id.*

*First*, Appellant argues that Mohn does not disclose a “displaceable diaphragm included in the bottom plate.” *Id.* at 16. As discussed above, the Examiner found that Mohn describes or suggests locating the displaceable diaphragm in the bottom plate. *See* Final Act. 3–5. Appellant has not demonstrated reversible error in this finding.

*Second*, Appellant argues that Rosemount does not disclose the claimed displaceable diaphragm. Appeal Br. 16. Appellant's argument

amounts to a naked assertion that Rosemont does not disclose a claimed structure. *Id.* The Examiner, however, found that Rosemont does, in fact, disclose such a structure. Final Act. 5–6. Appellant’s “argument” does not attempt to show error with respect to any of the specific findings set forth in the rejection. Appellant’s argument, therefore, is not persuasive of the existence of reversible error.

In view of the foregoing, we affirm the rejection of claim 13.

**Claims 14–18.** Appellant argues that dependent claims 14–18 are patentable over the combination of Reed, Mohn, and Rosemont because they depend from allowable independent claim 13. Appeal Br. 17. As discussed above, we have affirmed the rejection of claim 13. We, therefore, do not reverse the rejection of claims 14–18 on the basis asserted by Appellant.

Appellant also present separate arguments for the patentability of claim 15. Claim 15 reads:

15. The reactor of claim 13, the displaceable diaphragm including a process side that is flush with a top surface of the bottom plate, the top surface being exposed to the low-pressure substrate processing environment, and a bottom surface, *wherein only a portion of the bottom surface is wetted by a transmission fluid.*

Appeal Br. 22–23 (emphasis added).

In rejecting claim 15, the Examiner found that

Rosemont does not teach a bottom surface, wherein only a portion of the bottom surface is wetted by a transmission fluid. The amount of transmission fluid is an intended use of the apparatus. The motivation for changing the amount of transmission fluid is to optimize the sensitivity of the displaceable diaphragm. Therefore it would be obvious to one of ordinary skill in the art to optimize the amount of transmission fluid such that only a part of the bottom surface of

the displaceable diaphragm is wetted. . . . The apparatus of Reed et al[.], Mohn et al[.], and Rosemount is capable of supplying enough transmission fluid that only a portion of the bottom surface of the displaceable diaphragm is wetted by the transmission fluid.

Final Act. 9.

Appellant argues for the reversal of the rejection of claim 15. Appeal Br. 17. In doing so, Appellant only challenges the Examiner's finding that the amount of transmission fluid is an intended use of the apparatus. *See id.* Appellant does not challenge the Examiner's finding that the amount of transmission fluid is a result-effective variable or that it would have been obvious to optimize the amount of transmission fluid. *Id.* Appellant's argument, therefore, is not persuasive of the existence of reversible error in the Examiner's rejection of claim 15.

In view of the foregoing, we affirm the rejection of claims 14–18.

**Claim 21.** Appellant argues that independent claim 21 is patentable over the combination of Reed, Mohn, and Rosemount because the Examiner has not established a prima facie case of obviousness. Appeal Br. 17–19. In particular, Appellant argues that the combination of prior art used in the rejection does not teach or suggest the claimed pressure-sensitive structure comprising a diaphragm having one or more of stiffening structures and a surface texture and a bottom surface wherein only a portion of the bottom surface is wetted by a transmission fluid. *Id.* at 17–18.

These arguments are not persuasive of the existence of reversible error.

*First*, the Examiner found that Rosemount describes the pressure-sensitive structure comprising a displaceable diaphragm with one or more of pleats, stiffening structures and surface textures. Final Act. 12–13; Answer

24. Appellant does not present specific arguments demonstrating reversible error in the Examiner's findings. *See* Appeal Br. 18–19.

*Second*, as discussed above, Appellant's arguments with respect to the limitation that "only a portion of the bottom surface is wetted by a transmission fluid" is neither described or suggested by the prior art are not persuasive.

In view of the foregoing, we affirm the rejection of claim 21.

### CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–4 and 6–12	§ 112, ¶ 2	1–4 and 6–12	
1–4, 6–18, and 21	§ 103 Reed, Mohn, and Rosemount	1–4, 6–18, and 21	
<b>Overall Outcome</b>		1–4, 6–18, and 21	

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

AFFIRMED