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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* AKIMASA ICHIKAWA and MASAHIRO FURUKAWA<sup>1</sup>

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Appeal 2019-002302  
Application 14/813,641  
Technology Center 1700

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Before ROMULO H. DELMENDO, CHRISTOPHER C. KENNEDY, and  
JULIA HEANEY, *Administrative Patent Judges*.

KENNEDY, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner’s  
decision rejecting claims 10–20. We have jurisdiction under 35 U.S.C.  
§ 6(b). We AFFIRM.

BACKGROUND

The subject matter on appeal relates to ceramic filter devices. *E.g.*,  
Spec. ¶ 1; Claim 10. Claim 10 is reproduced below from page 17 (Claims  
Appendix) of the Appeal Brief:

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in  
37 C.F.R. § 1.42. The Appellant identifies the real party in interest as NGK  
Insulators, Ltd. Appeal Br. 1.

10. A filter device comprising:

a ceramic filter that includes a pillar-shaped porous body having a plurality of through channels extending through the porous body from a first end face to a second end face and formed in rows and having a circumferential surface, and a separation membrane disposed on each of inner wall surfaces of at least part of the plurality of through channels, wherein one or some of the plurality of through channels are water collecting cells whose open ends in the first end face and the second end face are plugged by plugging members, and further wherein water collecting slits are disposed to open in the circumferential surface of the porous body so that the water collecting cells communicate with an external space; and

a casing which receives the ceramic filter and forms an introduction path to introduce a mixed fluid into the first end face of the ceramic filter, an intermediate path to return and reintroduce, into the second end face of the ceramic filter, the mixed fluid which is being treated, and a discharge path to discharge the treated fluid from the first end face of the ceramic filter, wherein the introduction path and the discharge path extend parallel to one another,

wherein the plurality of through channels have at least one set of an outward path in which the mixed fluid flows from the first end face to the second end face and a return path in which the mixed fluid returns and flows from the second end face to the first end face,

the water collecting cells are arranged to form at least one row in the first end face and the second end face of the porous body,

through channel division means is disposed along the row in which the water collecting cells are arranged in at least one of the end faces of the porous body in a state where the through channel division means is in contact with the row, and

the outward path and the return path are divided by the through channel division means.

### REJECTIONS ON APPEAL

The claims stand rejected under 35 U.S.C. § 103 as follows:

1. Claims 10, 13–17, 19, and 20 over Sugiura (WO2007/004263 A1, dated Jan. 11, 2007) (machine translation of record) and Townson (US 2009/0008341, published Jan. 8, 2009);
2. Claim 11, 12, and 18 over Sugiura, Townson, and Ichikawa (WO 2012/147534 A1, dated Nov. 1, 2012) (machine translation of record).

### ANALYSIS

After review of the cited evidence in the appeal record and the opposing positions of the Appellant and the Examiner, we determine that the Appellant has not identified reversible error in the Examiner's rejections. Accordingly, we affirm the rejections for reasons set forth below, in the Final Action dated March 28, 2018, and in the Examiner's Answer.

The Appellant presents arguments only as to claim 10. We address those arguments below. The remaining claims will stand or fall with claim 10, from which they depend.

The Examiner's statement of the rejection appears at pages 3–7 of the Final Action and is repeated at pages 4–8 of the Examiner's Answer. Of particular relevance to the issues raised by the Appellant in this appeal, the Examiner finds that Sugiura teaches a filter device similar to that of claim 10, and that Sugiura's filter device comprises through channels that fall within the scope of the terms "outward path" and "return path" because Sugiura's through channels are structurally "capable of allowing the mixed fluid" to flow in both an outward direction and a return direction. *See* Ans. 4–5, 7. The Examiner also finds that Sugiura's disclosure of "backwashing" "reads on a return path." *Id.* at 7. Moreover, the Examiner

finds that Townson discloses a filter similar to that of claim 10, and that Townson “teaches the plurality of through channels have at least one set of an outward path in which the mixed fluid flows from the first end face to the second end face and a return path in which the mixed fluid returns and flows from the second end face to the first end face.” *Id.* at 6. Thus, the Examiner finds that the prior art teaches or suggests through channels that constitute outward paths and return paths as recited by claim 10.

The Examiner acknowledges that “Sugiura does not teach that the intermediate path returns and reintroduces into the second end face of the ceramic filter the mixed fluid and a discharge path on the first end face of the ceramic filter.” *Id.* at 5. However, the Examiner determines that Townson teaches a filter that comprises those features, that Townson teaches that such a filter structure “significantly increased filter efficiency in comparison with a filter apparatus that is merely configured to pass a flowable mixture through a filter element in only a single direction,” and that a person of ordinary skill in the art would have been motivated to use Townson’s path structure in the filter of Sugiura “as it is a known alternative configuration, to merely single flow through, with added benefits of increased filtering efficiency.” *Id.* at 6–7.

As to the “through channel division means” recited by claim 10, the Examiner finds that Sugiura’s partition walls and glass seals located on the filter end faces fall within the scope of that term. *See id.* at 5 (“both ends are sealed”), 7.

In view of those and other findings less pertinent to the issues raised by the Appellant, the Examiner concludes that the subject matter of claim 10 would have been obvious to a person of ordinary skill in the art.

The Appellant first argues that the “backwashing” disclosed by Sugiura does not imply the presence of a “return path” as recited by claim 10. Appeal Br. 7–8.

That argument is not persuasive at least because it attacks Sugiura individually and does not meaningfully address the Examiner’s combination rationale. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (“[O]ne cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references.”). As noted above, the Examiner finds that Townson teaches a filter in which the fluid flows in both directions (i.e., an outward path and a return path), and that a person of ordinary skill in the art would have been motivated to modify Sugiura to allow fluid to flow in both directions to improve efficiency. The Appellant has not shown how the proposed combination fails to result in a structure comprising outward and return paths that fall within the scope of claim 10.

The Appellant also argues that Sugiura does not teach the “through channel division means” of claim 10. Appeal Br. 8–9. In particular, the Appellant describes the structure of Sugiura as comprising “a glass seal that covers all of the exposed ends of the partition walls of the porous body filter device,” and the Appellant argues that Sugiura’s structure “is not the same as the claimed through channel division means disposed along a row in which water collecting cells are arranged, and which divides the outward path and the return path.” *Id.* at 8.

That argument is not persuasive. As the Examiner explains, *e.g.*, Ans. 15, the Appellant’s Specification describes the “through channel division means” as a “seal means” for preventing fluid flow. Spec. ¶ 15. The Specification goes on to state that “[t]here is not any special restriction

on the through channel division means 15 as long as the through channel division means is seal means for cutting off the penetration of the fluid from divided positions of the first end face 2 and the second end face 3, but it is possible to use a packing or a seal jig made of a material such as a hard rubber or a fluororesin.” *Id.* ¶ 44. The Specification also describes “glass seal[s]” and “metal seal[s],” and does not indicate that such seals are unsuitable for use as the “through channel division means.” *Id.* ¶ 37. Additionally, claim 14 depends from claim 10 and recites that “the through channel division means is a seal means disposed in each of the first end face and the second end face.”

In view of those disclosures, and particularly under the claim construction standard applicable to this proceeding (broadest reasonable construction consistent with the specification, *see In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007)), the Appellant has not shown reversible error in the Examiner’s determination that “glass seals that cover[] all of the exposed ends of the partition walls” of Sugiura’s filter, as the Appellant describes Sugiura’s structure, *see* Appeal Br. 8, fall within the scope of the term “through channel division means.” By the Appellant’s characterization of Sugiura, the structure identified by the Examiner appears to be “a seal means disposed in each of the first end face and the second end face,” which claim 14 establishes as falling within the scope of the term “through channel division means.” The Appellant fails to persuasively argue otherwise.

As to whether Sugiura’s glass seals are “disposed along a row in which water collecting cells are arranged, and which divides the outward path and the return path,” Appeal Br. 8, the Appellant does not explain how

a glass seal that covers the exposed ends of Sugiura's filter would fail to meet those requirements. It appears that Sugiura's glass seal, which the Appellant describes as "cover[ing] *all* of the exposed ends" of Sugiura's partition walls, *id.* (emphasis added), is disposed along and in contact with *each* row, including the rows in which the water collecting cells are arranged. *See, e.g.*, Sugiura Figs. 1, 3.

On this record, we are not persuaded of reversible error in the Examiner's determination that Sugiura teaches or suggests "through channel division means" that fall within the scope of claim 10. *See 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 . . .").

The Appellant also argues that the combination of Sugiura and Townson would have resulted in a filter device that has "the introduction path . . . in the first end face of the filter of Townson, but not a discharge path to discharge the treated fluid from the first end face." Appeal Br. 10.

That argument is not persuasive. Consistent with the Examiner's findings, at least Figure 5 of Townson teaches or suggests a filter in which both the introduction path (128) and the discharge path (130) are in the same end face. *See* Townson Fig. 5. The fact that Townson describes its filter elements as concentrically arranged first and second filters, *see* Appeal Br. 10, fails to show error in the Examiner's rationale, and the Appellant fails to persuasively argue that it would have been beyond the ordinary level of skill in the art to combine the structures of Sugiura and Townson as proposed by the Examiner. *Cf. Keller*, 642 F.2d at 425 ("The test for obviousness is not whether the features of a secondary reference may be



bodily incorporated into the structure of the primary reference.”).

Additionally, and contrary to the Appellant’s argument, *see id.* at 11, we agree with the Examiner’s finding that Townson attributes improved filter efficiency to flowing a fluid through a filter in both directions, i.e., both down and back through separate paths, *see, e.g.*, Townson ¶ 39 (describing improved efficiency relative to “a filter apparatus that is merely configured to pass a flowable mixture through a filter element or a set of filter tubes in only a single direction”). The Appellant has not persuasively shown why describing the filter as one filter or two filters is material to the Examiner’s analysis.

The Appellant also argues that the filter device of the combined prior art “would not have provided the attendant advantages associated with the claimed filter device” because “some of the open ends of the through channels” would allegedly be “blocked.” Appeal Br. 11–12.

That argument is unpersuasive because the Appellant does not identify a claim limitation that precludes blockage of some open ends of through channels, and because, even assuming the Appellant is correct that the claimed structure has “advantages,” the Appellant has not shown that any such advantages would have been unexpected. *See Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1371 (Fed. Cir. 2007) (“[A]ny superior property must be *unexpected* to be considered as evidence of non-obviousness.” (emphasis in original)).

On this record, we are not persuaded of reversible error in the Examiner’s rejection of claim 10. *See Jung*, 637 F.3d at 1365.

CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>References</b>	<b>Affirmed</b>	<b>Reversed</b>
10, 13–17, 19, 20	103	Sugiura, Townson	10, 13–17, 19, 20	
11, 12, 18	103	Sugiura, Townson, Ichikawa	11, 12, 18	
<b>Overall Outcome</b>			10–20	

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