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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DONG-II CHOI, KYOUNG-HO LEE, JIN-HO LEE,
BONGHYUP KANG, and DONG-SUN NOH¹

Appeal 2018–003884
Application 13/087,629
Technology Center 3700

Before CHARLES N. GREENHUT, ANNETTE R. REIMERS, and
JILL D. HILL, *Administrative Patent Judges*.

HILL, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner’s final Office Action rejecting claims 1–4 and 6–17. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ Appellants identify the assignee, 3M Innovative Properties Company, as the real party in interest. Appeal Br. 2.

BACKGROUND

Independent claims 1 (apparatus) and 10 (method of making) are pending. Independent claim 1, reproduced below, illustrates the claimed invention, with a disputed limitation italicized.

1. A respirator that comprises:
 - (a) a mask body that comprises:
 - (i) a central portion that comprises a rigid first thermoplastic material;
 - (ii) a peripheral portion that comprises a compliant non-elastomeric second thermoplastic material, *wherein the first thermoplastic material is welded to the second thermoplastic material to create a hermetic seal between the central portion and the peripheral portion*; and
 - (b) at least one filter cartridge that is secured to the rigid central portion.

REJECTION

I. Claims 1–4, 6, 8–11, 14, and 15 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Rekow (US 2001/0013347 A1, pub. Aug. 16, 2001), Henderson (US 2005/0211251 A1, pub. Sept. 29, 2005), and Reischel (US 5,924,420, iss. July 20, 1999). Final Act. 2.

II. Claims 7, 16, and 17 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Rekow, Henderson, Reischel, and White (US 4,739,755, iss. Apr. 26, 1988). Final Act. 5.

III. Claims 12 and 13 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Rekow, Henderson, Reischel, and Castiglione (US 6,729,332 B1, iss. May 4, 2004). Final Act. 6.

ANALYSIS

Rejection I— Claims 1–4, 6, 8–11, 14, and 15

Regarding independent claims 1 and 10, the Examiner finds that, *inter alia*, Rekow discloses a respirator 10 with a mask body 16 having a rigid central portion 30 and a compliant peripheral portion 28, the rigid central portion 30 comprising a rigid first thermoplastic material and the compliant peripheral portion comprising a compliant second thermoplastic material. Final Act. 2 (citing Rekow ¶ 27). The Examiner also finds that Rekow discloses a filter cartridge 12 secured to the rigid central portion 30. *Id.* at 2–3. The Examiner finds that Rekow’s second thermoplastic material is ***not*** a compliant non-elastomeric thermoplastic, but finds that Henderson discloses a mask body peripheral portion comprising a compliant non-elastomeric second thermoplastic material. *Id.* at 3 (citing Henderson ¶ 6). The Examiner concludes that it would have been obvious to one skilled in the art to modify Rekow’s second thermoplastic material “to be a compliant non-elastomeric thermoplastic material as taught by Henderson . . . to provide a thinner material that is sufficiently rigid and yet deformable to adequately support filter cartridges.” *Id.* (citing Henderson ¶ 5).

The Examiner finds that the “now modified device of Rekow” does not does not disclose a first thermoplastic material being welded to the second thermoplastic material, but finds that Reischel teaches a mask body 10 with a central portion 50 welded to a plastic face contacting member 14. *Id.* (citing Reischel, Abstract). The Examiner concludes that it would have been obvious to one skilled in the art to weld together the first and second thermoplastic materials of the modified device of Rekow in the manner

disclosed by Reischel “to permanently fix the central portion to the face contacting member.” *Id.*

Appellants argue claims 1–4, 6, 8–11, 14, and 15 as a group. Appeal Br. 3–8. We select independent claim 1 as representative. Claims 2–4, 6, 8–11, 14, and 15 stand or fall with claim 1.

Appellants argue that the combination of Rekow, Henderson, and Reischel fails to teach or suggest a first thermoplastic material welded to a second thermoplastic material as claimed. Appeal Br. 5. According to Appellants, Rekow does not disclose its second thermoplastic material being a compliant non-elastomeric thermoplastic material, and therefore “cannot teach or suggest” a first thermoplastic material being welded to a compliant non-elastomeric second thermoplastic material. *Id.* Further, Henderson and Reischel do not cure the deficiencies of Rekow because, while Henderson’s mask body is non-elastomeric, Henderson does not include a rigid insert, and therefore does not teach or suggest (1) a first thermoplastic material welded to a second non-elastomeric second thermoplastic material to create a hermetic seal as recited in claim 1, or (2) welding a rigid central portion to a compliant peripheral portion comprising second non-elastomeric thermoplastic material as recited in claim 10. *Id.* at 5–6.

The Examiner responds that Appellants are unpersuasively attacking Henderson individually. Ans. 8 (citing *In re Keller*, 642 F.2d 413 (CCPA 1981); *In re Merck*, 800 F.2d 1091 (Fed. Cir. 1986); “One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.”). Rekow is not relied on to disclose a non-elastomeric compliant thermoplastic material. The Examiner explains that the rejection relies on Rekow for disclosing a mask body with a central

portion comprising a rigid first thermoplastic material and a peripheral portion comprising a compliant second thermoplastic material. *Id.* at 8–9. It is Henderson that the Examiner relies on to disclose a compliant *non-elastomeric* thermoplastic material for a mask body applied against a user’s face, and for appreciating that (i.e., providing a rational for modifying Rekow) using a compliant non-elastomeric thermoplastic in a mask body advantageously allows for using “a thinner material that is sufficiently rigid to provide support for components attached to the facemask such as cartridges” while “being sufficiently pliable to enable the mask to fit snugly over a person's nose and cheeks.” *Id.* at 9 (citing Henderson ¶ 5). Henderson is not relied on for disclosing a rigid insert or welding of thermoplastic materials – Rekow discloses the rigid insert, and Reischel is relied on to disclose welding and welded thermoplastic materials for integration thereof with other materials. *Id.* Appellants have not alleged that any of the Examiner’s actual findings regarding the prior art disclosures are in error.

Appellants argue that the Examiner’s reason for combining Rekow and Henderson lacks a rational basis because Henderson teaches away from “a mask body that includes a central portion and a peripheral portion as recited in claims 1 and 10,” and “masks that include a rigid insert with a soft compliant portion,” since Henderson discloses that masks combining rigid inserts with soft compliant portions are lighter, yet more complicated/expensive to manufacture because they need more parts and assembly. *Id.* at 6–7 (citing Henderson ¶¶ 5, 6). Further, the portion of Henderson relied on by the Examiner “lacks a rigid insert.” *Id.* at 6 (citing Henderson ¶ 6). Appellants also argue that Henderson’s mask body “is

designed to alleviate the need for the rigid central portion that the Examiner is allegedly attaching to the mask body of [Henderson] via the modifications to [Rekow],” and one skilled in the art would not be “motivated to modify the mask of [Rekow, as proposed,] because of the explicit teaching away of such modification by [Henderson].” *Id.* at 7.

Appellants similarly argue that the Examiner’s proffered reason for modifying Rekow’s second thermoplastic material with Henderson’s compliant non-elastomeric thermoplastic material – “to provide a thinner material that is sufficiently rigid and yet deformable to adequately support filter cartridges” (Final Act. 3 (citing Henderson ¶ 5)) – relies on portions of Henderson “assert[ing] the benefits of not having a rigid central portion,” and therefore Henderson’s “teaching away” is “relevant as to why one of skill in the art would not be motivated to modify [Rekow] with the teachings of [Henderson] by attaching the facepiece of [Henderson] to the central portion of [Rekow].” Appeal Br. 7–8.

The Examiner disagrees, responding that Henderson discloses a mask body thermoplastic material that is sufficiently pliable to enable the mask to fit snugly and comfortably over a person’s nose, and “does not in any way teach that the compliant non-elastomeric thermoplastic cannot be combined with any other thermoplastic materials.” Ans. 11.

We agree with the Examiner. The proposed modification substitutes Henderson’s compliant non-elastomeric thermoplastic material for Rekow’s second thermoplastic material, reasoning that one skilled in the art would be motivated to make the substitution “to provide a thinner material that is sufficiently rigid and yet deformable to adequately support filter cartridges.” Final Act. 3 (citing Henderson ¶ 5). While Henderson indeed implies that

masks with rigid inserts and a soft compliant portions require “multiple facepiece parts and multiple manufacturing steps” (Henderson ¶ 5), and this disclosure might discourage a skilled artisan from adding a rigid insert to Henderson, we are not persuaded that this disclosure would discourage a skilled artisan from using Henderson’s compliant non-elastomeric thermoplastic material in Rekow’s device. The Examiner’s stated reasoning finds a rational underpinning in Henderson’s statement that its compliant non-elastomeric thermoplastic material is beneficially thinner and “sufficiently rigid and yet deformable at the cheeks so that the mask can adequately support filter cartridges and yet be sufficiently pliable to enable the mask to fit snugly and comfortably over a person’s [face].” *Id.*

Appellants next argue that the Examiner erred in finding that Reischel discloses its mask 10 including a rigid first thermoplastic material welded to a compliant non-elastomeric second thermoplastic material.

The Examiner responds that the rejection only relies on Reischel for disclosing welding as a known process for merging thermoplastic materials to make them integral and create a hermetic seal. Ans. 11 (citing Reischel 4:9–20 “the connectors 50 are glued to, welded, molded or otherwise [integrally] formed with the lens 14 rather than mechanically fastened. The [connector] 50 is preferably either ultrasonically welded directly to the plastic lens 14 or is directly molded . . . to form a monolithic continuous element. A seal ring 51 . . . may be provided to assist in forming a hermetic seal between the lens 14 and the connector 50.”) (emphasis omitted). We agree with the Examiner that Reischel is only relied on to teach welding “to permanently fix the central portion to the face contacting member.” Final Act. 3.

Appellants reply that the Examiner erred in finding that Reischel teaches welding as a known process for integrating thermoplastic materials to create a hermetic seal, because Reischel only teaches that the lens 14 and connector 50 are plastic, not thermoplastic. Reply Br. 2–3 (citing Reischel 3:36–38, 4:12–16).

We are not persuaded by this argument, because Appellants have not explained why welding thermoplastics, which are a type of plastic, differs from welding “plastics” to the extent that one skilled in the art would fail to understand, as the Examiner contends, that Reischel’s welding of plastic similarly discloses welding of thermoplastics.

For the reasons explained above, we sustain the rejection of independent claim 1. Claims 2–4, 6, 8–11, 14, and 15 fall with claim 1.

Rejections II and III— Claims 7, 12, 13, 16, and 17

Appellants make no argument that claims 7, 12, 13, 16, or 17 would be patentable over the asserted reference, if independent claims 1 and 10 are not patentable over Rekow, Henderson, and Reischel. Appeal Br. 9–10. We, therefore, sustain Rejections II and III.

DECISION

We AFFIRM the rejection of claims 1–4, 6, 8–11, 14, and 15 under 35 U.S.C. § 103(a) as unpatentable over Rekow, Henderson, and Reischel.

We AFFIRM the rejection of claims 7, 16, and 17 under 35 U.S.C. § 103(a) as unpatentable over Rekow, Henderson, Reischel, and White.

We AFFIRM the rejection of claims 12 and 13 under 35 U.S.C. § 103(a) as unpatentable over Rekow, Henderson, Reischel, and Castiglione.

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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)(iv).

AFFIRMED