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| EXAMINER | |
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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* TAE KIM, STEVEN KUELTZO, RICH LARSON, and WILFORD DEAN VIRGIN

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Appeal 2019-001879
Application 14/464,161
Technology Center 3600

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Before JILL D. HILL, LEE L. STEPINA, and ARTHUR M. PESLAK, *Administrative Patent Judges.*

PESLAK, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 1–10, 20, and 21.[2] We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE and enter a NEW GROUND OF REJECTION pursuant to our authority under 37 C.F.R. § 41.50(b).

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[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 Federal-Mogul LLC. Appeal Br. 3.

[2] Claims 11–19 are withdrawn from consideration. *See* Final Act. 1.

## CLAIMED SUBJECT MATTER

Appellant's invention relates to a multi-layer gasket assembly. Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A multi-layer gasket assembly, comprising:
>
> a plurality of metal gasket layers having at least one set of axially aligned openings;
>
> said plurality of gasket layers including at least two functional layers and at least one distance layer and at least one stopper layer, each of said functional layers having at least one embossment bead spaced radially from said openings, and said distance and stopper layers being sandwiched between said functional layers;
>
> at least one of said stopper layer and said distance layer having a polymeric coating applied to at least a portion of an exterior surface thereof; and
>
> said stopper and distance layers being laser welded together to define a weld joint that extends through said at least one stopper layer, said distance layer, and said polymeric coating.

## REFERENCES

The prior art relied upon by the Examiner is:

| Name | Reference | Date |
|---|---|---|
| Ushio | US 5,628,518 | May 13, 1997 |
| Wade | US 7,200,932 B2 | Apr. 10, 2007 |
| Schmitz | US 2005/0189724 A1 | Sept. 1, 2005 |
| Hamada | US 2006/0232017 A1 | Oct. 19, 2006 |

## REJECTIONS

1. Claims 1, 4–10, 20, and 21 are rejected under 35 U.S.C. § 103 as unpatentable over Ushio, Wade, and Schmitz. Final Act. 2.

2. Claims 2 and 3 are rejected under 35 U.S.C. § 103 as unpatentable over Ushio, Wade, Schmitz, and Hamada. Final Act. 5.

OPINION

The Examiner finds that Ushio discloses many of the limitations of claim 1, including a stopper layer and a distance layer welded together and sandwiched between functional layers. Final Act. 2–3. The Examiner finds that Ushio does not have a polymeric layer on one of the stopper and distance layers and the weld extending through these three layers. *Id.* at 3. The Examiner finds that Wade discloses a coating on a gasket layer and a weld through the coating and the gasket layers, and considers that it would have been obvious to add a coating having a laser weld extending through the coating to the gasket assembly of Ushio "in order to improve the seal while incurring very little additional cost due to the laser weld." *Id.* (citing Wade, 1:40–46). The Examiner also finds that Schmitz discloses a polymer coating on a gasket, and concludes that it would have been obvious to use a polymer as the gasket coating "in order to improve the seal," based on Wade's disclosure of using alternative materials "dependent upon the intended purpose of the gasket assembly and the required characteristics of the coating material." *Id.* (citing Wade, 3:54–59).

Appellant argues, *inter alia*, that the passage in Wade "relied on by the Examiner, is in the BACKGROUND OF THE INVENTION section of the Wade specification, and . . . neither this passage nor the remainder of the Wade specification in any way suggests that laser welding improves the seal that is established by the gasket assembly." Appeal Br. 9; *see also* Reply Br. 3–4. Appellant, thus, concludes that "the Examiner's stated motivation for combining Ushio and Wade is not commensurate with the true teachings of these references." *Id.* For the following reasons, we do not sustain this rejection.

The portion of Wade upon which the Examiner relies compares the inventive laser welded gasket to a gasket secured together with rivets or eyelets, and discloses that "[w]hile effective, the use of rivets or eyelets add to the cost and complexity of manufacturing gaskets." Wade, 1:44–46. Specifically, Wade discloses that the inventive "method eliminates the separate operation of joining the coated gasket layer and the other steel gasket layer by rivets or eyelets, thereby improving the efficiency of the manufacturing process and reducing the cost of the multi-layered steel gasket assembly." Wade, 2:1–5. Thus, although we appreciate that Wade "provides an improved method of manufacturing a multi-layered steel gasket assembly" (Wade, 1:64–66), the Examiner does not direct us to disclosure in Wade that suggests that laser welding improves the seal itself.

We, thus, do not sustain the obviousness rejection of claims 1, 4–10, 20, and 21 based on the Examiner's combination of Ushio, Wade, and Schmitz as the rejection is not supported by a rational underpinning. We also do not sustain the rejection of claims 2 and 3, which depend from claim 1, because the use of the Hamada disclosure in the rejection of claims 2 and 3 does not remedy the deficiency in the Examiner's reasons for combining Ushio, Wade, and Schmitz. However, for the following reasons, we enter a new ground of rejection against claims 1–10, 20, and 21.

*New Grounds of Rejection*

We exercise our discretion under 37 C.F.R. § 41.50(b) and enter new grounds of rejection against claims 1–10, 20, and 21 under 35 U.S.C. § 103 as unpatentable over Ushio, Wade, and Schmitz (claims 1, 4–10, 20, and 21) and Ushio, Wade, Schmitz, and Hamada (claims 2 and 3).

*Claims 1–7, 9, 10, and 20*

Ushio discloses a multi-layer gasket assembly, comprising a plurality of metal gasket layers 1, 2c, 2d having at least one set of axially aligned openings 4. Ushio, 4:36–46; Figs. 1 and 4. Ushio's plurality of gasket layers includes at least two functional layers 1, at least one distance layer 2d, and at least one stopper layer 2c. *Id.* at Fig. 4. Each of functional layers 1 has at least one embossment bead 8 spaced radially from openings 4. *Id.* The distance and stopper layers 2c, 2d are sandwiched between the functional layers 1. *Id.* The stopper and distance layers 2c, 2d are laser welded together (at 13) to define a weld joint. *Id.* at 4:46–49; Fig. 4. Although Ushio's stopper and distance layers are welded together, Ushio does not disclose a polymeric layer applied to at least a portion of an exterior surface thereof and the weld extending through the at least one stopper layer, the distance layer, and the polymeric coating.

Wade discloses "produc[ing] a weld 46 between the plurality of steel gasket layers 12, 14 with the at least one coating layer 16 of significantly higher electrical resistance disposed therebetween preventing an electrical ground between the plurality of steel gasket layers 12, 14." Wade, 2:60–64. Thus, Wade discloses a known method of welding two gasket layers to each other with predictable results of preventing an electrical ground between the welded gasket layers.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to dispose a coating layer between and extending through the welded layers of the gasket assembly of Ushio based on the improved welding method as taught by Wade. One of ordinary skill in the art would have been capable of applying this known technique to

Ushio's device that was ready for improvement and the results would have been predictable to one of ordinary skill in the art, i.e., preventing an electrical ground between welded gasket layers, in that both Ushio and Wade disclose laser welded steel gasket layers. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007) ("The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.").

As to Schmitz, Appellant argues that one of ordinary skill in the art would have understood Wade's disclosure of alternative materials (Wade, 3:54–59) "to mean that the coating layer may be made of any material which is known to be weldable with steel" and "the Examiner has not established that those skilled in the art . . . knew polymeric coatings to be weldable with steel." Reply Br. 2. We note that claim 1 recites that the "stopper and distance layers being laser welded together" and the weld joint extends through the stopper, layer distance layer, and polymeric coating. Claim 1 does not require that the polymeric coating be weldable to the stopper and distance layers only that the weld joint extends through, *inter alia*, the polymeric coating. Appellant's argument is, thus, not commensurate with the scope of claim 1.

Wade discloses a coating layer "disposed between a plurality of steel gasket layers" that has "electrical insulating properties." Wade, 1:30–37. Wade also discloses that a laser is "able to produce a weld 46 between the plurality of steel gasket layers 12, 14 with the at least one coating layer 16 of significantly higher electrical resistance disposed therebetween" that would not be able to be produced using traditional resistance welding. Wade, 2:48–63. Wade's weld 46, similar to Appellant's weld 50, is a joint weld

that extends through the coating layer to provide a weld at a point (*see* Wade, Fig. 2) when the coating layer has a "significantly higher electrical resistance." *Cf.* Spec., Fig. 2. Given that Wade discloses welding two steel layers even when a coating layer that electrically insulates the layers is formed between the layers, it would have been obvious to one of ordinary skill in the art at the time of the present invention, to use a polymer material as taught by Schmitz, i.e., a rubberized coating, as a suitable alternative material for a gasket coating. Schmitz ¶ 21, Fig. 2. The rubberized coating on the gasket performs the same function as in Wade, namely, a seal having electrically insulating properties between two engine members. One of ordinary skill in the art would have been capable of applying Schmitz's electrically insulating material to Ushio's device, as modified by Wade, that was ready for improvement and the results would have been predictable to one of ordinary skill in the art. Therefore, we enter a new ground of rejection against claim 1 under 35 U.S.C. § 103 as unpatentable over Ushio, Wade, and Schmitz.

As to dependent claims 2–7, 9, 10, and 20, which depend directly or indirectly from claim 1, we adopt as our own the Examiner's findings relative to claims 2–7, 9, 10, and 20 as outlined in the Final Action from which this appeal is taken, and which Appellant does not argue separately. Final Act. 2–5; Appeal Br. 11–12. Thus, claims 2–7, 9, 10, and 20 would have been obvious over the combined teachings of Ushio, Wade, and Schmitz, and claims 2 and 3 would have been obvious over the combined teachings of Ushio, Wade, Schmitz, and Hamada. We, thus, enter a new ground of rejection against claims 1–7, 9, 10, and 20.

*Claim 8*

Claim 8, which depends from claim 1, recites, *inter alia*, "wherein said half beads of said functional layers extend towards one another." The Examiner finds that Ushio's half beads 11a extends towards one another. Final Act. 4. Appellant contends that the Examiner did not show where any of Ushio, Wade, or Schmitz disclose "half beads that extend towards one another is found or why the Ushio/Wade/Schmitz combination would . . . have half beads which extend towards one another." Appeal Br. 11. Appellant's argument is not persuasive for the following reasons.

Ushio discloses that "the beads of the substrates [are] directed toward, and in abutment with each other." Ushio, 1:62–65. Ushio also discloses "a *stepwise* half bead line" 11a. Ushio, 3:57–58 (emphasis added). Ushio discloses to "concentrate the fastening pressure and avoid undesirable dislocation of the skirts of the beads out of predetermined position," by having the beads face each other. Ushio, 2:7–15. If the stepwise half beads of Ushio were directed away from each other, as Appellant contends is a possibility (*see* Reply Br. 4), the fastening pressure would be concentrated on the half beads, not on the facing beads consistent with Ushio's disclosure. Thus, one of ordinary skill in the art would understand that Ushio's disclosure that "the beads of the substrates are directed toward, and in abutment with each other" includes both the full beads and the half beads in order to "concentrate the fastening pressure and avoid undesirable dislocation of the skirts of the beads out of predetermined position." Accordingly, the Examiner's finding that Ushio's "half beads . . . extend towards one another" is supported by a preponderance of the evidence. Notwithstanding the foregoing, due to the dependency of claim 8 from claim

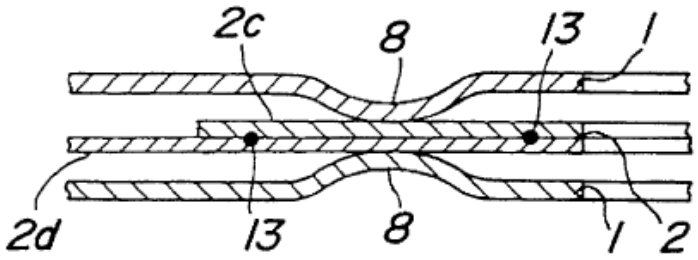
1, we reverse the rejection of claim 8 and enter a new ground of rejection against claim 8 for the same reasons stated in connection with claim 1.

*Claim 21*

Claim 21 depends from claim 1 and recites, *inter alia*, "wherein said polymeric coating extends along a full distance from an inner periphery of said stopper layer to an outer periphery of said stopper layer." The Examiner finds that in the combination the "polymeric coating (16 of Wade) extends along a full distance from an inner periphery of said stopper layer 2c to an outer periphery of said stopper layer." Final Act. 5. Appellant contends that "if one [of ordinary skill] in the art were looking to modify the Ushio gasket assembly to include the molybdenum coating taught in Wade, the natural location to place the coating would be between the functional layer and the distance layer. If this were to be done . . . the coating would not" meet the requirement of claim 21 to extend along a full distance from an inner periphery of said stopper layer to an outer periphery of said stopper layer." Appeal Br. 13. Appellant's argument is not persuasive for the following reasons.

In the rejection of claim 1, the distance and stopper layers of Ushio are modified to include the coating of Wade. Appellant does not dispute that layer 2c of Ushio is a stopper layer and that layer 2d of Ushio is a distance layer, as seen in Figure 4 of Ushio, reproduced below.

FIG_4




Ushio's Figure 4 is a sectional view showing an embodiment of a metal gasket assembly. Ushio, 3:22–23.

Ushio's Figure 4 depicts stopper layer 2c and distance layer 2d welded at 13. The modification of Ushio is to add a coating layer between the welded layers as per Figure 2 of Wade, which is reproduced below.

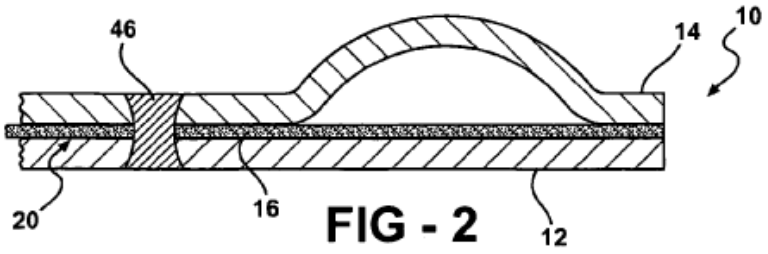



FIG - 2

Wade's Figure 2 is a fragmentary cross sectional view of a multi-layered steel gasket assembly. Wade, 2:16–17.

Specifically, the modification provides Ushio's gasket with a coating layer consistent with the teachings of Wade so that a laser weld extends through the coating layer. Given that Ushio teaches weld 13 extending between the stopper layer and the distance layer, and Wade discloses "welding the plurality of steel gasket layers 12, 14 together with a laser, wherein a weld 46 extends through the at least one coating layer 16 disposed therebetween," we agree with the Examiner that the combination of

references teaches a coating between the stopper layer and the distance layer. Wade, 2:55–57.

Moreover, given that Wade discloses "applying the at least one coating layer 16 of the material to at least one surface 18 of at least one of the plurality of steel gasket layers 12, 14 to provide at least one coated gasket layer generally indicated at 20" (Wade, 2:40–44; Fig. 1), the Examiner's finding that the coating of the combination of references extends along a full distance from an inner periphery of said stopper layer to an outer periphery of said stopper layer, as required by claim 21, is supported by a preponderance of the evidence. Notwithstanding the foregoing, due to the dependency of claim 21 from claim 1, we reverse the rejection of claim 21 and enter a new ground of rejection against claim 21 for the same reasons stated in connection with claim 1.

## CONCLUSION

The Examiner's rejection of claims 1, 4–10, 20, and 21 under 35 U.S.C. § 103 as unpatentable over Ushio, Wade, and Schmitz is reversed.

The Examiner's rejection of claims 2 and 3 under 35 U.S.C. § 103 as unpatentable over Ushio, Wade, Schmitz, and Hamada is reversed.

We enter a new ground of rejection against claims 1–10, 20, and 21 under 35 U.S.C. § 103.

DECISION SUMMARY

In summary:

| Claims Rejected | 35 U.S.C. § | Reference(s)/Basis | Affirmed | Reversed | New Ground |
|---|---|---|---|---|---|
| 1, 4–10, 20, 21 | 103 | Ushio, Wade, Schmitz | | 1, 4–10, 20, 21 | |
| 2, 3 | 103 | Ushio, Wade, Schmitz, Hamada | | 2, 3 | |
| 1, 4–10, 20, 21 | 103 | Ushio, Wade, Schmitz | | | 1, 4–10, 20, 21 |
| 2, 3 | 103 | Ushio, Wade, Schmitz, Hamada | | | 2, 3 |
| **Overall Outcome** | | | | 1–10, 20, 21 | 1–10, 20, 21 |

TIME PERIOD FOR RESPONSE

This decision contains new grounds of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> (1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. The new ground of rejection is binding upon the Examiner unless an amendment or new Evidence not previously of Record is made which, in the opinion of the examiner, overcomes the new ground of rejection designated in this decision. Should the examiner reject the

> claims, [Appellant] may again appeal to the Board pursuant to this subpart.
>
> (2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of rejection and also state all other grounds upon which rehearing is sought.

Further guidance on responding to new grounds of rejection can be found in the Manual of Patent Examining Procedure § 1214.01.

REVERSED; 37 C.F.R. § 41.50(b)