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EXAMINER	
DECKER, PHILLIP	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JEFFREY R. ROWLAND

Appeal 2019-001620
Application 14/293,295
Technology Center 3700

Before BENJAMIN D. M. WOOD, ANNETTE R. REIMERS, and LEE L. STEPINA, *Administrative Patent Judges.*

STEPINA, *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 1–5 and 7–10. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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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 Ford Global Technologies, LLC. Appeal Br. 1.

CLAIMED SUBJECT MATTER

The claims are directed to air extractor systems for vehicle cabins for reducing outside noise propagation into the vehicle cabin through an air extractor. Spec. 1:16–18.

Claim 1, reproduced below, is illustrative of the claimed subject matter.

> 1. A vehicle body with a passenger cabin, comprising:
> an exterior body panel with an air extractor aperture; and
> a molded interior trim panel mounted to the body panel defining a planar laterally extending chamber, wherein the trim panel has an air passage fluidically coupling the chamber with the passenger cabin, wherein the air passage is laterally separated from a footprint region of the trim panel which is aligned with the air extractor aperture, and wherein the footprint region has an integrally-molded undulating surface on a side facing the air extractor aperture and wherein the undulating surface extends laterally outside the footprint region to attenuate noise that spreads laterally through the chamber from the air extractor aperture to the air passage.

Appeal Br. 7 (Claims App.).

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Steward	US 4,781,774	Nov. 1, 1988
Wittenmayer	US 5,153,388	Oct. 6, 1992
Gac (“Gac ’045”)	US 6,106,045	Aug. 22, 2000
Gac (“Gac ’677”)	US 6,116,677	Sept. 12, 2000
Albin, Jr.	US 7,182,172 B2	Feb. 27, 2007
McCarthy	US 2013/0267159 A1	Oct. 10, 2013
Hopkins	GB 2 292 786 A	Mar. 6, 1996

REJECTIONS

I. Claims 1, 2, 8, and 10 are rejected under 35 U.S.C. § 103(a) as unpatentable over Gac ’677, Hopkins, and Gac ’045.

II. Claims 3 and 4 are rejected under 35 U.S.C. § 103(a) as unpatentable over Gac ’677, Hopkins, Gac ’045, and Albin.

III. Claim 5 is rejected under 35 U.S.C. § 103(a) as unpatentable over Gac ’677, Hopkins, Gac ’045, Albin, and Wittenmayer.

IV. Claim 7 is rejected under 35 U.S.C. § 103(a) as unpatentable over Gac ’677, Hopkins, Gac ’045, and Steward.

V. Claim 9 is rejected under 35 U.S.C. § 103(a) as unpatentable over Gac ’677, Hopkins, Gac ’045, and McCarthy.

OPINION

Rejection I– Gac ’677, Hopkins, and Gac ’045 (1, 2, 8, and 10)

The Examiner finds that Gac ’677 discloses many of the elements recited in independent claim 1, including an air extractor aperture (exhauster 20) and a molded interior trim panel (panel assembly 35). Final Act. 3.

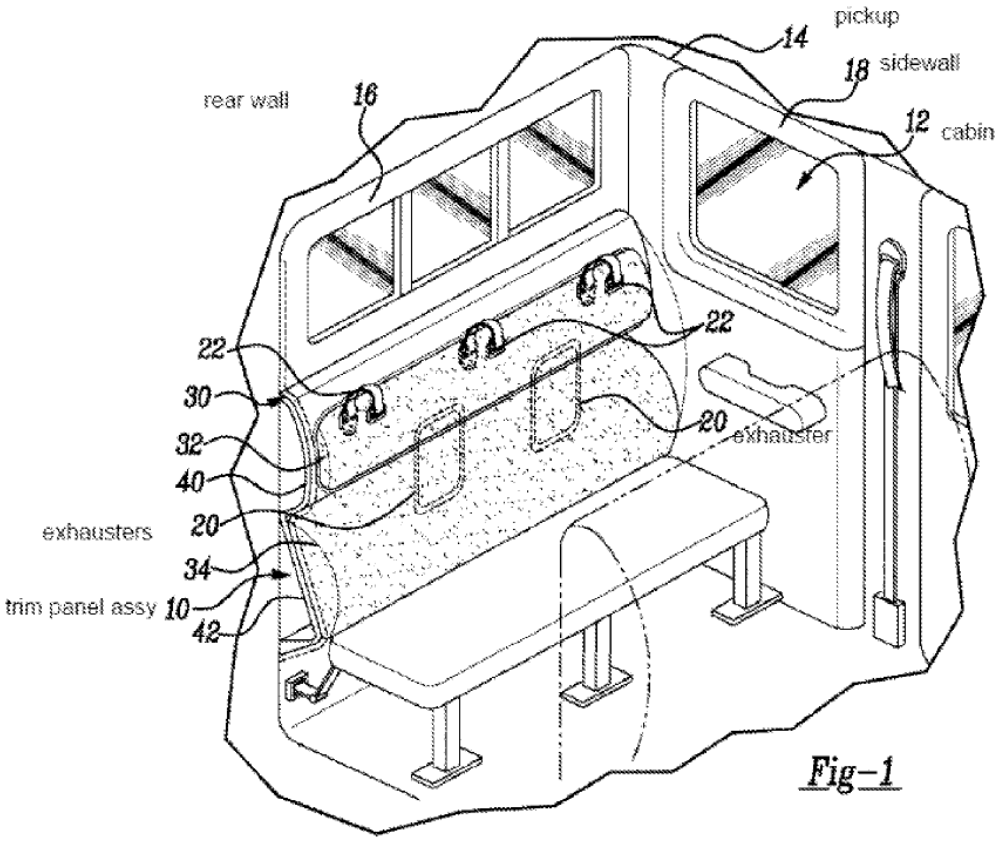
However, the Examiner finds Gac ’677 “does not explicitly disclose the trim panel is a molded interior trim panel; and the surface has an integrally-molded undulating surface.” Final Act. 3 (emphasis omitted). Addressing these deficiencies, the Examiner finds (i) Hopkins teaches a surface structure with an undulating surface, and (ii) Gac ’045 discloses a vehicle interior trim panel that is molded. *Id.* at 4 (citing Hopkins, Fig. 1; Gac ’045 3:42–43, 56–58, Fig. 4). The Examiner reasons that, in light of the teachings in Hopkins, a person of ordinary skill in the art would have found it obvious to modify the flat panel disclosed by Gac ’677 such that its

surface includes undulations because this would disperse sound energy to a greater extent than a flat surface could. *Id.*

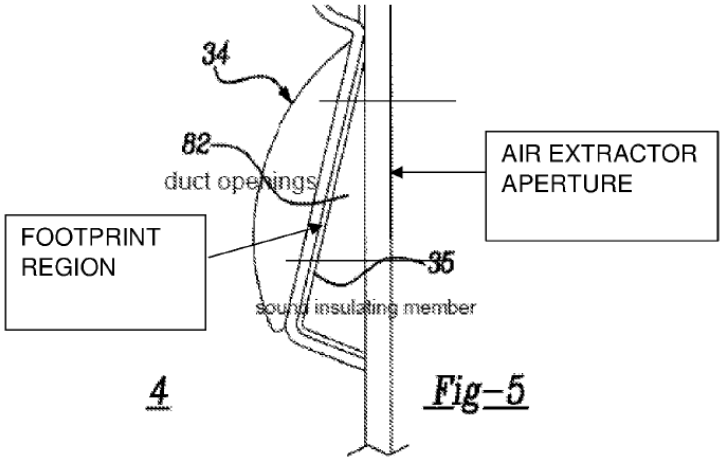
Appellant argues "Gac '677 attenuates sound passing through the trim panel but fails to address the sound energy *spreading laterally* within the ducts to reach the opening of the air passage." Appeal Br. 3 (emphasis added). Appellant contrasts this arrangement with the claimed invention, where, according to Appellant, "the undulating surface is exposed to the chamber carrying the noise, so that sound reflection paths are broken up resulting in a reduction of the laterally spreading sound energy." *Id.* In other words, Appellant asserts that "[s]ince the insulating sheet of [Gac '677] is smooth, it does not have the same impact on noise that spreads along the chamber as does the undulating surface of claim 1." *Id.* at 4.

Appellant addresses the combination of the teachings of Gac '677 and Hopkins, stating, "[t]he addition of Hopkins fails to strengthen the rejection since the sheet material in Hopkins is disclosed as being used with the corrugated surface facing *inwards* (i.e., against the duct to which it is attached)." Appeal Br. 3 (emphasis added). Appellant argues that Gac '677, Hopkins, and Gac '045 "reduce the sound penetration *through* the interior panel. However, nothing in the combined references addresses the sound field *spreading from* the footprint region." *Id.* (emphases added).

In response, the Examiner notes that trim panel assembly 10 of Gac '677 (which holds insulating member 35) is larger, in both the vertical and horizontal directions, than exhausters 20. Ans. 5, 8. The Examiner provides annotated copies of Figures 1 and 5 of Gac '677 to illustrate this point (*id.* at 5, 7), and we reproduce these figures below.



Annotated Figure 1 of Gac ’677 is a perspective view of the interior of the back of a passenger cabin of a truck depicting exhausters 20 and much larger trim panel assembly 10 (on which insulating member 35 is located). *See* Ans. 5; Gac ’677 5: 44–45, 3:26–29.



Annotated Figure 5 of Gac ’677 is a partial cross-section of a trim panel assembly 10 depicting insulating member 35, and, via two unlabeled

horizontal lines added by the Examiner, the Examiner's finding as to where opening of exhauster 20 is situated with respect to panel assembly 10 (i.e., the "footprint" section of the trim panel which is aligned with the air extractor). *See* Ans. 7; Gac '677 2:56–57. Annotated Figure 5 also depicts duct opening 82 (facing out of the page) at the end of panel assembly 10. *See also* Gac '677, Fig. 3 (depicting duct openings 82 at the far left and right ends of trim panel 10).

The Examiner finds that, given the arrangement depicted in Figure 1 of Gac '677, a person of ordinary skill in the art would understand that sound entering the space between panel assembly 10 and exhauster 20 would "bounce between the rear wall and the sound attenuating member 35 several times," thus reducing the level of the noise exiting openings 82. Ans. 8. Therefore, according to the Examiner, Appellant's contention that Gac '677 fails to address the sound energy *spreading laterally* within the ducts to reach the opening of the air passage is incorrect. *Id.* at 8–9.

In any event, the Examiner notes that the rejection is based on the combination of Gac '677, Hopkins, and Gac '045, and Hopkins is relied upon to teach an undulating, sound-absorbing surface. Ans. 9.

As for Appellant's contention that the undulating, sound-absorbing surface in Hopkins is directed *inwards* (i.e., against the duct to which it is attached) (Appeal Br. 3), the Examiner states, "Hopkins is used only to modify the surface of the Gac '677 insulating member 35 on a side facing the air extractor aperture to have an *undulating* surface. The Examiner does not rely on Hopkins for its position relative to a duct as suggested by Appellant." Ans. 9.

In reply, Appellant argues, "[t]he claimed invention distinguishes from the combination of references in providing the undulating surface at the

particularly recited location," and "[t]he prior art specifically lacks this structural limitation since the prior art surfaces of the laterally extending chamber from the air extractor aperture to the air passage is smooth. The smooth surfaces cannot provide the same enhancement of noise attenuation as achieved by the claimed structure." Reply Br. 1–2.

We agree with the Examiner that (i) the arrangement disclosed by Gac '677 would attenuate noise that spreads laterally through the chamber from the air extractor aperture to the air passage, and (ii) a person of ordinary skill in the art would have found it obvious to make the sound-absorbing surface, which is already disclosed by Gac '677, an undulating surface, thereby enhancing sound absorption. Gac '677 teaches that "sound-insulating member **35** extends along the entire length of support structure **30** to facilitate air exchange with exhausters **20**." Gac '677 4:58–60. As shown in Figures 1 and 4 of Gac '677, sound-insulating member 35 overlaps exhausters 20 and creates a long, narrow channel through which air that enters via duct openings 82 may travel and exit via exhausters 20. *Id.* at 3:5–15, 4:58–5:5. Describing the arrangement shown in Figure 3, Gac '677 states, "[t]his arrangement enables sound-insulating member **35** to absorb and insulate sound enter in through exhausters **20**, thereby minimizing the introduction of sound into the passenger cabin **12**." *Id.* at 4:55–58. Thus, given the overlap between sound-insulating member 35 and exhausters 20, a person of ordinary skill in the art would understand that some energy of any sound entering via exhausters 20 would necessarily be absorbed by sound-insulating member 35. A person of ordinary skill in the art would also understand that the acoustic barrier, modified to include undulations (corrugations in two directions) as disclosed by Hopkins, would improve sound absorption. I.e., the Examiner's proposed modification to the sound-

insulating member 35 of Gac ’677 merely enhances a function that this component already performs.

As for Appellant’s contention that Hopkins positions its acoustic barrier facing inwards such that “transferring the sheet material from Hopkins to [Gac ’677] would still result in the surface presented to the chamber with the lateral noise spreading being smooth,” (Appeal Br. 4), this argument fails for the following reasons. Appellant’s argument relies on the acoustic sheet disclosed by Hopkins being bodily incorporated into the arrangement disclosed by Gac ’677. However, the Examiner relies on the general teaching that an undulated surface, such as that disclosed by Hopkins, enhances sound absorption.[2] *See* Final Act. 3–4; *see also* Ans. 8–9. The Examiner’s rejection need not directly physically substitute the acoustic sheet of Hopkins, along with any associated positioning or connections, into Gac ’677’s arrangement. *See In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012).

Furthermore, Hopkins states, “[t]he illustrated acoustic sheet material can readily be bent and folded, corrugated face inwards, *around noisy ducting* or other items to be covered, without risk of the foam layer cracking or tearing.” Hopkins 2:31–3:1 (emphasis added). Thus, considering that Hopkins intends the corrugated surface to be directed *toward the source of noise*, which is the same orientation as what is proposed in the Examiner’s rejection, Appellant’s argument based on a bodily incorporation of the acoustic sheet of Hopkins is without merit.

[2] Appellant does not dispute that an undulating surface improves sound absorption relative to a smooth surface.

In the Reply Brief, Appellant argues, for the first time, that the Examiner provides an inadequate rationale for combining Gac '677 and Hopkins such that the resultant undulating surface would face the air extractor aperture. Reply Br. 2. This argument fails to apprise us of Examiner error inasmuch as the sound-insulating member 35 of Gac '677 is already in this location (*see* Gac '677 4:58–60, Fig. 4), and the Examiner's proposed modification merely changes the surface of the sound-insulating member 35 of Gac '677 from smooth to undulated, as taught by Hopkins (*see* Hopkins 2:31–33; Final Act. 4), to enhance sound absorption. Providing the undulations on the surface facing the exhauster 20 in Gac '677, rather than away from exhauster 20, is in accordance with the Examiner's stated rationale as well as in accordance with how Hopkins uses its sheet material where the corrugated surface faces inwards (toward the source of noise).

We have considered all of Appellant's arguments in support of the patentability of claim 1, but find them unavailing. Accordingly, we sustain the rejection of claim 1. Appellant makes no additional arguments for claims 2, 8, and 10, which depend from claim 1. Appeal Br. 4. Accordingly, claims 2, 8, and 10 fall with claim 1.

Rejections II–V– Gac '677, Hopkins, Gac '045, Albin, Wittenmayer, Steward, and McCarthy (claims 3–5, 7, and 9)

Appellant does not make arguments for the patentability of claims 3–5, 7, and 9 aside from those discussed above regarding claim 1. *See* Appeal Br. 2–6. Accordingly, for the same reasons, we sustain the rejection of claims 3–5, 7, and 9 (Rejections II–V).

CONCLUSION

The Examiner's rejections are affirmed.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
1, 2, 8, 10	103(a)	Gac ’677, Hopkins, Gac ’045	1, 2, 8, 10	
3, 4	103(a)	Gac ’677, Hopkins, Gac ’045, Albin	3, 4	
5	103(a)	Gac ’677, Hopkins, Gac ’045, Albin, Wittenmayer	5	
7	103(a)	Gac ’677, Hopkins, Gac ’045, Steward	7	
9	103(a)	Gac ’677, Hopkins, Gac ’045, McCarthy	9	
Overall Outcome			1–5, 7–10	

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

AFFIRMED