

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

AUTOLIV ASP, INC.,
Appellant

v.

**HYUNDAI MOBIS CO., LTD, MOBIS ALABAMA,
L.L.C.,**
Appellees

2016-1895

Appeal from United States Patent and Trademark Office, Patent Trial and Appeal Board in Inter Partes Review No. IPR2014-01006.

Decided: April 24, 2017

WESLEY ACHEY, Alston & Bird LLP, Atlanta, GA, argued for appellant. Also represented by KEITH E. BROYLES, PAMELA H. COUNCILL.

PAUL WHITFIELD HUGHES, Mayer Brown LLP, Washington, DC, argued for appellees. Also represented by ANDREW JOHN PINCUS, JONATHAN WEINBERG.

Before O'MALLEY, WALLACH, and HUGHES, *Circuit Judges*.

HUGHES, *Circuit Judge*.

Autoliv ASP, Inc. appeals from a final decision of the Patent Trial and Appeal Board finding that claims 1–3, 6, 20–22, 25–30, 33–37, and 40 of U.S. Patent No. 7,614,653 are obvious in light of the prior art. Because substantial evidence does not support the Board's conclusion as to claims 26–27, 33–37, and 40, we reverse-in-part and affirm-in-part.

I

Autoliv owns the '653 patent, titled "Pre-Folded Airbag Cushion with Optional Venting for Out-of-Position Conditions." Airbags are well-known safety instruments that are used to protect a front-seat passenger in the case of a car accident. If the passenger is sitting in the correct position and wearing her seatbelt, the airbag fully deploys and the occupant only contacts the airbag after full inflation. But an occupant who is out of position (e.g., a child, a baby in a rear-facing car seat, or an adult leaning forward) may contact an airbag as it is rapidly inflating at full force, leading to severe injury or death. The '653 patent discloses "an airbag cushion that responds to an occupant's position and vents accordingly to avoid excessive deploying impact." J.A. 58 at 3:5–7.

All of the '653 patent's claims include at least one selectively closeable vent that is designed to vent excess gas when an occupant is out of position. As depicted in Figures 2A–2C, the vent (150) is controlled by a cord (170) attached to a front portion of the airbag cushion, close to the occupant.

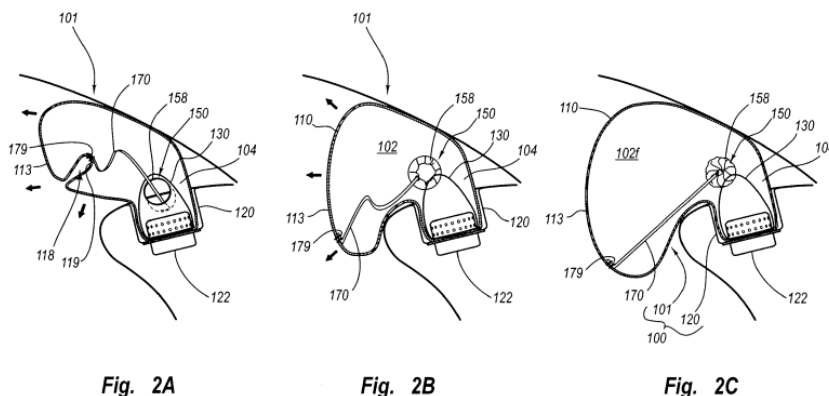


Fig. 2A

Fig. 2B

Fig. 2C

Under normal operation, as the airbag cushion inflates, the cord pulls taut and closes the vent. When the occupant is out of position, the cord remains slack and the closeable vent remains open, permitting rapid release of excess gas through the closeable vent.

Figures 3C and 4C illustrate the difference between normal and obstructed airbag deployment.

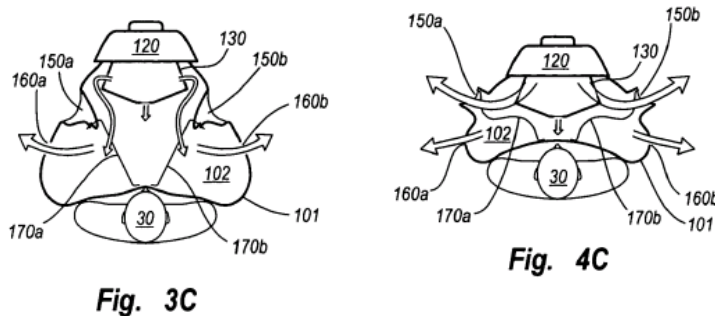


Fig. 3C

Fig. 4C

In Figure 3C, the occupant (30) is in proper position, allowing the cords (150a, 150b) to fully extend and close the closeable vents (160a, 160b). In Figure 4C, the occu-

pant is out of position, causing the cords to remain slack and air to escape from the closeable vents.

The Board found that claims 1–3, 6, 20–22, 25–30, 33–37, and 40 are obvious based on the prior art. Autoliv appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1) (2012).

II

We review the Board’s legal conclusions de novo and its factual findings for substantial evidence. *Rambus Inc. v. Rea*, 731 F.3d 1248, 1251 (Fed. Cir. 2013). Obviousness is a legal question based on underlying factual determinations. *Id.* at 1251–52.

A

On appeal, Autoliv first challenges the Board’s obviousness findings for claims 27, 34, and 40, which require a fixed vent (160) that is “adapted to vent gas during airbag deployment with and without obstruction.” J.A. 62 at 12:11–12. The specification states that the fixed vents provide “consistent venting” and “are not restricted by an occupant’s position.” J.A. 59 at 6:4–6.

The Board found that the “fixed vent” limitation is disclosed by Paragraph 70 of Tajima (Japanese Patent Pub. No. JP2003-137060). Paragraph 70 of Tajima describes how gas can be exhausted from the airbag’s fixed side vents even “when there is interference” with an out-of-position occupant. J.A. 669 at [0070]. Paragraph 71, however, explains that in some circumstances, interference can prevent the airbag folds from fully releasing. In this situation, the folds prevent “the gross opening” of the fixed side vents. J.A. 670 at [0071]. For this reason, Tajima also discloses an auxiliary vent located at the top of the airbag. J.A. 670 at [0072]. Mobis’s expert, Ms. Balavich, agreed that Tajima discloses a situation in which the fixed side vents are blocked “when the airbag is

deploying with obstruction.” J.A. 1444–46 at 414:12–414:10.

Nevertheless, the Board concluded that Paragraph 71 of Tajima only “discusses the disadvantage of an airbag having *only fixed vents*, without a closeable vent.” J.A. 31 (emphasis in original). Substantial evidence does not support this conclusion. Paragraph 71 explains that the auxiliary vent is needed precisely because the fixed side vents may fail to vent during obstructed deployment. The addition of the auxiliary vent does not overcome the deficiency in the fixed side vents, i.e., that they may not cease venting when obstructed.

Further, Ms. Balavich agreed with Autoliv’s interpretation of Paragraph 71, and no evidence suggests an alternative reading of the passage. Because Tajima’s fixed vents do not “provide consistent venting” that is “not restricted by an occupant’s position,” the Board erred in finding that Tajima discloses the claimed “fixed vents” limitation.

B

Autoliv also challenges the Board’s obviousness findings as to claims 26, 33, 35–37, and 40, which recite a diffuser (130) that is “configured to re-direct inflation gas to the closeable vent from an inflator such that the gas rapidly exits the inflatable airbag cushion via the closeable vent when deployment of the airbag is obstructed.” J.A. 62 at 12:6–9.

Autoliv argues that the principles of fluid dynamics require the claimed diffuser to have a specific configuration relative to the closeable vents. The Board instead found that “[n]othing in the claims requires the gas flows *directly in a straight path* from the diffuser to the closeable vents, much less requires a particular location of the closeable vents. . . .” J.A. 34 (emphasis in original). We agree. The ’653 patent’s claimed diffuser requires only

that the diffuser enables gas to rapidly exit via the closeable side vents. The Board correctly rejected Autoliv's attempt to import limitations from a preferred embodiment into the claims.

We disagree, however, with the Board's conclusion that Tajima discloses the claimed diffuser. Tajima's diffuser redirects "the gas flow to the left and right sides of the airbag." J.A. 35. The side vents, however, are "separated from the vicinity of [the diffuser] in order to prevent the destruction thereof after the complete expansion of the airbag. . . ." J.A. 670 at [0071]. This suggests that Tajima's diffuser does not direct gas to rapidly exit the side vents, as required by the '653 patent. Rather, Tajima focuses on redistributing gas to ensure smooth deployment of the airbag. J.A. 667 at [0035]; J.A. 669 at [0070]. Thus, the record does not contain substantial evidence showing that Tajima's diffuser redirects gas to rapidly exit the side vents, or that a person of ordinary skill in the art would have altered Tajima's diffuser to obtain this claimed result. Therefore, the Board erred in finding the "diffuser" limitation obvious.

C

Finally, Autoliv challenges the Board's obviousness decision as to claims 1–3, 6, 20–22, 25, and 28–30, which recite a releasable temporary holding feature that holds the folds of the airbag cushion membrane in place before deployment. J.A. 61 at 10:23–26. The Board adopted Autoliv's proposed construction for a "releasable temporary holding feature," finding that it is "a device with sufficient structure for holding a fold of the airbag cushion in place during shipping, handling, and storing, until the airbag is deployed and inflated." J.A. 10.

Autoliv does not contest the Board's construction, but nonetheless argues that "the releasable temporary holding feature is understood in the specification as creating a temporary bond between two portions of an airbag's

‘cushion membrane’ in order to create a fold.” Appellant’s Br. at 38. Autoliv cannot seek to narrow the application of its preferred construction at this stage. The Board found that “[n]othing in the claims requires the releasable temporary holding feature to be directly on the particular fold” and “decline[d] to import improperly a limitation from a preferred embodiment into the claims.” J.A. 26–27. The Board did not err in reaching this conclusion. The claims require only that the releasable temporary holding feature hold the airbag fold in place.

Based on the Board’s claim construction, the prior art references disclose this claim limitation. The airbag case disclosed in Inoue (JP Patent Pub. No. H05-85295) holds the folds in the airbag cushion in place. J.A. 592 at [0016]–[0017]; J.A. 597 at Fig. 3. Pinsenschaum (U.S. Patent Pub. No. 2004/0012179) and Wolanin (U.S. Patent No. 5,280,953) disclose using releasable stitching to ensure the closable vents remain open until deployment. J.A. 622 at [0055]–[0059]; J.A. 633 at 3:6–21. Substantial evidence supports the Board’s conclusion that “it would have been obvious to apply the releasable stitching of Pinsenschaum or Wolanin to the fold in Inoue’s airbag cushion. . . .” J.A. 23. The evidence also supports the Board’s finding that Seymour (U.S. Patent No. 5,772,239) would encourage this substitution. Seymour discloses holding a folded airbag in place with a fabric envelope that has tear tabs or a tear seam. J.A. 660 at 3:59–4:12. Both tear tabs and a tear seam are releasable temporary holding features. Seymour also explains that using a fabric envelope with tear tabs or a tear seam results in a smaller, lighter, more cost-effective airbag module. J.A. 659 at 2:9–15; 2:42–48. The Board did not err in finding this limitation disclosed by the prior art.

III

Because substantial evidence does not support the Board’s finding that Tajima renders obvious the “fixed

vent” and “diffuser” limitations, we reverse the Board’s obviousness findings as to claims 26–27, 33–37, and 40. Because the prior art discloses the “releasable temporary holding feature,” we affirm the Board’s decision with regards to claims 1–3, 6, 20–22, 25, and 28–30.

AFFIRMED-IN-PART AND REVERSED-IN PART

No costs.