

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AUTOLIV ASP, INC.; NIHON PLAST CO., LTD.;
NEATON AUTO PRODUCTS MANUFACTURING, INC.;
TAKATA CORPORATION; TK HOLDINGS INC.;
TOYODA GOSEI CO., LTD.; HYUNDAI MOBIS CO., LTD.;
MOBIS ALABAMA, LLC; and MOBIS PARTS AMERICA, LLC,
Petitioner,

v.

AMERICAN VEHICULAR SCIENCES, LLC,
Patent Owner.

Case IPR2016-01794
Patent 9,043,093 B2

Before TREVOR M. JEFFERSON, JENNIFER MEYER CHAGNON, and
SCOTT C. MOORE, *Administrative Patent Judges*.

CHAGNON, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Toyoda Gosei Co., Ltd.; Autoliv ASP, Inc.; Nihon Plast Co., Ltd.; Neaton Auto Products Manufacturing, Inc.; Takata Corporation; TK Holdings Inc.; Hyundai Mobis Co., Ltd.; Mobis Alabama, LLC; and Mobis Parts America, LLC (collectively, “Petitioner”)¹ filed a Petition for *inter partes* review of claims 1–44 (“the challenged claims”) of U.S. Patent No. 9,043,093 B2 (Ex. 1001, “the ’093 patent”). Paper 1 (“Pet.”). Petitioner relies on the Declaration of Stephen W. Rouhana, Ph.D. (Ex. 1003) to support its positions. American Vehicular Sciences, LLC (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Patent Owner submits a Declaration of Michael Nranian P.E. (Ex. 2008) in support of its positions.

We have authority to determine whether to institute *inter partes* review. *See* 35 U.S.C. § 314(b); 37 C.F.R. § 42.4(a). Upon consideration of the Petition and the Preliminary Response, and for the reasons explained below, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail with respect to all of the challenged claims. *See* 35 U.S.C. § 314(a). Accordingly, we institute trial as to claims 1–44 of the ’093 patent.

A. Related Proceedings

The parties indicate that the ’093 patent is the subject of the following ongoing district court proceedings: *Am. Vehicular Scis. LLC v. Hyundai Motor Co.*, No. 5:16-cv-11529-JEL-APP (E.D. Mich.); *Am. Vehicular Scis. LLC v. Nissan Motor Co.*, No. 5:16-cv-11530-JEL-APP (E.D. Mich.); *Am.*

¹ Petitioner identifies Toyoda Gosei North America Corp.; Autoliv, Inc.; and Mobis America, Inc. as additional real parties-in-interest. Pet. 1.

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Vehicular Scis., LLC v. Toyota Motor Corp., No. 5:16-cv-11531-JEL-APP (E.D. Mich.); and *Am. Vehicular Scis., LLC v. Am. Honda Motor Co.*, No. 5:16-cv-11532-JEL-APP (E.D. Mich.). Paper 5, 2; Pet. 1–2. Petitioner also challenges claims 1–44 of the '093 patent in IPR2016-01790.

B. The '093 Patent

The '093 patent is titled “Single Side Curtain Airbag for Vehicles,” and was filed as U.S. application No. 11/930,330 on October 31, 2007. Ex. 1001, at [21], [22], [54]. The '093 patent claims priority, via a chain of continuation-in-part and divisional applications, to U.S. application No. 08/571,247 (“the '247 application”), filed on December 12, 1995.² *Id.* at [60].

The '093 patent relates to an airbag system for a vehicle, in which “the airbag for the front and rear seats are combined, i.e., the airbag deploys along substantially the entire side of the vehicle alongside both the front seat and the rear seat.” *Id.* at 65:29–32. According to the '093 patent, this “results in significantly greater protection in side impacts when the windows are broken.” *Id.* at 65:32–34. Further, the airbag system of the '093 patent utilizes a single gas-providing system with only one inflator to inflate the airbag. *Id.* at 187:3–6. The airbag also includes a plurality of compartments in flow communication with each other. *See, e.g., id.* at 169:27–33. As described in the '093 patent, the compartments allow the airbag to be formed of the desired shape, while minimizing stress concentrations, as well as the weight of the airbag. *Id.* at 81:14–19.

² As discussed in more detail *supra* (see Section II.A), the parties dispute the priority date to which the claims of the '093 patent are entitled.

C. Illustrative Claim

Of the challenged claims, claims 1, 22, 26, 29, 36–39, and 41–43 are independent. Claims 2–21 and 33–35 depend, directly or indirectly, from claim 1; claims 23–25 depend from claim 22; claims 27 and 28 depend from claim 26; claims 30–32 depend from claim 29; claim 40 depends from claim 39; and claim 44 depends from claim 43. Claim 1 of the '093 patent, reproduced below, is illustrative of the challenged claims.

1. An airbag system of a vehicle, the airbag system comprising:

a single airbag extending across at least two seating positions of a passenger compartment of a vehicle, the single airbag arranged to deploy into the passenger compartment along a lateral side of the vehicle and adjacent each of the at least two seating positions;

a cover interposed between the single airbag and the passenger compartment to cover the single airbag prior to deployment;

a single gas-providing system that has only one inflator that provides gas to inflate the single airbag and which is arranged apart from the single airbag; and

a conduit leading from the single gas-providing system to provide gas to inflate the single airbag, the conduit being arranged to deliver the gas from the single gas-providing system into the single airbag;

the at least two seating positions comprising a first seating position in a first seat row of seats of the vehicle and a second seating position in a second seat row of seats of the vehicle longitudinally displaced from the first seat row of seats, along the lateral side of the vehicle;

wherein the single airbag has a plurality of compartments for receiving the gas, and wherein the plurality of compartments are in flow communication with each other.

Ex. 1001, 186:61–187:18.

D. The Applied References and Evidence

Petitioner relies on the following references in the asserted grounds.

Pet. 5–6.

Reference	Date	Exhibit No.
U.S. Patent No. 5,788,270 (“Håland”)	Aug. 4, 1998	Ex. 1008
U.S. Patent No. 5,957,487 (“Stütz”)	Sept. 28, 1999	Ex. 1009
U.S. Patent No. 6,176,518 (“Faigle”)	Jan. 23, 2001	Ex. 1010
U.S. Patent No. 5,540,459 (“Daniel”)	July 30, 1996	Ex. 1011
U.S. Patent No. 5,222,761 (“Kaji”)	June 29, 1993	Ex. 1012
U.S. Patent No. 5,524,924 (“Steffens”)	June 11, 1996	Ex. 1013
U.S. Patent No. 5,269,561 (“Davis”)	Dec. 14, 1993	Ex. 1014
U.S. Patent No. 3,966,225 (“Marlow”)	June 29, 1976	Ex. 1015
U.S. Patent No. 5,507,890 (“Swann”)	Apr. 16, 1996	Ex. 1016
U.S. Patent No. 4,021,058 (“Suzuki”)	May 3, 1977	Ex. 1017
U.S. Appl. Pub. 2002/0180192 (“Tanase”)	Dec. 5, 2002	Ex. 1018
U.S. Patent No. 5,845,935 (“Enders”)	Dec. 8, 1998	Ex. 1019

E. The Asserted Grounds

Petitioner sets forth its challenges to claims 1–44 as follows. Pet. 7, 32–85.

References	Basis	Claims Challenged
Håland and Stütz	§ 103	1, 10, 17–20, 26, 27, 36–40
Håland, Stütz, and Faigle	§ 103	2, 3
Håland and Daniel	§ 103	1, 4, 6, 8, 10, 17–20, 26, 27, 36–40
Håland, Stütz, and Kaji	§ 103	5, 7
Håland, Stütz, and Steffens	§ 103	9
Håland, Stütz, and Davis	§ 103	11, 28–32, 41
Håland, Stütz, and Swann	§ 103	16
Håland, Stütz, and Suzuki	§ 103	22, 24, 25



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