Rubber is Different than the Foams of Rabbe

149. Second, unlike the claimed floor trays, Rabbe's tray is designed to fold down and spring back after user-applied shear forces on the walls are removed. EX2024, 11:15-16 (describing that the tray's "*pliability*" makes handling and placement simple), 12:4-6 (describing folding the walls of Rabbe's trays). A POSITA would therefore recognize that one of the critical properties of Rabbe's floor tray is its elasticity, hence Rabbe's choice of semirigid rubber, an elastomer, to assemble its tray. If rubber isn't used, the substitute material must have this same property—elasticity—otherwise it could not perform its spring-back function. A POSITA would not look to foamed PE or EVA (or solid PE, for that matter) to emulate this elasticity.

Ex 2041, ¶ 149
Declaration of Dr. Tim Osswald

CITE: Paper 29 (POR-1139) at 55; Paper 28 (POR-1142) at 56

Reasonable Expectation of Success

Reasonable Expectation of Success– A Requirement to Prove Obviousness

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"It was IBS's burden to demonstrate both 'that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.'"

Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd., 821 F.3d 1359, 1367-68 (Fed. Cir. 2016)

CITE: Paper 28 (POR-1142) at 49, Paper 29 (POR-1139) at 48

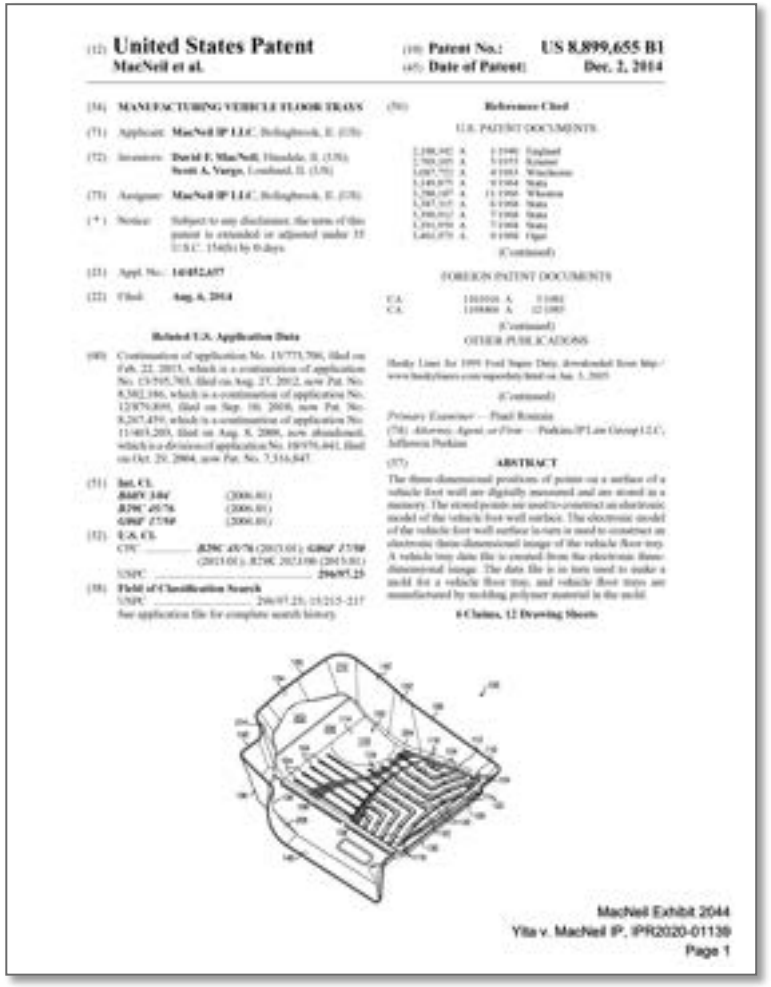
Reasonable Expectation of Success–Prior Art Molding Techniques

- Splash molding was inaccurate (Ex. 2043, ¶ 134)
- Difficult to mate with a carpeted surface (Ex. 2043, ¶ 134)
- Prior art trays did not fit well to complex curved surfaces (Ex. 2043, ¶ 134)
- Ray Sherman has over 35 years of experience in automotive accessories and worked for competitor Nifty Products when WeatherTech Floor Trays were introduced. Ex. 2043, ¶ 14 & 22.

CITE: Paper 28 (POR-1142) at 50, Paper 29 (POR-1139) at 48-49

Reasonable Expectation of Success– MacNeil has Multiple Patents on Manufacturing Floor Trays

US 8,899,655



(12) **United States Patent**
MacNeil et al.

(10) **Patent No.: US 8,899,655 B1**
(45) **Date of Patent: Dec. 2, 2014**

(54) **MANUFACTURING VEHICLE FLOOR TRAYS**

(71) Applicant: **MacNeil IP LLC**, Bolingbrook, IL (US)

(72) Inventors: **David F. MacNeil**, Hinsdale, IL (US); **Scott A. Yarger**, Lombard, IL (US)

(73) Assignee: **MacNeil IP LLC**, Bolingbrook, IL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/452,657**

(22) Filed: **Aug. 6, 2014**

Related U.S. Application Data

(60) Continuation of application No. 13/773,706, filed on Feb. 22, 2013, which is a continuation of application No. 13/595,703, filed on Aug. 27, 2012, now Pat. No. 8,382,186, which is a continuation of application No. 12/879,899, filed on Sep. 10, 2010, now Pat. No. 8,267,459, which is a continuation of application No. 11/463,205, filed on Aug. 8, 2006, now abandoned, which is a division of application No. 10/975,441, filed on Oct. 29, 2004, now Pat. No. 7,316,847.

(51) **Int. Cl.**
B60Y 1/04 (2006.01)
B29C 45/76 (2006.01)
G06F 17/50 (2006.01)

(52) **U.S. Cl.**
CPC **B29C 45/76** (2013.01); **G06F 17/50** (2013.01); B29C 2045/7606 (2013.01)
USPC **296/97.23**

(58) **Field of Classification Search**
USPC 296/97.23; 15/215-217
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

(Continued)

FOREIGN PATENT DOCUMENTS

(Continued)

OTHER PUBLICATIONS

(Continued)

Primary Examiner — Pinel Romain
(74) *Attorney, Agent, or Firm* — Perkins IP Law Group LLC; Jefferson Perkins

(57) **ABSTRACT**

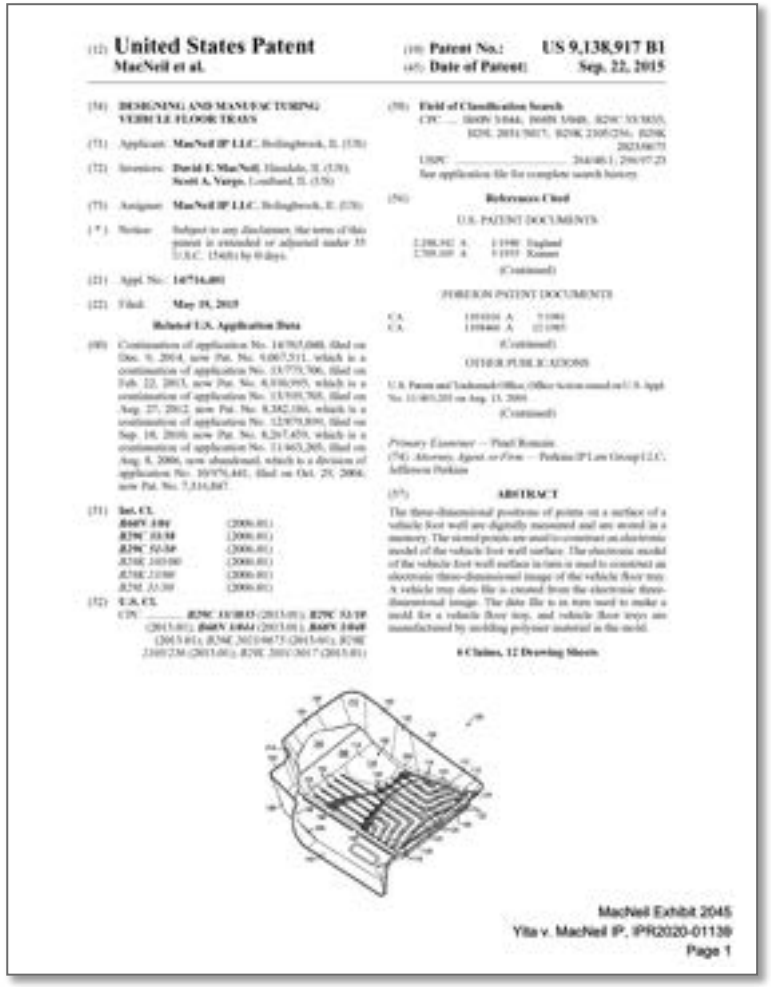
The three-dimensional positions of points on a surface of a vehicle foot well are digitally measured and are stored in a memory. The stored points are used to construct an electronic model of the vehicle foot well surface. The electronic model of the vehicle foot well surface in turn is used to construct an electronic three-dimensional image of the vehicle floor tray. A vehicle tray data file is created from the electronic three-dimensional image. The data file is in turn used to make a mold for a vehicle floor tray, and vehicle floor trays are manufactured by molding polymer material in the mold.

6 Claims, 12 Drawing Sheets

MacNeil Exhibit 2044
Yita v. MacNeil IP, IPR2020-01139
Page 1

Ex. 2044 at p. 1

US 9,138,917



(12) **United States Patent**
MacNeil et al.

(10) **Patent No.: US 9,138,917 B1**
(45) **Date of Patent: Sep. 22, 2015**

(54) **DESIGNING AND MANUFACTURING VEHICLE FLOOR TRAYS**

(71) Applicant: **MacNeil IP LLC**, Bolingbrook, IL (US)

(72) Inventors: **David F. MacNeil**, Hinsdale, IL (US); **Scott A. Yarger**, Lombard, IL (US)

(73) Assignee: **MacNeil IP LLC**, Bolingbrook, IL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/714,401**

(22) Filed: **May 19, 2015**

Related U.S. Application Data

(60) Continuation of application No. 14/065,048, filed on Dec. 9, 2014, now Pat. No. 9,067,511, which is a continuation of application No. 13/773,706, filed on Feb. 22, 2013, now Pat. No. 8,938,995, which is a continuation of application No. 13/595,703, filed on Aug. 27, 2012, now Pat. No. 8,382,186, which is a continuation of application No. 12/879,899, filed on Sep. 10, 2010, now Pat. No. 8,267,459, which is a continuation of application No. 11/463,205, filed on Aug. 8, 2006, now abandoned, which is a division of application No. 10/975,441, filed on Oct. 29, 2004, now Pat. No. 7,316,847.

(51) **Int. Cl.**
B60Y 1/04 (2006.01)
B29C 33/38 (2006.01)
B29C 51/10 (2006.01)
B29C 51/46 (2006.01)
B29L 31/00 (2006.01)
B29L 31/30 (2006.01)

(52) **U.S. Cl.**
CPC **B29C 33/0033** (2013.01); **B29C 51/10** (2013.01); **B60Y 1/04** (2013.01); **B60Y 1/043** (2013.01); B29C 2033/0072 (2013.01); B29L 2031/3017 (2013.01); B29L 2031/3041 (2013.01); B29L 2031/3077 (2013.01)

(58) **Field of Classification Search**
CPC B60N 3/044; B60N 3/048; B29C 33/3835; B29L 2031/3017; B29K 2105/256; B29K 2023/06
USPC 264/40.1; 296/97.23
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

(Continued)

FOREIGN PATENT DOCUMENTS

(Continued)

OTHER PUBLICATIONS

(Continued)

Primary Examiner — Pinel Romain
(74) *Attorney, Agent, or Firm* — Perkins IP Law Group LLC; Jefferson Perkins

(57) **ABSTRACT**

The three-dimensional positions of points on a surface of a vehicle foot well are digitally measured and are stored in a memory. The stored points are used to construct an electronic model of the vehicle foot well surface. The electronic model of the vehicle foot well surface in turn is used to construct an electronic three-dimensional image of the vehicle floor tray. A vehicle tray data file is created from the electronic three-dimensional image. The data file is in turn used to make a mold for a vehicle floor tray, and vehicle floor trays are manufactured by molding polymer material in the mold.

6 Claims, 12 Drawing Sheets

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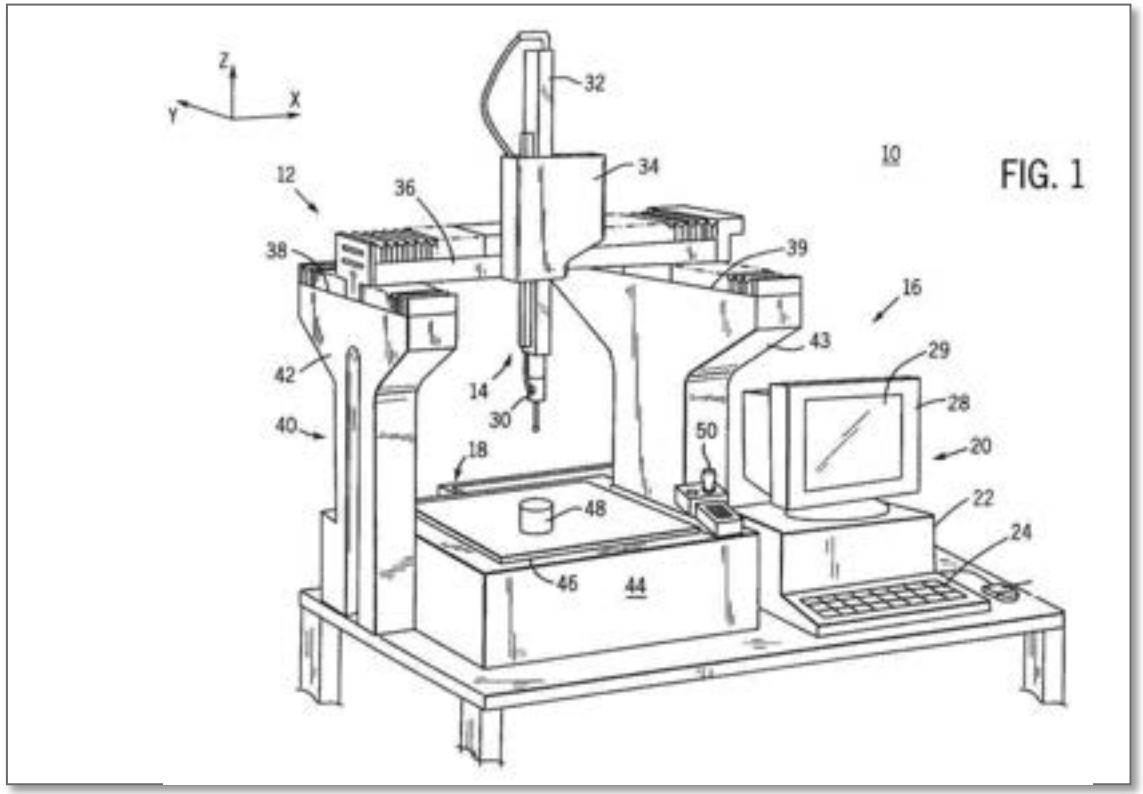
Ex. 2045 at p. 1

Reasonable Expectation of Success–Dr. Koch's Theory

5:35-52. In this case, it scanned the floor of an existing vehicle. A POSA would have downloaded these coordinates to a 3D milling machine. There, through the

Ex. 1139 at ¶175 (p. 130)
Testimony of Dr. Koch



Ex. 1035 ('618 Patent) at Fig. 1
Hemmelgarn Patent

CITE: Paper 28 (POR-1142) at 52-53, Paper 29 (POR-1139) at 51

Reasonable Expectation of Success–Dr. Koch's Theory

Direct downloading of coordinates was impossible (Ex. 2042 ¶ 63)

Q. (By Mr. Wille) Okay. My point is is that if the CMM is not providing you the complete picture, you couldn't go straight from the coordinates to the machine to make the mold in order to make the mold, correct?

A. You couldn't do that without doing the other in-between steps.

Ex. 2185 at 95:9–15
Deposition Testimony of Dan Perreault

Q. Right. So if your carpet surface is varying from vehicle to vehicle, if your scan happened to scan a piece that had an uneven surface, that would present a problem in going directly from what you scanned to a mold, correct?

A. Well, again, like I mention in my declaration, that we don't go directly from the scan to machining the mold. There's the CAD work in between to generate the CAD surface, both of the footwell and then designing the part using that CAD.

Ex. 2185 at 96:19–97:4
Deposition Testimony of Dan Perreault

Reasonable Expectation of Success–Petitioner's Theory Is Hindsight

Prior to the MacNeil Patents, there was no known method to conform a floor tray within 1/8 of an inch (Ex. 2042, ¶ 92, Ex. 2043, ¶ 156)

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: prior art fails to disclose or render obvious the process of using the stored points to construct an electronic model of the vehicle foot well surface; using the electronic model of the vehicle foot well surface to construct an electronic three-dimensional image of the vehicle floor tray;

Ex. 2046 at p. 13
Notice of Allowance for U.S. Patent No. 9,138,917

CITE: Paper 28 (POR-1142) at 51, Paper 29 (POR-1139) at 49

Reasonable Expectation of Success–Petitioner's Theory Is Hindsight

Q. (By Mr. Wille) Okay. In other words, you did not cite any published source which suggests scanning the footwell of a vehicle in order to make a floor tray or floor mat to mate with that vehicle, correct?

A. Correct.

Ex. 2185 at 109:11–15
Deposition Testimony of Dan Perreault

Q. (By Mr. Wille) And you haven't cited any prior art reference that establishes that anyone had even digitally scanned a vehicle footwell for any purpose prior to the MacNeil patents being filed in 2004, correct?

A. Correct.

Ex. 2185 at 112:23–113:3
Deposition Testimony of Dan Perreault

CITE: Paper 70 (Sur-Reply-1142) at 19, Paper 70 (Sur-Reply-1139) at 20

Reasonable Expectation of Success–Petitioner's Theory Is Hindsight

Q. Okay. Well, it is true that your declaration does not identify any prior art reference establishing that any competitor sold a floor tray using any technology that achieved a fit within one-eighth of an inch as required by the '834 and '186 patents prior to the filing of the MacNeil patents in 2004, correct?

A. Correct.

Q. (By Mr. Wille) As we sit here today, you're not aware of a competitor to MacNeil that achieved the one-eighth-inch conformance required by the claims of the '186 and '834 patents prior to the filing of MacNeil's patents in 2004, correct?

A. Correct. I'm not aware of anyone, no.

Ex. 2185 at 114:24–115:15
Deposition Testimony of Dan Perreault

CITE: Paper 70 (Sur-Reply-1142) at 19, Paper 70 (Sur-Reply-1139) at 20

Reasonable Expectation of Success–Petitioner's Theory Is Hindsight

Q. (By Mr. Wille) So we have multiple automakers that have been using CMM machines for years before 2004 with thousands of engineers working for them. That's the scenario we have, correct?

A. Yes.

Q. (By Mr. Wille) And as we sit here today, you're not aware of any automaker that created a custom-made floor tray to fit within its vehicle that achieves one-eighth-of-an-inch tolerance and used the scan of the footwell to do that, are you, sir?

A. I am not aware, no.

Ex. 2185 at 112:8–22
Deposition Testimony of Dan Perreault

CITE: Paper 70 (Sur-Reply-1142) at 19, Paper 70 (Sur-Reply-1139) at 21

Reasonable Expectation of Success–Petitioner's Theory Is Hindsight

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A POSITA is "presumed to be one who thinks along the line of conventional wisdom in the art and is not one who undertakes to innovate,…"

Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 454 (Fed. Cir. 1985)

Reasonable Expectation of Success–Missing Steps Of the MacNeil Process

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- Prior art fails to disclose:
  - Shelling a solid to make the upper surface a projection of the bottom surface (Ex. 2185, 74:11-15)
  - Importing a reservoir file into the surface model (Ex. 1001, 19:6-8)
  - Using an SLA to alter a CAD model of a mold (Ex. 2185, 98:15-18)
  - Lofting between b-splines (Ex. 2185, 78:7-19)

CITE: Paper 70 (Sur-Reply-1142) at 20, Paper 70 (Sur-Reply-1139) at 21

The Accuracy of the CMM Is NOT Determinative Of the Conformance

- Problems with trying to achieve close conformance:
  - Stacked tolerances (Ex. 2185, 83:22-84:17)
    - Auto manufacturer tolerance for structure of footwell (Ex. 2185, 82:7-83:4)
    - Auto manufacturer tolerance for padding (Ex. 2185, 83:5-8)
    - Auto manufacturer tolerance for carpeting (Ex. 2185, 83:5-8)
    - Manufacturing process (Ex. 2185, 81:3-7)

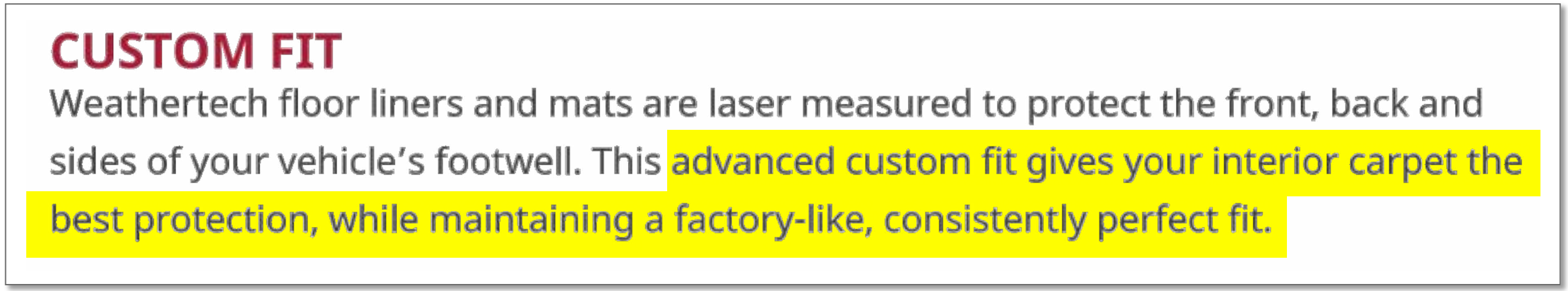
> Q. Okay. And you're not suggesting that anyone could have made a floor tray that closely conformed to a footwell simply because the measuring tool is accurate, are you?
>
> A. No. I'm not trying to imply that a floor tray could be manufactured to, you know, 1/1000ths of an inch. My point was that the accuracy of the measuring tool is a few orders of magnitude more accurate than the tolerance specified on the MacNeil floor mats.

Ex. 2185 at 79:22–80:6
Deposition Testimony of Dan Perreault

CITE: Paper 70 (1142 Sur Reply) at 19, Paper 70 (1139 Sur Reply) at 20

Secondary Considerations

Secondary Considerations–Industry Praise of Close Conformance



Ex. 2052 at p. 2 (see also, Ex. 2043 at ¶170)
Source: DSAutomotive.com

CITE: Paper 28 (POR-1142) at 78-79, Paper 29 (POR-1139) at 78-79

Secondary Considerations–Industry Praise of Close Conformance

When we took delivery of the mats, we were pleasantly surprised by the hardy construction and the glossy finish. There was even a form-fitted mat for the storage area under the back seat. Once we installed them, we were absolutely blown away! These mats fit every contour of the floor as precisely as you can imagine and the generous sides left little doubt that this product was going to offer serious carpet protection. The OEM floor anchors mated perfectly for a secure and permanent-feeling installation. Once installed, these mats stay in place like part of the floor.

Ex. 2054 at p. 1 (see also, Ex. 2043 at ¶171)
Source: OilDepot.ca Product Review: WeatherTech FloorLiner DigitalFit Floor Mats

CITE: Paper 28 (POR-1142) at 78-79, Paper 29 (POR-1139) at 78-79

Secondary Considerations–Industry Praise of Close Conformance

Digital laser measurements of interior surfaces offer a consistently perfect fit. A patented tri-extruded composition allows for a rigid core for strength while offering surface friction to the carpet, as well as tactile feel to the surface. The FloorLiner™ advanced surface design has channels that carry fluid and debris, away from shoes and clothing, into a lower reservoir. The lower reservoir uses additional channeling to minimize fluid movement while driving. Once fluids become trapped in the reservoir, they are easily removed from the WeatherTech® FloorLiner™ over the door sill...No muss – No Fuss! Weathertech all weather floor mats are great for any season. Whether it be tracking snow into the car from sledding or tracking mud in the car from off-roading. Weathertech has you covered.

The WeatherTech FloorLiner accurately and completely lines up to fit all vehicles. It gives absolute protection or your vehicle. WeatherTech FloorLiners lines up to all sides of your car's footwell due to the digital laser measurements.

Ex. 2055 at pp. 1, 2 (see also, Ex. 2043 at ¶171)
Source: Leonard.com

CITE: Paper 28 (POR-1142) at 79, Paper 29 (POR-1139) at 79

Secondary Considerations–Industry Praise of Close Conformance

(https://bestride.com/blog/wp-content/uploads/2015/09/weatehr-tech-measure.png)The secret to the WeatherTech floor mat fitting inside your new Audi Q3 (https://bestride.com/blog/review-2016-audi-q3-2-0tfsi-quattro-notable-because-of-what-it-has-and-does-not-have/23418/) or older Chevy Silverado (https://bestride.com/cars/Used/Chevrolet/Silverado+2500HD) is that the company actually measures the floor in the vehicle (https://www.youtube.com/watch?v=QWlkEcfc7l8) and then makes mats that fit. This simple, but revolutionary concept means that when you buy a mat from the company it drops in perfectly every time. Having used the WeatherTech mats in a 2003 Accord (https://bestride.com/cars-for-

Ex. 2056 at p. 2 (see also, Ex. 2043 at ¶171)
Source: Bestride.com Product Review: Weathertech Floor Mats and Trunk Cargo Liners

Secondary Considerations–Industry Praise of Close Conformance

WeatherTech DigitalFit® FloorLiners

WeatherTech's DigitalFit FloorLiners are pretty much as good as it gets when it comes to custom-fit floor protection. As the name implies, these mats are digitally modeled to fit the contours of your vehicle's floor exactly. The remarkable fit and tough (but pliable and comfortable) material makes them the absolute top choice among car and truck owners who want the very best for their vehicles.

Ex. 2057 at p. 4 (see also, Ex. 2043 at ¶171)
Source: Crutchfield.com

CITE: Paper 28 (POR-1142) at 79, Paper 29 (POR-1139) at 79

Secondary Considerations–Long Felt Need

Waterproof floor mats and cargo liners do much more than make clean up easier. We take a look at the industry leader.

If your brain brings up images of shopping at Zayre's for floor mats to go into an Olds Delmont 88 (https://bestride.com/cars/Used/Oldsmobile/Delta+88), you may have gotten the wrong impression. When I was coming up, aftermarket floor mats didn't fit – any car. You'd size them up at the automotive aisle next to linens and draperies and take them out to the parking lot full of hope. As soon as they were on the floor you hated them and yourself for buying them. They curled at the corners and ended up under the pedals in a mess. Those days ended when MacNeil Automotive (http://www.weathertech.com/) began making WeatherTech floor mats right here in the U.S. of A.

Ex. 2056 at p. 1
Source: Bestride.com

CITE: Paper 28 (POR-1142) at 77, Paper 29 (POR-1139) at 77

Secondary Considerations–Long Felt need

vehicles. This has caused a problem, in that the occupants of a vehicle have a tendency to push around the floor mats with their feet. The floor mats end up not being centered on the area protected, or pushed up so as to occlude the gas, brake or clutch pedals, or bunched up or folded over—all undesirable conditions. One objective of floor mat manufacturers has therefore been to provide a floor mat that will stay put and which will not adversely affect vehicle operation.

The foot wells of cars, trucks and SUVs vary in size in shape from one model of vehicle to the next. Floor mat manufacturers have noticed that floor mats which at least approximately conform to the shape of the bottom surface of the foot well stay in place better and offer more protection. It is also common for such floor mats, where provided for front seat foot wells, to have portions which are meant to lie against the firewalls or front surfaces of the foot wells. Even as so extended it is not too hard to provide a floor mat of flexible material that will approximately conform to these two surfaces, as the designer only has to mark a two-dimensional periphery of the mat in providing one which will fit reasonably well.

Ex. 1001 ('834 Patent) 1:29–49 (See also Ex. 2043 at ¶ 160)

Secondary Considerations–Long Felt need

More recently, vehicle floor trays have come onto the market. Most front-seat vehicle foot wells are actually three-dimensional concave shapes, typically with complex curved surfaces. Floor trays have sidewalls that offer enhanced protection to the surfaces surrounding the vehicle floor, as might be needed against wearers with very muddy or snowy shoes. Conventional vehicle floor trays try to fit into these three-dimensional cavities, but so far their fit to the surfaces that they are supposed to protect has been less than optimum. A conventional vehicle floor tray is typically molded of a single-ply rubber or plastic material, exhibits enough stiffness to retain a three-dimensional shape, but is also at least somewhat flexible. Fitting such a tray to the complex three-dimensional surface of a vehicle foot well has proven to be difficult, and the products currently in the marketplace have limited consumer acceptance because of their loose fit inside the foot well. There is often, and in many places, a considerable space between the exterior wall of these conventional trays and the interior surface of the foot well. This causes the wall to noticeably deform when the occupant's foot contacts it. Vehicle owners have a tendency to dislike floor trays which rattle, deform, shift and flop about. A need therefore persists for a floor tray that will have a more exact fit to the vehicle foot well for which it is provided, that stays in place once it is installed, and that provides a more solid and certain feel to the occupants' feet.

Some vehicle floor mats that are now on the market have fluid reservoirs built into them. Particularly in cold or wet climates, dirty water has a tendency to be shed onto the floor mat, where it persists until it evaporates. If there is enough of

Ex. 1001 ('834 Patent) 1:45–2:12 (See also Ex. 2043 at ¶ 160)

CITE: Paper 28 (POR-1142) at 75, Paper 29 (POR-1139) at 75

Secondary Considerations—Long Felt Need

- Ray Sherman—Industry Expert with 35 Years Experience in Automotive Accessories
  - Most floor mats were universal mats. Ex. 2043,¶ 160
  - Advertisements of floor trays having “perfect” or “exact” fit was puffery. Ex. 2043, ¶ 161
  - Typically, trays were angled so that just the top edge would press against the walls. Ex. 2043 ¶ 161
  - Custom floor trays prior to MacNeil did not closely conform and achieved little success. Ex. 2043, ¶ 82.
  - No floor tray prior to 2004 met the conformance limitations of the claims. Ex. 2043, ¶ 163-65

CITE: Paper 28 (POR-1142) at 76, Paper 29 (POR-1139) at 75-76

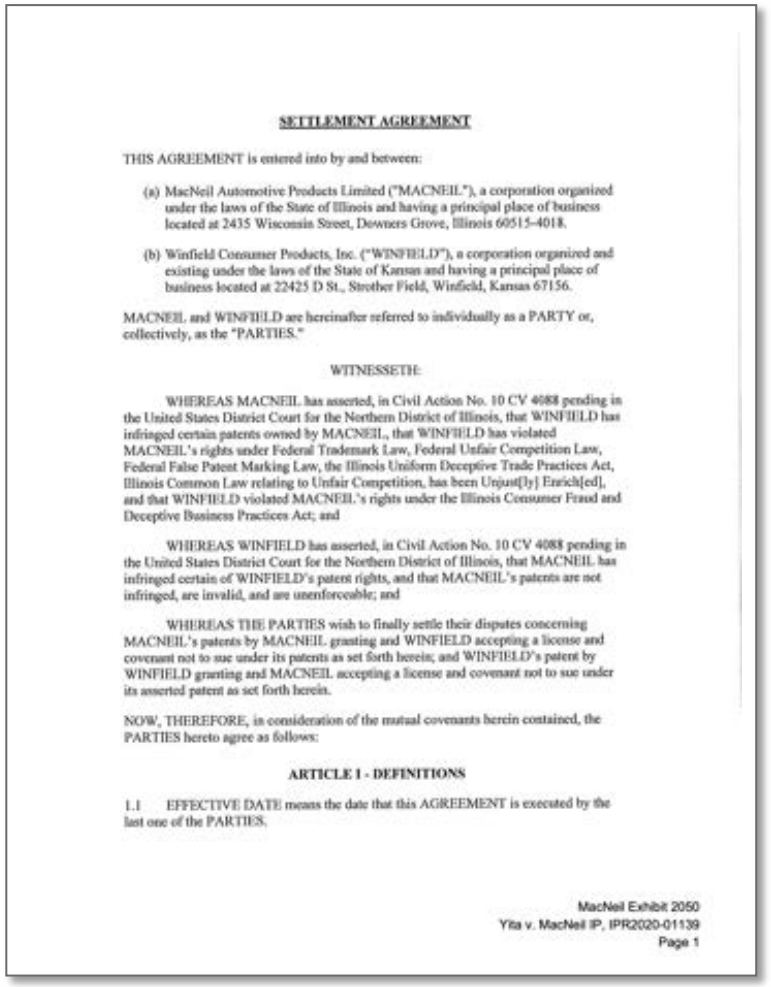
Secondary Considerations–Commercial Success

- Approximately 20% of vehicles built in the past 10 years have Weathertech Floor Liners (Ex. 2042, ¶ 73)
- Despite typically being the most expensive option (Ex. 2042, ¶¶ 77-78)
- Fit in the vehicle is big reason for success (Ex 2042, ¶¶ 81 & 84)

CITE: Paper 28 (POR-1142) at 78, Paper 29 (POR-1139) at 77-78

Secondary Considerations—Licensing

Of 3 competitors currently in market, only Yita not licensed



SETTLEMENT AGREEMENT

THIS AGREEMENT is entered into by and between:

(a) MacNeil Automotive Products Limited ("MACNEIL"), a corporation organized under the laws of the State of Illinois and having a principal place of business located at 2435 Wisconsin Street, Downers Grove, Illinois 60515-4018.

(b) Winfield Consumer Products, Inc. ("WINFIELD"), a corporation organized and existing under the laws of the State of Kansas and having a principal place of business located at 22425 D St., Strother Field, Winfield, Kansas 67156.

MACNEIL and WINFIELD are hereinafter referred to individually as a PARTY or, collectively, as the "PARTIES."

WITNESSETH:

WHEREAS MACNEIL has asserted, in Civil Action No. 10 CV 4088 pending in the United States District Court for the Northern District of Illinois, that WINFIELD has infringed certain patents owned by MACNEIL, that WINFIELD has violated MACNEIL's rights under Federal Trademark Law, Federal Unfair Competition Law, Federal False Patent Marking Law, the Illinois Uniform Deceptive Trade Practices Act, Illinois Common Law relating to Unfair Competition, has been Unjust[ly] Enrich[ed], and that WINFIELD violated MACNEIL's rights under the Illinois Consumer Fraud and Deceptive Business Practices Act; and

WHEREAS WINFIELD has asserted, in Civil Action No. 10 CV 4088 pending in the United States District Court for the Northern District of Illinois, that MACNEIL has infringed certain of WINFIELD's patent rights, and that MACNEIL's patents are not infringed, are invalid, and are unenforceable; and

WHEREAS THE PARTIES wish to finally settle their disputes concerning MACNEIL's patents by MACNEIL granting and WINFIELD accepting a license and covenant not to sue under its patents as set forth herein; and WINFIELD's patent by WINFIELD granting and MACNEIL accepting a license and covenant not to sue under its asserted patent as set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the PARTIES hereto agree as follows:

ARTICLE 1 - DEFINITIONS

1.1 EFFECTIVE DATE means the date that this AGREEMENT is executed by the last one of the PARTIES.

MacNeil Exhibit 2050
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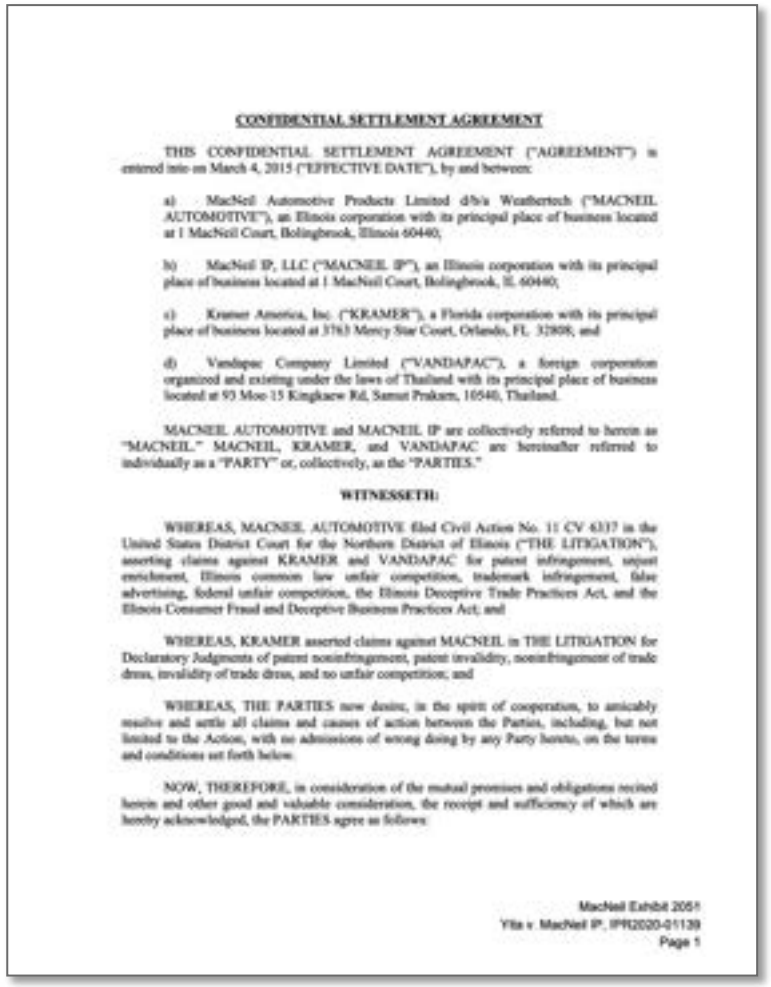
Page 1

Ex. 2050 at p. 1



CONFIDENTIAL SETTLEMENT AGREEMENT

THIS CONFIDENTIAL SETTLEMENT AGREEMENT ("AGREEMENT") is entered into on March 4, 2015 ("EFFECTIVE DATE"), by and between:

a) MacNeil Automotive Products Limited d/b/a Weathertech ("MACNEIL AUTOMOTIVE"), an Illinois corporation with its principal place of business located at 1 MacNeil Court, Bolingbrook, Illinois 60440;

b) MacNeil IP, LLC ("MACNEIL IP"), an Illinois corporation with its principal place of business located at 1 MacNeil Court, Bolingbrook, IL 60440;

c) Kramer America, Inc. ("KRAMER"), a Florida corporation with its principal place of business located at 3763 Mercy Star Court, Orlando, FL 32808; and

d) Vandapac Company Limited ("VANDAPAC"), a foreign corporation organized and existing under the laws of Thailand with its principal place of business located at 93 Moo 15 Kingkaew Rd, Samut Prakarn, 10540, Thailand.

MACNEIL AUTOMOTIVE and MACNEIL IP are collectively referred to herein as "MACNEIL." MACNEIL, KRAMER, and VANDAPAC are hereinafter referred to individually as a "PARTY" or, collectively, as the "PARTIES."

WITNESSETH:

WHEREAS, MACNEIL AUTOMOTIVE filed Civil Action No. 11 CV 6317 in the United States District Court for the Northern District of Illinois ("THE LITIGATION"), asserting claims against KRAMER and VANDAPAC for patent infringement, unjust enrichment, Illinois common law unfair competition, trademark infringement, false advertising, federal unfair competition, the Illinois Deceptive Trade Practices Act, and the Illinois Consumer Fraud and Deceptive Business Practices Act; and

WHEREAS, KRAMER asserted claims against MACNEIL in THE LITIGATION for Declaratory Judgments of patent noninfringement, patent invalidity, noninfringement of trade dress, invalidity of trade dress, and no unfair competition; and

WHEREAS, THE PARTIES now desire, in the spirit of cooperation, to amicably resolve and settle all claims and causes of action between the Parties, including, but not limited to the Action, with no admissions of wrong doing by any Party hereto, on the terms and conditions set forth below.

NOW, THEREFORE, in consideration of the mutual promises and obligations recited herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the PARTIES agree as follows:

MacNeil Exhibit 2051
Yita v. MacNeil IP, IPR2020-01139
Page 1

Ex. 2051 at p. 1

CITE: Paper 28 (POR-1142) at 80, Paper 29 (POR-1139) at 80

Yung

1. Petitioner's Reliance upon Yung's Alleged Disclosure of Polyethylene Is a Fatal Flaw in the Petition

Petitioner Contended that Polyethylene Would Be Used to Create Rabbe's Tray

the side walls of the vehicle. *Id.*; EX1006, ¶11. Thus, a POSA would have sought to use the PE material disclosed by Yung for Rabbe's floor tray. Doing so would

Paper 3 (Pet-1139) at 65

EX1006, ¶11. Thus, a POSA would have sought to use a material like polyethylene, disclosed by Yung, for Rabbe's floor tray. Doing so would have

Paper 3 (Pet-1142) at 51

CITE: Paper 70 (Sur-Reply-1142) at 22, Paper 70 (Sur-Reply-1139) at 22

But Yung Does Not Disclose Polyethylene—It Discloses Polyethylene Foam

a mesh pad (30) in the bottom layer. The foregoing plastic plate (20) in the middle layer may be made of tough, lightweight and waterproof foamed polyethylene (PE) or ethylene-vinyl acetate copolymer (EVA); the mesh pad (30) in the bottom layer is a mesh woven with a plurality of crisscross tough rope yarns (31). The mesh is soaked in a plastic material (PVC), which is

Ex. 2137 at p. 7
Translation of Yung Parent Application

CITE: Paper 70 (Sur-Reply-1142) at 22, Paper 70 (Sur-Reply-1139) at 22

But Yung Does Not Disclose Polyethylene—It Discloses Polyethylene Foam

i

Q Okay. My question to you is going to be, based upon your reading of the original Chinese, what is your understanding as to whether the word "foamed" modifies both polyethylene and ethylene-vinyl acetate copolymer, or modifies only one of them, okay?

So please turn to the original Chinese and see if you can answer that question.

MR. FITZSIMMONS: Objection, form. Objection, leading.

A (Reviewing.)

This is the word for foamed, and to me it modifies both PE and EVA.

Q And is that your view based upon the context in the original Chinese?

A Yes.

Ex. 1050 at 91:2-17
Deposition of Samuel Chong

CITE: Paper 70 (Sur-Reply-1142) at 22, Paper 70 (Sur-Reply-1139) at 22

But Yung Does Not Disclose Polyethylene—It Discloses Polyethylene Foam

[0011] The material of the above mentioned middle plastic plate or layer (20) as a flexible, light weight, and waterproof Polyethylene (PE) or Polyethylene—Vinyl Acetate (EVA) foam. The above mentioned net lining (30) is composed of multiple yarns or threads (31) woven or knotted in a combination of both horizontal and longitudinal ways to form a net fabric. This net fabric was dipped and coated with plastic (PVC etc.) resins, which are for10 mulated with foam)ng agent. This coated fabric after being treated by heatfoaming process, along the threads or yarns (31) continuous sponge foam will be formed on the thread or yarn surface in a suitable thickness and on each knot place foam particle (32) will be created also. The improved mat used in cars (100) of this invention is formed by sticking the net lining (30) with multiple foam particle (32), aforesaid middle, plastic plate or layer (20), and the upper polyester fabric (10) together, and binning the three parts to form a whole mat as shown in FIG. 1.

Yung Reference Ex. 1006 at par. 11

Petitioner's Briefs Conveniently Delete the Word "Foam"

Yung discloses "an improved mat used in cars" including "an upper polyester fabric, a middle plastic plate or layer, and an under net lining." EX1006, Abstract. The plastic layer is "flexible, lightweight, polyethylene (PE) or polyethylene-vinyl acetate (EVA)." *Id.*, ¶11. PE was and still is a well-known and

'834 Petition at 25

To this point, Yung discloses "an improved mat used in cars" including "an upper polyester fabric, a middle plastic plate or layer, and an under net lining." EX1006, Abstract. The plastic layer is "flexible, lightweight, polyethylene (PE) or polyethylene-vinyl acetate (EVA)." *Id.*, ¶11. PE was and still is a well-known

'186 Petition at 36

CITE: Paper 70 (Sur-Reply-1142) at 22, Paper 70 (Sur-Reply-1139) at 22

Even if Yung Did Disclose Polyethylene, That Does Not Lead to Thermoforming

Q. Okay.

And how many different grades of polyethylene are there suitable for thermoforming?

A. I don't carry that number, but my guess is under a thousand.

Ex. 2039 at 247:12–17
Testimony of Dr. Koch

And earlier you indicated there's at least 10,000 kinds of polyethylene, correct?

A. No. I said there's 10,000 grades. There's a distinction.

Ex. 2039 at 244:14-18
Testimony of Dr. Koch

CITE: Paper 70 (Sur-Reply-1142) at 33, Paper 70 (Sur-Reply-1139) at 33

Petitioner Also Failed to Explain Plucking a Layer from Yung's 3 Layer Structure

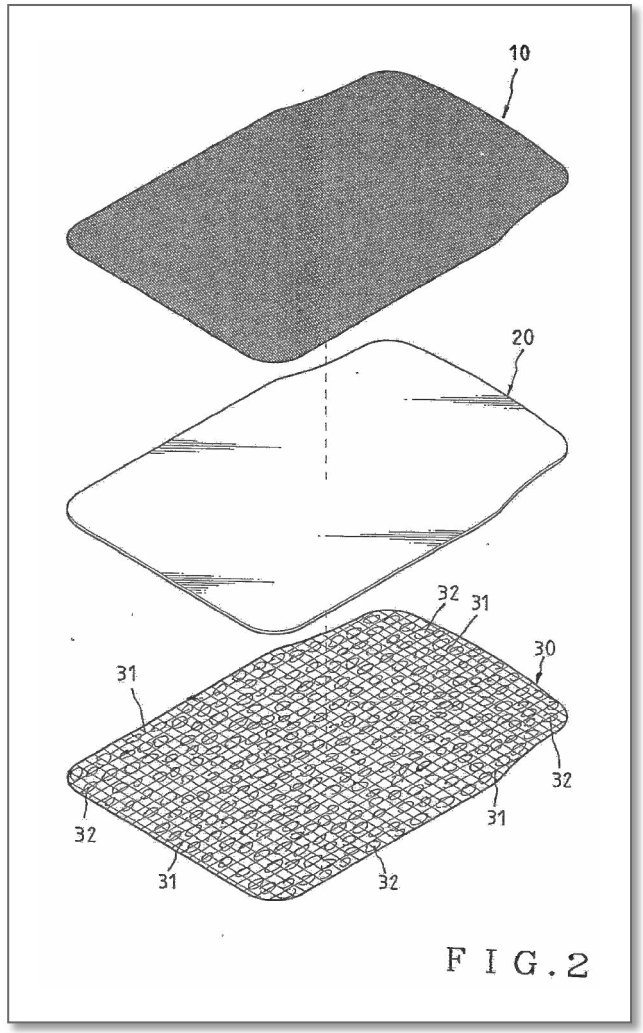


FIG. 2

Ex. 1006, FIG. 2
Yung Reference

> Indeed, Yung describes that its invention is "novel in design by using the three different [k]inds of material, a polyester fabric (10), a plastic plate or layer (20), and a net lining (30)." *Id.*, ¶0015. Given Yung's description of the benefits of its tri-layer design, in my opinion a POSITA would not have been motivated to select only Yung's middle layer to form Rabbe's tray. Furthermore, this design would not

Ex. 2041, ¶ 151
Declaration of Dr. Tim Osswald

CITE: Paper 70 (Sur-Reply-1142) at 22, Paper 70 (Sur-Reply-1139) at 22. Paper 29 (POR-1139) at 59–60, Paper 28 (POR-1142) at 60–61

The Petition has 2 Fatal Flaws

1. Petitioner argued for the use of PE when combining the references but Yung does not even disclose PE.

2. Petitioner failed to offer any explanation as to why a POSITA would pluck the middle layer from Yung's three-layer structure.
(Ex. 2043, ¶¶ 123-28)

"Petitioner is required to provide a motivation for all modifications to a reference or combination."

In Re Gordon, 733 F.2d 900, 902 (1984)

CITE: Paper 70 (Sur-Reply-1142) at 22, Paper 70 (Sur-Reply-1139) at 22

Petition Cannot Fix Its Fatally Flawed Petition Using Yung

- The Petition Does not Identify Yung's 3-Layer Structure As a Material to Use to Make Rabbe's Floor Tray
- The Petition Does Not Identify Either of Yung's Foam Materials as Something to Pluck from the Three Layer Structure of Yung to Use for Rabbe

Petitioner Has Not Explained Why a POSITA Would Use Foam

- Petitioner has not identified any prior art floor tray made of a naked layer of PE or EVA Foam
- PE is a slippery material, not suitable for a floormat

  Ex 2041 ¶ 51, (“unacceptably slick”); Ex. 1064, 1:35-37 (disadvantage is low coefficient of friction).

2. Yung Is Compression Molded

Yung's Ultimate Parent Teaches Compression Molding

plate in the middle layer and a mesh pad in the bottom layer. The three layers of components are laminated and integrally formed by the compression molding technology to form a vehicle floor mat, which is a concave disk body. A

Ex. 2137 at IV.
Translation of Yung's Ultimate Parent

a plastic plate in the middle layer and a mesh pad in the bottom layer. The three layers of components are laminated and integrally formed by the compression molding technology to form a vehicle floor mat, which has a concave disk body.

Ex. 2137 at V.
Translation of Yung's Ultimate Parent

1. A structure for vehicle floor mat, wherein the structure comprises three layers of components including a Tetoron cloth in the top layer, a plastic plate in the middle layer and a mesh pad in the bottom layer and is integrally formed by compression molding technology; the vehicle floor mat is a concave disk body, a plurality of convex blocks are symmetrically arranged in a protruding manner on the disk surface of the disk body, and a plurality of guiding grooves arranged crisscross are naturally formed among the convex blocks; the foregoing vehicle floor mat is not only slip resistant, but can also collect dirt and sand to avoid contaminating the carpets in the vehicle and can be easily cleaned.

Ex. 2137 at VI.
Translation of Yung's Ultimate Parent

rope yarns (31). The mesh is soaked in a plastic material (PVC), which is foamed to form a plurality of convex nodes (32) in a protruding state on the foregoing plurality of crisscross tough rope yarns (31); the present creation is to laminate three layers of components including the mesh pad (30) having a plurality of convex nodes (32), the foregoing plastic plate (20) in the middle layer and the foregoing Tetoron cloth (10) in the top layer and then integrally mold them by the compression molding technology into a vehicle floor mat (100) provided by the present creation as shown in Fig. 1.

Ex. 2137 at V.
Translation of Yung's Ultimate Parent

CITE: Paper 28 (POR-1142) at 14–16, Paper 29 (POR-1139) at 39–42

A POSITA Would Compression Mold Yung Based Upon its Disclosure

Yung refers to embossing—a form of compression molding. Ex. 2041, ¶ 137

presented by micromolding. **The classical methods employed were reaction injection molding (RIM, figure 1.2 a), thermoplastic injection molding (figure 1.2 b) and compression molding (figure 1.2 c) also known as hot embossing.** Independent of which

Ex. 2172 at p. 13
Doctoral Dissertation

These requirements are also applicable in the case of larger molded parts, but they become much more significant in the case of micromolding, since micromolding is performed on a small size scale on the order of micrometers. At this scale, the

Ex 2172 at p. 14
Doctoral Dissertation

CITE: Paper 70 (Sur-Reply-1139) at 32, Paper 70 (Sur-Reply-1142) at 32

A POSITA Would Compression Mold Yung Based Upon its Disclosure

Yung refers to embossing—a form of compression molding. Ex. 2041, ¶ 137

method of manufacture. Compression molding (also called hot embossing or relief imprinting) has the advantages of being compatible with high-molecular weight polymers, which are excellent for small structures, but is difficult to use in replicating high aspect ratio structures and has longer cycle times. Injection molding works well for high-aspect ratio

Ex. 2173 at ¶ 67
Toner Published Patent Application

A POSITA Would Compression Mold Yung Based Upon its Disclosure

by Yung as making up its floor mat cannot be thermoformed. Because the laminated structure is made of an upper polyester fabric and a lower net lining, both of which are not stretchable, the first process that a POSITA would think of using is the compression molding process, not thermoforming. Indeed, a POSITA

Ex. 2041 at ¶ 135
Declaration of Dr. Tim Osswald

CITE: Paper 29 (POR-1139) at 16–17, Paper 28 (POR-1142) at 40–41

A POSITA Would Compression Mold Yung Based Upon its Disclosure

- Petitioner has not identified any similar laminated structure—constrained by a fabric on one side and a net on the other made of different materials.
- Petitioner's own prior art flags issues with fabric wrinkling, distorting, and buckling when attempting to form only a 2 layer structure.
  Ex. 1066, 2:66-3:7.

CITE: 1139 Brief at 16-17, 1142 Brief at 40-41

Yung's Disclosure of Foams Does not Indicate Thermoforming

- Petitioner has not cited a reference indicating one can thermoform EVA Foam. (Testimony of Mark Strachan Ex. 2183, 265:12-20)
- MacNeil has cited Multiple Reference teaching compression molding of EVA Foam. (Testimony of Mark Strachan Reply Brief, p. 34)
- Mr. Strachan was not even sure one could even make a floor tray out of EVA Foam. (Testimony of Mark Strachan Ex 2183, 264:17-22)
- Mr. Strachan identified no reference describing an article made of EVA Foam that was thermoformed. (Testimony of Mark Strachan Ex 2183, p. 266:17-22)

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Yung's Disclosure of Foams Does not Indicate Thermoforming

- Petitioner's Arguments Regarding PE Foam Are Misleading
  - Ex 1058 concerns CROSS-LINKED PE Foam. Ex.1058, p. 3
  - Crosslinking makes the material a thermoset material. Ex. 2145, p. 1, Declaration of Dr. Koch Ex. 1003, ¶ 34.
  - A cross linked foam is "nothing like" what is "stated in the Yung Patent." Testimony of Mark Strachan Ex. 2183, 269:6-270:16.

Petitioner's Experts Lack Credibility

Dr. Koch Says Compression Molding is Inappropriate for Thermoplastics

A. It would be inappropriate to compression mold a thermoplastic.

Ex. 2039 at 270:16–17
Testimony of Dr. Koch

A Patent Filed in 2004 Confirms Thermoplastics Have Been Compression Molded for Decades

end-product such as a household item, for example. Compression molding methods are used to form thermosetting and thermoplastic resins to produce articles such as closures for containers.

Ex. 2175 at 1:18–21
Kaufman Patent

CITE: Paper 29 (POR-1139) at 14, Paper 28 (POR-1142) at 39, Paper 70 (Sur-Reply-1139) at 33, Paper 70 (Sur-Reply-1142) at 33

Petitioner's Experts Lack Credibility

Mr. Strachan Is Not A Compression Molding Expert

Yet, He Claims You Cannot Compression Mold Foams

Q. Do you consider yourself to be an expert in compression molding?

A. No, I don't consider myself to be an expert in compression molding.

Ex. 2183 at 29:17–20

Q. So this is referring to compression molding a laminate floor mat shown in Figure 1 of Exhibit 2137. Correct?

MR. FITZSIMMONS: Objection, scope. Objection, relevance.

A. In my experience with thermoforming and in my opinion, I've never seen it done. You cannot compression mold any type of foam structure. That's not something that was commercially viable and that actually even happened.

And sometimes it probably -- it makes you wonder why an additional further patent was submitted that did not include the compression molding, which would further lead me to believe that Yung's product was, in fact, thermoformed to maintain the structures of that trilayer, the foam in particular.

Ex. 2183 at 207:8–208:2

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Petitioner's Experts Lack Credibility

Dr, Koch's First Deposition

Q. You would never compression mold foams?

A. Yeah. You would never compression mold a foam.

Ex. 2039 at 85:6–9

Dr. Koch's Second Deposition

Q. Now, you are aware that EVA foam gets compression molded, correct?

A. I've seen it on the Internet.

Ex. 2184 at 30:25–31:2

Numerous References Disclose Compression Molding of Foams

- Contrary to Dr. Koch and Dr. Strachan's Testimony, Foams have been Compression Molded for Decades
- The following slides identify 13 References on Compression Molding of Foams
- Assignees include well-known names such as 3M, Nike, Under-Armour, Adidas, Columbia Sportswear, Wolverine World Wide, Bauer, and Riddell

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

(19) **United States**
(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0261297 A1**
Park (43) **Pub. Date: Dec. 30, 2004**

(54) **ETHYLENE VINYL ACETATE BASED FILM FOR CROSSLINKED BLOWN EVA FOAM, SHOE COMPONENTS USING THE SAME, AND METHOD FOR MANUFACTURING THEREOF**

(76) Inventor: **Hyung Jun Park**, Haeundae (KR)

Correspondence Address:
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WASHINGTON, DC 20037 (US)

(21) Appl. No.: **10/602,893**

(22) Filed: **Jun. 25, 2003**

Publication Classification

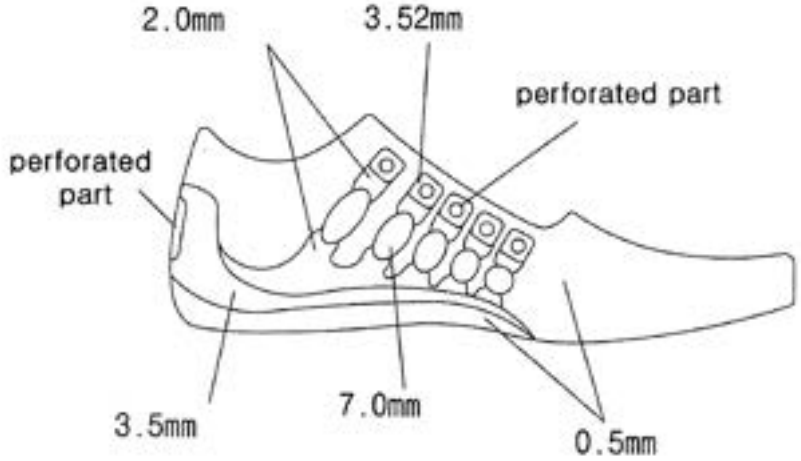
(51) **Int. Cl.**[7] **A43B 13/38**; C08J 9/26; C08J 9/28; C08J 9/00; B29C 44/12

(52) **U.S. Cl.** **36/87**; 521/92; 264/46.4; 264/321; 264/324; 36/43

(57) **ABSTRACT**

A method for manufacturing shoe components using EVA copolymer of film shape having a thickness of 0.01 to 2 mm, preferably 0.1 to 1.0 mm and a surface roughness variations which cannot be easily discriminated through touch or sight, and a shoe component manufactured by the method are provided. The method overcomes the drawbacks caused during the process of manufacturing a shoe component with different mechanical physical properties or colors. The method allows for ease of manufacture of a shoe component with two or more types of colors or physical properties, through a single foam molding process using a film with less variation and ease of processing, to thereby simplify manufacturing procedures and reduce manufacturing costs. In addition, a high quality shoe component with no additional seam-line is obtained.

'297 Patent



'297 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

[0004] In a conventional method, shoe components including an upper component, midsole, outsole, insole and a unitsole of midsole and outsole are produced by using a foamed article or articles obtained from the processes performed after completion of the foaming process, wherein the article is made of an EVA copolymer having a shape of a hard plate sheet, pellet or a chip having a thickness of 2.5 mm or higher, and a surface non-uniformity which can be easily discriminated by touch or sight. Shoe components are produced by a compression molding or injection molding process (primary process) and a compression re-molding process (secondary process). The above-described conventional method will be explained in detail with reference to **FIG. 1**, as follows. In **FIG. 1**, S stands for step.

Ex. 2156 at ¶ 0004

[0062] There is provided a method for manufacturing shoe components using EVA based composition, the method including a first step of cutting an EVA copolymer film having a thickness of 0.01 to 2 mm; a second step of stacking and/or combining the cut films to a cavity of a molding die; a third step of covering the molding die and applying heat and pressure to the molding die; and a fourth step of releasing pressure from the molding die, removing the cover, and producing foam.

Ex. 2156 at ¶ 0062

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

US009949518B2

(12) **United States Patent**
Toronjo

(10) **Patent No.: US 9,949,518 B2**
(45) **Date of Patent: *Apr. 24, 2018**

(54) **ARTICLES OF APPAREL INCLUDING AUXETIC MATERIALS**

(71) Applicant: **Under Armour, Inc.**, Baltimore, MD (US)

(72) Inventor: **Alan Toronjo**, Baltimore, MD (US)

(73) Assignee: **Under Armour, Inc.**, Baltimore, MD (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **15/386,975**

(22) Filed: **Dec. 21, 2016**

(65) **Prior Publication Data**

US 2017/0099900 A1 Apr. 13, 2017

Related U.S. Application Data

(63) Continuation of application No. 14/137,038, filed on Dec. 20, 2013, now Pat. No. 9,538,798, which is a (Continued)

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European Search Report from EU Application No. 13179068, dated Nov. 20, 2013.

Primary Examiner — William P Watkins, III

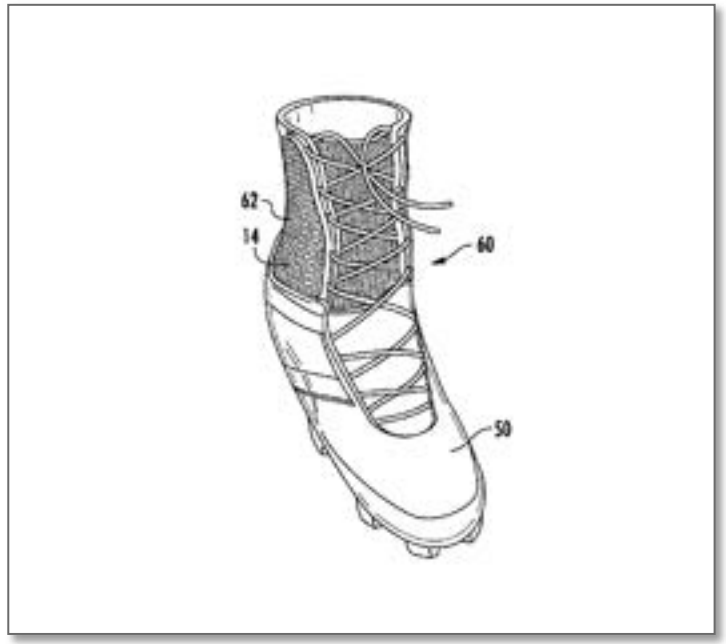
(74) *Attorney, Agent, or Firm* — Maginot, Moore & Beck LLP

(57) **ABSTRACT**

An article of apparel includes at least one panel including a first edge and an opposing second edge. The at least one panel includes an auxetic structure defining a primary elon-

Ex. 2157, Under Armour, Inc. Patent, '518 Patent

Assigned to Under Armour, Inc.



Ex. 2157, Under Armour, Inc. Patent, '518 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

In another exemplary embodiment, the segments **24** are comprised of foam, such as a thermoplastic polyurethane (TPU) foam or an EVA foam, each of which is resilient and provides a cushioning effect when compressed. While EVA and TPU foam are disclosed herein as exemplary embodiments of the auxetic layer **20**, it will be recognized by those of ordinary skill in the art that the auxetic layer **20** may alternatively be comprised of any of various other materials. For example, in other alternative embodiments, the auxetic layer may be comprised of polypropylene, polyethylene, XRD foam (e.g., the foam manufactured by the Rogers Corporation under the name PORON®), or any of various other polymer materials exhibiting sufficient flexibility and elastomeric qualities. In a further embodiment, the foam forming the auxetic layer is auxetic foam.

The segments **24** of the auxetic layer **20** may be formed in any of various methods. By way of example, the auxetic layer **20** is formed via a molding process such as compression molding or injection molding. By way of further

Ex. 2157 at 7:55–8:6

embodiment. In FIG. **2**D, a foam layer **34** is provided between and couples the auxetic layer **20** to the base layer **22**. The auxetic layer **20** and the base layer **22** may be coupled to the foam layer **34** using any of various means, including adhesives, molding, welding, sintering or any of various other means as will be recognized by those of ordinary skill in the art. The foam layer **34** is substantially the same shape and size as the auxetic layer **20**, defining segments and voids in registry with the segments **24** and voids **28** of the auxetic layer **20**. The foam layer **34** may be comprised of any of various types of foam, such as a TPU foam, EVA foam, XRD foam (such as PORON® foam manufactured by Rogers Corporation). However, it will be

Ex. 2157 at 11:1–13

Numerous References Disclose Compression Molding of Foams

(19) **United States**
(12) **Patent Application Publication**
Cheney et al.
(10) **Pub. No.: US 2016/0219973 A1**
(43) **Pub. Date: Aug. 4, 2016**

(54) **FLEXIBLE ARTICLE OF FOOTWEAR AND RELATED METHOD OF MANUFACTURE**

(71) Applicant: **Wolverine World Wide, Inc.**, Rockford, MI (US)

(72) Inventors: **James H. Cheney**, Northborough, MA (US); **David Thorpe**, Acton, MA (US); **Alan Lazell**, Dongguan City (CN)

(21) Appl. No.: **14/609,828**

(22) Filed: **Jan. 30, 2015**

Publication Classification

(51) **Int. Cl.**
A43B 13/14 (2006.01)
A43B 13/12 (2006.01)

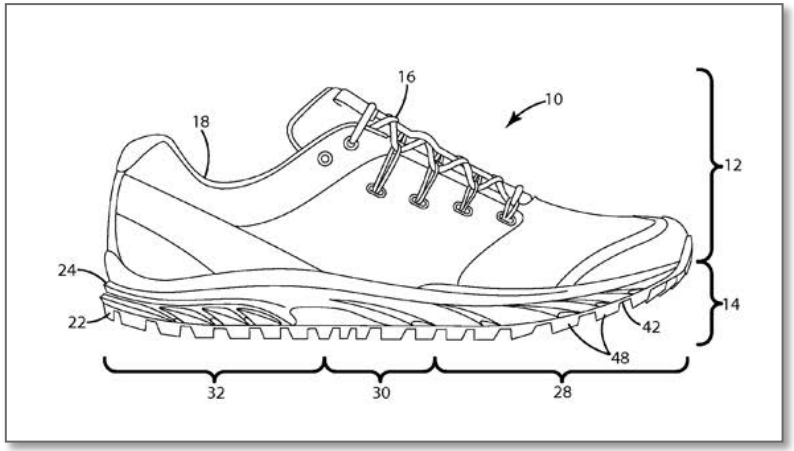
(52) **U.S. Cl.**
CPC *A43B 13/141* (2013.01); *A43B 13/12* (2013.01)

(57) **ABSTRACT**

An improved article of footwear and a related method of manufacture are provided. The article of footwear can include a sole construction including a midsole and an outsole that are configured to promote the natural motion of the wearer's foot and conformance to the ground. The sole construction can additionally include an insole construction having enhanced flexibility in the forefoot region to further accommodate dorsi-flexion and plantar-flexion of the wearer's foot. The related method of manufacture provides the assembly of an article of footwear having these and other features, which can be suitable for athletic wear, outdoor wear and casual wear by adults, adolescents and small children.

Ex. 2158, Wolverine World Wide, Inc. Patent, '973 Patent

Assigned to
Wolverine
World Wide, Inc.



Ex. 2158, Wolverine World Wide, Inc. Patent, '973 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

[0044] The midsole **24** can include essentially any material suitable for providing foot support. For example, the midsole **24** can include ethylene-vinyl acetate, polyurethane, or thermoplastic elastomer. The midsole **24** can be compression molded in some embodiments, while in other embodiments the midsole **24** can be injection molded. Other manufacturing techniques can be used in other embodiments as desired. The midsole **24** can additionally include a protective film **82** (also referred to as a protective plate **82**) that extends over the upper surface **52**, the lower surface **50**, or both the upper surface **52** and the lower surface **50** of the midsole **24**. As shown in FIG. **9**, for example, a 1 mm protective film **82** extends over the lower surface **50** of the forefoot region **28** of the midsole **24**. As shown in FIG. **10**, the protective film **82** extends over substantially the entire lower surface **50** of the midsole **24**. The protective film **52** optionally includes ethylene-vinyl acetate plastic, thermoplastic polyurethane, or Pebax® (polyether block amide, available from Arkema), which can provide enhanced strength to the midsole **24** without degrading the flexibility of the midsole **24**. The midsole **24** can additionally be formed of two or more materials having different material properties. For example, the midsole **24** can include a first material in a first one of the anatomical plurality pods **68** and a second material in a second one of the plurality of anatomical pods **68**. Further by example, the midsole **24** can include a first material in the forefoot region and a second material in the rearfoot or mid-foot region.

Ex. 2158 at ¶ 0044

8. The article of footwear of claim **7** wherein the midsole includes EVA foam and wherein the film includes EVA plastic.

Ex. 2158 at Claim 8

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

(19) **United States**

(12) **Patent Application Publication**

Swigart

(10) **Pub. No.: US 2012/0233877 A1**

(43) **Pub. Date: Sep. 20, 2012**

(54) **HIGH-STABILITY MULTI-DENSITY MIDSOLE**

(75) Inventor: **John Swigart**, Portland, OR (US)

(73) Assignee: **COLUMBIA SPORTSWEAR NORTH AMERICA, INC.**, Portland, OR (US)

(21) Appl. No.: **13/424,243**

(22) Filed: **Mar. 19, 2012**

Related U.S. Application Data

(60) Provisional application No. 61/454,441, filed on Mar. 18, 2011.

Publication Classification

(51) **Int. Cl.**
A43B 13/18 (2006.01)

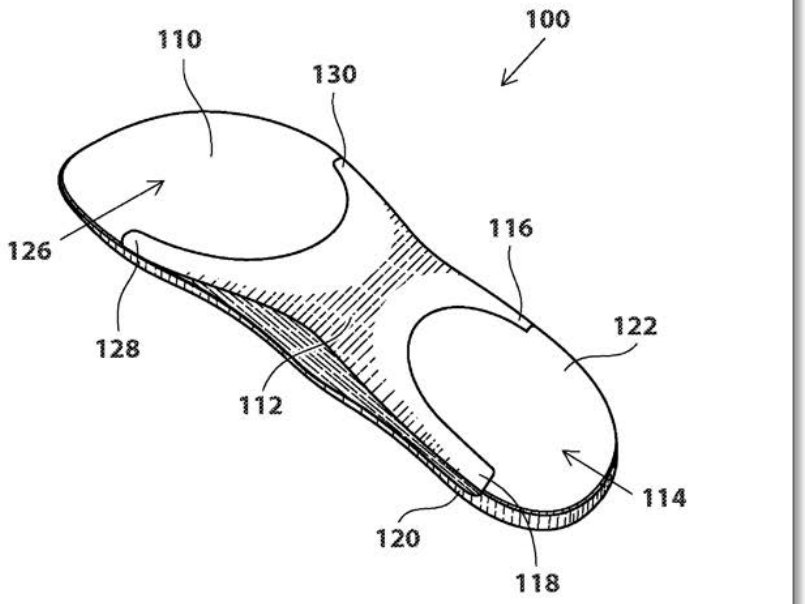
(52) **U.S. Cl.** **36/28**

(57) **ABSTRACT**

Embodiments herein relate generally to the field of footwear, and more particularly to components of performance footwear, such as midsoles, and in particular related to high-stability, multi-density midsoles. In some embodiments, the midsoles disclosed herein may protect a user from over-pronation and/or over-supination of the foot. Embodiments of the high stability midsoles disclosed herein may include a cushioning element and a mid-foot element. In various embodiments, the mid-foot element may be configured to mate with the cushioning element in the mid-foot portion, and may include at least one posterior tail configured to align with a medial or lateral edge of the heel portion of the cushioning element. Alternatively, the midsole may have integrated cushioning regions with different response property regions.

Ex. 2159, Columbia Sportswear North America, Inc. Patent, '877 Patent

Assigned to Columbia Sportswear North America, Inc.



Ex. 2159, Columbia Sportswear North America '877 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

[0033] The different response properties may be achieved by a variety of materials suitable for midsole construction. For example, in some embodiments, EVA foam materials may be formed or cut to a desired size and shape to form the cushioning element **110**, **210**, **310**(*a-d*) and/or mid-foot element **112**, **212**, **312**(*a-d*), and the two components may be glued or otherwise affixed together. A variety of midsole-forming techniques are known, such as pre-form and compression molding, injection molding, pellet pour and the like. In other embodiments, polymer foam pellets (such as EVA pellets) may be arranged such that compression molding of the pellets results in blending of the different response properties in the transition zones. In other embodiments, the midsole may include one or more other types of material in foamed or solid form, such as rubberized EVA, polyurethane, thermo-plastic elastomers, polyolefins, rubber, or any other suitable midsole/footwear construction material.

Ex. 2159 at ¶ 0033

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

(12) **United States Patent**
Carpenter et al.

(10) **Patent No.: US 6,543,159 B1**
(45) **Date of Patent: Apr. 8, 2003**

(54) **SNOWBOARD BOOT AND BINDING STRAP**

(75) Inventors: **Jake Burton Carpenter**, Stowe, VT (US); **Paul T. Maravetz**, Grand Isle, VT (US); **Thomas McGann**, Jerico Center, VT (US); **David J. Dodge**, Williston, VT (US); **John Gerndt**, Burlington, VT (US); **Stefan Reuss**, Innsbruck (AT)

(73) Assignee: **The Burton Corporation**, Burlington, VT (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1120 days.

(21) Appl. No.: **08/619,358**

(22) Filed: **Mar. 21, 1996**

(51) **Int. Cl.**[7] **A43B 5/00**

(52) **U.S. Cl.** **36/115**; 36/117.1; 36/50.5; 36/88

(58) **Field of Search** 36/50.1, 50.5, 36/88, 92, 115, 116, 117.1, 117.9

(56) **References Cited**

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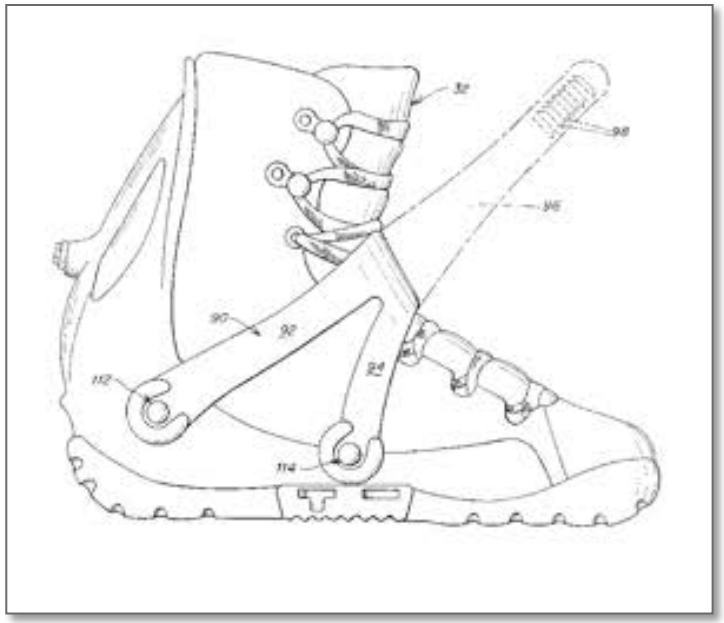
Primary Examiner—M. D. Patterson
(74) *Attorney, Agent, or Firm*—Wolf, Greenfield & Sacks,

Ex. 2160, The Burton Corporation Patent, '159 Patent

Assigned to The Burton Corporation



Ex. 2160, The Burton Corporation Patent, '159 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

significantly even when wet. Examples of such materials include a Kevlar or fiberglass band encased in a plastic coating such as Surlyn (available from DuPont), a non-stretch plastic strap formed by injection or compression molding, and a laminated non-stretch fabric die-cut to a desired shape. In the embodiment shown, the strap **30** includes a non-load bearing component. For example, the strap **30** may include a cushion material **54** (e.g., EVA foam material) to increase comfort. The cushion material may be

Ex. 2160 at 4:29–37

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

US010806491B2

(12) **United States Patent**
Miller et al.

(10) **Patent No.: US 10,806,491 B2**
(45) **Date of Patent: Oct. 20, 2020**

(54) **VASCULAR ACCESS KITS AND METHODS**

(71) Applicant: **TELEFLEX LIFE SCIENCES LIMITED**, Valletta (MT)

(72) Inventors: **Larry J. Miller**, Spring Branch, TX (US); **David S. Bolleter**, San Antonio, TX (US); **Robert W. Titkemeyer**, San Antonio, TX (US); **Charles M. Schwimmer**, Los Gatos, CA (US)

(73) Assignee: **Teleflex Life Sciences Limited**, Valletta (MT)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/854,406**

(22) Filed: **Dec. 26, 2017**

(65) **Prior Publication Data**

US 2018/0132894 A1 May 17, 2018

Related U.S. Application Data

(60) Division of application No. 14/791,654, filed on Jul. 6, 2015, now Pat. No. 9,872,703, which is a (Continued)

(51) **Int. Cl.**

(56) **References Cited**

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(Continued)

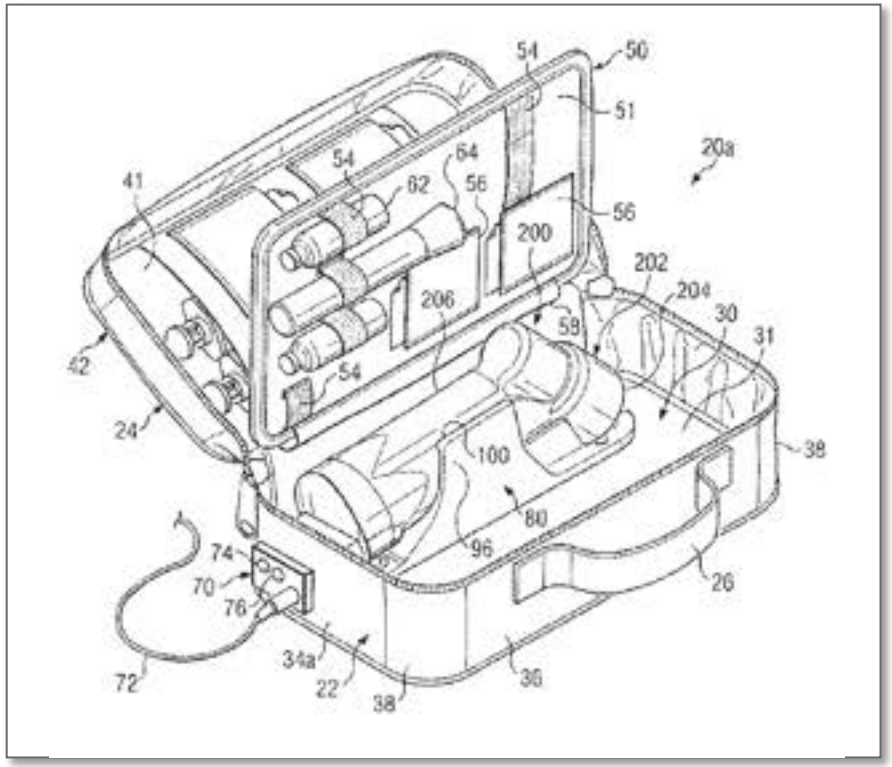
Primary Examiner — Christopher J Beccia
(74) *Attorney, Agent, or Firm* — BakerHostetler

(57) **ABSTRACT**

Kits carrying various components and devices are provided for use in obtaining access to a patient's vascular system. Various methods and procedures may be used to treat both emergency and more routine conditions using the contents of such kits. For example, such kits may contain various types of intraosseous (IO) devices including, but not limited

Ex. 2161, Teleflex Life Sciences Limited Patent, '491 Patent

Assigned to Teleflex Life Sciences Limited



Ex. 2161, Teleflex Life Sciences Limited Patent, '491 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

For some applications, kits **20** or **20*a*** may be generally described as a two part molded case formed at least in part by compression molding ethylene vinyl acetate (EVA) foam.

Ex. 2161 at 7:16–18

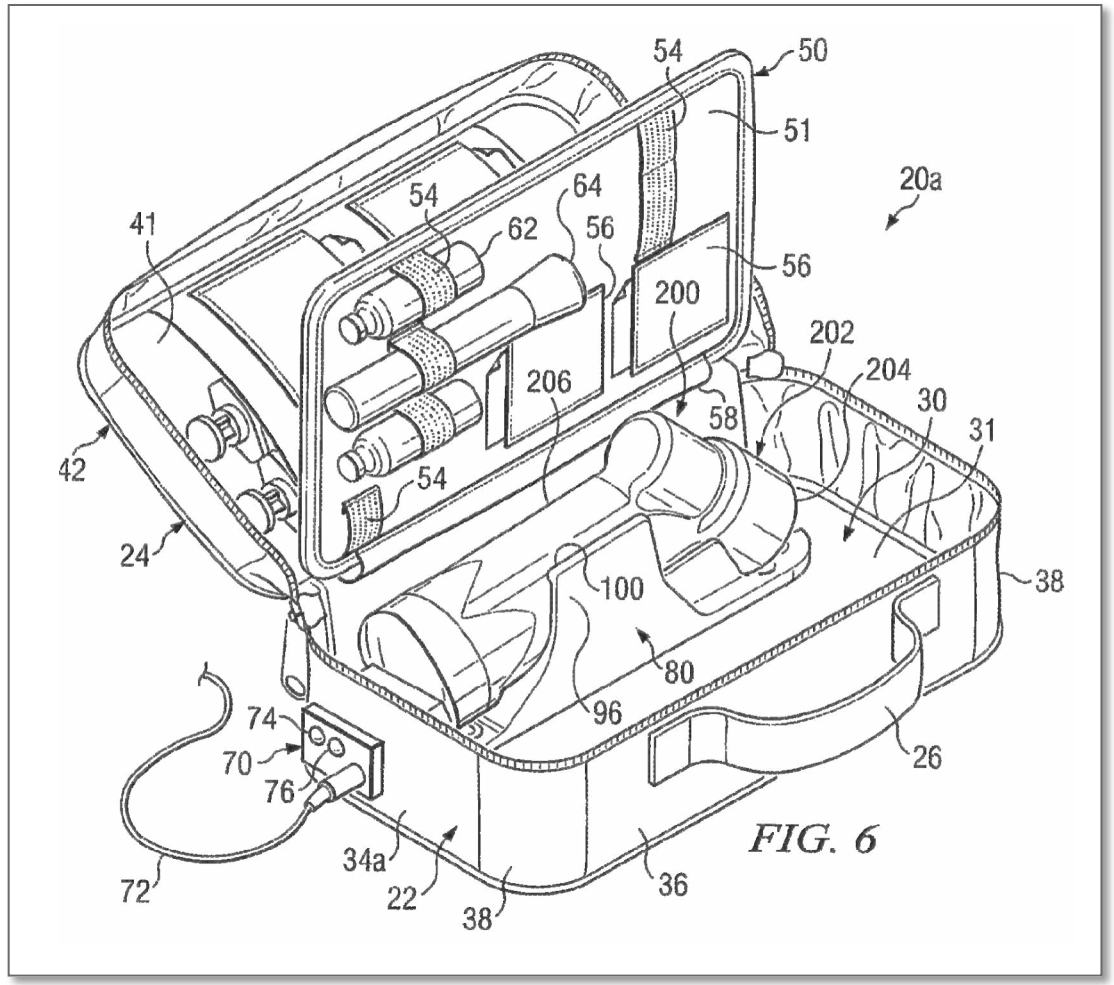


FIG. 6

Ex. 2161, FIG. 6

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

(12) **United States Patent**
Bray, Jr. et al.

(10) **Patent No.: US 6,931,763 B2**
(45) **Date of Patent: Aug. 23, 2005**

(54) **SLIPPER INSOLE, SLIPPER, AND METHOD FOR MANUFACTURING A SLIPPER**

(75) Inventors: **Walter Thomas Bray, Jr.**, Reynoldsburg, OH (US); **Theresa Stewart**, Columbus, OH (US)

(73) Assignee: **R.G. Barry Corporation**, Pickerington, OH (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/634,508**

(22) Filed: **Aug. 5, 2003**

(65) **Prior Publication Data**

US 2004/0134095 A1 Jul. 15, 2004

Related U.S. Application Data

(63) Continuation-in-part of application No. 10/213,276, filed on Aug. 5, 2002.

(51) **Int. Cl.**[7] **A43B 1/02**

(52) **U.S. Cl.** ..... **36/9 R**; 36/44; 36/11; 12/142 T

(58) **Field of Search** ..... 36/9 R, 43, 44, 36/71, 11, 12; 12/142 T, 142 G

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(Continued)

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Declaration of Walter Thomas Bray, Jr. including Exhibits A–I (Color Photographs).

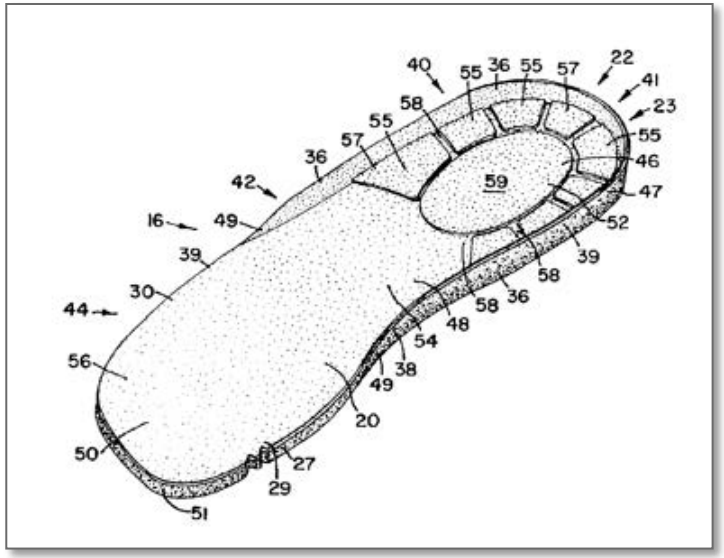
Primary Examiner—Jila M. Mohandesi
(74) *Attorney, Agent, or Firm*—Merchant & Gould P.C.

(57) **ABSTRACT**

An insole is described that can be placed with an insole receiving area of a slipper. The insole can be prepared by molding a structure comprising a foam layer having a first foam side and a second foam side. The insole includes a heel region, an arch region, and a toe region. The heel region includes a heel cushioning portion and a heel perimeter portion. The heel perimeter portion includes a retaining wall that extends above the top surface of the heel cushioning portion. The arch region includes an arch cushioning portion and an arch perimeter portion. The arch perimeter portion includes an arch support that extends above the top surface

Ex. 2162, R.G. Barry Corporation Patent, '763 Patent

Assigned to R.G. Barry Corporation



Ex. 2162, R.G. Barry Corporation Patent, '763 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

placed within an insole receiving area of a slipper. The insole can be prepared by compression molding a structure comprising a foam layer having a first foam side and a second foam side. The insole includes a heel region, an arch region, and a toe region. The heel region includes a heel cushioning portion and a heel perimeter portion. The heel perimeter

Ex. 2162 at 1:45–50

The insole **16** can be assembled by laminating a first layer **26** and a second layer **28** to provide a laminate construction **30**, and compression molding the laminate construction **30**. The first layer **26** can be a foam layer **27**, and the second layer **28** can be a fabric layer **29**. The foam layer **27** includes

Ex. 2162 at 2:64–3:1

to provide the insole. An exemplary foam material that can be used includes ethylene vinyl acetate. A particular form of

Ex. 2162 at 3:24–25

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

(19) **United States**
(12) **Patent Application Publication**
Thompson
(10) **Pub. No.: US 2006/0237130 A1**
(43) **Pub. Date: Oct. 26, 2006**

(54) **ACOUSTIC WEB**

(75) Inventor: **Delton R. Thompson**, Woodbury, MN (US)

Correspondence Address:
3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427 (US)

(73) Assignee: **3M Innovative Properties Company**

(21) Appl. No.: **11/423,985**

(22) Filed: **Jun. 14, 2006**

Related U.S. Application Data

(62) Division of application No. 10/335,752, filed on Jan. 2, 2003.

Publication Classification

(51) **Int. Cl.**
B32B 37/00 (2006.01)

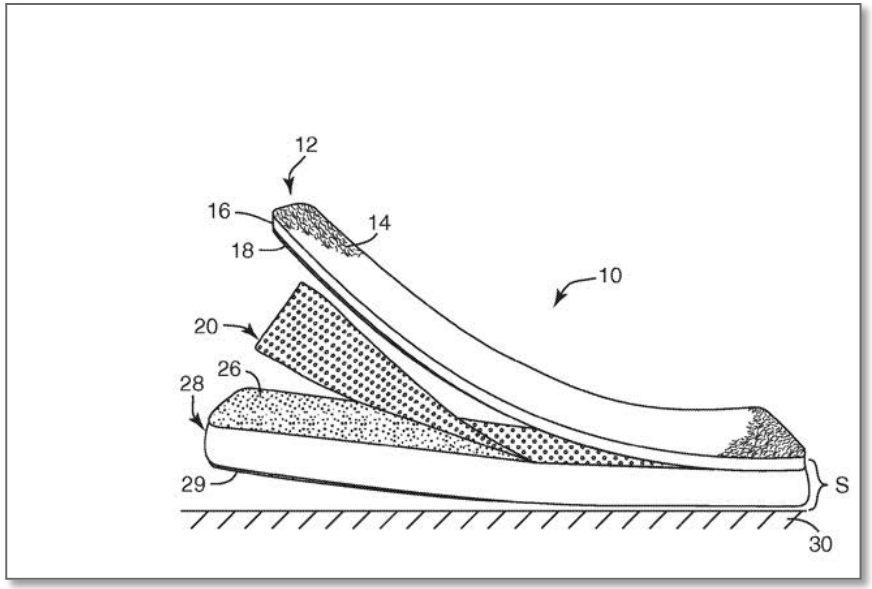
(52) **U.S. Cl.** **156/273.3**

(57) **ABSTRACT**

Pore plugging is reduced when laminating an airflow resistive membrane to a thermoplastic hot melt adhesive, by treating the membrane to reduce its surface energy. This enables fabrication of acoustical laminates incorporating substantial amounts of recycled fibrous insulating mat manufacturing waste, and permits design of the laminate based primarily on one-quarter wavelength sound absorption considerations and control of the porosity and interfacial adhesion of the airflow resistant membrane.

Ex. 2163, 3M Innovative Properties, '130 Patent

Assigned to
3M Innovative
Properties
Company



Ex. 2163, 3M Innovative Properties, '130 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

[0014] a) providing an acoustical laminate comprising a fibrous or open cell foam underlayment, a hot melt adhesive layer, a porous membrane that has been treated to render the membrane substantially impenetrable by molten polyethylene a hot melt adhesive layer, and a decorative layer; and

Ex. 2163 at ¶ 0014

[0067] A 30.5 cm×30.5 cm sample of 767 gram/m^2 carpet facing material made from nylon tufted into a nylon spunbond nonwoven and backed with LDPE was placed atop the fluorochemically treated web. The backed carpet bad a base and pile height of 5 mm. The resulting carpet-nylon airflow resistive membrane-adhesive web-fibrous insulating mat assembly was compression molded with heat to a thickness of 20 mm. Compression molding was accomplished by placing the assembly onto a 0.46 m×0.46 m×5.7 mm thick aluminum bottom platen bearing a polytetrafluoroethylene release liner to prevent sticking. An identical release liner-coated top platen was placed release liner side down atop the assembly. The platens were gapped to 20 mm to control thickness after oven heating in a simulated molding operation. Weights were placed onto the top platen to insure compression to the 20 mm spacer gap setting. A thermocouple was inserted into the insulating mat to measure the actual temperature during molding. The oven temperature was set to a relatively low value of 204° C. This provided a lengthy dwell time before the insulating mat thermocouple indicated an internal temperature of 170° C. and thus facilitated potential adhesive wetting into the airflow resistive membrane. Upon obtaining a 170° C. internal temperature, the molded assembly was removed from the oven and allowed to cool to room temperature. The molded assembly was carefully delaminated to separate the insulating mat from the carpet-airflow resistive membrane laminate. The remaining adhered fibers were meticulously removed from the airflow resistive membrane and the height of the carpet-airflow resistive membrane laminate was measured using a ruler. This allowed a visual observation of the degree of adhesive penetration or wetting into the airflow resistive membrane. The carpet-airflow resistive membrane laminate was placed into an airflow chamber with the carpet backing facing the airflow in order to measure airflow resistance.

Ex. 2163 at ¶ 0067

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

(12) **United States Patent**
Wan

(10) **Patent No.: US 10,245,798 B2**
(45) **Date of Patent: *Apr. 2, 2019**

(54) **METHOD FOR MANUFACTURING A MIDSOLE FORMED FROM TWO PREFORMS**

(71) Applicant: **NIKE, Inc.**, Beaverton, OR (US)

(72) Inventor: **Tee L. Wan**, Portland, OR (US)

(73) Assignee: **NIKE, Inc.**, Beaverton, OR (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 173 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **15/353,903**

(22) Filed: **Nov. 17, 2016**

(65) **Prior Publication Data**

US 2018/0133995 A1 May 17, 2018

(51) **Int. Cl.**

B29D 35/14	(2010.01)
B29C 44/02	(2006.01)
B29C 44/12	(2006.01)
B29C 44/34	(2006.01)
B29C 44/56	(2006.01)
B29D 35/04	(2010.01)

44/5627 (2013.01); *B29K 2023/083* (2013.01); *B29K 2105/253* (2013.01); *B29K 2995/0021* (2013.01); *B29L 2031/504* (2013.01)

(58) **Field of Classification Search**

CPC B29C 44/3465; B29C 44/3476; B29C 44/3496; B29C 44/0453; B29C 44/08; B29C 44/04; B29C 44/5627; B29C 44/3415; A43B 13/125; A43B 13/12

See application file for complete search history.

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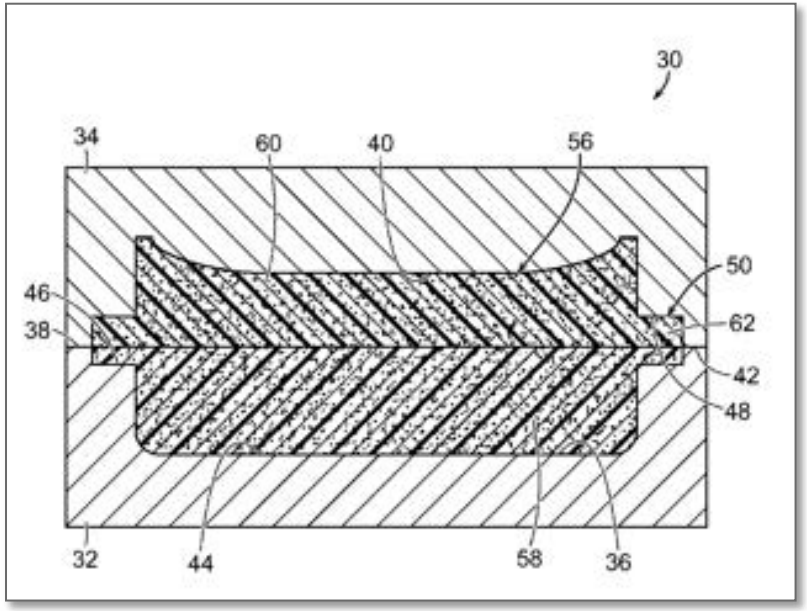
Primary Examiner — Joseph S Del Sole
Assistant Examiner — Mohamed K Ahmed Ali
(74) *Attorney, Agent, or Firm* — Banner & Witcoff, Ltd.

(57) **ABSTRACT**

A method of manufacturing a midsole for an article of footwear includes placing first and second preforms in a first mold, closing and heating the first mold to produce a midsole preform with a peripheral preform flange, removing the midsole preform from the first mold and allowing it to further expand and cool, placing the midsole preform in a second mold, with a volume of a midsole recess of the

Ex. 2166, NIKE, Inc. Patent, '798 Patent

Assigned to NIKE, Inc.



Ex. 2166, NIKE, Inc. Patent, '798 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

The midsole may be primarily formed from a resilient, polymer foam material, such as ethyl vinyl acetate (EVA), that extends throughout the length of the footwear. The

Ex. 2166 at 1:43–45

After midsole preform **56** has stabilized and cooled to ambient temperature, midsole preform **56** undergoes a compression molding step in a second mold **74**. Second mold 74

Ex. 2166 at 7:50–52

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

(12) **United States Patent**
Knoche et al.

(10) **Patent No.: US 6,782,642 B2**
(45) **Date of Patent: Aug. 31, 2004**

(54) **LIGHT RUNNING SHOE**

(75) Inventors: **Bernhard Knoche**, Nuremberg (DE); **Klaus Knoerr**, Langensendelbach (DE); **Gerald Kuhtz**, Nuremberg (DE)

(73) Assignee: **adidas International**, Amsterdam (NL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/920,439**

(22) Filed: **Aug. 1, 2001**

(65) **Prior Publication Data**

US 2002/0035796 A1 Mar. 28, 2002

(30) **Foreign Application Priority Data**

Aug. 2, 2000 (DE) 100 37 728

(51) **Int. Cl.**[7] **A43B 5/00**
(52) **U.S. Cl.** ..... **36/129**; 36/59 C
(58) **Field of Search** ..... 36/59 R, 59 C, 36/129

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EP	0458174 A1	11/1991	A43B/13/12
WO	WO 89/04125	5/1989	A43B/7/14
WO	WO 89/05593	6/1989	A43B/21/26
WO	WO 94/13164	6/1994	A43B/13/00
WO	WO 98/39984	9/1998	A43B/13/18

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Photograph of ASIC® show with a thermoplastic urethane grid affixed with glue to a conventional outsole in a rear foot portion of the shoe.

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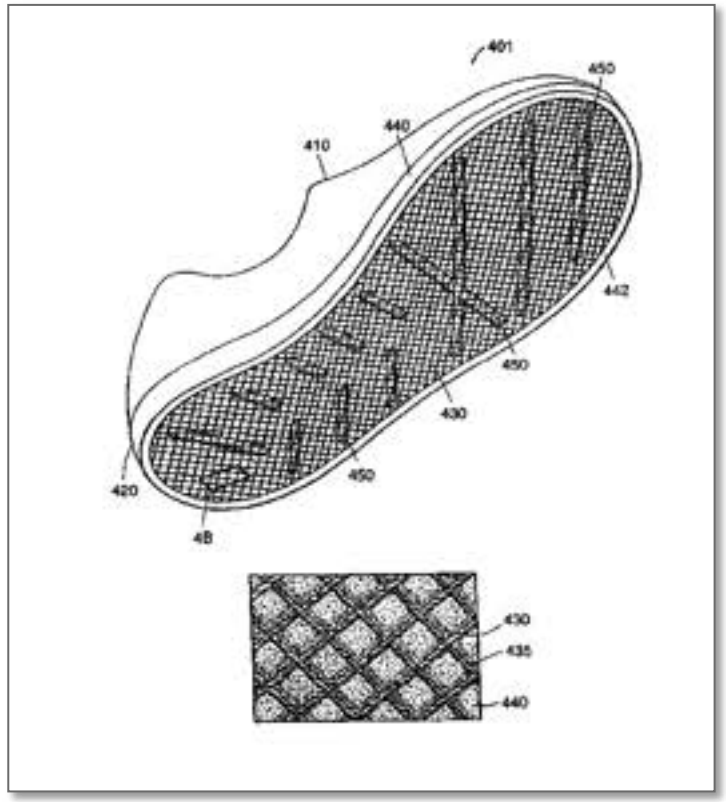
Primary Examiner—M. D. Patterson
(74) *Attorney, Agent, or Firm*—Testa, Hurwitz & Thibeault,

Ex. 2167, adidas International Patent, '642 Patent

Assigned to adidas International



Ex. 2167, adidas International Patent, '642 Patent

Numerous References Disclose Compression Molding of Foams

The sole layer **140** is constructed from conventional mid-sole materials that are relatively light weight, have relatively good damping properties, and are compliant, yet resilient. Shocks induced by the natural running motion are dampened preferably by the sole layer **140** so that the joints and the muscles of the wearer of the shoe are protected, particularly while running. Suitable damping materials include aerated materials or foams, such as ethylene vinyl acetate (EVA) foam, polyurethane (PU) foam, foam rubber, and combinations of these materials. The sole layer **140** can

Ex. 2167 at 4:25-35

the sole layer. The sole layer can be formed by injection molding, compression molding, or other suitable method.

Ex. 2167 at 2:28–29

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

(19) **United States**
(12) **Patent Application Publication**
Gait et al.

(10) **Pub. No.: US 2015/0106990 A1**
(43) **Pub. Date: Apr. 23, 2015**

(54) **SUSPENSION PADDING FOR LACROSSE GLOVE**

(71) Applicant: **Under Armour, Inc.**, Baltimore, MD (US)

(72) Inventors: **Paul Gait**, Albany, NY (US); **Chris Perra**, Albany, NY (US)

(73) Assignee: **Under Armour, Inc.**, Baltimore, MD (US)

(21) Appl. No.: **14/056,243**

(22) Filed: **Oct. 17, 2013**

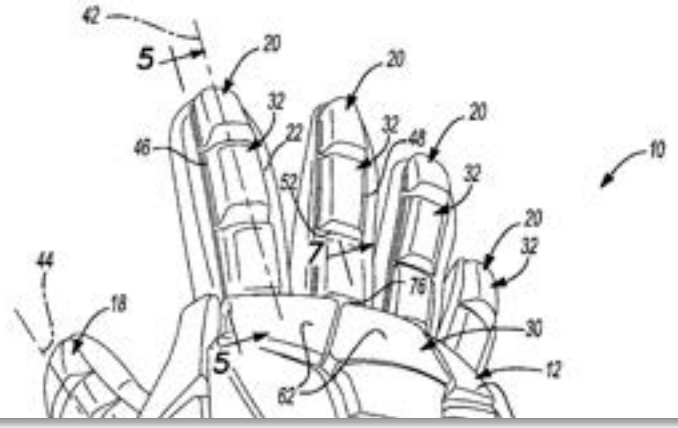
Publication Classification

(51) **Int. Cl.**
A63B 71/14 (2006.01)
A41D 19/015 (2006.01)

(52) **U.S. Cl.**
CPC *A63B 71/143* (2013.01); *A41D 19/015* (2013.01)

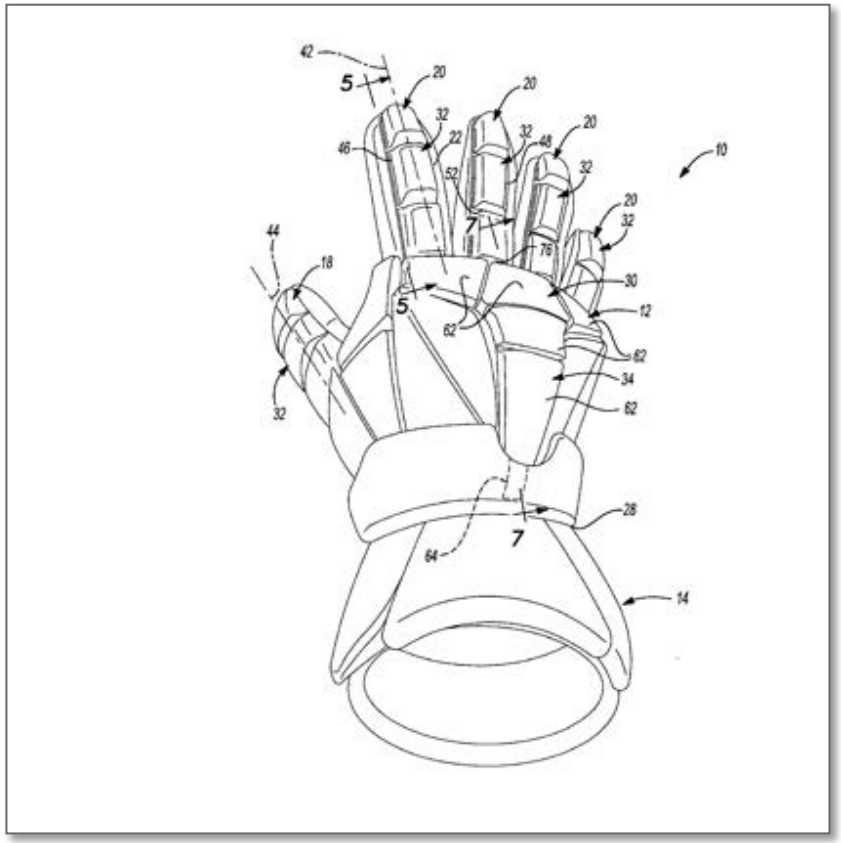
(57) **ABSTRACT**

A glove is provided and includes a wrist portion and a hand portion attached to the wrist portion. The hand portion includes a plurality of finger portions extending away from the wrist portion, a palm portion, and a back portion formed on an opposite side of the glove than the palm portion. The glove also includes a padded panel attached to the back portion. The padded panel is attached to the back portion at a first edge and is attached to the back portion via a tether at a second edge.



Ex. 2168, Under Armour, Inc. Patent, '990 Patent

Assigned to
Under Armour, Inc.



Ex. 2168, Under Armour, Inc. Patent, '990 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

[0030] In one configuration, the outer layer **36** is formed from polyurethane (PU) leather that is laminated to ethylene-vinyl acetate (EVA) foam. The PU leather and the EVA foam are then compression molded to form an outer layer of the padded segments **32**. The EVA foam provides the padded segments **32** with a degree of rigidity while the PU leather provides a desired aesthetic appearance. Further, compression molding the PU leather and EVA foam creates a molded skin of each padded segment **32** that has a cavity shaped to receive an energy-absorbing pad **38**. The energy-absorbing pad **38** is inserted into the cavity and may be secured therein via a suitable adhesive. Once the energy-absorbing pad is received with in the cavity, the PU leather and EVA foam is wrapped around the energy-absorbing pad **38** and held in place via a suitable adhesive.

Ex. 2168, ¶ 30

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

(12) **United States Patent**
Béland

(10) **Patent No.: US 7,013,487 B2**
(45) **Date of Patent: Mar. 21, 2006**

(54) **METHOD OF MAKING A PROTECTIVE PAD**

(75) Inventor: **Jean-François Béland**, Montreal (CA)

(73) Assignee: **Bauer Nike Hockey Inc.**, St. Jérome (CA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 135 days.

(21) Appl. No.: **10/391,810**

(22) Filed: **Mar. 20, 2003**

(65) **Prior Publication Data**

US 2004/0181850 A1 Sep. 23, 2004

(51) **Int. Cl.**
A41D 13/00 (2006.01)

(52) **U.S. Cl.** **2/22**

(58) **Field of Classification Search** 2/22, 2/16, 24, 455, 908, 911, 242, 62, 910; 602/16, 602/20, 23, 26; 128/878, 882
See application file for complete search history.

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Primary Examiner—Tejash Patel

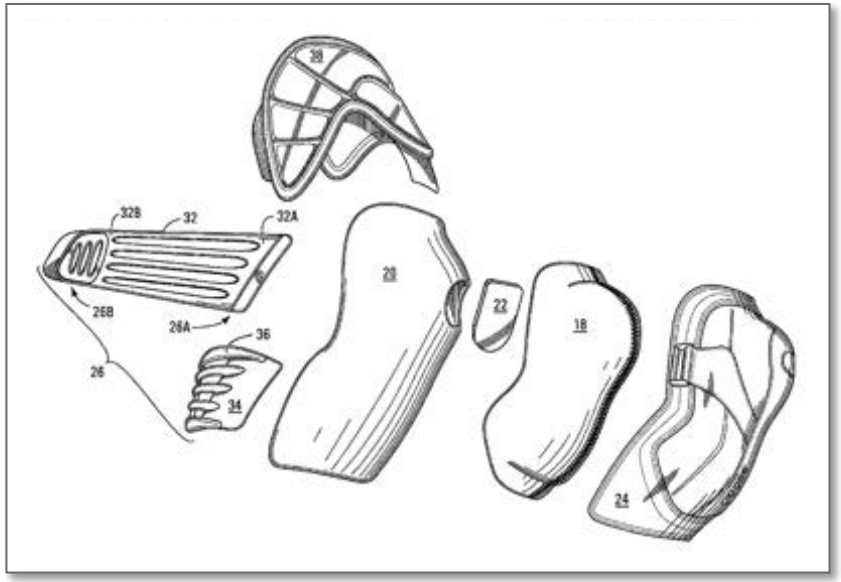
(57) **ABSTRACT**

A method of making a protective pad, which comprises fastening a plurality of sections together to create an outer shell, providing an inner shell made of a more rigid material than the sections making up the outer shell, fastening the inner shell to the outer shell (thereby to form a composite shell) and fastening the composite shell to a padding liner. The use of plural sections forming the outer shell reduces manufacturing costs. An overlay may be placed over the outer shell to conceal the areas where the sections making up the outer shell are fastened together. Fastening the composite shell to the padding liner may include passing through a thinned out portion of the hard inner shell, or it may bypass the inner shell altogether, thus avoiding the use of heavy duty stitching equipment. The step of fastening the inner and outer shells may include gluing rather than stitching.

29 Claims, 9 Drawing Sheets

Ex. 2170, Bauer Nike Hockey Inc. Patent, '487 Patent

Assigned to
Bauer Nike
Hockey Inc.



Ex. 2170, Bauer Nike Hockey Inc. Patent, '487 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34.

Numerous References Disclose Compression Molding of Foams

requirement of the present invention. Each of the sections **10A, 10B** may be a foam section produced by a compression molding process known to those of ordinary skill in the art.

Ex. 2170, Col. 2:34-36

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

United States Patent [19]
Wingo, Jr. et al.

[11] **Patent Number: 5,035,009**
[45] **Date of Patent: Jul. 30, 1991**

[54] **PROTECTIVE HELMET AND LINER**

[75] Inventors: **James C. Wingo, Jr.**, Stafford, Tex.; **Nelson Kraemer**, Mt. Prospect, Ill.

[73] Assignee: **Riddell, Inc.**, Chicago, Ill.

[21] Appl. No.: **589,387**

[22] Filed: **Sep. 27, 1990**

[51] **Int. Cl.**[5] **A42B 3/00**
[52] **U.S. Cl.** **2/414**; 2/425
[58] **Field of Search** 2/410, 411, 414, 422, 2/425, 190; 181/126

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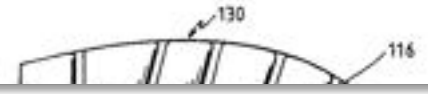
Primary Examiner—Werner H. Schroeder
Assistant Examiner—Michael A. Neas
Attorney, Agent, or Firm—Ben D. Tobor

[57] **ABSTRACT**

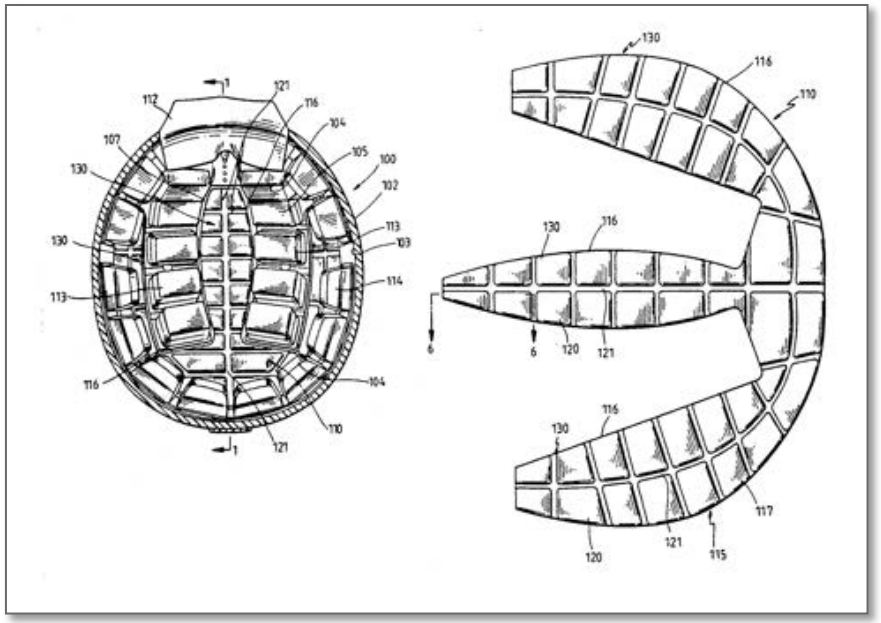
A protective helmet and liner therefor includes a sheet of sound deadening material which fits between impact force absorbing pad structures disposed on the interior of the protective helmet.

20 Claims, 4 Drawing Sheets



Ex. 2171, Riddell, Inc. Patent, '009 Patent

Assigned to
Riddell, Inc.



Ex. 2171, Riddell, Inc. Patent, '009 Patent

CITE: Paper 70 (Sur-Reply-1139) at 34, Paper 70 (Sur-Reply-1142) at 34

Numerous References Disclose Compression Molding of Foams

With reference to FIGS. **5–8**, liners **110**, **110′**, are preferably formed of a sound deadening material which is a plastic material. A plastic material not only provides the desired sound dampening and deadening characteristics required, but is also readily inserted within helmets **100**, **101**, and can be snugly received within spaces **107**, with a slight frictional fit, as previously described. The plastic material may preferably be a plastic foam material which preferably may be a closed cell plastic foam material. One suitable example of such a closed cell plastic foam material is a cross-linked polyethylene closed cell foam. Such material further has the ability to

Ex. 2171 at 5:40–52

in the case of the helmet **101** of FIGS. 3 and 4. Preferably, liners **110**, **110′** are formed as a single, integral sheet **115**, **115′**, of sound deadening material by a compression molding process. Although raised projections **120** are

Ex. 2171 at 6:13–16

Thermoforming in the ’186 Patent Refers to Vacuum/Pressure Forming with a Single Mold

- To a POSITA, Thermoforming is vacuum or pressure forming with a single mold. (See Ex. 2183, 84:21-85:13, 79:6-14)
- Petitioner’s Own Reference Defines it as Such:

> One prior art process is the use of thermoforming to produce a multi-dimensional, contoured mat. In this process, a polymer sheet is placed over a solid molding from defining the shape of the mat. The sheet is softened by heating in an oven and is held to the form by either vacuum or air pressure forcing the sheet against a female or male tool. However,

Paper 3 (Pet-1142) at 51

- Vacuum forming is the only thermoforming technique disclosed in the ’186 Patent. Ex. 1001 (IPR 1139) at Col. 18, ll. 24–27

CITE: Paper 70 (Sur-Reply-1139) at 35, Paper 70 (Sur-Reply-1142) at 35

Petitioner's Expert Agrees One Would Not Thermoform a Foam


good candidates for matched mold forming. In fact, all thermoplastic foam materials are formed using the matched mold forming technique. Using a

Ex. 2153 at p. 18
Thermoforming Treatise

- Mr. Strachan agrees. (Testimony of Mark Strachan Ex. 2183, 262:11–263:2)
- Gruenwald considers matched molding to be compression molding. (Gruenwald Treatise Ex. 1007, 0159, 0251)
- Matched molding uses 2 molds. (Compare Testimony of Mark Strachan Ex. 2183, p. 107:3–22 describing compression molding with Ex. 2153, p. 18 with same description of matched molding)

CITE: Paper 70 (Sur-Reply-1142) at 35, Paper 70 (Sur-Reply-1139) at 35

Mr. Strachan's "Forming Window" Argument Is Flawed

- Mr. Strachan is not Qualified—No Coursework in Polymers, and Not a Chemist

> Q. Have you ever taken a course in polymer chemistry?
>
> A. No, I have not.

Ex. 2183 at 35:7–9
Testimony of Mark Strachan"

> Q. You can crosslink polyethylene. Correct?
>
> A. In my experience -- I'm not a chemical -- a chemist, but in my experience you can crosslink it if you add additive to it in order -- it's basically a thermoset additive to it in order to enhance its properties. You can create some crosslinking.

Ex. 2183 at 137:22–138:9
Testimony of Mark Strachan"

> A. I would not try to interpret the document. I don't know the author. So I wouldn't know if it's true.
>
> As I mentioned, I'm not a chemist. Never discussed this at all in my -- discussed this at all in my declaration.

Ex. 2183 at 141:14–22
Testimony of Mark Strachan"

> A. Yeah. Well, I wouldn't know enough about it to know whether it renders it nonmelting, at what point in time the crosslinks will do that.
>
> But again, I'm not a chemist. I haven't been asked to opine on this and haven't done research on that. So I do not know.

Ex. 2183 at 147: 17–22
Testimony of Mark Strachan"

CITE: Paper 70 (Sur-Reply-1142) at 36, Paper 70 (Sur-Reply-1139) at 36

Mr. Strachan's Data from the Throne Treatise is Flawed

temperature for that polymer. The crystalline polymer forming temperature range is usually quite narrow and the recommended forming temperature range is often within a few degrees of the polymer melt temperature. Certain crystalline polymers such as nylon (PA) and homopolymer polypropylene (PP) retain high degrees of order and therefore great strength up to abrupt melting points, then have very low melt viscosities and melt elasticities. As a result, these polymers have normal processing windows as narrow as 2 to 5°C or 5 to 10°F. It must be understood, therefore, that the temperature ranges given in Table 2.5 represent extreme or ideal conditions. Practical forming ranges are usually much narrower. A more thorough analysis of the interaction of temperature-dependent stress-strain behavior, viscoelasticity, applied stress and extent of drawing is given in Chapter 4.

Ex. 1008 at 098–99
Throne Treatise

CITE: Paper 70 (Sur-Reply-1142) at 36, Paper 70 (Sur-Reply-1139) at 36

Mr. Strachan Focused on the Wrong Data—The Materials are Semicrystalline

- Yung's materials are semi-crystalline.
  - Ex 2183, 125:3-5
  - Ex 2117, p. 13
  - Ex 2144, p. 1
  - Ex 2184, 204:16-20, 24:21-25:24
  - Ex. 1008, p. 667

CITE: Paper 29 (POR-1139) at 68, Paper 28 (POR-1142) at 69

Mr. Strachan Focused on the Wrong Data—The Melting Point is the Relevant Point

temperature for that polymer. The crystalline polymer forming temperature range is usually quite narrow and the recommended forming temperature range is often within a few degrees of the polymer melt temperature. Certain crystalline polymers

Ex. 1008 at p. 098
Throne Treatise

morphology, until the melting point is reached. Thus the normal thermoforming or "forming" temperature for an amorphous polymer is closely related to Tg, but for crystalline polymers the forming temperature is more dependent on the Tm. Typically, for single component amorphous materials, the lower forming temperature is about 20-30°C above Tg, and the normal forming temperature is 70-100°C above Tg. In contrast, the forming temperature range for crystalline polymers is quite narrow and the recommended forming temperature is often within a few degrees of the polymer Tm.

Ex. 1067 at p. 3

CITE: Paper 70 (Sur-Reply-1139) at 37, Paper 70 (Sur-Reply-1142) at 37

Mr. Strachan's 50 Degree Plus Forming Ranges for Individual Materials are Way Off

given in Table 2.5 represent extremes and ideal conditions. Actual forming temperature ranges are usually only a few degrees. Table 2.15 gives some general forming characteristics for many of the polymers listed in Tables 2.5 and 2.12. Special, more expensive polymeric homologs are being developed to circumvent the forming inadequacies of certain polymeric classes.

Ex. 1008 at 113
Throne Treatise

CONCLUSIONS

Injection molded HDPE sheets were formed under industrially relevant processing conditions and based on the results the following conclusions can be made;

1. A small temperature processing window of 126-130°C exists, to process the grade HDPE used, for the high-rate EB deformation applied.

Ex. 2152 at p. 7
Paper on Thermoforming HDPE

CITE: Paper 70 (Sur-Reply-1142) at 36–37, Paper 70 (Sur-Reply-1139) at 36–37

Mr. Strachan's 50 Degree Plus Forming Ranges for Individual Materials are Way Off

CONCLUSIONS

Injection molded HDPE sheets were formed under industrially relevant processing conditions and based on the results the following conclusions can be made;

1. A small temperature processing window of 126-130°C exists, to process the grade HDPE used, for the high-rate EB deformation applied.

Ex. 2152 at p. 7
Paper on Thermoforming HDPE

This range is near the melting point of HDPE in Throne of 134 Degrees C.

Table 2.5 Characteristic Temperatures of Thermoformable Polymers

Polymer	Glass transition temperature (°C)	(°F)	Melt temperature (°C)	(°F)	Heat distortion temperature (0.46 N/mm²/ 66 psi) (°C)	(°F)	Set and mold temperature (°C)	(°F)	Lower forming temperature (°C)	(°F)	Orienting temperature (°C)	(°F)	Normal forming temperature (°C)	(°F)	Upper forming temperature (°C)	(°F)
. . .																
HDPE	−110	−166	134	273	79–91	175–196	77	170	127	260	132	270	146	295	182	360

Ex. 1008 at 0086
Throne Treatise

CITE: Paper 70 (Sur-Reply-1142) at 36–37, Paper 70 (Sur-Reply-1139) at 36–37

Mr. Strachan Failed to Take Into Account Other Factors Impacting the Forming Temperature Range

forming temperatures. While formability is strongly based on the temperature forming window, other factors influence the material's formability, including, but not limited to, the sheet characteristic, the uniformity of heating, the depth of draw, the general mold geometry, and the ambient conditions. EX1008, 0132.

Ex. 1042 at ¶ 93
Declaration of Mark Strachan

CITE: Paper 70 (Sur-Reply-1142) at 37, Paper 70 (Sur-Reply-1139) at 37

Mr. Strachan Conflates PET Plastic with Polyester Fiber

charring. The same is true for fabrics such as cotton and wool. If polymeric fabrics are part of the laminate, the local temperature must remain below the point where there is significant loss of fiber orientation.

Ex. 1009 at p. 137
Throne Treatise

CITE: Paper 70 (Sur-Reply-1142) at 37, Paper 70 (Sur-Reply-1139) at 37

Mr. Strachan Conflates PET Plastic with Polyester Fiber

Q. You didn't take into account the loss of fiber orientation in your analysis in your declaration. Correct?

A. It was not considered -- it was not considered at all. I reviewed the materials that were given to me, which was formed into a very shallow part, which didn't require much orientation at all in the bottom layer. And so it was not a consideration nor was I directed to look at that, to consider that.

Ex. 2183 at 251:6–17
Testimony of Mark Strachan

3. One Would Not Use Yung's Foams to Create Rabbe's Floor Tray

Yung's Foams are Not Suitable for a Close Conforming Floor Tray

[0011] The material of the above mentioned middle plastic plate or layer (20) as a flexible, light weight, and waterproof Polyethylene (PE) or Polyethylene—Vinyl Acetate (EVA) foam. The above mentioned net lining (30) is composed of multiple yarns or threads (31) woven or knotted in a combination of both horizontal and longitudinal ways to form a net fabric. This net fabric was dipped and coated with plastic (PVC etc.) resins, which are for10 mulated with foam)ng agent. This coated fabric after being treated by heatfoaming process, along the threads or yarns (31) continuous sponge foam will be formed on the thread or yarn surface in a suitable thickness and on each knot place foam particle (32) will be created also. The improved mat used in cars (100) of this invention is formed by sticking the net lining (30) with multiple foam particle (32), aforesaid middle, plastic plate or layer (20), and the upper polyester fabric (10) together, and binning the three parts to form a whole mat as shown in FIG. 1.

Ex. 1006 at ¶ 11
Yung Reference

One-Size-Fits-All Mat

[0012] As figures shown that the mat (100) of this invention is a plate-shaped object, and there is a shallow plate-shaped object at the front flange of the mat. The plate-shaped object and the shallow plate-shaped object are for people to step on. The mat can be placed freely depends on the locations of the front seat and rear seat.

Ex. 1006 at ¶ 12
Yung Reference

CITE: Paper 29 (POR-1139) at 61 & 68, Paper 28 (POR-1142) at 62 & 69

Yung's Foams are Not Suitable for a Close Conforming Floor Tray

- A foamed mat can be folded and rolled up. Declaration of Dr. Tim Osswald Ex. 2041, ¶ 146;
- Pool noodles are made of PE Foam. Declaration of Dr. Tim Osswald Ex. 2041, ¶ 146;
- Yung does not disclose a "semi-rigid" material suitable for Rabbe's trays

CITE: Paper 29 (POR-1139) at 68, Paper 28 (POR-1142) at 69

MacNeil's Motion to Strike

Yita Is Not Permitted to Change Theories in Its Reply

i

"It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify 'with particularity' the 'evidence that supports the grounds for the challenge to each claim.'"

Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd., 821 F.3d 1359, 1369 (Fed. Cir. 2016)

"Petitioner may not submit new evidence or argument in reply that it could have presented earlier, e.g. to make out a prima facie case of unpatentability."

Patent Trial and Appeal Board Consolidated Trial Practice Guide November 2019 ("CTPG"), 73

"'Respond,' in the context of 37 C.F.R. § 42.23(b), does not mean proceed in a new direction with a new approach as compared to the positions taken in a prior filing."

Patent Trial and Appeal Board Consolidated Trial Practice Guide November 2019 ("CTPG"), 74

CITE: Paper 72 ("MTS-1139"), 3, 7; Paper 72 ("MTS-1142"), 3, 7

New Evidence Filed with Yita's Replies

- Yita filed 55 new exhibits (EX1039-EX1093) with each reply,
  - At least 43 of the new exhibits could have been filed with the Petition.

- Yita filed 3 new expert declarations, only one of which (Dr. Koch) previously offered testimony in support of the Petitions.
  - Cumulatively amounts to 243 pages of new expert testimony.

Portions of Yita's Reply and Supporting Expert Declarations Should Be Stricken

- Yita's replies present improper new arguments, rationales, and theories that should be stricken, including:
  - A new theory of reasonable expectation of success;
  - A new theory of what Rabbe discloses to a POSITA; and
  - A new theory that a POSITA would thermoform Yung's tri-laminate layer or foam layer.
- Yita improperly incorporates by reference 178 pages of new expert testimony (over 36,000 words) in violation of 37 C.F.R. § 42.6(a)(3).

Yita's Original Theory on Expectation of Success

The Petition alleged that a POSITA could have used a stationary coordinate measure machine (CMM) to gather three-dimensional data from a vehicle footwell and simply downloaded the "coordinates" to a 3D milling machine to create a mold:

led to predictable results. For example, a POSA would have known that three-dimensional data modeling of the vehicle foot well was readily generated by technology existing before October 2004. EX1003, ¶175; EX1035. Cooperation was not needed between the OEM car manufacture and floor tray manufacture. EX1003, ¶175. Using a device called a coordinate measure machine (CMM), three-dimensional data was gathered from the vehicle foot well. EX1035, 5:35-52. Many prior-art CMM machines were suitable to conduct a step-by-step touch and record process that created a 3D computer model of parts with complex shapes/curvatures, scanning the floor of an existing vehicle and downloading the coordinates to a 3D milling machine. EX1003, ¶175; EX1035, 5:35-52. The 3D data was used to create a male or female thermoform mold. EX1003, ¶175.

Paper 3 (Pet-1139) at p. 67

CITE: MTS-1139, 5; MTS-1142, 5; Pet-1139, 67; Pet-1142, 52-53

Yita's Original Theory on Expectation of Success is Flawed

Petitioner's new declarant, Mr. Perreault, admitted that you can't just feed the coordinates obtained from a CMM machine to a machine to make the mold:

> Q. (By Mr. Wille) Okay. My point is is that if the CMM is not providing you the complete picture, you couldn't go straight from the coordinates to the machine to make the mold in order to make the mold, correct?
>
> A. You couldn't do that without doing the other in-between steps.

Ex. 2185 at 95:9-15

Yita's New Theory on Expectation of Success Should Be Stricken

- Petitioner presents a new theory in reply that alleges a POSITA would follow the process laid out in the '186 and '834 Patents to:
  - Use a portable CMM (FaroArm) to measure a vehicle footwell;
  - Use computer aided design software to create a 3D representation of the desired product;
  - Create a mold to manufacture the actual product.
- To support the new theory, Petitioner filed the new 58-page declaration of Mr. Perreault.
- Tellingly, Mr. Perreault did not even consider the Hemmelgarn reference Petitioner originally relied-upon to support its theory.

CITE: Reply-1139, 23-25; Reply-1142, 23-25; EX1042; MTS-1139, 5-6; MTS-1142, 5-6

Yita's New Theory and Mr. Perreault's Testimony Could Have Been Included With The Petition

i

- In the just over two pages in which the reply addresses this new theory, the reply improperly incorporates by reference paragraphs 31-77 (31 pages) of Mr. Perreault's declaration.

- Mr. Perreault relies on 15 new exhibits that could have been filed with the Petition.

- Yita's belated attempt to proceed in a new direction with a newly raised rationale and new evidence is improper.

CITE: Reply-1139, 23-25; Reply-1142, 23-25; EX1042; MTS-1139, 6-7; MTS-1142, 6-7

Yita's Statements In The Petition Do Not Support Yita's New Theory

- Yita wrongly contends that its mention of "three-dimensional data modeling of the vehicle foot well" and "creat[ing] a 3D computer model" in the Petition support its new theory.

- These statements refer to the process of gathering three-dimensional data from the vehicle foot well—not the intermediate design steps in Yita's new theory.

- Neither the Petition nor Dr. Koch's declaration mention using computer-aided design software or using that software to process data from a CMM scan to form a 3D representation of the desired product.

CITE: Paper 74 ("Opposition-1139"), 6-7; Paper 75 ("MTSReply-1139"), 2-4; Paper 74 ("Opposition-1142"), 6-7; Paper 75 ("MTSReply-1142), 2-4

Yita Changes Theories on What Rabbe Discloses to a POSITA

water, mud, snow and other soil." EX1005, Abstract. "The protective tray is produced from *semi-rigid rubber or other material having the same properties*." *Id.* Because Rabbe is silent on the exact materials and process for making its floor tray, a POSA would have looked to common materials and processes known in the art and within the basic knowledge of a POSA. EX1003, ¶124. This would have, of course, included thermoplastic materials and thermoforming processes. *See supra* Section II; EX1003, ¶¶50-55, 124. Indeed, Rabbe's disclosure of "semi-rigid rubber or other material having the same properties," EX1005, Abstract, would have suggested to a POSA to consider thermoplastics, well-known materials in the art, and thus logically thermoforming, which was well known for shaping thermoplastics. *See supra* Section II; EX1003, ¶124.

Paper 3 (Pet-1139) at p. 36

Molding vehicle floor trays from polymers was typical in the prior art. Section II; EX1003, ¶128. Rabbe's "protective tray [is] produced from semi-rigid rubber or another material having the same properties." EX1005, 1:16–18. This discloses or suggests a polymeric material. EX1003, ¶128. Similarly, Yung discloses "an improved mat used in cars (100) is consisting of…a middle Plastic [sic] plate or layer (20)" made from, for example, "a flexible, light weight, and waterproof *Polyethylene (PE)* or Polyethylene—Vinyl Acetate (EVA) foam." EX1006, ¶¶10-11. Yung's Figure 2 shows "a structured view of the *unformed* mat." *Id.*, ¶7.

Paper 3 (Pet-1142) at pp. 33-34

CITE: Pet-1139, 36; Pet-1142, 33; MTS-1139, 8-9; MTS-1142, 9

Yita's New Theory on What Rabbe Discloses to a POSITA Should Be Stricken

i

MacNeil alleges that Rabbe's tray is limited to a non-thermoformable semi-rigid rubber (not a thermoplastic). POR, 13-14, 55. But a POSA would have considered Rabbe's teachings to include thermoplastic elastomers. EX1056, ¶2; EX1041, ¶¶71-79, 139-140. And a POSA would have recognized that thermoplastic materials would qualify as Rabbe's other "material having the same properties." EX1005, 1:16-19; EX1041, ¶¶80-83, 136-138. Rabbe refers to two main properties: (1) semi-rigid yet flexible; and (2) waterproof. EX1005, 1:13-26; EX1041, ¶80. There are many thermoplastics with the same semi-rigid, flexible, and waterproof properties as semi-rigid rubber, including polyethylene and foamed polyethylene. EX1057, 228-231; EX1009, 0202; EX1041, ¶80; EX1042, ¶¶49-54.

Paper 60 (Pet-1139) at p. 13

CITE: Reply-1139, 13; see also Reply-1142, 14

Yita's New Theory Concerning Yung's Foam and Laminate Should Be Stricken

Moreover, regardless of Yung's specific material and its properties, a POSA would have understood how to adjust the polyethylene (or polyethylene foam) to address any alleged problems with Yung's specific material. EX1041, ¶¶112-115. Indeed, as discussed above, thermoforming Yung's tri-layer mat was an option that a POSA would have been aware of, EX1058, 3; EX1053, 4:53-59, 4:68-5:6, 5:31-33, which moots MacNeil's arguments about using polyethylene by itself. EX1042, ¶¶75-97.

Paper 60 (Pet-1139) at p. 21

CITE: Reply-1139, 21; see also Reply-1142, 21-22

Yita's Replies Improperly Incorporate by Reference Argument from Its Experts' Declarations

Reply Page No.	Incorporation by Reference
p. 2 (FN1)	Incorporates by reference ¶¶ 13-16 of EX1041 for proposition that "closely conforming" does not mean within about one-eighth of an inch conformance
p. 6	Incorporating by reference ¶¶26, 40-47 of EX1041 for proposition that any mistranslation of Rabbe was immaterial
p. 6	Incorporating by reference ¶¶ 27, 35-39 of EX1041 for proposition that raised edges 2 refer to Rabbe's side panels
p. 7	Incorporating by reference ¶¶ 48-53 EX1041 for proposition that additional prior art confirms that conforming to a footwell's contours was well known
p. 11	Incorporating by reference ¶¶ 122-123 and 146-149 of EX1041 for proposition that Yung's teaching of foam particles does not teach away from thermoforming a custom-fit floor tray.
p. 13	Incorporating by reference ¶¶ 71-79, 139-140 of EX1041 for proposition that a POSA would have considered Rabbe's teachings to include thermoplastic elastomers
p. 13	Incorporating by reference ¶¶ 49-54 of EX1042 for proposition that there are many thermoplastics with the same semi-rigid, flexible, and waterproof properties as semi-rigid rubber
p. 14	Incorporating by reference ¶¶ 71-76, 83, 122-128, and 134-135 of EX1041 and ¶¶ 49-57 of EX1042 for proposition that Rabbe's disclosure would have led a POSA to thermoformable thermoplastic materials
p. 14	Incorporating by reference ¶¶ 63-70 of EX1041 and ¶¶ 47-57 of EX1042 for proposition that Rabbe is not limited to thermoset stitched or glued from separate pieces and thermoforming floor trays was within the basic knowledge of a POSA

Reply Page No.	Incorporation by Reference
p. 15	Incorporating by reference ¶¶41-43 and 66-69 of EX1042 and ¶¶ 5-8 and 84-85 of EX1041 for proposition that thermoformers knew techniques to account for undercuts
p. 15, 16	Incorporating by reference ¶¶ 88, 154-155 of EX1041 and ¶¶ 58-61 of EX1042 for proposition that Rabbe's drawings not production level plans
p. 16	Incorporating by reference ¶¶ 92-95 of EX1041 for proposition that Yung is not limited to polyethylene foam
p. 18	Incorporating by reference ¶¶ 94-102 and 142 of EX1041 and ¶¶ 84-87 of EX1042 for proposition that further evidence corroborates foams were thermoformed
p. 18	Incorporating by reference ¶¶ 73-83, 91-97 of EX1042 for proposition that it was common to thermoform laminate structures even when those materials did not have the same melting temperature
p. 21	Incorporating by reference ¶¶ 141-145 of EX1041 for proposition that polyethylene foam would have the elasticity to retain its shape after being removed from the vehicle
p. 21	Incorporating by reference ¶¶ 75-97 of EX1042 for proposition that thermoforming Yung's tri-layer mat was an option that a POSA would have been aware of and moots MacNeil's arguments about using polyethylene by itself
p. 22	Incorporating by reference ¶¶ 129-133 of EX1041 and ¶¶ 69-72 of EX1042 for proposition that a POSA would not have viewed the thermoforming process as costly
p. 23	Incorporating by reference ¶¶ 158-162 of EX1041 for proposition that POSA could have obtained an accurate scan and made a mold

Reply Page No.	Incorporation by Reference
p. 23	Incorporating by reference ¶¶ 34-56 of EX1044 for proposition that tools used in the '186 Patent were commercial products available to everyone
p. 23	Incorporating by reference ¶¶ 31-33 and 57-63 of EX1044 for proposition that POSA would have known how to use existing tools to achieve an accurate mold that produced a closely conforming tray
p. 24	Incorporating by reference ¶¶ 36-45, 67-69 of EX1044 for proposition that POSA knew of FaroArm
p. 24	Incorporating by reference ¶¶ 36-45 of EX1044 for proposition that POSA would have been aware of portable CMMs
p. 24	Incorporating by reference ¶¶ 46-56 of EX1044 and ¶¶ 159-160 of EX1041 for proposition that CAD software was also well known for creating accurate molds from CMM data
p. 24	Incorporating by reference ¶¶ 46-56 of EX1044 for proposition that other software (e.g., Polyworks) available by 2004 used the data to form a mold
p. 24	Incorporating by reference ¶¶ 64-77 for proposition that process used well-known steps including those discussed by Mr. Granger
p. 24	Incorporating by reference ¶¶ 35, 46-56, 65, 70-77 of EX1044 for proposition that after finalizing 3D representation in CAD, a mold was created to manufacture the actual product
p. 24	Incorporating by reference ¶¶ 64-77, 57-63 of EX1044 for proposition that steps described in Mr. Granger's declaration were routine steps for using CAD to develop a mold
p. 25	Incorporating by reference ¶¶ 70-77 of EX1044 for proposition that POSA would have routinely processed data from a scan to form an accurate 3D representation so that an accurate mold could be created
p. 25	Incorporating by reference ¶¶ 163-167 of EX1041 for proposition that claims do not require 1/16 inch tolerance

CITE: MTS-1139, 12-15; MTS-1142, 12-15

Yita's Reply Arguments Are Conclusory

- Yita wrongly alleges that "[t]he Reply provides thorough arguments that are supported by the cited evidence."

- Yita's Reply arguments are conclusory and dependent upon improper incorporation by reference of arguments presented in the cited expert declarations.

CITE: Opposition-1139, 15; MTSReply-1139, 9-10; Opposition-1142, 15; MTSReply-1142, 9-10.

Yita Incorporates Dr. Koch's Opinions On The Rabbe Translations

must conform to the footwell. EX2024, 11:20-22; EX1041, ¶26. Thus, any mistranslation was immaterial. EX1041, ¶¶26, 40-47.

Paper 60 (Pet-1139) at p. 6

- Yita's only support for this conclusory assertion is a cite incorporating by reference the arguments in paragraphs 40-47 of Dr. Koch's declaration (spanning 7 pages), which allege that the two Rabbe translations confirm his opinions about Rabbe's disclosure.
- The only other place Yita cites paragraphs 40-47 is part of a cite to more than 30 paragraphs of Dr. Koch's declaration.
  - The substance of Dr. Koch's testimony is not discussed Yita's Reply.

CITE: MTS-1139, 1, 12; MTS-1142, 1, 12; Reply-1139, 3, 6; Reply-1142, 6-7

Yita Incorporates Dr. Koch's Opinions on Claim Construction

> [1] MacNeil proposes certain claim constructions that are different from those in Yita's petition. Yita maintains that its constructions are correct, but even under MacNeil's constructions, the claims would have been obvious. EX1041, ¶¶13-16. This is especially true because certain MacNeil constructions are broader than Yita's. *Id.*

Paper 60 (Pet-1139) at p. 2

- Yita does not discuss paragraphs 13-16 of Dr. Koch's declaration, or Patent Owner's claim constructions, anywhere else in the reply.
  - The substance of Dr. Koch's claim construction testimony is not discussed in Yita's Reply.

CITE: MTS-1139, 12; MTS-1142, 12; Reply-1139, 2 n.1; Reply-1142, 3 n.1.

Yita Incorporates Dr. Koch's and Mr. Strachan's Opinions On Rabbe's Alleged Disclosure Of Thermoplastics

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MacNeil alleges that Rabbe's tray is limited to a non-thermoformable semi-rigid rubber (not a thermoplastic). POR, 13-14, 55. But a POSA would have considered Rabbe's teachings to include thermoplastic elastomers. EX1056, ¶2; EX1041, ¶¶71-79, 139-140. And a POSA would have recognized that thermoplastic materials would qualify as Rabbe's other "material having the same properties." EX1005, 1:16-19; EX1041, ¶¶80-83, 136-138. Rabbe refers to two main properties: (1) semi-rigid yet flexible; and (2) waterproof. EX1005, 1:13-26; EX1041, ¶80. There are many thermoplastics with the same semi-rigid, flexible, and waterproof properties as semi-rigid rubber, including polyethylene and foamed polyethylene. EX1057, 228-231; EX1009, 0202; EX1041, ¶80; EX1042, ¶¶49-54.

Paper 60 (Pet-1139) at p. 13

- Yita does not discuss the substance of Dr. Koch's or Mr. Strachan's testimony anywhere else in the Reply.

CITE: MTS-1139, 12; MTS-1142, 12; Reply-1139, 13; Reply-1142, 14

Yita Incorporates Mr. Perreault's Opinions on Expectation of Success

MacNeil argues that a POSA would not have expected success in achieving the "closely conforming" limitations because there was allegedly no way to obtain an accurate scan of a footwell or use scan data to create a mold. POR, 49. MacNeil is wrong. EX1041, ¶¶158-162 Indeed, the tools used in the '186 patent (the FaroArm and related software) were commercial products available to anyone. EX1001, 16:35-37; EX1060; EX1044, ¶34-56; EX1047, 165:16-19; EX1048, 95:14-21, 97:5-11. And a POSA would have known how to use these (or similar) tools to achieve an accurate mold that produced a closely conforming floor tray. EX1044, ¶¶31-33, 57-63.

Paper 60 (Pet-1139) at p. 23

This process used well-known steps, including the steps discussed by MacNeil's Mr. Granger. *Id.*, ¶¶64-77; EX2126, ¶52. After finalizing the 3D representation in the CAD program, a mold was created to manufacture the actual product. EX1044, ¶¶35, 46-56, 65, 70-77.

Paper 60 (Pet-1139) at p. 24

- Yita incorporates by reference paragraphs 31-77 of Mr. Perreault's declaration (31 pages) in the just over two-page discussion of its new theory of expectation of success.

CITE: MTS-1139, 6, 14; MTS-1142, 6, 14; Reply-1139, 23-24; Reply-1142, 23-25

The End