

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

REVVO TECHNOLOGIES, INC.,
Petitioner

v.

TIRE STICKERS LLC,
Patent Owner

IPR2025-00631

U.S. Patent No. 11,124,027 B2
Issue Date: September 21, 2021

Title: Display Assemblies and Methods for Applying the Same to Vulcanized
Rubber Articles

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,124,027 B2**

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1001	U.S. Patent No. 11,124,027 B2 issued to Keith G. Ferry et al. (filed Nov. 27, 2018, issued Sept. 21, 2021) (“’027 patent”)
1002	File History of the ’027 patent
1003	Declaration of Mr. Tim Donley
1004	U.S. Patent No. 6,726,012 to Bielicki et al. (filed Apr. 25, 2002, issued Apr. 27, 2004) (“Bielicki”)
1005	Know Your Tires with Tire-Track, available at https://web.archive.org/web/20120305232849/http://www.patchrubber.com/training/tire_track.pdf (“Patch Rubber Brochure”)
1006	Patch Rubber Co. Patch Fast-Dry Cement webpage, available at https://web.archive.org/web/20131109143040/http://www.patchrubber.com/tire_repair/16450.html (“Fast-Dry Cement Webpage”)
1007	TIRE-TRACK, LLC, “Reduce Your Tire Costs with the Tire-Track ID Unit” Brochure, available at https://web.archive.org/web/20110304053609/http://www.tire-track.com:80/PDFs/Tire-Track_Brochure.pdf (“Tire-Track Brochure”)
1008	U.S. Patent No. 6,546,982 B1 issued to Robert W. Brown et al. (filed Jul. 29, 1999, issued Apr. 15, 2003) (“Brown”)
1009	U.S. Patent No. 7,009,506 B2 issued to Paul B. Wilson et al. (filed Jul. 9, 2002, issued Mar. 7, 2006) (“Wilson”)
1010	U.S. Patent No. 4,285,382 issued to Jobbie DiRocco et al. (filed Jul. 10, 1980, issued Aug. 25, 1981) (“DiRocco”)
1011	U.S. Patent Application Publication No. US 2005/0059308 to Edwin D. Parsons (filed Sep. 17, 2003, published Mar. 17, 2005) (“Parsons”)
1012	U.S. Patent No. 5,300,164 issued to Mario N. DeTrano et al. (filed Feb. 7, 1992, Apr. 5, 1994) (“DeTrano”)

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1013	Britannica.com entry on “Vulcanization”, available at https://www.britannica.com/technology/vulcanization
1014	The Science and Technology of Rubber, Chapter 7: Vulcanization, available at https://www.sciencedirect.com/topics/chemistry/vulcanization
1015	“The Pneumatic Tire”, U.S. Dept. of Transportation, National Highway Traffic Safety Administration (February 2006), available at https://core.ac.uk/download/pdf/232669607.pdf
1016	Letters Patent No. 3,633 by Charles Goodyear (June 15, 1844), available at https://patentimages.storage.googleapis.com/1a/13/8e/18751846ded131/US3633.pdf
1017	Madehow.com, How Products Are Made, Tires page, available at https://web.archive.org/web/20060220072449/http://www.madehow.com:80/Volume-1/Tire.html
1018	Michelinman.com Passenger Car/Minivan product page, available at https://web.archive.org/web/20120120080145/http://www.michelinman.com/tire-selector/category/passenger-car-minivan
1019	Frequently Asked Questions About the TIRE-TRACK ID UNIT, https://web.archive.org/web/20110304045742/http://www.tire-track.com:80/PDFs/FAQ.pdf
1020	Patch Rubber Company product catalog, available at https://web.archive.org/web/20120608080235/http://www.patchrubber.com/training/patch_catalog.pdf
1021	Patch Rubber Company Tire Track FAQ, https://web.archive.org/web/20120305232849/http://www.patchrubber.com/tire_repair/tire_track_faq.html
1022	Continentaltire.com “How to Build a Radial Tire” page, available at https://continentaltire.com/learn/how-build-radial-tire

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Exhibit No.	Description of Document
1023	Specialty Tires of America, Inc., Tire Manufacturing Process page, available at https://web.archive.org/web/20140828210541/https://www.stausaonline.com/tire-manufacturing/tire-manufacturing-process/
1024	Joint Claim Construction Chart and Exhibits A–J, Dkt. No. 84, <i>Cerebrum Sensor Techs., Inc. v. Revvo Techs., Inc.</i> , C.A. No. 24-cv-245 (D. Del. Jan. 22, 2025)
1025	HIGHLY CONFIDENTIAL Exhibit 2 to Plaintiff’s Initial Infringement Contentions, <i>Cerebrum Sensor Techs., Inc. v. Revvo Techs., Inc.</i> , C.A. No. 24-cv-245 (D. Del. Oct. 30, 2024)
1026	Plaintiff’s Claim Construction Chart and Evidence, <i>Cerebrum Sensor Techs., Inc. v. Revvo Techs., Inc.</i> , C.A. No. 24-cv-245 (D. Del. Dec. 20, 2024)
1027	Affidavit of Tanya Zeif at the Internet Archive (Archive.org)
1028	Patch Rubber Company, Identification Labels page, available at https://web.archive.org/web/20140322035720/http://www.patchrubber.com/tire_repair/12240.html
1029	Patch Rubber Company, Training & Repair Instructions page, available at https://web.archive.org/web/20130329173114/http://www.patchrubber.com/tire_repair/training.html
1030	Patch Rubber Company, Pilot Wire Patch Plugs, available at https://web.archive.org/web/20111230040320/http://www.patchrubber.com/training/pilot_wire.pdf (redirects to https://web.archive.org/web/20051231123651/http://www.patchrubber.com/training/pilot_wire.pdf)
1031	Patch Rubber Company, Passenger Tire Puncture Repair brochure, available at https://web.archive.org/web/20130329173114/http://www.patchrubber.com/training/pass_puncture.pdf (redirects to

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	https://web.archive.org/web/20140207072057/http://www.patchrubber.com/training/pass_puncture.pdf)
1032	Patch Rubber Company, Truck Tire Puncture Repair brochure, available at https://web.archive.org/web/20130329173114/http://www.patchrubber.com/training/truck_punc.pdf (redirects to https://web.archive.org/web/20140207080812/http://www.patchrubber.com/training/truck_punc.pdf)
1033	Patch Rubber Company, Bias Tire Section Repairs, available at https://web.archive.org/web/20130329173114/http://www.patchrubber.com/training/bias_section.pdf (redirects to https://web.archive.org/web/20140207072047/http://www.patchrubber.com/training/bias_section.pdf)
1034	Patch Rubber Company, Radial Tire Section Repair brochure, available at https://web.archive.org/web/20130329173114/http://www.patchrubber.com/training/radial_section.pdf (redirects to https://web.archive.org/web/20140207074553/http://www.patchrubber.com/training/radial_section.pdf)
1035	Patch Rubber Company, Tire-Track Overview page, available at https://web.archive.org/web/20120305232849/http://www.patchrubber.com/tire_repair/tire_track.html
1036	Patch Rubber Company, Tire Repair Materials, Industrial Rubber Products & Traffic Marking Tape, available at https://web.archive.org/web/20120615162141/http://www.patchrubber.com/
1037	Patch Rubber Company, Tire Repair Products page, available at https://web.archive.org/web/20120615103911/http://www.patchrubber.com/tire_repair/index.html

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1038	Patch Rubber Company, Tire/Tube Repair Materials page, available at https://web.archive.org/web/20120615103110/http://www.patchrubber.com/tire_repair/tire_repair.html
1039	Patch Rubber Company, Specialty Materials page, available at https://web.archive.org/web/20111230031204/http://www.patchrubber.com/tire_repair/specialty_materials.html
1040	Patch Rubber Company, Download Catalog page, available at https://web.archive.org/web/20111230033230/http://www.patchrubber.com/tire_repair/download_pdfs.html
1041	Tire-Track LLC, Products page, available at https://web.archive.org/web/20140222221529/http://www.tire-track.com:80/Products.html
1042	Tech International, Repair Manuals page, available at https://web.archive.org/web/20100523163949/http://www.techtirerepairs.com/rmanuals.htm
1043	Tech International, Repair Manual RM-4, available at https://web.archive.org/web/20100523163949/http://www.techtirerepairs.com/_assets/documents/RepairManuals/RM-4%20%20%20Uni-Seal%20Ultra%20Repairs.pdf
1044	Tech International, Repair Manual RM-5, available at https://web.archive.org/web/20100523163949/http://www.techtirerepairs.com/_assets/documents/RepairManuals/RM-5_Two-Piece_Nail_Hole_Repair_Method.pdf
1045	Tech International, Repair Manual RM-7, available at https://web.archive.org/web/20100523163949/http://www.techtirerepairs.com/_assets/documents/RepairManuals/RM-7%20%20%20Bias%20Ply%20truck%20Section%20Repair.pdf

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Exhibit No.	Description of Document
1046	Tech International, Repair Manual RM-10, available at https://web.archive.org/web/20101011101050/http://www.techtirerepairs.com/_assets/documents/RepairManuals/RM-10%20%20%20Centech%20Crown%20Repair.pdf
1047	Tech International, Repair Manual RM-12, available at https://web.archive.org/web/20100525055920/http://www.techtirerepairs.com/_assets/documents/RepairManuals/RM-12%20%20Radial%20Earthmover%20Tire%20Repair.pdf
1048	Tech International, Repair Manual RM-15, available at https://web.archive.org/web/20100525054931/http://www.techtirerepairs.com/_assets/documents/RepairManuals/RM-15%20%20%20TOR%20Repair%20Method.pdf
1049	REMA TIP TOP, Passenger and Light Truck Tire Nail Hole Repair Catalog (2011), available at https://web.archive.org/web/20140611110558/http://www.rematiptop.com/downloads/trm/catalogs/RTTNA-NHP-05.pdf
1050	REMA TIP TOP, Catalog page, available at https://web.archive.org/web/20061028135127/http://www.rematiptop.com/Products_Sub_ExstingProducts.htm
1051	REMA TIP TOP, Medium/Heavy Duty Truck Tire Nail Hole Repair Catalog, available at https://web.archive.org/web/20061028135127/http://www.rematiptop.com/Catalogs/RTTNA-NHT-01.pdf
1052	REMA TIP TOP, Passenger and Light Truck Tire Nail Hole Repair Catalog, available at https://web.archive.org/web/20061028135127/http://www.rematiptop.com/Catalogs/RTTNA-NHP-01.pdf

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1053	PREMA page, available at https://web.archive.org/web/20140102123146/http://prema-gmbh.de/
1054	PREMA Classic Tyre Repair and Service Consumables 2012/2013 Catalog, available at https://web.archive.org/web/20131030115706/http://prema-gmbh.de/files/PREMA_Classic_Katalog_07052012.pdf
1055	Merriam-Webster definition of “cavity”, available at https://www.merriam-webster.com/dictionary/cavity
1056	Assignment of U.S. Patent No. 6,726,012
1057	Declaration of Dr. Mary K. Bolin
1058	Complaint (Dkt. No. 1), <i>Cerebrum Sensor Techs., Inc. v. Revvo Techs., Inc.</i> , C.A. No. 24-cv-245 (D. Del. Dec. 20, 2024)
1059	Proof of Service of Complaint (Dkt. No. 6) in <i>Cerebrum Sensor Techs., Inc. and Tire Stickers LLC v. Revvo Techs., Inc.</i> , C.A. No. 24-245 (JLH) (SRF) (D. Del.)

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I. INTRODUCTION

Petitioner Revvo Technologies, Inc. respectfully submits this Petition for *Inter Partes* Review of claims 1-3, 5, 7-9, 11-13, 15-22 (“the Challenged Claims”) of U.S. Patent No. 11,124,027 B2 (“’027 patent”) (EX1001).

II. MANDATORY NOTICES UNDER § 42.8(A)(1)

A. Real Party-In-Interest under § 42.8(b)(1)

Petitioner Revvo Technologies, Inc. is the real party-in-interest (RPI) to this IPR petition.

B. Related Matters under § 42.8(b)(2)

The ’027 patent is the subject of the following stayed pending litigation involving Petitioner and Patent Owner in the U.S. District Court for the District of Delaware in *Cerebrum Sensor Technologies, Inc. et al. v. Revvo Technologies, Inc.* (C.A. No. 1:24-cv-00245-JLH-SRF). Patent Owner, Tire Stickers LLC, is co-plaintiff with Cerebrum Sensor Technologies, Inc. – the exclusive licensee of the ’027 patent with “right to sue... to recover damages... and to seek injunctive relief.” (EX1058, 1.) Petitioner was served with the Complaint in that action on February 23, 2024. (EX1059.)

The above pending litigation also asserts U.S. Patent Nos. 11,835,421 (“’421 patent”) and 10,137,741 (“’741 patent”) against Petitioner. The ’027 patent is a continuation of the ’741 patent and shares the same specification and figures as the

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'741 patent. The '421 patent is not related to the '027 patent or the '741 patent. An IPR challenging the '421 patent is being filed in parallel.

Petitioner is unaware of any other related matters that may affect this petition.

C. Lead and Back-Up Counsel under § 42.8(b)(3)

Petitioner provides the following designation of counsel.

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	Dustin M. Knight (Reg. No. 76,239) Email: dknight@cooley.com COOLEY LLP ATTN: Patent Group 1299 Pennsylvania Avenue NW, Ste 700 Washington D.C. 20004 Tel: (202) 776-2066 Fax: (202) 842-7899

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	Reuben Chen (<i>pro hac vice</i> to be filed) Email: rchen@cooley.com COOLEY LLP ATTN: Patent Group 1299 Pennsylvania Avenue NW, Ste 700 Washington D.C. 20004 Tel: (202) 776-2066 Fax: (202) 842-7899

D. Service Information

This Petition is being served by Federal Express to the attorney of record for the '027 patent, 125632 - Snell & Wilmer (LA), c/o Grant T. Langton, 1 East Washington Street, Suite 2700, Phoenix, AZ 85004, in compliance with 37 C.F.R. § 42.8(b)(4). This Petition is also being served on litigation counsel identified in the Certificate of Service. Petitioner consents to electronic service at the addresses provided above for lead and back-up counsel.

E. Power of Attorney

Filed concurrently per 37 C.F.R. § 42.10(b).

III. FEE PAYMENT

Petitioner requests review of 18 claims, with a \$51,875 payment.

**IV. REQUIREMENTS UNDER §§ 42.104 AND 42.108 AND
CONSIDERATIONS UNDER §§ 314(A) AND 325(D)**

A. Standing

Petitioner certifies that the '027 patent is available for IPR and that Petitioner is not barred or otherwise estopped.

B. Identification of Challenge

Petitioner requests institution of IPR based on the following grounds:

Ground	Claim(s)	Basis for Challenge
1	1, 5, 7-9, 11-13, 15-22	Obviousness by <u>Wilson</u>
2	12	Obviousness by <u>Wilson</u> in view of <u>DiRocco</u>
3	1-3, 5, and 7	Obviousness by <u>Bielicki</u>
4	1-3, 5, 7, 11-13, 15, and 16	Obviousness by <u>Bielicki</u> in view of the <u>Patch Rubber Brochure</u> and/or the <u>Tire-Track Brochure</u>
5	7-9, 14, 16-23	Obviousness by <u>Bielicki</u> in view of the <u>Patch Rubber Brochure</u> and/or the <u>Tire-Track Brochure</u> , and <u>Brown</u>

Submitted herewith is a Declaration of Mr. Tim Donley [EX1003], a qualified expert. (EX1003, ¶¶1-4.) The Challenged Claims are listed in **Appendix A**.

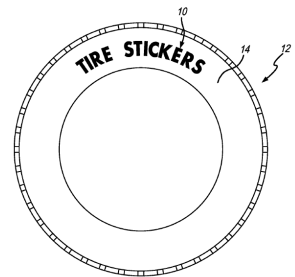
C. Considerations under §§ 314(a) and 325(d)

§ 314(a): This is the first IPR petition filed against the '027 patent and the pending litigation against Petitioner is in its early stage, no claim construction rulings have occurred, and all deadlines are currently stayed.

§ 325(d): This Petition does not raise §325(d) concerns because it relies on prior art that was not considered and is not cumulative of the art considered during prosecution. During prosecution, the applicant amended the Challenged Claims by deleting claim language directed to an assembly with an “adhesive layer” having a barrier material composition and distinguished the closest prior art reference cited by the examiner (DeTrano) from the amendments based on the argument that the prior art failed to disclose an “outer layer” that comprises a “barrier material composition.” Petitioner herein relies on Wilson and Bielicki for their teaching of materials in the claimed “outer layer” that comprises a barrier material composition. Neither Wilson nor Bielicki were considered by the Examiner.

V. OVERVIEW OF THE '027 PATENT

The '027 patent describes “display assemblies” for attachment to vulcanized rubber articles, such as tires. (EX1001, 3:61-4:18; *id.*, FIG. 1 (at right).) The display assemblies provide “a desired aesthetic appearance, product identification, tracking,



branding, advertising, to provide a desired functional aspect to the vulcanized article.” (*Id.*)

Figure 2 provides an exemplary display assembly 20, which includes a display layer 22, an intermediate/barrier layer 24 and an adhesive layer 26:

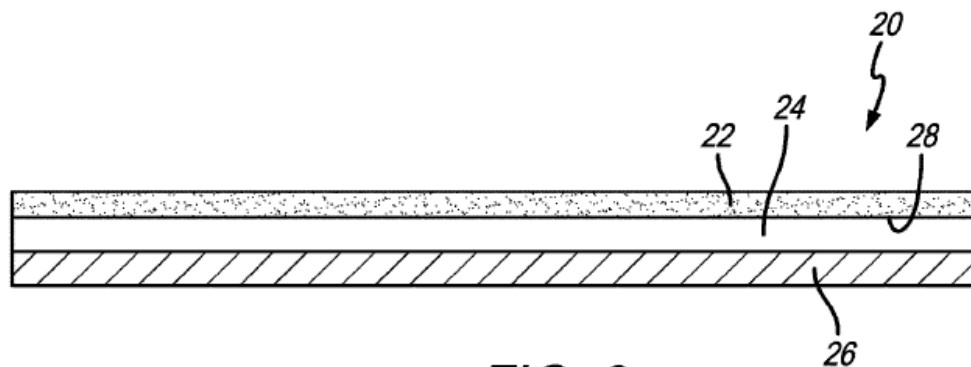


FIG. 2

(*Id.*, 2:58-64.) The display layer may be formed from an “elastomeric material” having “a desired color, and/or pattern, and/or shape, and/or texture useful to provide a desired display image or indicia or function.” (*Id.*, 4:56-5:2.) Such “elastomeric material” includes “vulcanized rubber, natural rubber, SBR... and combinations thereof.” (*Id.*, 5:61-6:6.)

The intermediate/barrier layer 24 attached to the underside of the display layer 22 is “formed from a material capable of providing properties of shock absorbance, elastomeric expansion and/or contraction properties compatible with the vulcanized rubber article is to be attached therewith.” (*Id.*, 6:11-32.) The intermediate/barrier

material is also “capable of acting as a barrier to minimize or prevent the migration of any unwanted constituents of the adhesive layer 26 and/or the vulcanized rubber article [that] may...damage or degrade the design image and/or feature provided by the display layer 22.” (*Id.*, 6:33-58.) The '027 patent discloses that intermediate/barrier layer 24 “is formed from an elastomeric material” such as “gum rubber, vulcanized natural rubber SBR...and combinations thereof.” (*Id.*)

The adhesive layer 26 is “formed from a material capable of forming a chemically, heat-activated or otherwise permanent bonded attachment with the vulcanized rubber article.” (*Id.*, 6:59-7:20; EX1003, ¶39.)

The display assembly may include a cavity 78 for accommodating an object 79, such as an RFID element:

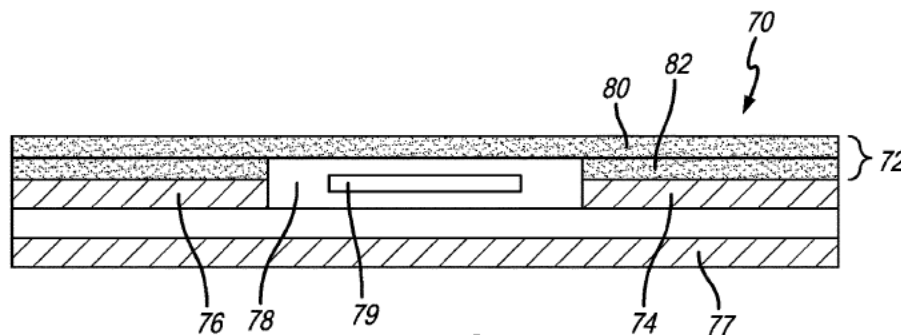


FIG. 7

(EX1001, Fig. 7, 11:26-37, 11:48-12:87; EX1003, ¶¶35-48.)

VI. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSITA”) as of April 2015 would have possessed an undergraduate degree in chemistry, polymers, materials science, chemical engineering (or related field) and one to two years of experience with constructing and manufacturing tires, tire patches, tire decals/stickers and/or the like. Additional education could compensate for less practical experience. Conversely, additional practical experience could compensate for less education. (EX1003, ¶¶6-11.)

VII. CLAIM CONSTRUCTION

For purposes of this Petition only, with the single exception described below, Petitioner adopts PO’s proposed constructions from the underlying district court litigation for purposes of this proceeding:

Claim Term	PO’s Proposed Construction
“layer” (claims 1-4, 6, 9-11, 15, 18-22)	“at least one material disposed over”
“outer layer” (claims 1, 2, 4, 6, 11, 15, 19-23)	“at least one layer that is outermost”
“barrier material composition” / “material composition that acts as a barrier” (claims 1, 11,15,19)	“material composition that has properties of shock absorbance, elastomeric expansion and/or contraction”
“cavity” (claims 7-9, 16-20)	“a space for accommodating an element or object”
“elastomeric material”	“rubbery material”

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(claims 1, 11, 15, 19)	
“display assembly” (claims 1, 11, 19)	“an assembly configured to provide a display indicia”
“visual feature” (claim 1)	“at least one visual display or a feature that is visually or otherwise detectable”

(EX1024; 1026, 1; EX1003, ¶¶49-61.) Petitioner applies the plain meaning of “cavity”—i.e., an unfilled or hollowed-out space within a mass—solely for claims 7 and 16 in **Grounds 3-4**. (EX1055 (<https://www.merriam-webster.com/dictionary/cavity>); EX1003, ¶¶58-61.)

Petitioner’s proposed grounds and analysis of how the prior art teaches or renders obvious the limitations of the claims would be unchanged even if the Board decides not to adopt Patent Owner’s constructions because they are consistent with plain and ordinary meaning of the Challenged Claims.

VIII. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Prior Art for Grounds 1 & 2

1. U.S. Patent No. 7,009,506 (Wilson) [EX1009]

Wilson issued on March 7, 2006 and is prior art under 35 U.S.C. §102(a)(1).

Wilson is directed to: “A monitoring device and patch assembly...that removably and re-attachably holds the monitoring device. The patch is adapted to connect the monitoring device to a pneumatic tire when the monitoring device held

by the patch.” (Wilson, Abstract.)

Wilson discloses an embodiment of a patch assembly 60 in Figure 1 that includes a vulcanized rubber patch 10 having a first side 12 which includes a housing 14 with a cavity 16 to house a monitoring device (“tag assembly 70”) and a second opposite side 18 to which a dual cure bonding layer 20 is permanently affixed by a non-curing cement (*see* 3:35-42, 4:1-10):

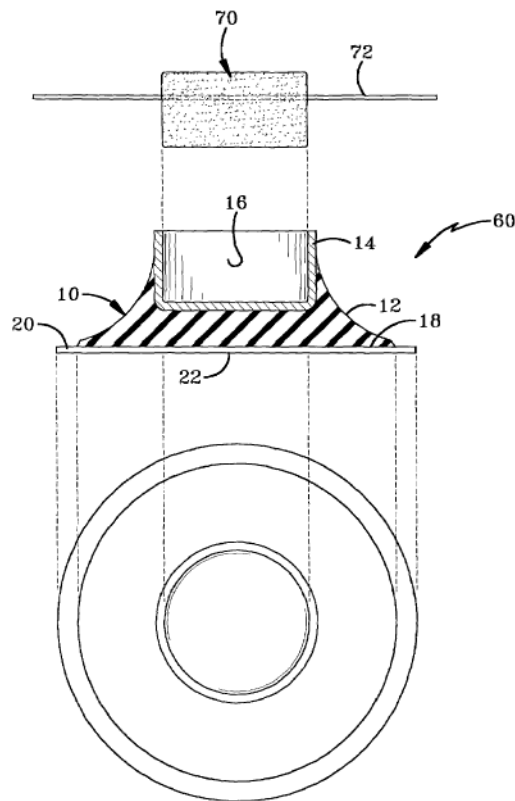


FIG-1

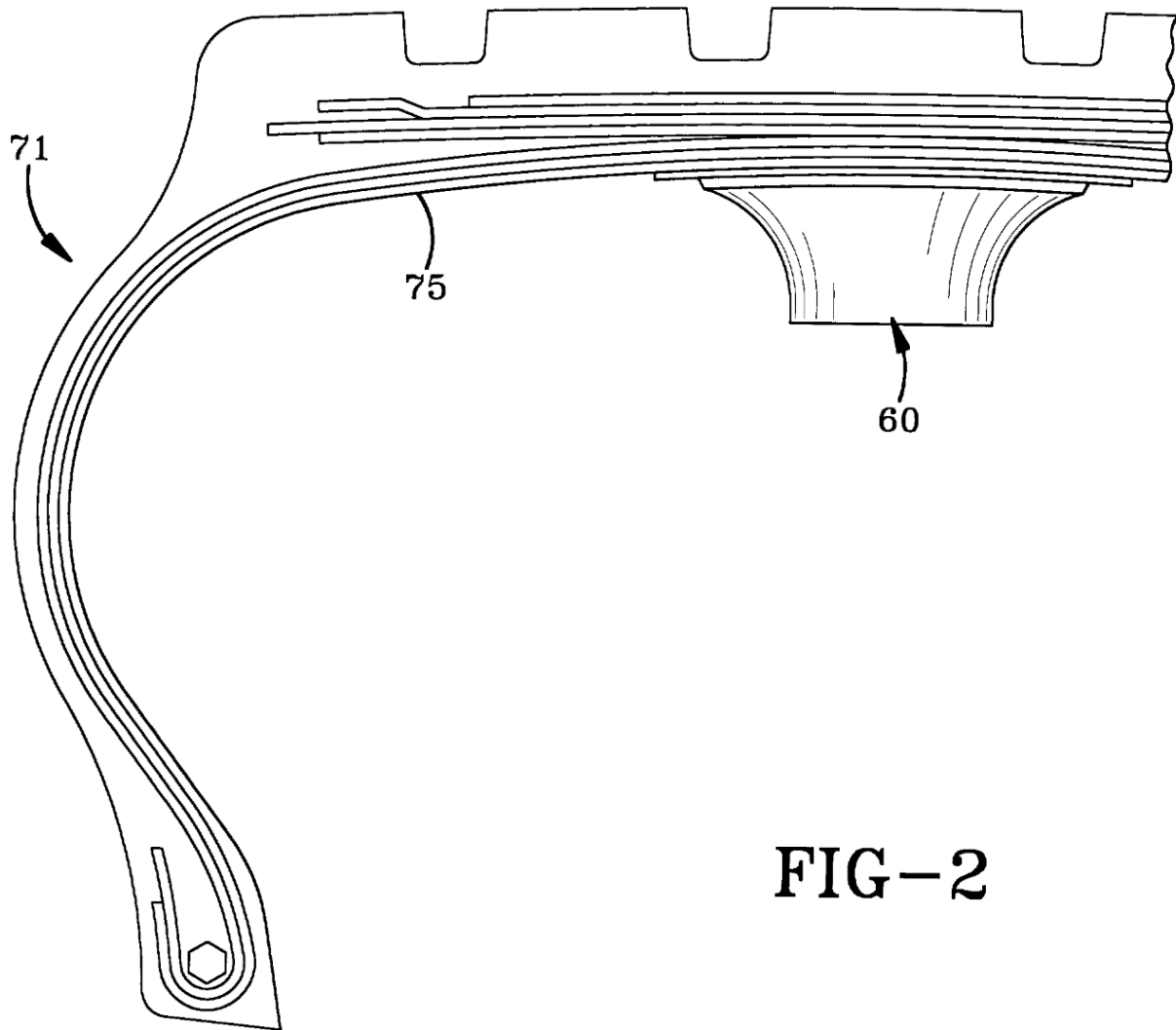
Wilson’s vulcanized rubber patch 10 “may be a rubber selected from the group consisting of Ethylene Propylene Diene Monomer (EPDM) rubber, butyl rubber,

natural rubber, neoprene and mixtures thereof.” Preferred embodiments include “a mixture of chlorobutyl rubber and natural rubber” or “a mixture of Styrene-Butadiene rubber (SBR) and natural rubber.” (Wilson, 3:48-60)

Wilson discloses that the dual cure bonding layer 20 “may be assembled to the patch at any time following vulcanization of the patch and prior to assembly of the patch assembly to the tire innerliner.” (Wilson, 4:1-6.) An “important feature of the dual cure bonding layer is that it can be chemically activated and cured, without the need for heating to an elevated temperature.” (*Id.*, 4:12-15.) “The dual cure bonding layer may be any material which can be activated and cured to the vulcanized rubber of the tire innerliner and the vulcanized patch,” but preferably “the dual cure bonding rubber is natural rubber.” (*Id.*, 4:16-19.) Wilson further discloses that “[e]xemplary non-curing cement and an exemplary dual cure bonding layer are products of the Patch Rubber Company” (*Id.*, 4:10-12).

Wilson discloses that patch assembly 60 is for attachment to a vulcanized tire. (Wilson, 3:35-67, 4:26-37.) As depicted in Figure 2 (below), patch assembly 60 is assembled to inner liner 75 of tire 71 by a process wherein: “Activating cement is first applied to second side 22 of dual cure bonding layer 20. The patch assembly is then stitched to the innerliner of the vulcanized tire and the patch assembly/tire assembly is allowed to cure for a sufficient time and temperature to form a strong

bond between the tire and the patch assembly.” (*Id.*, 4:26-37.)



Another embodiment of a patch assembly is shown below in Figure 9 of Wilson. (Wilson, 6:17-44.)

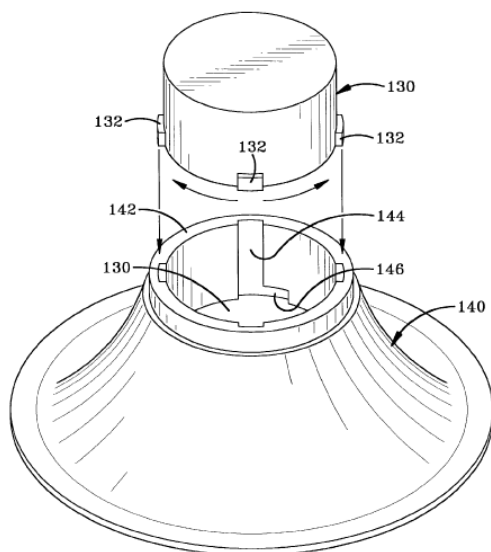
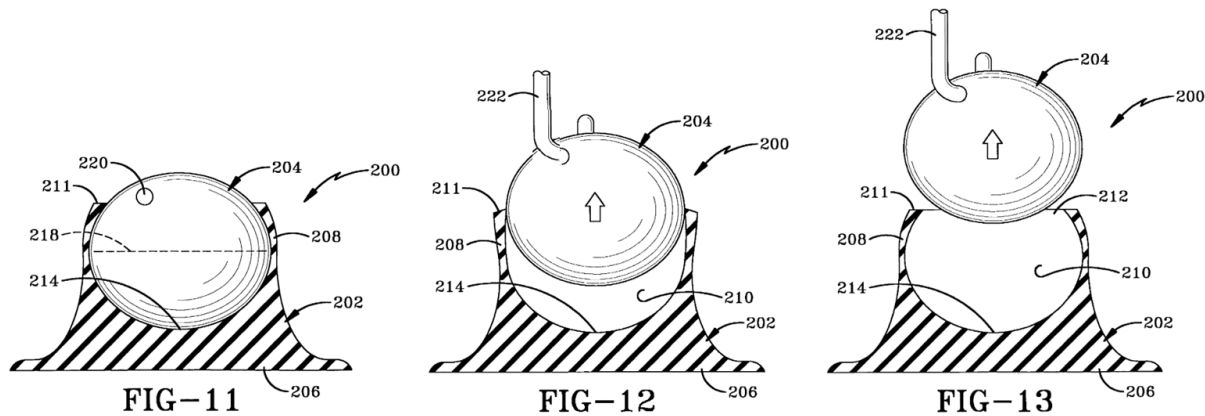


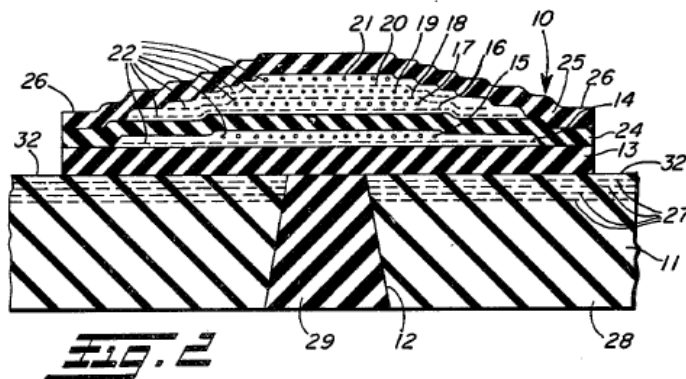
FIG-9

Yet another embodiment of a rubber patch holding an electronic monitoring device is depicted in Figures 10-13 of Wilson. (Wilson, 6:45-54, 7:13-16; EX1003, ¶¶64-74.)



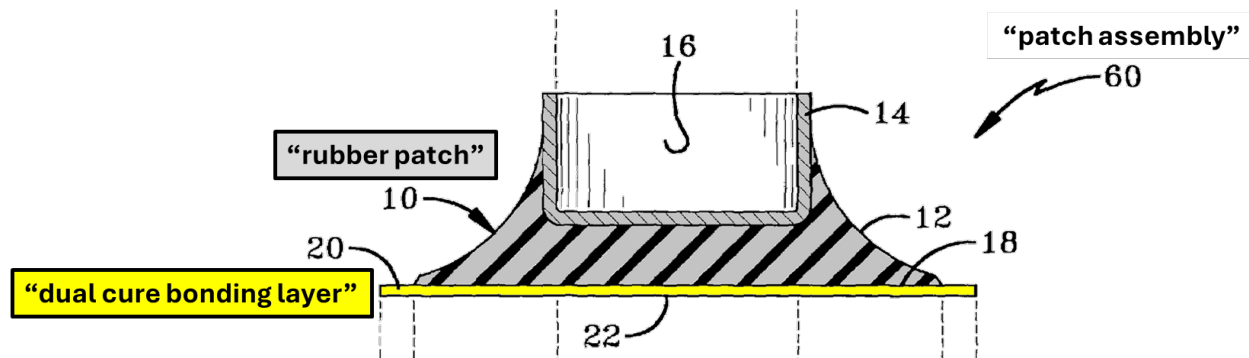
2. U.S. Patent No. 4,285,382 (DiRocco) [EX1010]

DiRocco issued on August 25, 1981 and is prior art under §102(a)(1).



1. Independent claim 1

To the extent the preamble is limiting, it is disclosed by Wilson. The title of Wilson is “Electronic monitoring device and *patch assembly*.” The patch assembly includes a rubber patch with an attached dual cure bonding layer (3:35-42, 4:1-10):



(EX1003, ¶¶97.) The patch assembly disclosed in Wilson is the claimed “assembly.”

(*Id.*, ¶¶97-98.)

Figure 2 of Wilson discloses a patch assembly “assembled to the innerliner 75 of tire 71” (4:26-27):

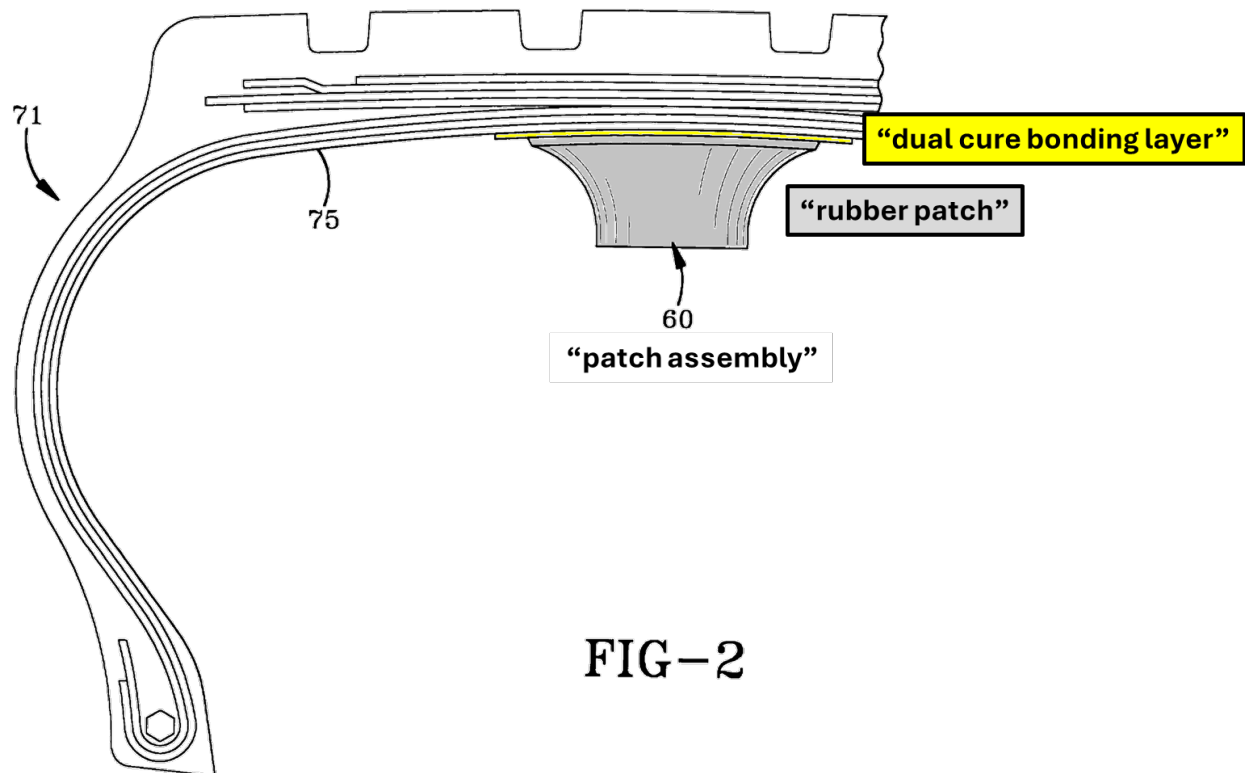


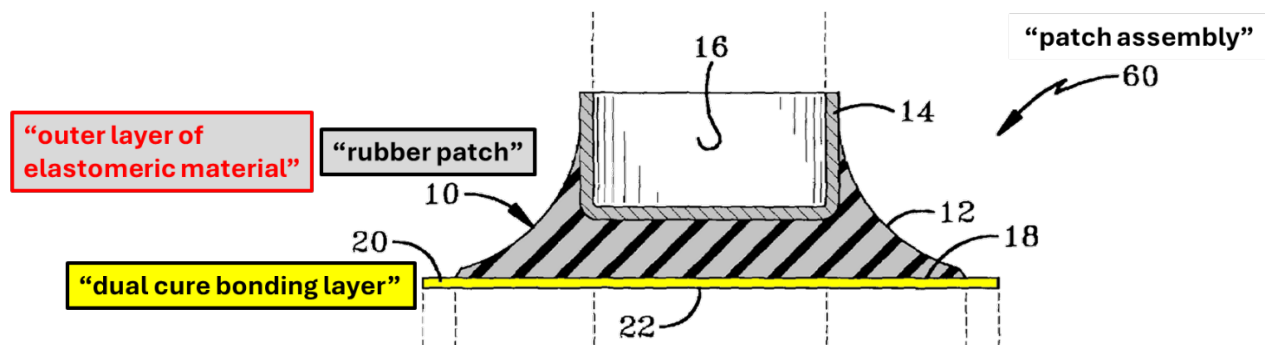
FIG-2

(EX1003, ¶¶99.)

Wilson further discloses that “[i]n a preferred embodiment, the rubber patch is vulcanized and then assembled to *the vulcanized tire*.” (Wilson, 3:42-44.) Thus, Wilson discloses “[a]n assembly for attachment with a vulcanized rubber article.” (EX1003, ¶¶97-100.)

(b) **Limitation 1[a]: “an outer layer of elastomeric material having a visual feature; and”**

Wilson discloses (or at least renders obvious) this limitation. (See EX1003, ¶¶101-109.) The vulcanized rubber patch 10 of Wilson’s patch assembly is the claimed “outer layer of elastomeric material”:



(EX1003, ¶¶102.) As shown, the rubber patch is “outermost” and disposed over the dual cure bonding layer, thus satisfying PO’s proposed constructions for “layer” and “outer layer.” (Wilson, 4:1-3.)

The rubber of Wilson’s patch is an “**elastomeric material**.” (See Wilson, 3:48-55 (“[T]he patch may be a rubber selected from...natural rubber...a mixture of

chlorobutyl rubber and natural rubber...[or] a mixture of Styrene-Butadiene rubber (SBR) and natural rubber.”.) The ’027 patent confirms that the rubbers identified in Wilson are “**elastomeric materials.**” (EX1001, 5:66-6:6 (“elastomeric materials useful for forming a display layer 22 include and are not limited to vulcanized rubber, natural rubber, SBR...and combinations thereof”); EX1003, ¶104.)

Wilson discloses obvious ways that the rubber patch is and can be configured with various “**visual feature[s]**” falling within PO’s construction (at least one visual display or a feature that is visually or otherwise detectable). (See EX1003, ¶¶105-107.) For example:

- Wilson’s rubber patch will have a shape, such as depicted in the Figures.

Exemplary Figure 1 below has a circular shape (red), which is a “**visual feature**” of the patch:

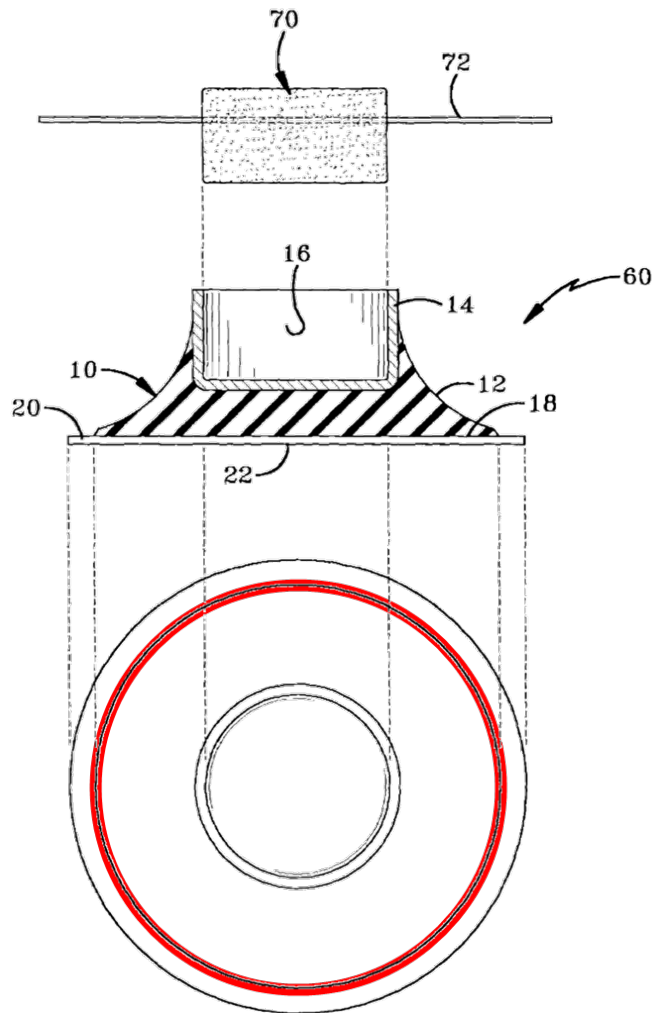
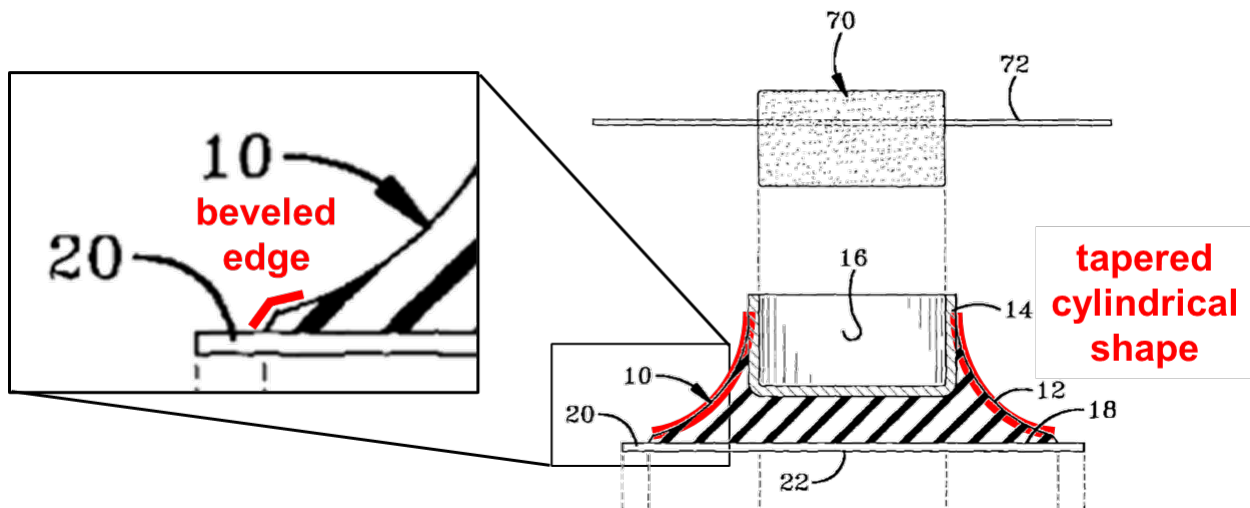


FIG-1

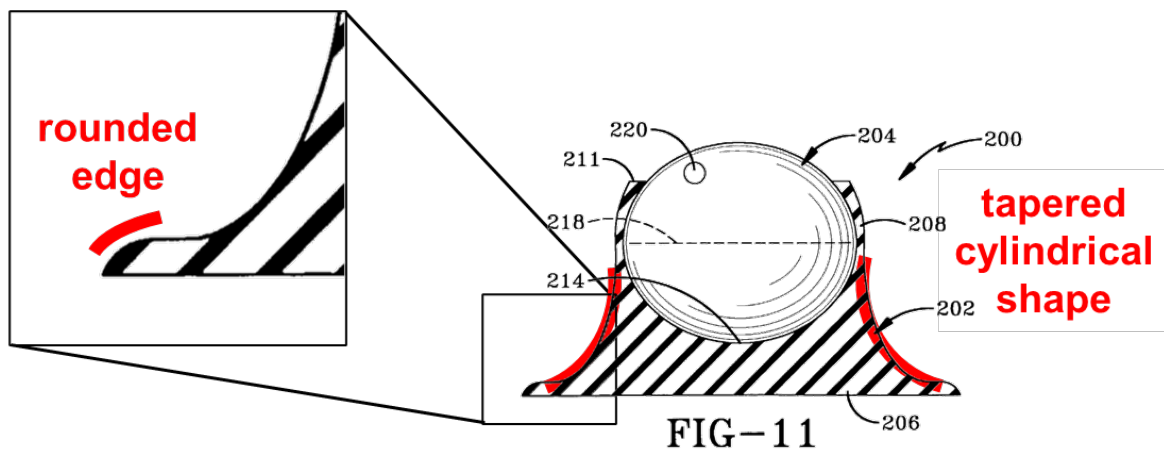
(Wilson, Fig. 1 (annotated).)

- The rubber material of the rubber patch will also have a color—it will not be clear and colorless—and the color is a “**visual feature.**”
- The disclosed rubber patch embodiments of Wilson have other visually detectable features, such as the tapered cylindrical shape and beveled or

rounded edges of the embodiments depicted in FIG. 1 and Fig. 11 (outlined in red below), which are also a “**visual feature**”:



(Wilson, Fig. 1 (annotated).)



(Wilson, Fig. 11 (annotated); *see also* Wilson, 8:26-27 (“Patch 202 has rounded and curved walls and surfaces”).)

- The cavity for holding the electronic monitoring device within Wilson’s

disclosed rubber patches is also a “**visual feature**” with a specific shape that visually indicates the placement location of the electronic monitoring device and the complementary shape of the appropriate monitoring device for a given patch, as depicted by the cylindrical cavity of Fig. 1 and the annular round-bottom and oval-shaped cavity in the embodiment described in Figs. 10-13:

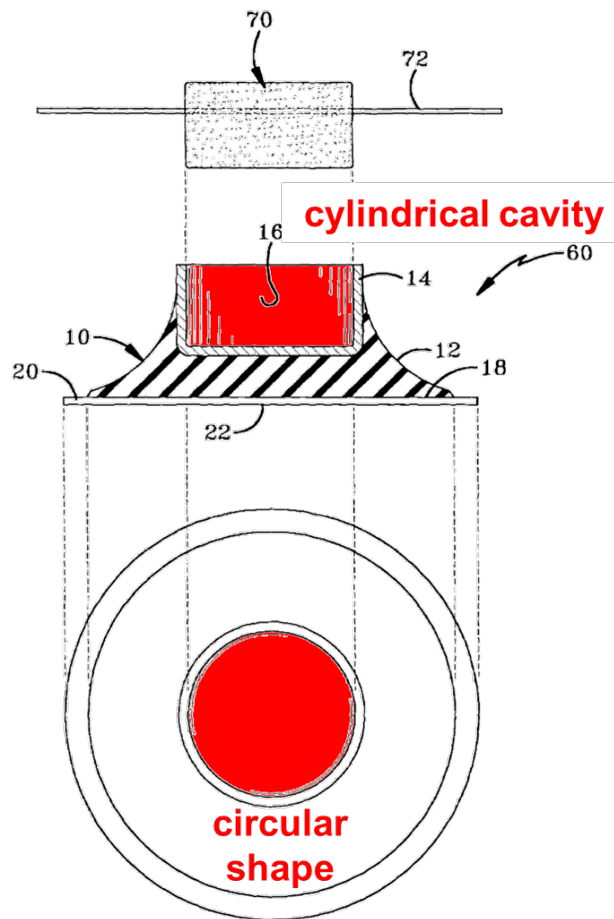


FIG-1

(Wilson, Fig. 1 (annotated); *see also* Wilson 3:35-41.)

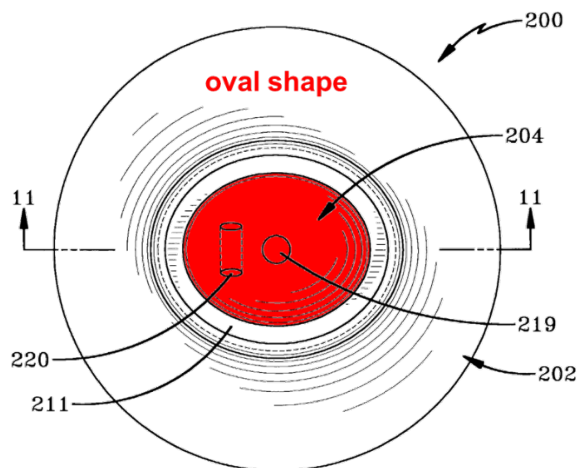


FIG-10

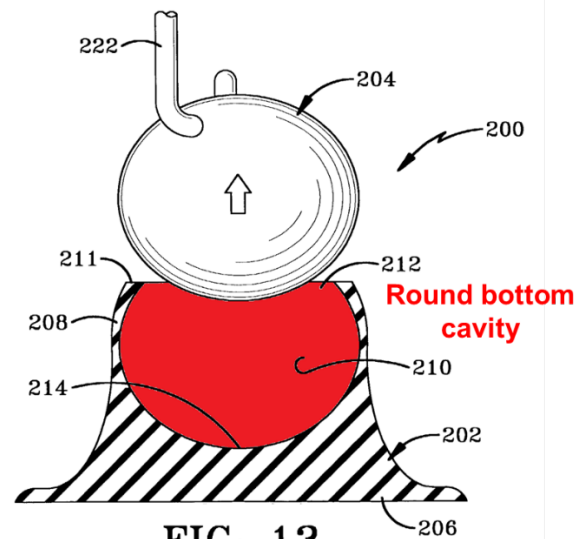


FIG-13

(Wilson, Figs. 10, 13 (annotated); *see also* Wilson, 7:15-16, 7:53-55.)

- Wilson’s patch embodiment of Figure 9 illustrates other “**visual features**” that can be implemented onto the patch (including the patch embodiment of Figure 1) such as slots 144 and ring 146 (red, below) configured to receive the tabs 132 (blue, below) on the monitoring device 130:

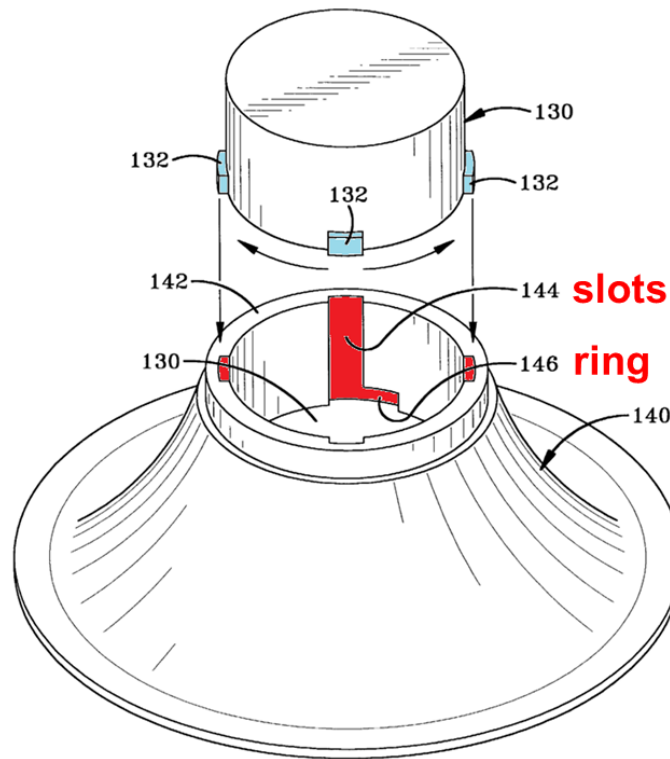


FIG-9

(Wilson, Fig. 9 (annotated); *see also* Wilson, 6:17-44.)

Wilson also discloses that the second side 18 of the patch 10 “is radiused to have the same radius as the tire to which it is assembled, the radius being larger for larger tires.” (Wilson, 3:35-67.) The varying contours and their appropriate use with differently sized tires would be visually apparent. (EX1003, ¶107.) Thus, this feature in Wilson is also a “**visual feature.**”

It would have been obvious to a POSA to implement the elements and features from any patch disclosed in Wilson into the patch assembly depicted Wilson’s

Figure 1 and attached to a tire as depicted in Wilson's Figure 2. (EX1003, ¶¶108-109.) As Mr. Donley explains in his declaration, the patch assembly 60 described in Figures 1 and 2 is the base assembly embodiment and all of the various configurations and embodiments of a suitable rubber patch can be easily used within that base patch assembly. (*Id.*) Because any patch embodiments disclosed in Wilson are functionally identical and intended to be configured and attached to a tire in the same manner as patch 10 described for Figure 1, a POSA would have had a reasonable expectation of success in implementing any of the patches as part of Wilson's patch assembly. (*Id.*)

Accordingly, Wilson discloses **“an outer layer of elastomeric material having a visual feature.”**

- (c) **Limitation 1[b]: “[i] an adhesive layer adhered to an interface surface of the outer layer, [ii] wherein at least a portion of the outer layer adjacent the interface surface comprises a barrier material composition, and”**

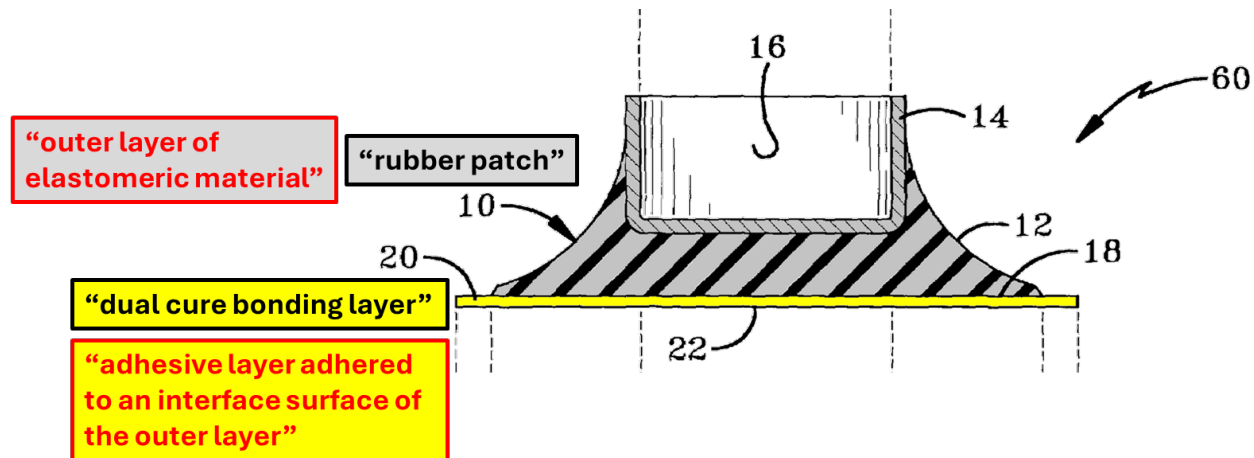
For ease of discussion, this limitation is divided into two parts.

(i) Limitation 1[b][i]

Wilson discloses this limitation. (*See* EX1003, ¶¶110-113.) Wilson discloses that “[t]he dual cure bonding layer may be any material which can be activated and cured to the vulcanized rubber of the tire innerliner and the vulcanized patch” but “preferably... is natural rubber.” (Wilson, 4:1-25; '027 patent, 6:59-7:20.) Wilson

further discloses that the patch assembly is assembled to the inner liner of a tire by applying activating cement to the second side 22 of the dual cure bonding layer 20, stitching the patch assembly onto the innerliner of the tire, and allowing the patch assembly/tire assembly “to cure for a sufficient time and temperature *to form a strong bond between the tire and the tire patch.*” (Wilson, 4:26-32.) The dual cure bonding layer 20 in Wilson is the claimed “**adhesive layer**” under PO’s proposed construction (at least one layer that bonds to, vulcanizes to, or otherwise adheres to) because the dual cure bonding layer forms the strong bond between the tire and the tire patch. (EX1003, ¶¶110-111.)

Wilson discloses that dual cure bonding layer 20 is “[a]ffixed to the second side 18 of the vulcanized tire patch [10]” and ‘is permanently assembled to patch to form the patch assembly 60’ by “[a] non-curing cement (not shown) [that] is applied to side 18 of the patch in order to hold the dual cure bonding layer 20 onto the patch.” (Wilson, 4:1-10.) The second side 18 of the rubber patch is the claimed “**interface surface of the outer layer**” to which the dual cure bonding layer (i.e., “**adhesive layer**”) is adhered by the non-curing cement. (EX1003, ¶112.) Wilson thus discloses “**an adhesive layer adhered to an interface surface of the outer layer,**” depicted as follows:



(*Id.*)

Moreover, PO’s infringement contentions allege that a “cushion gum” layer is the claimed “adhesive layer.” (EX1025, 12.) This is exactly what the dual cure bonding layer 20 in Wilson is, as a POSA would plainly recognize. (EX1003, ¶113.) Thus, PO could not argue the dual cure bonding layer 20 of Wilson is not an “adhesive layer” under its proposed construction without also necessarily excluding a “cushion gum” layer. (*Id.*) Indeed, Wilson states that “an exemplary dual curing bonding layer” is a product of “Patch Rubber Company” (Wilson, 4:1-37) and **Exhibit 1020**, a product catalog from the Patch Rubber Company from 2012, discloses that this dual cure material is “soft, high tack *gum*” that “chemically vulcanizes at room temperature or when heat and pressure are applied” (EX1020, 3; EX1027, 72). Therefore, if the accused “cushion gum” satisfies this limitation, then the dual cure bonding layer 20 in Wilson also satisfies it. (EX1003, ¶113.)

(ii) **Limitation 1[b][iii]**

PO's proposed construction for "**barrier material composition**" is "material composition that has properties of shock absorbance, elastomeric expansion and/or contraction." (EX1024, Ex. A at 3; EX1003, ¶56.) The '027 patent notes that the qualities of a "barrier material composition" are discussed with reference to an "intermediate or barrier layer 24" (*see* '027 patent, 6:11-58, 7:47-60, FIG. 2) and explains that "[e]lastomeric materials useful for forming the intermediate layer 24 include but are not limited to gum rubber, vulcanized natural rubber SBR...or comparable materials[.]" (*Id.*, 6:33-58 (emphasis added).) PO further confirmed the inherent elastomeric properties of rubber that are known to a POSA in its infringement contentions, stating: "[c]omprised of rubber, the dock in the Accused Revvo Tire Sensor Products is elastomeric and mitigates transmission of shock forces from the tire to the housing when the dock retaining member is attached to the tire and the housing is attached to the dock retaining member." (EX1025, 3.)

Thus, under PO's proposed construction, the disclosures in the '027 patent, and/or PO's admissions in its infringement contentions, Wilson's rubber patch 10 is a "**barrier material composition.**" (EX1003, ¶¶114-119.) Wilson expressly discloses that its patch may be constructed from natural rubber (NR), a preferred

mixture of chlorobutyl rubber and natural rubber (CR/NR), or a preferred mixture of SBR and natural rubber (SBR/NR). (Wilson, 3:49-55.) Any of these rubbers disclosed by Wilson would satisfy the claimed “**barrier material composition**” because they are elastomeric materials and, as such, have the properties of shock absorbance, elastomeric contraction and/or expansion. (EX1003, ¶117.)

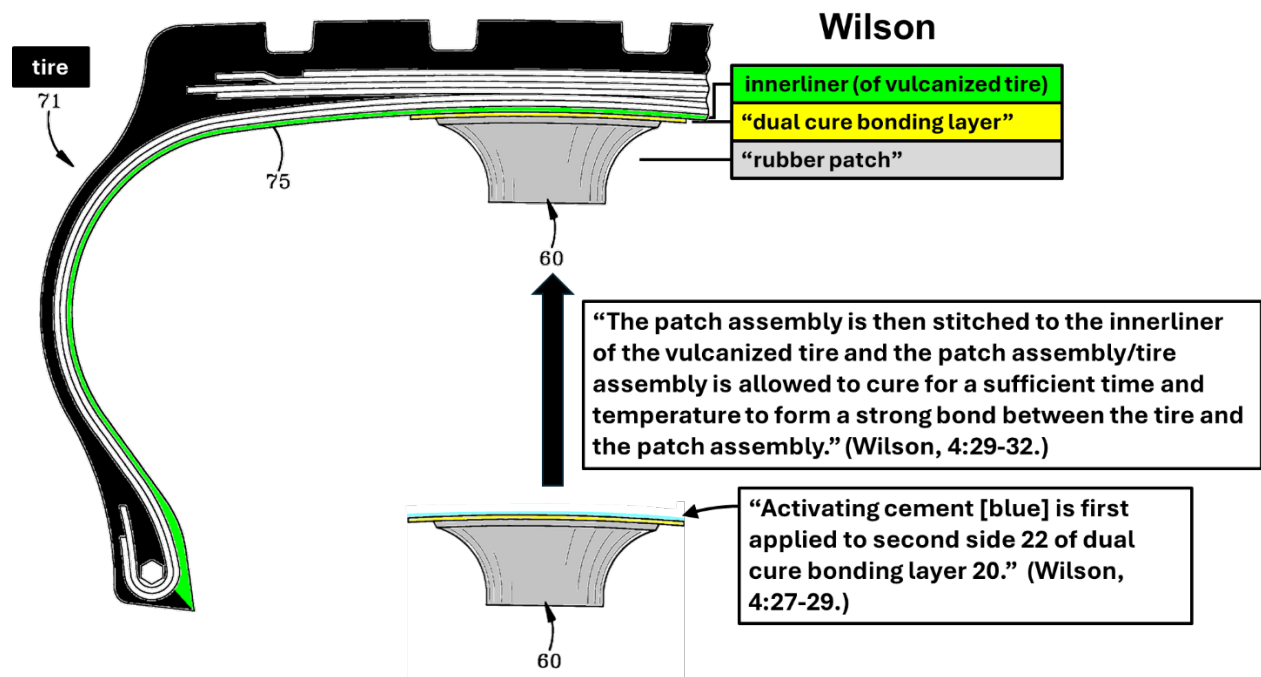
Additionally, a POSA would have known that the CR/NR mixture disclosed in Wilson was well-known within the art as a barrier material. For instance, DeTrano notes that “one preferred barrier layer 22 is composed of a blend of halobutyl rubber such as chlorobutyl rubber and natural rubber.” (EX1012, 4:28-30.) Thus, not only does Wilson’s disclosure of a mixture of CR/NR as a preferred composition satisfy PO’s proposed construction for “**barrier material composition**,” a POSA also would have known that a mixture of CR/NR is a “**barrier material composition**.” (EX1003, ¶118.)

Addressing the “**at least a portion of the outer layer adjacent the interface surface**” portion of the limitation, since the entire patch 10 in Wilson is constructed from the same rubber then that portion “**adjacent the interface surface**” is also constructed from that composition and therefore the claim language is satisfied. (EX1003, ¶119.)

Wilson therefore discloses limitation 1[b].

(d) **Limitation 1[c]: “wherein the adhesive layer is formed from a material capable of chemically bonding with a surface of a vulcanized rubber article.”**

Wilson discloses this limitation. Wilson explains that “[t]he dual cure bonding layer may be any material which can be *activated and cured to the vulcanized rubber of the tire innerliner* and the vulcanized patch” but “preferably... is natural rubber.” (Wilson, 4:16-19; *see also* Wilson, 4:12-15 (“The important feature of the dual cure bonding layer is that it can be *chemically activated and cured*, without the need for heating to an elevated temperature.”). A POSA would have known that Wilson’s description of the dual cure bonding layer being “activated and *cured to* the to the vulcanized rubber of the tire innerliner” without heat is a process of chemically curing (or vulcanizing) in which chemical bonds are formed between the bonding layer when the patch is applied to the vulcanized rubber of the innerliner, as follows:



(EX1003, ¶¶120-121.)

Thus, the dual cure bonding layer 20 in Wilson **"is formed from a material capable of chemically bonding with a surface of a vulcanized rubber article."**

In its infringement contentions, PO admits that the accused "cushion gum" "is capable of being chemically bonded with the tire, such as with vulcanizing fluid." (EX1025, 20, 46.) As discussed for limitation 1[b][i] above, Wilson's dual cure bonding layer is a rubber "gum" that is materially the same as the accused "cushion gum." Therefore, if the accused "cushion gum" satisfies this limitation, then the dual cure bonding layer in Wilson satisfies it too. (EX1003, ¶122.)

Wilson discloses and renders claim 1 obvious.

2. Dependent claim 5

Wilson renders this claim obvious. As a physical, solid material, a POSA would have understood and found obvious that the rubber material of Wilson's rubber patch, which may be NR, CR/NR, or SBR/NR as discussed for limitation 1[b][ii] above, would necessarily impede (to at least some degree) the free flow of materials within Wilson's patch assembly and thereby impair the migration of such materials when the patch is bonded to a vulcanized tire. (EX1003, ¶¶126, 132.) For example, particulate "material constituents" within the assembly would have their migration impaired by the rubber patch material after the patch assembly was bonded to a tire, such as impairing the migration of particulate matter from within the dual cure bonding layer 17 through to the outer surface 12 of the rubber patch. (*Id.*, ¶127.) Similarly, the rubber patch material would also necessarily serve to impede the flow of liquids within the patch assembly at least by acting as a diffusion barrier, such that it would impair the migration of chemical constituents that may be present in the tire or dual cure bonding layer from reaching outer surface 12 of the patch assembly. (*Id.*)

Additionally, Wilson's rubber patch may be CR/NR (Wilson, 3:52-53), which a POSA would have known possesses the barrier material composition properties recited in claim 5. (EX1003, ¶128.) For example, DeTrano discloses a tire patch

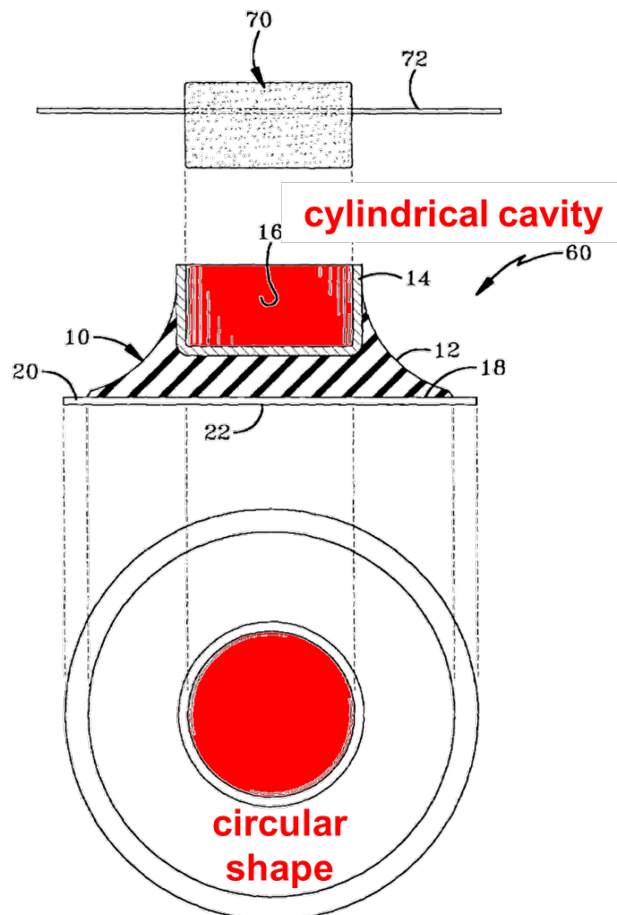
with a preferred “barrier layer” composed of CR/NR. (DeTrano, 4:28-30.) DeTrano further explains that the purpose of the CR/NR barrier layer “is to prevent certain ingredients in tire 10, such as antioxidants, from reaching and discoloring visible layer 21.” (DeTrano, 4:25-28.) Preventing certain ingredients present in the tire from passing through the barrier layer to an outer layer demonstrates that CR/NR, as disclosed in Wilson, is a **“barrier material composition [that] impairs migration of a material constituent within the assembly when the assembly is attached to a vulcanized rubber article.”** (EX1003, ¶¶124-128.)

Furthermore, in its infringement contentions, PO admits that “[a]fter the Revvo dock assembly... is attached to the tire with vulcanizing fluid, the dock acts as a barrier to minimize or prevent or impair the migration of any unwanted constituents of the cushion gum and/or tire that may otherwise operate to damage or degrade the dock, *as the dock and the cushion gum are made of different materials.*” (EX1025, 55-56 (emphasis added); *see also id.*, 34.) In Wilson, the patch and the dual cure bonding layer 20 are also made from different materials and would therefore act as a barrier in the same way as the accused dock when the patch is attached to the tire, thereby satisfying this claim. (EX1003, ¶¶129-133.)

3. Dependent claim 7

Wilson discloses this claim. The patch assemblies in Wilson each include a

cavity configured to hold a monitoring device/tag assembly, as shown for example
by the cylindrical cavity depicted in Figure 1:



(Wilson, Fig. 1 (annotated); *see also* Wilson 3:35-41.) Cavities are also depicted and described with respect to the patches depicted in Figures 6-13 in Wilson. (Wilson, FIG. 6 (5:9-11 (cavity 16); FIG. 7 (5:37-39 (cavity 16)); FIG. 8; FIG. 9 (6:17-44); FIGS. 10-13 (7:53-55 (cavity 210); EX1003, ¶¶134-136.)

4. Dependent claim 8

Wilson discloses this claim. (EX1003, ¶¶137-140.) The entire thrust of Wilson is to provide a “patch assembly [that] includes a patch that removably and reattachably holds the monitoring device.” (See, e.g., Wilson, Abstract.) To accomplish this, Wilson discloses that a monitoring device/tag assembly 70 “may be of any configuration which allows it to easily fit within the contour of the cavity 16” of the patch. (Wilson, 5:7-24.) For example, Figures 6-8 depict various embodiments wherein a monitoring device/tag assembly 70 or 110 (highlighted blue) is disposed within the cavity of a patch and attached thereto—i.e., **“an element disposed within the cavity”**:

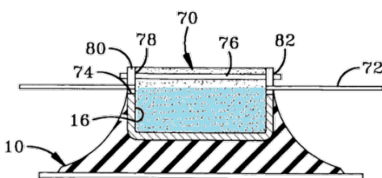


FIG-6

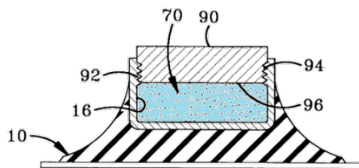


FIG-7

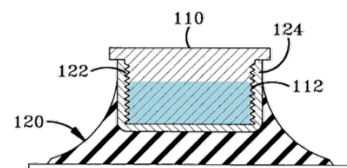


FIG-8

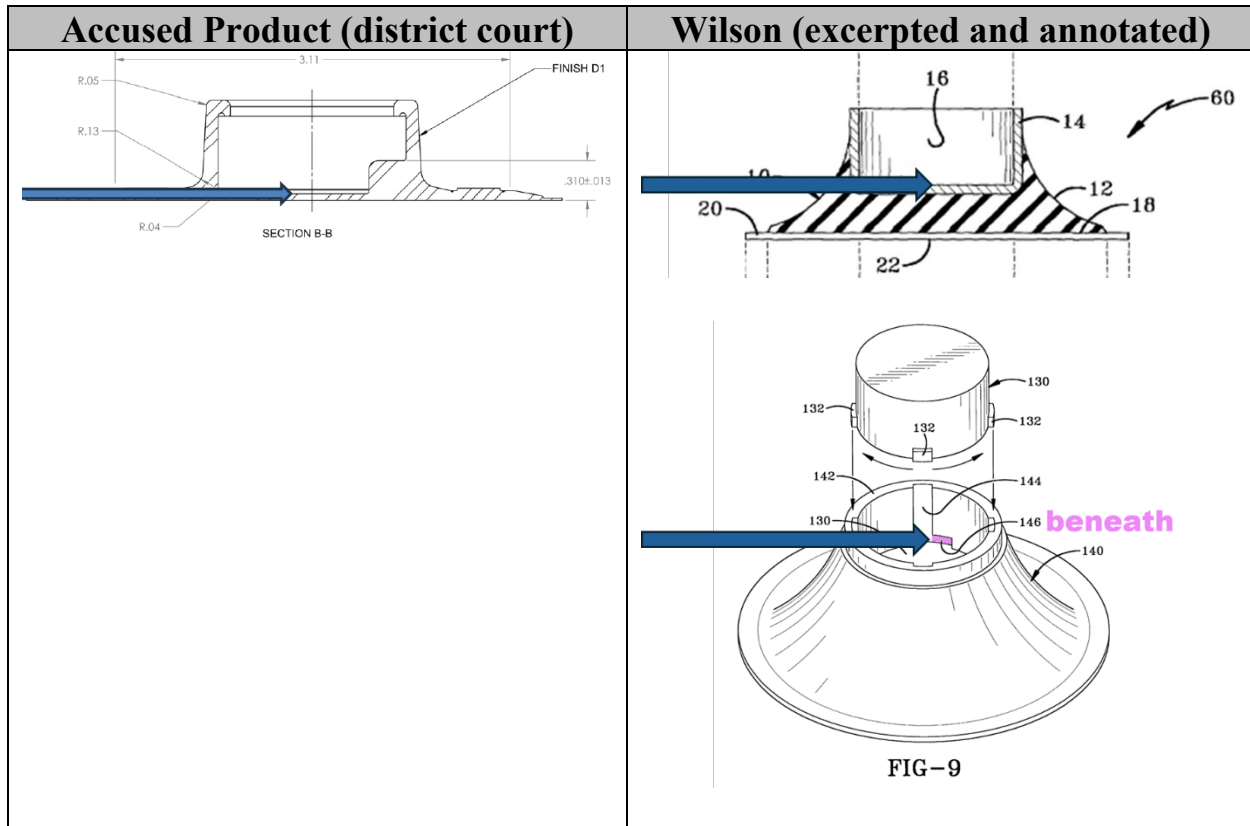
(See also *id.*, Figs. 1, 9, 11-13; EX1003, ¶¶138-139 (addressing Figures 1, 9, 11-13 in Wilson to show same cavity/element configurations satisfying this claim).)

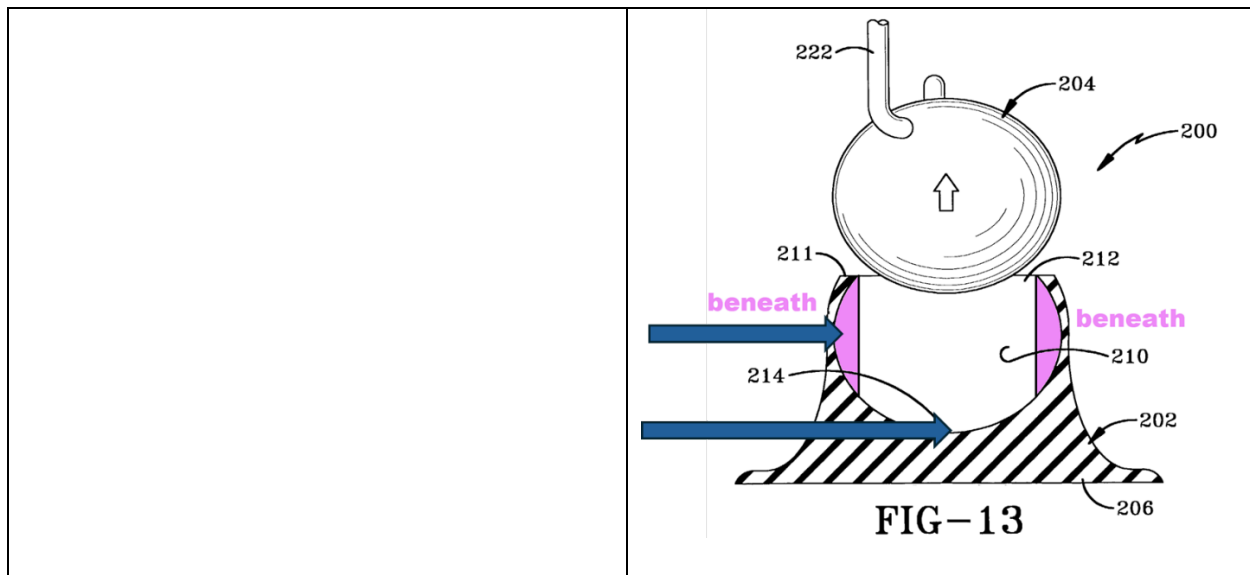
5. Dependent claim 9

In its infringement contentions, PO takes the position that this limitation is satisfied if the “**cavity**” extends below the uppermost surface of the accused dock. (EX1025, 79-82.) The accused dock in the litigation and Wilson’s patches here have

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similar configurations, as shown below in a side-by-side comparison, and therefore
Wilson's patch satisfies this claim for the same reason as shown below. (EX1003,
¶¶141-142.)





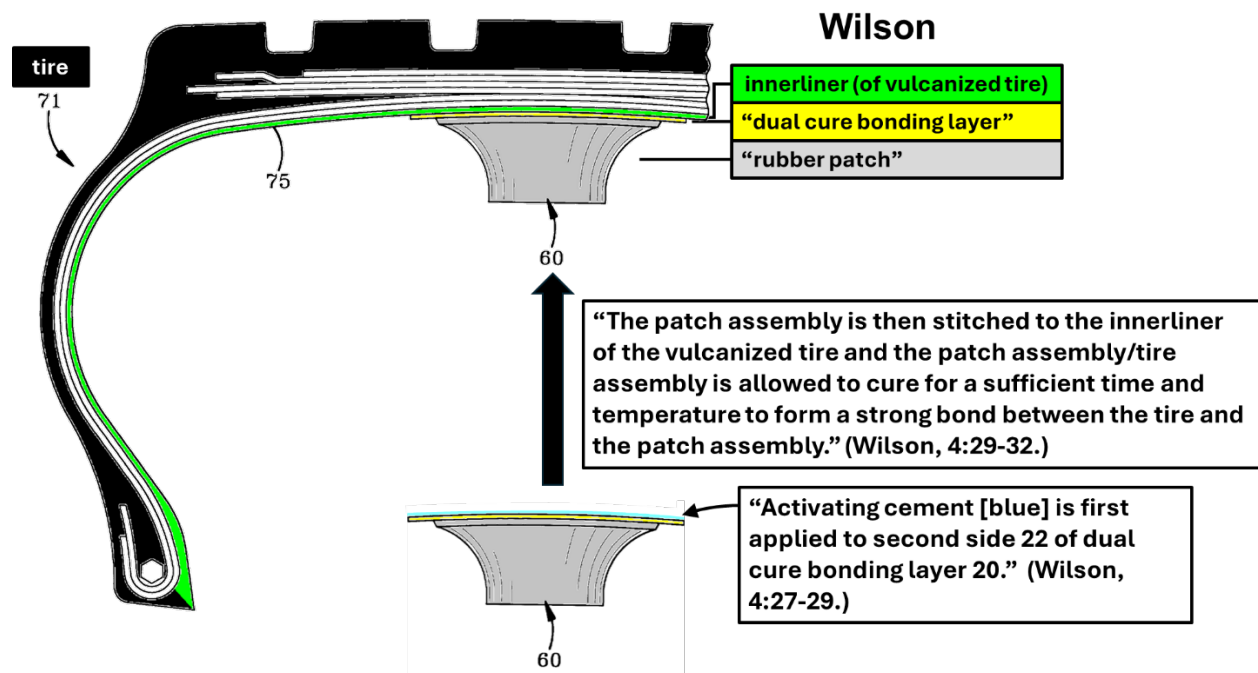
6. Independent claim 11

- (a) Preamble: “A method for attaching an assembly to a surface of a vulcanized rubber article comprising the steps of:” (11[pre])**

To the extent this preamble is limiting, it is disclosed by Wilson. (EX1003, ¶¶143-145.) Wilson discloses that “the rubber patch is vulcanized and then assembled to the vulcanized tire.” (Wilson, 3:42-44.) Wilson discloses that the vulcanized rubber patch is assembled to the vulcanized tire after the vulcanized patch is formed into a “patch assembly,” wherein a dual cure bonding layer is affixed onto the patch. (See Wilson, 4:1-8.)

Wilson discloses that after the “patch assembly 60” has been constructed, it “is then assembled to the innerliner 75 of a tire 71” (Wilson, 4:26-27) using an “[a]ctivating cement [that] is first applied to the second side of dual cure bonding

layer 20” and the patch is “stitched to the inner liner of the vulcanized tire patch and the patch assembly/tire assembly is allowed to cure for a sufficient time and temperature to form a strong bond between the tire and the patch assembly” (Wilson, 4:26-32), depicted as follows:



(EX1003, ¶144.)

Accordingly, Wilson discloses “[a] method for attaching an assembly to a surface of a vulcanized rubber article.” (*See also* claim 1[pre] above).)

(b) Limitation 11[a]: “identifying a surface of a vulcanized rubber article;”

Wilson discloses that the “patch assembly” is “assembled to the innerliner 74 of the tire 71.” (Wilson, 4:26-28; *see also* Wilson, 60-61.) Thus, Wilson

“identif[ies] a surface of the vulcanized rubber article” as the surface of the innerliner of the vulcanized tire. Between applying the activating cement and stitching the patch assembly to the inner liner, a location on the surface of the innerliner must be identified for attachment of the patch assembly. (EX1003, ¶¶146-148.)

(c) **Limitation 11[b]: “placing an assembly into contact with the identified surface, wherein the assembly comprises:”**

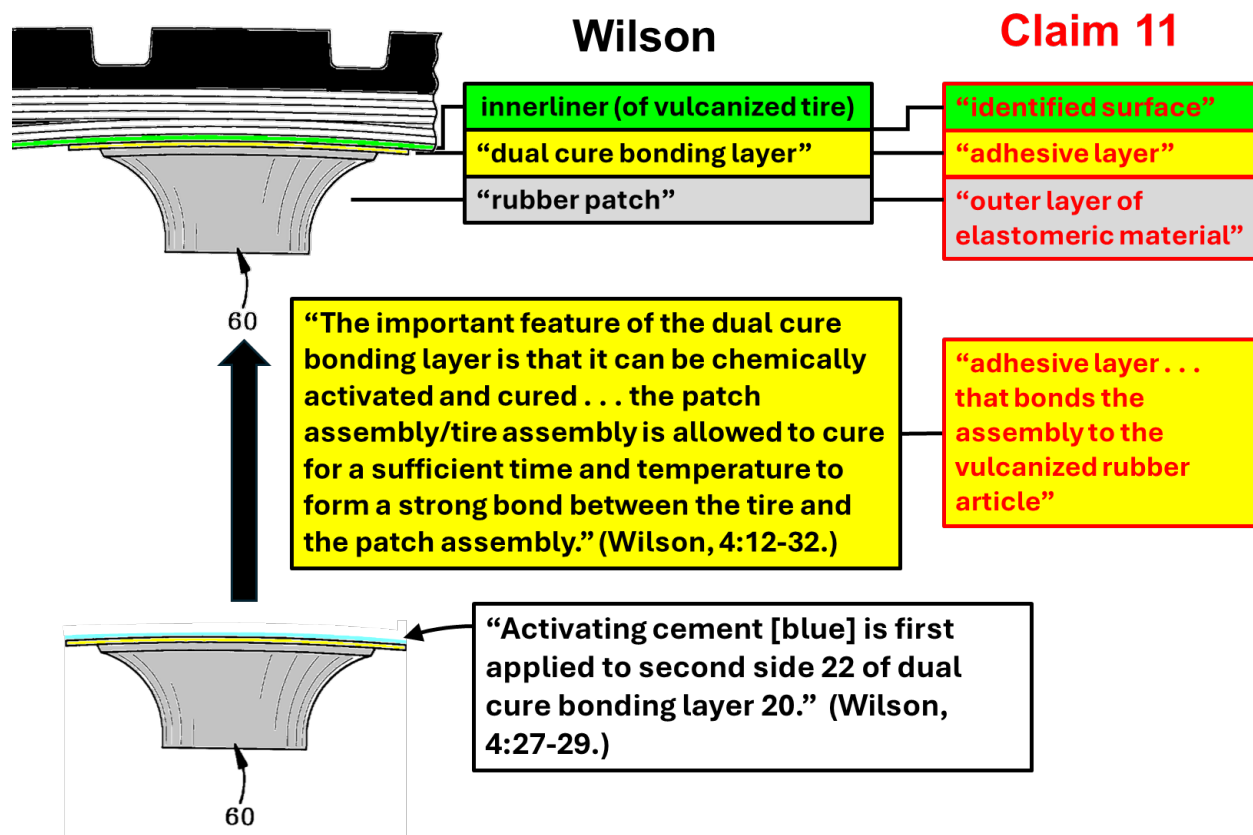
As shown above in 11[pre], Figure 2 of Wilson shows a patch assembly that has been **“plac[ed]... into contact with the identified surface”** of the innerliner of the vulcanized tire. (EX1003, ¶149.) The act of **“placing”** occurs after the activating cement is “first applied” to the dual cure bonding layer of patch assembly 60 and before the assembly is stitched to the innerliner of the tire. (*Id.*)

(d) **Limitation 11[c]: “an outer layer of elastomeric material, wherein the outer layer is in contact with an adhesive layer interposed between the identified surface and the assembly that bonds the assembly to the vulcanized rubber article, and”**

This limitation is disclosed by Wilson for many of the same reasons already discussed for claim 1. As discussed for limitation 1[a], the vulcanized rubber patch 10 in Wilson is the claimed **“outer layer of elastomeric material.”** As discussed for limitation 1[b], the dual cure bonding layer 20 is the claimed **“adhesive layer”**

and is **“in contact with”** the patch 10 (**“outer layer”**).

As shown below in an excerpted and annotated version of Figure 2 of Wilson, the dual cure bonding layer 20 (highlighted yellow) and/or applied “activating cement” (highlighted blue, an alternative “adhesive layer”) is **“interposed between the identified surface [highlighted green] and the assembly.”** (EX1003, ¶151.) As discussed for limitation 1[c], Wilson’s dual cure bonding layer 20 **“bonds the assembly [i.e., patch 10] to the vulcanized rubber article [i.e., tire].”** (EX1003, ¶¶151-153.)



(e) **Limitation 11[d]: “wherein the outer layer comprises a barrier material composition to mitigate migration of material from the vulcanized rubber article.”**

As described above regarding claim limitation 1[c] and claim 5, Wilson discloses that the vulcanized rubber patch can be made of NR, CR/NR, or SBR/NR (*see* Wilson, 3:42-60), each of which is a **“barrier material composition”** that impairs or **“mitigate[s] the “migration of material from the vulcanized rubber article.”** (*See above.*) Therefore, this limitation is disclosed and rendered obvious by Wilson for the same reasons discussed for limitation 1[b] and dependent claim 5. (EX1003, ¶¶154-155.)

Accordingly, Wilson discloses and/or renders obvious all elements of claim 11.

7. Dependent claim 12

This claim is rendered obvious by Wilson. A POSA would have understood that dust or particulate matter on the innerliner of the tire would detrimentally impact the bonding between a rubber patch and a POSA would have found it obvious to remove such material from the innerliner before applying Wilson’s patch assembly to it. (EX1003, ¶¶156-159.) Removing such dust or particulate material from the surface of the innerliner would have been an obvious step of ***“preparing the identified surface before the step of placing”*** Wilson’s rubber patch onto the

innerliner. (EX1003, ¶156.)

Indeed, it was a well-known, common, and standard practice within the art to “clean” and “buff” the innerliner surface before attaching a tire patch, as this would result in a stronger bond between the patch and the tire. (*See, e.g.*, DiRocco, 4:3-9 (“The application of the patch 10 to the tire 11 follows the procedure well known to those skilled in the art wherein an inner surface 32 of the tire 10 around the injury is cleaned and buffed.”) (emphasis added); DeTrano, 7:44-55 (“[t]he surfaces to be bonded may then be buffed to RMA1 or RMA2 Standard Buffing Textures”), claim 8; EX1003, ¶157.)

Although Wilson does not expressly disclose such preparation of the innerliner, it discloses that “[e]xemplary non-curing cement and an exemplary dual cure bonding layer are products of Patch Rubber Company.” (Wilson, 4:10-12.) In this regard, a prior art product catalog for Patch Rubber Company identifies “Dual Cure Repair Units” having a “Dual Cure Base Gum,” which a POSA would have understood to be the same dual cure bonding layer in Wilson. (EX1003, ¶158; EX1020 (“PRC-2012-Catalog”), 3; *see also above* limitations 1[b][i] and 1[c].) The PRC-2012-Catalog also specifies that these repair units are to be applied “with Fast-Dry Self-Vulcanizing Cement,” which a POSA would have known is an “activating cement” applied to the dual cure bonding layer in Wilson. (*Id.*, 3, 7; Wilson, 4:27-

29.) The PRC-2012-Catalog also lists a “Cleaner Fluid” that “dissolves lubricants and contaminants prior to buffing.” (*Id.*, 7.)

Patch Rubber also supplied prior art “Training & Repair Instructions” (EX1029), that were consistent with a POSA’s understanding of the obvious steps of cleaning and buffing the surface before applying a tire patch. (EX1003, ¶159.) Each guide expressly instructs the technician to clean and buff the tire surface before applying the patch to the tire. (*See* EX1030, 2; EX1031, 3-4; EX1032, 3-4; EX1033, 1; EX1034, 4.) It therefore would have been obvious to a POSA to clean and/or buff the tire surface in Wilson before adhering the patch 10, as such steps were industry standard and consistent with Patch Rubber Company procedure for using the products expressly identified in Wilson. (EX1003, ¶¶156-159.)

8. Dependent claim 13

Wilson discloses this claim. Wilson discloses that “[t]he patch assembly is then stitched to the innerliner of the vulcanized tire” and “optionally may be clamped to the tire innerliner 75, until the curing cycle is completed.” (Wilson, 4:26-37.) Stitching is a process that uses a tool to apply pressure onto a tire patch to ensure a complete attachment of the patch assembly surface and the surface of the inner liner and to remove any air pockets between the surfaces. (EX1003, ¶160; *see* EX1001, 14:35-58 (“...using a stitching tool, whereby moderate pressure is applied”).

Clamping the patch assembly 60 to the tire would also result in pressure being applied to the patch assembly 60 after the assembly 60 is placed on the tire to cure. (EX1003, ¶160.)

9. Independent claim 15

(a) Preamble: “A vulcanized rubber tire comprising:”

To the extent this preamble is limiting, it is disclosed by Wilson for the same reasons discussed for the preamble for claim 1. (EX1003, ¶161.)

(b) Limitation 15[a]: “a target surface disposed along a portion of the rubber tire;”

This limitation is rendered obvious by Wilson for the same reasons discussed for limitation 11[a]. (EX1003, ¶162.)

(c) Limitation 15[b]: “an assembly disposed onto the target surface and comprising:”

This limitation is rendered obvious by Wilson for the same reasons discussed for limitation 11[b]. (EX1003, ¶163.)

(d) Limitation 15[c]: “an outer layer of elastomeric material; and”

This limitation is rendered obvious by Wilson for the same reasons discussed for limitation 1[a]. (EX1003, ¶164.)

(e) Limitation 15[d]: “an adhesive layer connected with the outer layer;”

This limitation is rendered obvious by Wilson for the same reasons discussed for limitation 1[b]. (EX1003, ¶165.)

(f) Limitation 15[e]: “wherein at least a portion of the outer layer comprises a barrier material composition to mitigate migration of material from the rubber tire.”

This limitation is rendered obvious by Wilson for the same reasons discussed for limitations 1[b], 11[d] and claim 5.

10. Dependent claims 16-18

These claims are rendered obvious by Wilson for the same reasons discussed for claims 7-9, respectively.

11. Independent claim 19

(a) Preamble: “An assembly for attachment to a vulcanized rubber tire comprising:”

To the extent this preamble is limiting, it is disclosed and/or rendered obvious by Wilson for the same reasons discussed for the preamble of claim 1.

(b) Limitation 19[a]: “an outer layer formed from an elastomeric material;”

This limitation is rendered obvious by Wilson for the same reasons discussed for limitation 1[a] and 15[c].

(c) Limitation 19[b]: “an adhesive layer bonding the assembly to portion of a vulcanized rubber tire; and”

This limitation is rendered obvious by Wilson for the same reasons discussed for limitation 1[c] and 11[c]. (EX1003, ¶172.)

(d) Limitation 19[c]: “a cavity disposed within the assembly for accommodating an element therein;”

This limitation is rendered obvious by Wilson for the same reasons discussed for claims 7 and 8.

(e) Limitation 19[d]: “wherein the outer layer comprises a material composition that acts as a barrier to material migrating from the vulcanized rubber tire.”

This limitation is rendered obvious by Wilson for the same reasons discussed for limitations 1[b], 11[d], and claim 5.

12. Dependent claim 20

This claim is rendered obvious by Wilson for the same reasons discussed for claim 9.

13. Dependent claim 21

This claim is rendered obvious by Wilson for the same reasons discussed for limitation 1[b][i]. (*See* Wilson, 4:1-10.)

14. Dependent claim 22

This claim is rendered obvious by Wilson for the same reasons discussed for limitation 1[a].

C. Ground 2: Claim 12 is rendered obvious by Wilson in view of DiRocco.

To the extent PO argues that it would not have been obvious to a POSA to undertake the step recited in claim 12 of “*preparing the identified surface before the step of placing*” under **Ground 1**, the disclosures of Wilson in view of DiRocco are expressly combined in this **Ground 2**. (EX1003, ¶178.) The arguments for claim 12 under **Ground 1** apply here, as they provide details about what was known in the art at the time of the ’027 patent and support motivations to combine Wilson with DiRocco. DiRocco is relied on solely for its explicit disclosures of cleaning and buffing prior to patch placement.

As discussed for this claim under **Ground 1**, it was standard practice in the industry at the time of the ’027 patent to prepare the innerliner surface of the tire before placing a patch. DiRocco is an analogous reference that describes a tire repair patch made of “a blend of natural and SBR rubbers” and a base cushion gum layer made of “natural rubber.” (DiRocco, 3:20-25.) DiRocco explains that “[t]he application of the patch 10 to the tire 11 *follows the procedure well known to those skilled in the art* wherein an inner surface 32 of the tire 10 around the injury is

cleaned and buffed.” (DiRocco, 4:3-6 (emphasis added).) Like Wilson, a chemical cement is applied to the base cushion gum layer and then the patch is applied to the tire 11. (DiRocco, 4:15-27.)

It would have been obvious to a POSA to follow the express surface preparation of DiRocco with Wilson so that the tire of Wilson is cleaned and buffed prior to the patch assembly being applied to the tire’s innerliner. (EX1003, ¶¶178-182.) DiRocco makes clear that this preparation is “well known to those skilled in the art” such that a POSA would have been motivated and reasonably expected success in combining DiRocco’s teaching with Wilson’s patch assembly, as cleaning and/or buffing was standard operating practice in the application of tire patches for enabling a more secure bond than what would result with an uncleaned and unbuffed tire surface. (*Id.*; *see also* EX1030, 2 (cleaning and buffing a tire surface as part of application of a tire patch); EX1031, 3-4 (same); EX1032, 3-4 (same); EX1033, 1 (same); EX1034, 4 (same).)

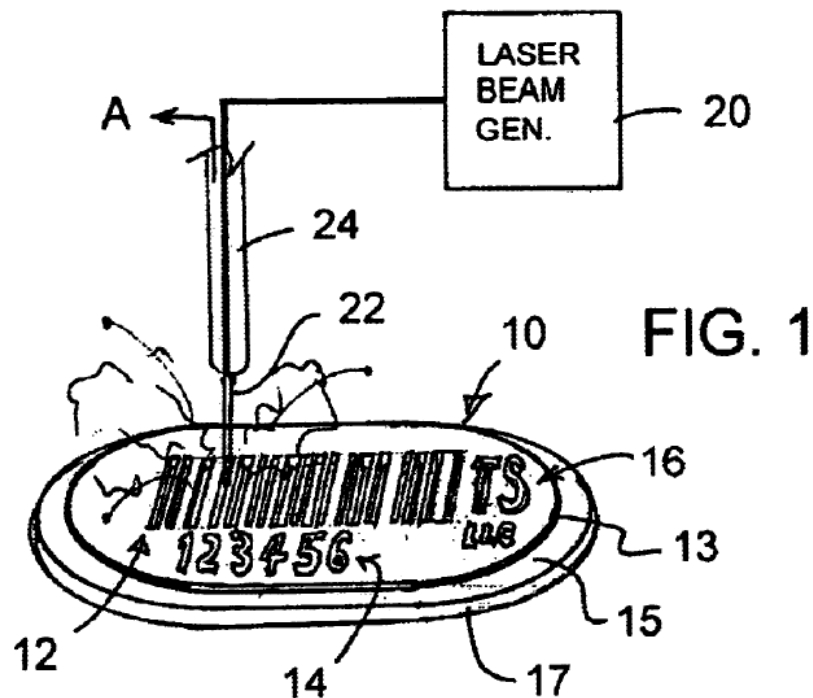
For these reasons, the combination of Wilson and DiRocco render claim 12 obvious.

D. Prior Art for Grounds 3-5

1. U.S. Patent No. 6,726,012 (Bielicki) [EX1004]

Bielicki issued on April 27, 2004 and is prior art under §102(a)(1). Bielicki was initially assigned to Tracking Systems LLC which, in 2004, changed its name to Tire-Track, LLC. (EX1056.)

Bielicki describes a method for manufacturing a multi-layered rubber identification unit or patch for a tire. (Bielicki, 1:7-11, 2:28-31.) The ID unit/patch includes a bar code pattern cut into the outer layer for use in “a tire tracking, inventory and use system.” (*Id.*, 2:32-37.) As illustrated in Figure 1 (below), the multi-layered ID unit/patch has “an outer layer 13 of one color, e.g., white, and at least one inner layer 15 of a contrasting color, e.g., black. There is also another bottom layer 17 beneath inner layer 15, which acts as a bonding layer between the ID unit and a tire.” (*Id.*, 3:30-35.) The bottom bonding layer 17 is a “semi-cured gum rubber.” (*Id.*, 5:22-29.) A selected pattern on the ID unit/ patch, such as a bar code and associated numbers and/or company logo, is made by scanning a laser beam across the surface of the white layer to cut through it and expose the black layer beneath. (*Id.*, Abstract, 2:33-49, 2:60-67, 3:24-29.)



Bielicki teaches that “the ID unit 10 may also have other layers between the inner layer 15 and the bottom layer 17 which assist in blocking active oxidants in tires from blackening or browning the white outer layer 13.” (Bielicki, 5:30-35.)

Bielicki expressly discloses that “[t]he unit or patch 10 is supplied by Patch Rubber Company/Myers Industries, Inc. of Roanoke Rapids, N.C.” (Bielicki, 4:44-45.)

2. Patch Rubber Brochure [EX1005]

The Patch Rubber Brochure was posted to patchrubber.com (owned by Patch Rubber Company) and captured by archive.org on September 2, 2009. (EX1027, 94-98.) Details regarding the public availability of this Brochure are included in the

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Internet Archive affidavit [EX1027], Dr. Bolin’s declaration [EX1057], and Mr. Donley’s declaration [EX1003]. (EX1003, ¶¶81-82; EX1057, ¶¶32-37.) The Patch Rubber Brochure qualifies as a publication and prior art under 35 U.S.C. §102(a)(1). *See Sandoz Inc. v. Abbvie Biotechnology Ltd.*, IPR2018-00156, Paper 11 at 8-13 (PTAB June 5, 2018) (informative); *see also Hulu LLC v. Sound View Innovations LLC*, IPR2018-01039, Paper 29 at 18 (PTAB Dec. 20, 2019) (precedential).

The Patch Rubber Brochure is titled “Know Your Tires with Tire-Track.” (EX1005, 1.) The commercially-available Tire-Track ID Unit described in the Patch Rubber Brochure (shown below) is similar to (if not the same as) the patch depicted in Bielicki:



(*Id.*, 3.)

The Patch Rubber Brochure, excerpted below, provides steps for applying the Tire-Track ID Unit to a tire: “Apply the Tire-Track ID Unit just like a repair patch... No Heat Required!” (*Id.*, 4.) It instructs users to: “Buff the tire surface”; “Brush on cement”; and “Apply the Tire-Track ID Unit” (depicting a handheld stitching tool).

(*Id.*) The Patch Rubber Brochure identifies “Tracking Systems LLC,” the original assignee on the face of Bielicki, and instructs users to “[v]isit www.tire-track.com for more information.” (*See id*; Bielicki, cover page.)

Apply the Tire-Track ID Unit just like a repair patch...No Heat Required!



Buff the tire surface.



Brush on cement.



Apply the Tire-Track ID Unit.



Tire-Track – Know Your Tires!
Visit www.tire-track.com for more information.

(EX1005, 4.)

3. Tire-Track Brochure [EX1007]

The Tire-Track Brochure was posted to tire-track.com (owned by Tire-Track LLC) and captured by archive.org on March 4, 2011. (EX1027, 64-68.) Details regarding the public availability of this Brochure are included in the Internet Archive affidavit [EX1027], Dr. Bolin’s declaration [EX1057], and Mr. Donley’s declaration [EX1003]. (EX1003, ¶¶87-88; EX1057, ¶¶38-43.) The Tire-Track Brochure qualifies as a publication and prior art under §102(a)(1).

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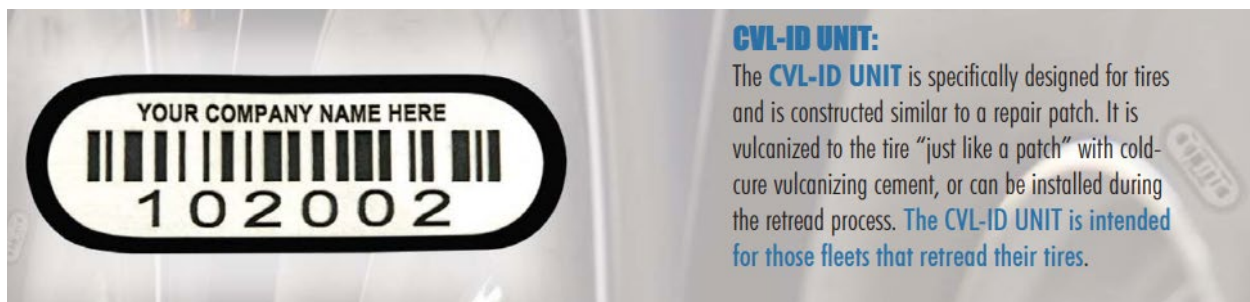
The Tire-Track Brochure is titled “Reduce Your Tire Costs with the Tire-Track ID Unit.” (EX1007, 1.) The CVL-ID Unit described in the Tire-Track Brochure (depicted below) is materially similar to the ID unit/patch disclosed in Bielicki (and the Patch Rubber Brochure), described as “a multi-layered black & white rubber label specifically designed for tires” wherein “[t]he bar code and other information is engraved through the white rubber to expose the contrasting black rubber.” (*Id.*, 2; *compare to* Bielicki, 3:43-55.)



(EX1007, 1.)

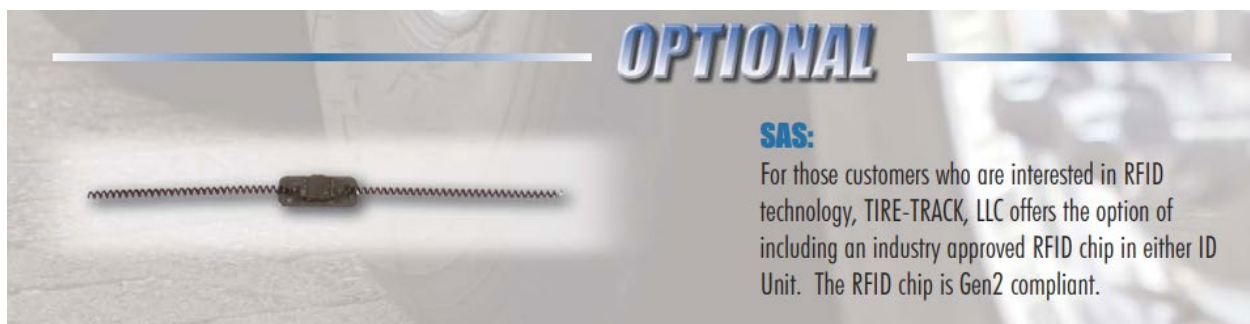
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As the brochure discloses, “[t]he CVL-ID UNIT is specifically designed for tires and is constructed similar to a repair patch. It is vulcanized to the tire ‘just like a patch’ with cold-cure vulcanizing cement, or can be installed during the retread process”:



(*Id.*, 3.)

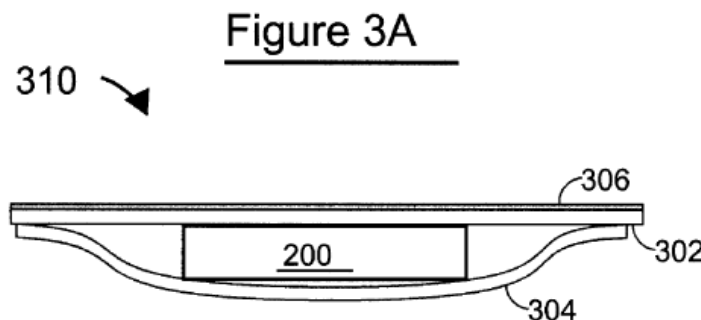
The Tire-Track Brochure further discloses that “[t]he ID UNIT(S) are permanent, all-rubber bar code & RFID (optional) labels”:



(*Id.*, 2, 3 (“For those customers that are interested in RFID technology, TIRE-TRACK, LLC offers the option of including an industry approved RFID chip in either ID unit.”).)

4. U.S. Patent No. 6,546,982 (Brown) [EX1008]

Brown issued on April 15, 2003 and is prior art under §102(a)(1). Brown generally discloses methods for mounting transponders to pneumatic tires using a tire patch. (Brown, Abstract, 17:51-65.) In one embodiment, Brown discloses a patch with a transponder “sandwiched” between two rubber sheets 302 and 304 for mounting onto a tire using adhesive 306. (Brown, 17:58-65.)



(Brown, FIG. 3A.)

E. Ground 3: Claims 1-3, 5, and 7 are rendered obvious by Bielicki

1. Independent claim 1

(a) Preamble: “An assembly for attachment with a vulcanized rubber article comprising:” (1[pre])

To the extent this preamble is limiting, it is disclosed and rendered obvious by Bielicki.

Bielicki discloses a “multi-layered rubber ID unit 10” with a semi-cured gum rubber bonding layer 17, which is “used as a bonding layer between the ID unit 10

and a tire.” (Bielicki, 3:30-35, 5:25-28, Fig. 1.) Bielicki’s multi-layered rubber ID unit 10 is an “**assembly**” that is “**for attachment with**” a tire. (EX1003, ¶¶183-184.)

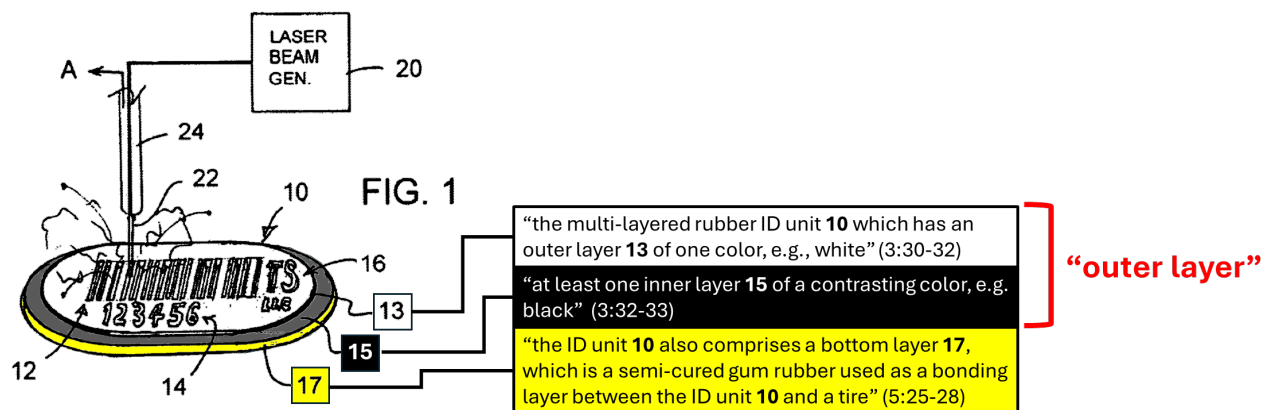
A POSA would have understood (or at least found it obvious) that Bielicki’s disclosure of “*a semi-cured gum rubber* used as a bonding layer between the ID unit and *a tire*,” meant that the “assembly” was suitable for attachment to a “vulcanized” rubber tire. (EX1003, ¶¶185-187; Bielicki, 5:25-28.) A POSA would understand that the uncured aspect of the semi-cured gum rubber provides the gum rubber with tack/stickiness as well as available reaction sites capable of forming chemical bonds with a surface of a vulcanized tire, which allow it to be attached to a vulcanized rubber tire. (EX1003, ¶185; *see, also* EX1014, 337-38 (“The vulcanization process is necessary to produce most useful rubber articles, like tires.”).)

Bielicki’s further description of the multi-layer ID unit as a “patch” would also indicate to a POSA that Bielicki’s ID unit/patch was for use with a vulcanized rubber tire since patches are used on vulcanized rubber tires (and there is no mention in Bielicki of applying the ID patch to a green or uncured tire during manufacturing of the tire). (EX1003, ¶186; *see* Bielicki, 1:7-12 (“patch”), 4:44-49 (“[t]he unit or patch 10” and “the unit or patch”).) Accordingly, a POSA would have known (and found obvious) that Bielicki’s multi-layered ID unit/patch is for use with vulcanized

rubber tires and thereby satisfies an “assembly for attachment with a vulcanized rubber article.” (EX1003, ¶186.)

(b) **Limitation 1[a]: “an outer layer of elastomeric material having a visual feature; and”**

Bielicki discloses this limitation. As depicted below, the outer layer 13 and inner layer 15 of Bielicki’s ID unit or patch 10 are the claimed “**outer layer**,” (i.e., “at least one layer that is outermost”). The outer and inner layers 13, 15 in Bielicki are made of rubber, which is an “**elastomeric material**.” (Bielicki, 4:46-49 (“an outer layer 13 of high durometer rubber material”), 4:58-59 (“[t]he inner layer 15 is also a rubber material”); *see also id.*, 2:11-25, 3:21-29, 3:30-35.)



(EX1003, ¶¶188-189.)

Bielicki discloses multiple “**visual features**” associated with outer layer 13 and inner layer 15, which make up the claimed “**outer layer**.” (EX1003, ¶190.) First, the outer and inner layers 13, 15 each have a different color—e.g., white and

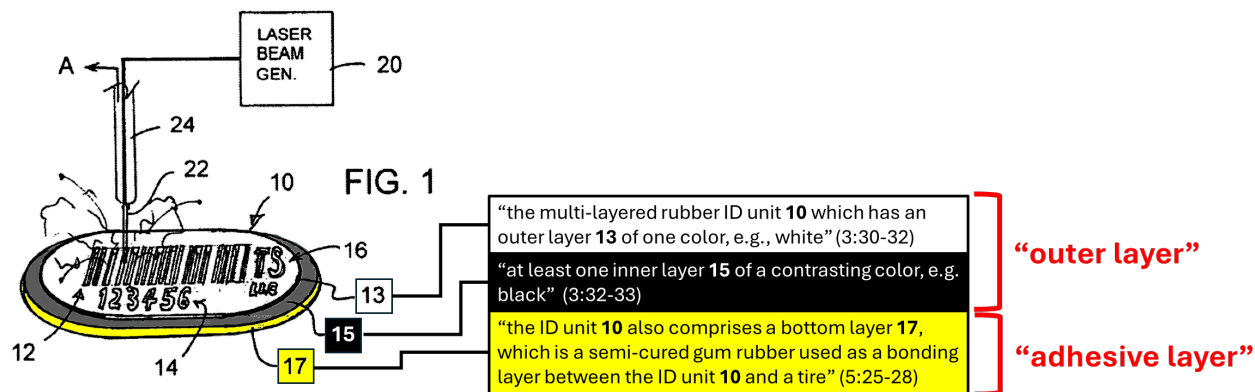
black. (Bielicki, 3:30-35, 5:22-23.) Colors are visually detectable and therefore qualify as “**visual features**” under PO’s interpretation. (EX1003, ¶190; *see* ’027 patent, 2:13-18, 4:56-5:37, 8:3-28.) The outer layer 13 in Bielicki also includes patterned cutouts in the form of “a barcode 12 and associated numbers 14, and/or unserialized information like a company logo 16.” (Bielicki, 3:21-29, Fig. 1.) Each of these are visually detectable and serve as a “**visual feature**” under PO’s interpretation as well. (*See also* ’027 patent, 5:27-37 (“the use of a patterned display layer... may be in the form of a barcode”), 4:56-5:37, 8:3-28.) Furthermore, the “**outer layer**” of Bielicki’s ID units also have a shape that is visually detectable. (EX1003, ¶190; *see* ’027 patent, 12:35-37.)

(c) **Limitation 1[b]: “[i] an adhesive layer adhered to an interface surface of the outer layer, [ii] wherein at least a portion of the outer layer adjacent the interface surface comprises a barrier material composition, and”**

(i) **Limitation 1[b][i]: an adhesive layer adhered to an interface surface of the outer layer,**

Bielicki’s bottom layer 17 is the claimed “**adhesive layer.**” (EX1003, ¶¶193-198.) Bielicki describes the bottom layer 17 as made of a “semi-cured gum rubber” that “acts as a bonding layer between the ID unit and a tire.” (Bielicki, 3:30-35; *id.*, 5:22-29.) This “bonding” of Bielicki’s semi-cured gum rubber satisfies PO’s

construction for “**adhesive layer**” (i.e., “at least one layer that bonds to”):¹



(EX1003, ¶194.)

A POSA would have known that Bielicki’s *semi-cured* gum rubber bonding layer 17 would have tack (or stickiness), such that it bonds, adheres, or sticks to surfaces, and therefore that it would be adhered to the adjacent layer inner layer 15 within the multilayer patch. (EX1003, ¶194; *see also* EX1014, 337 (“unvulcanized rubber...can be very sticky”); Bielicki, 4:33-35.) The “**adhesive layer**” of Bielicki (i.e., bonding layer 17) is thus “**adhered to an interface surface of the outer layer.**”

¹ In its infringement contentions, PO alleged that a “cushion gum” on the bottom of the accused products is an “adhesive layer.” (EX1025, 12-13.) The term “cushion gum” and “gum rubber” are well known terms of art, and a cushion gum is a gum rubber. (EX1003, ¶194.)

A POSA would have also understood that Bielicki's semi-cured gum rubber bonding layer 17 (i.e., the “**adhesive layer**”) is “**adhered to**” the bottom surface of the ID Unit's inner layer 15 (i.e., the “**interface surface of the outer layer**”) because, as shown in Figure 1, it is a three-layered patch. (See Bielicki, 2:11-25, 4:31-40, 5:22-29, 3:30-35; EX1003, ¶¶195-196.) Nothing in Bielicki indicates that these layers would readily separate from each other. To the contrary, the patch is illustrated and described as a single unit throughout the specification, which expressly notes that “the method starts by providing the multi-layered rubber unit 10,” indicating the patch is provided in its multi-layered, assembled configuration. (Bielicki, 3:30-35; EX1003, ¶196.)

Bielicki further identifies “Patch Rubber Company/Myers Industries, Inc.” as supplying the patch, which would only further confirm a POSA's understanding that the patch is supplied as a pre-assembled multi-layered rubber unit wherein the semi-cured gum rubber bonding layer is adhered to the surface of inner layer 15. (See Bielicki, 4:44-45; EX1003, ¶197.)

For these reasons, Bielicki discloses “**an adhesive layer adhered to an interface surface of the outer layer.**”

(ii) **Limitation 1[b][ii]: wherein at least a portion of the outer layer adjacent the interface surface comprises a barrier material composition, and**

PO's proposed construction for "**barrier material composition**" is a "material composition that has properties of shock absorbance, elastomeric expansion and/or contraction." (EX1024, Ex. A at 3.) Any rubber, as an elastomeric material, would have "properties of shock absorbance, elastomeric expansion and/or contraction," including specifically the white and black rubber in outer layer 13 and inner layer 15, respectively, of Bielicki's disclosed ID unit/patch. (EX1003, ¶199.) Thus, Bielicki discloses rubber materials in the outer layer 13 and inner layer 15 of the ID unit/patch that are each a "**barrier material composition.**"

Bielicki further discloses that "[t]he inner layer 15 is [] a rubber material with a lower durometer than the outer layer 13." (Bielicki, 4:56-5:2.) "The term durometer is used in the art to signify a measurement of the hardness of a rubber material." (*Id.*, 4:44-55.) That is, durometer provides a relative measure of the elastic properties of a rubber. (EX1003, ¶200.) A POSA would have understood that Bielicki's inner layer 15—i.e., the "**portion of the outer layer adjacent the interface surface**"—having a relatively "lower durometer" would be a relatively softer and more flexible rubber, which means it would have relatively greater shock absorbing properties and relatively greater elastomeric expansion and/or contraction

compared to rubbers with higher durometer. (*Id.*) Accordingly, Bielicki's inner layer 15 satisfies this claim limitation.

In its infringement contentions, PO further confirmed the inherent properties of rubber, stating: “[c]omprised of *rubber*, the dock in the Accused Revvo Tire Sensor Products *is elastomeric and mitigates transmission of shock forces* from the tire to the housing....” (EX1025, 3 (emphasis added).) Because Bielicki's outer and inner layers 13, 15 (collectively the claimed “**outer layer**”) are made of rubber, which is elastomeric, it follows from PO's admissions that the layers 13, 15 likewise possess these properties and satisfy this limitation—i.e., they “**comprise[] a barrier material composition.**” (EX1003, ¶¶201-206.)

Accordingly, Bielicki discloses “**wherein at least a portion of the outer layer adjacent the interface surface comprises a barrier material composition.**”

(d) Limitation 1[c]: “wherein the adhesive layer is formed from a material capable of chemically bonding with a surface of a vulcanized rubber article.”

This limitation only requires that the material merely be “*capable* of chemically bonding.” (EX1003, ¶208.) The bottom bonding layer 17 in Bielicki is comprised of a “semi-cured gum rubber” that “acts as a bonding layer between the ID unit and a tire.” (Bielicki, 3:30-35, 5:22-29.) Curing in the context of rubbers used in tires is synonymous with chemical reactions that form cross-linking chemical

bonds. (EX1003, ¶208; *see also* EX1014, 337-38; EX1015, 24-25, 29; EX1023, 2.)

By describing the gum rubber as “semi-cured,” a POSA would understand that the gum rubber has available reaction sites for additional curing/reaction within its molecular structure. (*Id.*) Those available reaction sites are capable of chemically bonding with a vulcanized rubber tire. (*Id.*) This understanding of a POSA is confirmed in column 4, lines 33-35 of Bielicki, which reads: “This finally and fully dries the units *but without fully curing the semi-cured ID unit layers that are needed to properly attach the ID units to a tire,*” which is referring to the semi-cured gum rubber bonding layer. (EX1003, ¶208.) Thus, this passage additionally confirms to a POSA that the semi-cured gum rubber bonding layer 17 is a “**a material capable of chemically bonding with a surface of a vulcanized rubber article.**” (*Id.*)

PO’s admissions in the district court further support a finding that Bielicki’s bottom layer 17 satisfies limitation 1[c]. There, PO identified a “cushion gum” as the claimed “adhesive layer,” asserting that “[t]he cushion gum... is capable of being chemically bonded with the tire, such as with vulcanizing fluid.” (EX1025, 46.) “Cushion gum” is a gum rubber. (EX1003, ¶209.) Thus, under PO’s admission, if a “cushion gum” is capable of being chemically bonded with a tire, then the semi-cured gum rubber in Bielicki would have that same capability. (*Id.*)

Accordingly, claim 1 is obvious under Ground 3.

2. Dependent claim 2

Layers 13, 15 of Bielicki are the claimed “**outer layer**,” which comprises outer layer 13 (“**a first layer**”) with inner layer 15 disposed beneath (“**a second layer disposed beneath the first layer**”). (EX1003, ¶211; Bielicki, Fig. 1, 3:30-35.)

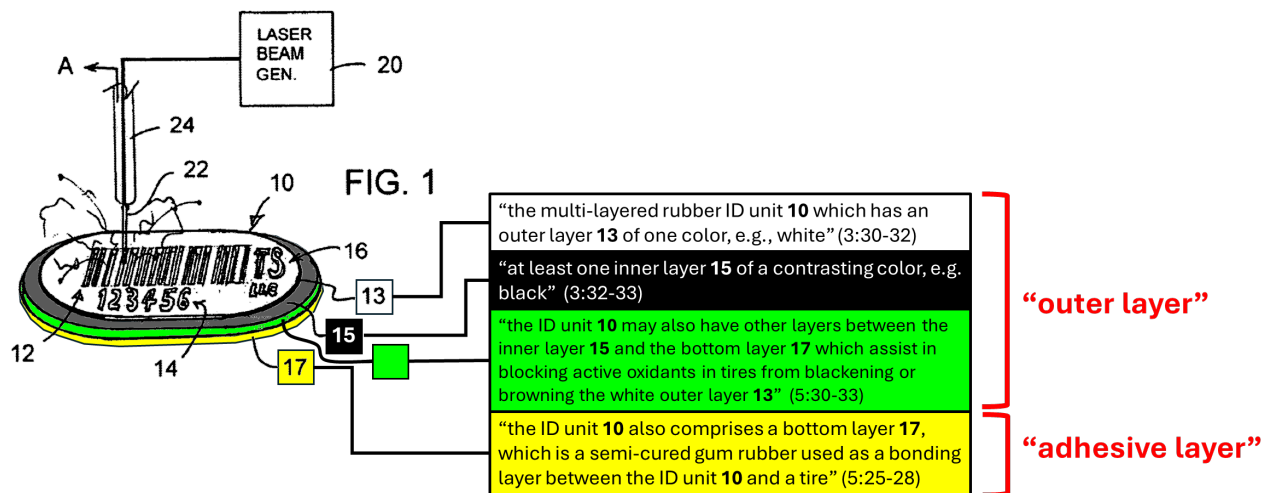
3. Dependent claim 3

Bielicki’s “inner layer 15 is preferably a black contrast to the white outer layer 13,” thereby satisfying claim 3. (Bielicki, 5:22-29; EX1003, ¶212.)

4. Dependent claim 5

Bielicki discloses or at least renders this claim obvious. As noted above with respect to claim limitation 1[b][ii], rubber inner layer 15 of Bielicki interfaces with the adhered semi-cured gum rubber bonding layer 17 and is a “**barrier material composition**” because it is an elastomeric rubber with properties of shock absorbance, elastomeric expansion and/or contraction. As a physical, solid material, a POSA would have understood and found obvious that the rubber inner layer 15 would necessarily impede (to at least some degree) the free flow of materials within Bielicki’s multi-layered ID patch and thereby impair the migration of such materials when the patch is bonded to a vulcanized tire. (EX1003, ¶¶213-217.)

To the extent inner layer 15 of Bielicki is found not to satisfy this claim limitation, Bielicki also discloses that “[a]lternatively, the unit ID 10 may also have other layers between the inner layer 15 and the bottom layer 17 which assist in blocking active oxidants in tires from blackening or browning the white outer layer 13.” (Bielicki, 5:30-35.) Bielicki’s alternative embodiment (with the additional blocking layer in green) also renders claim 5 obvious:



(EX1003, ¶218.)

The rubber material of the layer(s) responsible for “blocking active oxidants” satisfies the claimed “**barrier material composition.**” (EX1003, ¶219.) The “active oxidants” are “**material constituents.**” (*Id.*) The act of blocking the oxidants in the tire from discoloring the white outer layer occurs because it “**impairs migration** [of the active oxidants] **within the assembly when the assembly is attached to a vulcanized tire.**” (*Id.*)

It would also have been obvious to a POSA to implement the active oxidants blocking properties from the “other layers” described in Bielicki as part of the inner layer 15 of the patch in Bielicki. (EX1003, ¶220.) Bielicki makes clear that its patch is made of rubber so it would have been obvious that the “other layers” for performing the blocking function could easily be incorporated into the inner layer 15. (Bielicki, Abstract, 1:8-12, 2:11-25.) Bielicki discloses that “these additional layers are preferably black and 1 mm thick” which is the same preferred color and thickness as disclosed for inner layer 15 (Bielicki, 4:56-58, 5:33-35) and would therefore serve the same purpose in providing contrast with the white outer layer 13 for making the disclosed bar code with identical preferred thickness. (EX1003, ¶221.) Thus, this provides another aspect of Bielicki’s teachings to a POSA that satisfies and renders obvious claim 5.

5. Dependent claim 7

Bielicki’s outer layer 13 includes a series of cutouts or grooves that form a barcode pattern 12, created by using a laser to cut through (ablate) the white outer layer 13 and expose the black inner layer 15. (Bielicki, FIG. 1, Abstract, 1:8-12, 2:39-49, 3:21-29, 3:42-45, 3:49-52, 6:4-11.) Each cutout or groove satisfies the plain meaning of “**cavity**” (i.e., an unfilled or hollowed-out space within a mass) and is disposed in Bielicki’s multi-layered rubber patch. (EX1003, ¶223.)

F. Ground 4: Claims 1-3, 5, 7, 11-13, 15, and 16 are rendered obvious by Bielicki in view of the Patch Rubber Brochure and/or Tire-Track Brochure

In this **Ground 4**, Bielicki's teaching regarding the multi-layered rubber ID unit/patch is relied on as a primary reference. The Patch Rubber Brochure and Tire-Track Brochure both describe a commercial embodiment of the ID unit/patch invention disclosed in Bielicki. (EX1003, ¶224.) They are relied on as secondary references that inform or confirm to a POSA certain features or functions that are or could readily be associated or combined with Bielicki's ID unit/patch. The relevant arguments from **Ground 3** under Bielicki are incorporated to this **Ground 4**.

As set forth in more detail below, a POSA would have been motivated to combine the teachings of Bielicki, Patch Rubber Brochure, and Tire-Track Brochure references together because they are in the same field, describe the same ID unit/patch for attachment to tires for the purpose of tire identification and tracking, and are expressly interrelated with each other. (EX1003, ¶225.) That is, they are not only directed towards the same general subject matter of an ID unit/patch for a tire, but the Brochures are directed to marketing and advertising of the commercial embodiment of the ID unit/patch disclosed in Bielicki. (*Id.*) A POSA would have had a reasonable expectation of success in combining the teachings of these references because they are each directed to that same multi-layered ID unit/patch

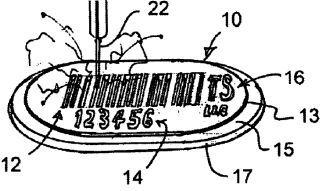
and the Brochures merely describe additional features associated with the ID unit/patch that would have been obvious from Bielicki. (*Id.*)

1. Motivation to Combine Bielicki, the Patch Rubber Brochure, and the Tire-Track Brochure with a Reasonable Expectation of Success

There is undeniable motivation to combine Bielicki with the Patch Rubber Brochure and Tire-Track Brochure. (EX1003, ¶¶226-238.) Each of these references are directed to similar (if not identical) ID units and their interrelatedness is expressly stated in cross-references between the references themselves, further supported by other related disclosures highlighting their interrelatedness. (*Id.*)

First, as indicated in the summaries above, these references are directed to the same (if not identical) ID unit/patch with a barcode for tire tracking. The similarity across the ID unit/patch for each of the references is visually apparent in the below side-by-sides of Bielicki's ID unit/patch and the ID unit/patch in the Patch Rubber and Tire-Track Brochures. (EX1003, ¶227.) The interrelatedness of the documents is also evidence on their face. (*Id.*)

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Bielicki	Patch Rubber Brochure	Tire-Track Brochure
 (Bielicki, Fig. 1)	 (Patch Rubber Brochure, 3)	 (Tire-Track Brochure, 3)

The references also describe their ID unit/patch as having the same features, such as weather and wear resistant rubber and black and white layers cut in the pattern of a barcode. (*See, e.g.*, Bielicki, Abstract, 2:28-31, 3:30-35, 3:43-54, 2:11-25, 2:32-37, 3:21-29; Patch Rubber Brochure, 3; Tire-Track Brochure, 3; EX1003, ¶¶228-229.) The ID unit/patch are also described as having the same purpose: tire identification and tracking. (*See, e.g.*, Bielicki, 1:12-24, 2:33-38; Patch Rubber Brochure, 2; Tire-Track Brochure, 2; EX1003, ¶230.) The striking similarities in these disclosures—describing the same type of ID unit/patch, with the same configuration, and with the same purpose—alone would have provided the suggestion and motivation for a POSA to combine Bielicki, the Patch Rubber Brochure, and the Tire-Track Brochure. (*Id.*)

Second, Bielicki and the Brochures extensively and consistently cross-reference each other, providing additional express motivation for combining their interrelated and overlapping teachings. (EX1003, ¶231.) In this regard, Bielicki states that “the unit or patch 10 is supplied by Patch Rubber Company/Myers

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Industries, Inc.” (Bielicki, 4:44-45.) A POSA would have therefore been motivated to look to Patch Rubber Company documentation—including the Patch Rubber Brochure—for additional information about Bielicki’s ID patch and to supplement or implement details from that documentation with Bielicki to fill or confirm any gaps in Bielicki’s express disclosures. (EX1003, ¶231.)

The Rubber Patch Brochure expressly identifies “Tracking Systems LLC” on its cover, which is the same company identified on the cover of Bielicki, further demonstrating their interrelatedness and motivation to combine their respective teachings to gain a deeper understanding of Bielicki’s ID unit/patch and associated tracking system. (*Compare* EX1005, 1 *with* Bielicki, cover page; EX1003, ¶232.) Additionally, the Patch Rubber Brochure expressly directs users to the tire-track website: “Visit www.tire-track.com for more information.” (EX1027, 98; Patch Rubber Brochure, 4.) A POSA being expressly instructed by the Patch Rubber Brochure to go to the tire-track website page for “more information” about the ID unit/patch and tracking system, provides a clear instruction motivating the combination of the Brochures together and with Bielicki. (EX1003, ¶232.) This provides further confirmation that the ID unit/patch in the Patch Rubber Brochure is the same as (or nearly identical to) Bielicki and the information in the Tire-Track Brochure can also be accurately relied on by a POSA to supplement the details in

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Bielicki, which also supports a reasonable expectation of success for this combination. (*Id.*)

Bielicki’s assignment to Tire-Track LLC also would alone serve as express motivation for a POSA to look to Tire-Track LLC documentation—including the Tire-Track Brochure—for details about Bielicki’s ID unit/patch and to supplement or implement details from that documentation into Bielicki’s teachings. (EX1003, ¶234.) This, coupled with the fact that the Patch Rubber Brochure points to the Tire-Track LLC website for “more information” about its ID unit/patch and tracking system provides a POSA with additional, clear evidence that these three references are inextricably linked. (*Id.*) It would be more than reasonable for a POSA to rely on and combine features from these references together with a reasonable expectation of success. (*Id.*)

Moreover, the respective “FAQ” sections on the webpages associated with each of the Brochures specifically identify that the Tire-Track ID unit/patch “was co-developed by the Patch Rubber Company and Tracking Systems LLC/Tire-Track LLC,” further supporting the conclusion that a POSA would have been motivated to combine these three interrelated references. (EX1021, 1; EX1019, 1; EX1003, ¶235.)

Given that Bielicki points to the exact product described in the Patch Rubber

Brochure and further given that the Patch Rubber Brochure instructs one to go to the Tire-Track website containing the Tire-Track Brochure, a POSA would have had been a reasonable expectation of success in combining the teachings of these references since they are all directed to and describe the same underlying ID unit/patch product for use in a tire tracking system. (EX1003, ¶¶236-238.)

2. Independent claim 1

All **Ground 3** opinions under Bielicki for claim elements 1[a] and 1[b] are incorporated here and not repeated. Only claim elements subject to the express combination of Bielicki with the additional disclosures and teachings of the Patch Rubber Brochure and Tire-Trach Brochure are discussed below.

(a) Preamble (1[pre])

To the extent Bielicki alone is found not to disclose or render obvious claim 1's preamble as it relates to Bielicki's ID unit/patch being for attachment with a *vulcanized* rubber tire, Bielicki in combination with the additional disclosures of Patch Rubber Brochure and Tire-Track Brochure further demonstrates this.

The Patch Rubber Brochure depicts the ID unit/patch being applied to a vulcanized tire (see image excerpt below). A POSA knows the depicted tire is vulcanized just by looking at it and recognizing that the tire is not a pre-vulcanized, uncured green tire. (EX1003, ¶¶237, 240-241.) Consistent with the identification

of a vulcanized tire, the Patch Rubber Brochure further states that the ID unit/patch is applied to a tire “just like a repair patch . . . No Heat Required” such that a POSA would recognize that the ID unit/patch (red annotation below) is “**an assembly for attachment with a vulcanized rubber article,**” just as it is depicted:

Outfit your entire fleet with no downtime!

The Tire-Track™ ID Unit can be applied to a new or used casing without removing the wheel or pulling the vehicle out of service. Tire-Track ID Units are not affected by the retreading process; the bond is actually improved.

*Apply the Tire-Track ID Unit just like a repair patch...**No Heat Required!***



Buff the tire surface.



Brush on cement.



Apply the Tire-Track ID Unit.

(Patch Rubber Brochure, 4 (annotated).)

Additionally, the Patch Rubber Brochure indicates that “[t]he Tire-Track™ ID Unit can be applied to a new or used casing without removing the wheel or pulling the vehicle out of service.” (Patch Rubber Brochure, 4.) A POSA would understand that a tire on a vehicle “in service” would be a vulcanized tire. (See EX1003, ¶242.)

Similar to Bielicki and the Patch Rubber Brochure, the Tire-Track Brochure also discloses an ID unit/patch that “is specifically designed for tires and is

constructed similar to a repair patch.” (TTB, 3.) The Tire-Track Brochure also discloses that the ID unit “is vulcanized to the tire ‘just like a patch’ with cold-cure vulcanizing cement, or can be installed during the retread process.” (*Id.*) A POSA would have known (or at least found it obvious) that these disclosures meant the ID unit/patch was for attachment with a vulcanized tire. (EX1003, ¶243.) Thus, the Tire-Track Brochure also discloses (or at least renders obvious) this preamble.

A POSA also would have found it obvious to combine Bielicki with the Patch Rubber Brochure and Tire Track Brochure such that that ID unit/patch in Bielicki is attached to a vulcanized rubber tire, such as the one shown in the Patch Rubber Brochure. (EX1003, ¶244.) Bielicki already discloses that its patch is attached to a “tire,” and the Brochures merely confirm that the ID unit/patch is suitable for attachment to a vulcanized tire. (*Id.*)

Plus, there is nothing about the description in Bielicki regarding its ID unit/patch with a semi-cured gum rubber bonding layer that would have indicated to a POSA that it could not or was not intended to be used for attachment to a vulcanized rubber tire. To the contrary, application using a “cement,” as disclosed in the Patch Rubber Brochure and Tire-Track Brochure, is how Bielicki’s ID unit/patch would be durably bonded to a vulcanized tire. (*Id.*) Accordingly, the combination renders the preamble of claim 1 obvious.

(b) Limitation 1[c]

To the extent there is any dispute about whether the bonding layer of Bielicki's ID unit/patch satisfies this limitation, the Tire-Track Brochure and/or the Patch Rubber Brochure disclose and render obvious that the ID unit/patch is **“capable of chemically bonding to a surface of a vulcanized rubber article.”** (EX1003, ¶¶246-250.)

The chemical bonding nature of the ID unit/patch is expressly disclosed in the Tire-Track Brochure: “It is ***vulcanized to the tire*** ‘just like a patch’ with cold-cure vulcanizing cement.” (Tire-Track Brochure, 3 (emphasis added).) By describing the ID unit/patch as being “vulcanized to the tire,” a POSA would understand that chemical bonds are formed with the tire and thereby further confirms that the semi-cured gum rubber bonding layer of Bielicki is a **“material capable of chemically bonding with the surface of the vulcanized rubber article.”** (EX1003, ¶247.)

The Patch Rubber Brochure's instructions for attaching a “Tire-Track ID Unit” to the sidewall of a tire includes brushing on a cement and then applying the unit to the area with the cement with “No Heat Required!” (Patch Rubber Brochure, 4.) It would have been obvious to a POSA that the application of cement for room temperature bonding of the ID unit/patch with Bielicki's semi-cured gum rubber bonding layer also indicates that the semi-cured gum rubber bonding layer is a

“material capable of chemically bonding.” (EX1003, ¶248.)

Thus, Claim 1 is obvious under this **Ground 4**.

3. Dependent claims 2-3, 5, and 7

These claims are obvious for the same reasons discussed under **Ground 3**.

4. Independent claim 11

- (a) **Preamble: “A method for attaching an assembly to a surface of a vulcanized rubber article comprising the steps of:” (11[pre])**

To the extent this preamble is limiting, it is disclosed by Bielicki in view of the Patch Rubber Brochure and Tire-Track Brochure for the reasons I discuss for 1[pre] under **Ground 3** and **Ground 4** and the additional disclosures of the Patch Rubber Brochure.

The Patch Rubber Brochure illustrates steps in a method for attaching the ID unit/patch to a vulcanized rubber tire, which include buffing the tire surface, applying cement to the buffed area, and then applying the tire-track ID unit to the tire. (Patch Rubber Brochure, 4.) It would have been obvious to a POSA to implement these method steps for applying Bielicki’s ID unit/patch to a tire. (EX1003, ¶¶252-253.)

(b) Limitation 11[a]: “identifying a surface of a vulcanized rubber article;”

Bielicki discloses that the bottom layer 17 of its patch “acts as a bonding layer between the [patch] and a tire.” (Bielicki, 3:30-35.) It is common sense that the surface on which the ID unit/patch is bonded to the tire would need to be identified. (EX1003, ¶¶254-257.) The Rubber Patch Brochure identifies the sidewall as the surface of the vulcanized tire for applying the ID unit/patch. (See Patch Rubber Brochure, 4.)

The steps disclosed in the Rubber Patch Brochure also including identifying an area on the sidewall surface for buffing, brushing cement, and applying the ID unit/patch. (*Id.*, ¶255.) Common sense dictates that the location where the sidewall surface is buffed, cemented, and ID unit/patch applied also implicitly requires an area on the surface of the sidewall of a tire to buff (and then buffing that area of the surface). (*Id.*) The act of buffing and applying cement in and of itself are also acts of identifying the surface on which the ID unit/patch is to be bonded to the tire. (*Id.*)

(c) Limitation 11[b]: “placing an assembly into contact with the identified surface;”

It is common sense that Bielicki’s ID unit/patch (specifically its bottom layer 17) must be placed into contact with the tire surface for the patch to be bonded to the tire. (EX1003, ¶¶258-262.) In the Patch Rubber Brochure, after preparing the

tire surface by buffing and cement, instructs the technician to “apply” the ID unit/patch onto the prepared surface of the tire. (Patch Rubber Brochure, 4.) “Applying” necessarily involves “placing.”

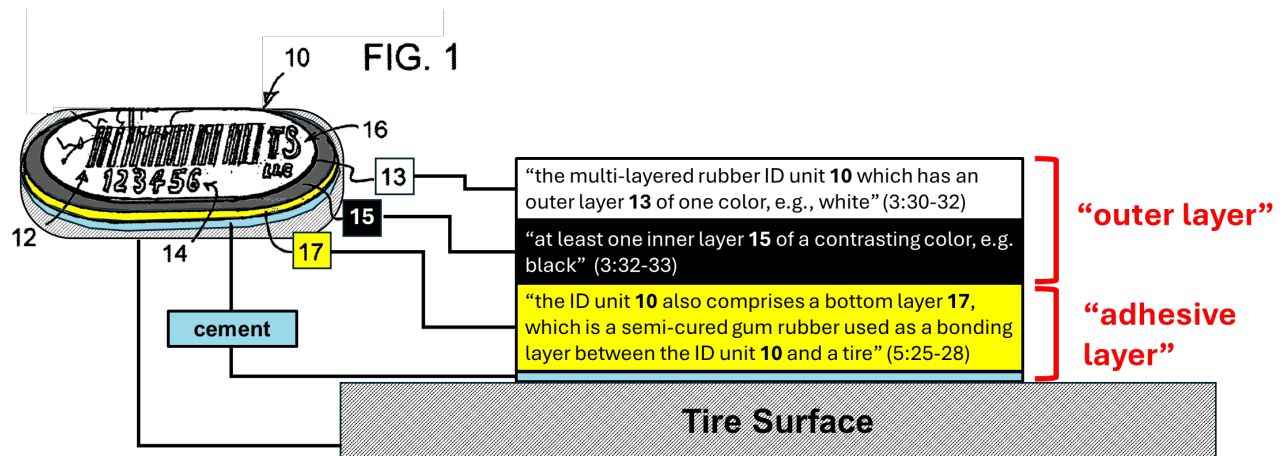
- (d) **Limitation 11[c]: “wherein the assembly comprises: an outer layer of elastomeric material, wherein the outer layer is in contact with an adhesive layer interposed between the identified surface and the assembly that bonds the assembly to the vulcanized rubber article, and”**

For the reasons discussed for limitation 1[a] under **Ground 3**, the outer layer 13 and inner layer 15 of Bielicki’s ID unit/patch are the claimed “**outer layer of elastomeric material.**”

For the reasons discussed for limitation 1[b] under **Ground 3**, the bottom semi-cured gum rubber layer 17 of Bielicki’s ID unit/patch is the claimed “**adhesive layer**” and is “**in contact with**” the inner layer 15 (part of the “**outer layer**”).

Regarding the “**interposed between**” language, the application of Bielicki’s ID unit/patch onto the cement applied onto a tire surface according to the teachings of the Patch Rubber Brochure result in the cement and Bielicki’s semi-cure gum rubber bonding layer 17 being interposed between the identified tire sidewall surface and outer layer 13 and inner layer 15 of the ID unit/patch and bonding the ID/unit patch to the tire surface, as depicted below. (EX1003, ¶¶265-268.) A POSA would understand that the ID unit/patch would be bonded “just like a repair patch.” (Patch

Rubber Brochure, 4; EX1003, ¶265.) Thus, this limitation is satisfied.



(EX1003, ¶265.)

- (e) **Limitation 11[d]: “wherein the outer layer comprises a barrier material composition to mitigate migration of material from the vulcanized rubber article.”**

This limitation is disclosed and obvious for the same reasons discussed for limitation 1[b][ii] and dependent claim 5 under **Ground 3**.

Thus, the combination renders claim 11 obvious.

5. Dependent claim 12

This claim is disclosed by the Patch Rubber Brochure. The Patch Rubber Brochure describes buffing the tire surface and brushing cement on the tire surface before the patch is applied. (Patch Rubber Brochure, 4.) Each of these actions satisfies the claimed step of “**preparing the identified surface before the step of placing.**” (EX1003, ¶¶271-272.)

As discussed for this claim under **Ground 1** and **Ground 2**, preparing the tire surface before attaching a tire patch – such as cleaning or buffing – was standard practice in the art and would have advantageously resulted in a stronger bond between the patch and the tire. (See EX1003, ¶272.) Implementing the buffing and/or brushing steps from the Brochure into Bielicki would have therefore been straightforward and expected for these reasons, and those discussed throughout **Ground 4**.

6. Dependent claim 13

Bielicki and the Patch Rubber Brochure render this claim obvious. For example, as shown at right, in the Patch Rubber Brochure the technician is holding a stitcher which is used to “stitch” the patch to ensure it is securely attached to the tire and to work out any air bubbles that might form between the patch and the tire. (Patch Rubber Brochure, 4.) A POSA would understand that the stitcher requires the technician to apply pressure onto the ID unit/patch. (EX1003, ¶274; see ’027 patent, 14:35-58.)



Apply the Tire-Track ID Unit.

It would have been obvious to implement this same step with Bielicki’s disclosed ID unit/patch after applying it to the tire, as such stitching (with pressure)

was expressly disclosed in the Patch Rubber Brochure and also because POSA would have known it would assist in ensuring intimate contact between the bonding layer 17 and the tire and to also assist in removing any air bubbles that may otherwise impair the bonding of the ID unit/patch to the tire. (EX1003, ¶275; *see also*, Wilson, 4:26-37 (describing stitching a patch to a tire “to ensure a strong bond”).)

7. Independent claim 15

(a) Preamble: “A vulcanized rubber tire comprising:”

To the extent this preamble is limiting, it is rendered disclosed and rendered obvious by Bielicki and the Patch Rubber Brochure for the same reasons discussed for 1[pre] under **Ground 4**.

(b) Limitation 15[a]: “a target surface disposed along a portion of the rubber tire;”

This limitation is obvious for the reasons discussed for limitation 11[a] under **Ground 4**.

(c) Limitation 15[b]: “an assembly disposed onto the target surface and comprising:”

This limitation is obvious for the reasons discussed for limitation 11[b] under **Ground 4**.

(d) Limitation 15[c]: “an outer layer of elastomeric material; and”

This limitation is obvious for the reasons discussed for limitation 1[a] under

Ground 3.

- (e) **Limitation 15[d]: “an adhesive layer connected with the outer layer;”**

This limitation is obvious for the same reasons discussed for limitation 1[b] under **Ground 3**.

- (f) **Limitation 15[e]: “wherein at least a portion of the outer layer comprises a barrier material composition to mitigate migration of material from the rubber tire.”**

This limitation is obvious for the same reasons discussed for limitation 1[b][ii] and claim 5 under **Ground 3**, and limitation 11[d] under **Ground 4**.

8. Dependent claim 16

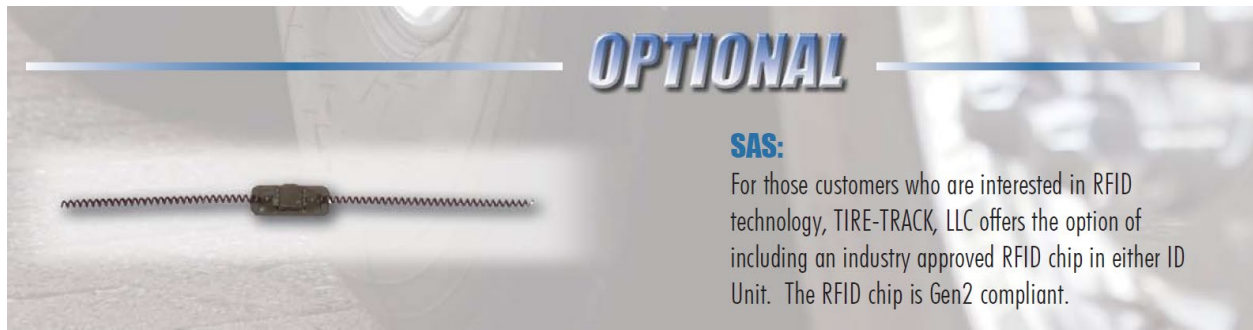
This claim is obvious for the reasons discussed for claim 7 under **Ground 3**.

- G. Ground 5: Claims 7-9, 14, 16-23 are rendered obvious by Bielicki in view of The Patch Rubber Brochure and/or the Tire-Track Brochure and Brown.**

Ground 5 is an extension of **Ground 4** in that it adds the Tire-Track Brochure’s teaching of the inclusion of an RFID chip within an ID unit/patch and Brown’s description for implementing a tire patch containing a transponder to address the challenged claims of this **Ground 5** that each recite a “**cavity**” and/or “**element**.”

The Tire-Track Brochure explains that an optional feature of the disclosed ID unit/patch is the inclusion of an “industry approved RFID chip” within the ID

unit/patch:

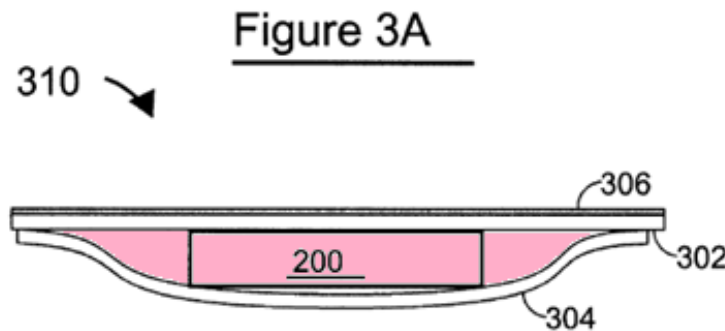


(Tire-Track Brochure, 3.)

A POSA therefore would have found it obvious to include an RFID chip (i.e., an “**element**”) within the multi-layered ID unit/patch disclosed in Bielicki and the Tire-Track Brochure, as this was already expressly disclosed by the Tire-Track Brochure as an optional feature of the ID unit/patch. (EX1003, ¶286.) Including an RFID chip would further enhance the functionality of Bielicki’s ID unit/patch, allowing it to more readily provide information about the tire via radio identification to enhance the functionality of its tire tracking system. (*Id.*, ¶301; *see* Bielicki, 2:33-38.)

Brown discloses a configuration for including a transponder module, akin to an RFID tag, within a multilayer patch for attachment to a tire. (Brown, Abstract, 17:51-65; EX1003, ¶287.) In the section entitled “An Exemplary Method of Mounting a Transponder Module in a Pneumatic Tire,” Brown discloses Figure 3A (annotated), which shows the transponder module 200 being ‘sandwiched’ between

two thin rubber sheets 302 and 304, with an adhesive layer 306.



Brown thus discloses an “**element**” (transponder 200) within a “**cavity**” (pink highlight) formed between the rubber sheets in which the transponder is “sandwiched.” (EX1003, ¶288.)

1. Dependent claim 7, 8, 16 and 17

The same motivations to combine the teachings of Bielicki, Patch Rubber Brochure, and Tire-Track Brochure with a reasonable expectation of success discussed under **Ground 4** apply here.

A POSA would have recognized and found obvious placing the RFID chip within the Bielicki/Tire-Track ID unit/patch by “sandwiching” the chip between the rubber layers—i.e., between the ID unit/patch’s black rubber barcode layer and the gum rubber adhesive bonding layer – as shown in Brown. (*See, e.g.*, Parsons, [0019], [0021], FIG. 2; EX1003, ¶¶289-306.) In this manner, the chip is located *below* the black and white layers and shielded from external environmental factors. (EX1003,

¶¶295-298.) A POSA would have been motivated to look to Brown because it is a complimentary tire patch reference. (*Id.*, ¶300; Brown, 17:58-65; *see also* Fig. 3.) A POSA would have recognized that this teaching from Brown would have been well-suited for mounting the RFID tag in the Bielicki/Tire-Track ID unit/patch because it likewise has a multi-layered configuration and could readily be applied to form a “sandwiched” RFID between Bielicki’s black inner layer and bottom rubber gum bonding layer. (*Id.*) The result is a direct and straightforward way to include the RFID chip within the ID unit/patch. (EX1003, ¶302.) Indeed, it was well known for tire patches to include RFID chips. (*Id.*, ¶305; *See, e.g.*, Parsons.) A POSA would have understood that any improved features or functionality described in the Tire-Track Brochure could be implemented in Bielicki to yield predictable results. (EX1003, ¶¶302-303.)

A POSA would have also had a reasonable expectation of success in following the general teachings of Brown such that Bielicki’s ID unit/patch would include a “**cavity**” with an RFID chip (or similar “**element**”) disposed therein. The cavity can be formed in any suitable manner, such as, for example, by “sandwiching” various layers in Bielicki’s patch around the chip, as described in Brown. (EX1003, ¶304; Brown, 17:58-65.) For example, the chip can be disposed in a cavity formed between the black inner layer 15 and the bottom layer 17, between “other layers”

and the bottom layer 17, between the inner layer 15 and “other layers,” between multiple inner layers 15 or the like. (EX1003, ¶304; *see* Bielicki, 3:30-35 (“at least one inner layer 15”), 5:30-35 (“other layers between the inner layer 15 and the bottom layer 17”).)

Accordingly, the combination satisfies the “**cavity**” of claims 7 and 16 and the “**element disposed within the cavity**” of claims 8 and 17. (EX1003, ¶¶289-306.)

Thus, these claims are obvious under **Ground 5**.

2. Dependent claims 9 and 18

As explained above, when Bielicki is further modified by the Track-Tire Brochure and Brown to include a RFID chip sandwiched between the black inner layer and semi-cured gum rubber bonding layer, it would have been obvious that Bielicki’s ID unit/patch incorporating the RFID chip of the Tire-Track Brochure would include a “**cavity [that] is disposed beneath the outer layer.**” (EX1003, ¶307.)

3. Independent claim 19

(a) **Preamble: “An assembly for attachment to a vulcanized rubber tire comprising:” (19[pre])**

To the extent this preamble is limiting, it is obvious for the reasons discussed for 1[pre] under **Grounds 3-4**.

- (b) **Limitation 19[a]: “an outer layer formed from an elastomeric material;”**

This limitation is obvious for the reasons discussed for limitation 1[a] under **Ground 3**.

- (c) **Limitation 19[b]: “an adhesive layer bonding the assembly to portion of a vulcanized rubber tire; and”**

This limitation is obvious for the reasons discussed for limitations 1[c] and 11[c] under **Grounds 3-4**.

- (d) **Limitation 19[c]: “a cavity disposed within the assembly for accommodating an element therein;”**

This limitation is obvious for the reasons discussed for claims 7 and 8 (of this Ground).

- (e) **Limitation 19[d]: “wherein the outer layer comprises a material composition that acts as a barrier to material migrating from the vulcanized rubber tire.”**

This limitation is obvious for the reasons discussed for limitations 1[b][ii] and claim 5 under **Ground 3** and 11[d] under **Ground 4**.

4. Dependent claim 20

This claim is obvious for the reasons discussed for claim 9 (of this Ground).

5. Dependent claim 21

This claim is obvious for the reasons discussed for limitation 1[b][i] under **Ground 3**.

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6. Dependent claim 22

This claim is obvious for the reasons discussed for limitation 1[a] under
Ground 3.

IX. CONCLUSION

Petitioner respectfully requests institution of IPR under the presented grounds.

Dated: February 21, 2025

Respectfully submitted,

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Petition for *Inter Partes* Review of
U.S. Patent No. 11,124,027 B2

CERTIFICATE OF COMPLIANCE WITH WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), I certify that this petition complies with the type-volume limits of 37 C.F.R. § 42.24(a)(1)(i) because it contains 13,441 words, according to the word-processing system used to prepare this petition, excluding the parts of this petition that are exempted by 37 C.F.R. § 42.24(a) (including the table of contents, a table of authorities, mandatory notices, a certificate of service or this certificate word count, appendix of exhibits, and claim listings).

DATED: February 21, 2025

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Petition for *Inter Partes* Review of
U.S. Patent No. 11,124,027 B2

CERTIFICATE OF SERVICE

I hereby certify, pursuant to 37 C.F.R. Sections 42.6 and 42.105, that a complete copy of the attached **PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 11,124,027 B2**, including all exhibits (**Nos. 1001-1059**) and related documents, are being served via FEDERAL EXPRESS on February 21, 2025, the same day as the filing of the above-identified document in the United States Patent and Trademark Office/Patent Trial and Appeal Board, upon Patent Owner by serving the correspondence address of record with the USPTO as follows:

125632 - Snell & Wilmer (LA)
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And, via electronic mail upon counsel of record for Patent Owner in the litigation pending before the U.S. District Court for the District of Delaware entitled *Cerebrum Sensors Technologies Inc. v. Revvo Technologies, Inc.*, Case No. 1:24-cv-00245-JLH (D. Del.) as follows:

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Petition for *Inter Partes* Review of
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APPENDIX A

Appendix A
Claims 1-23
U.S. Patent No. 11,124,027

Claim Limitations	
1.[pre]	An assembly for attachment with a vulcanized rubber article comprising:
1.[a]	an outer layer of elastomeric material having a visual feature; and
1.[b][i]	an adhesive layer adhered to an interface surface of the outer layer,
1.[b][ii]	wherein at least a portion of the outer layer adjacent the interface surface comprises a barrier material composition, and
1.[c]	wherein the adhesive layer is formed from a material capable of chemically bonding with a surface of a vulcanized rubber article.
2.	The assembly as recited in claim 1 wherein the outer layer comprises a first layer and a second layer disposed beneath the first layer.
3.	The assembly as recited in claim 2 wherein the first layer is colored differently from the second layer.
4.	The assembly as recited in claim 1 further comprising an intermediate layer interposed between the outer layer and the adhesive layer.
5.	The assembly as recited in claim 1 wherein the barrier material composition impairs migration of a material constituent within the assembly when the assembly is attached to a vulcanized rubber article.
6.	The assembly as recited in claim 1 further comprising a protective layer disposed over the outer layer and forming an outermost surface of the assembly, the protective layer formed from an optically transparent material.
7.	The assembly as recited in claim 1 further comprising a cavity disposed therein.
8.	The assembly as recited in claim 7 further comprising an element disposed within the cavity.
9.	The assembly as recited in claim 7 wherein the cavity is disposed beneath the outer layer.
10.	The assembly as recited in claim 2 wherein the first layer includes one or more openings therethrough, and wherein the second layer is visible through the one or more openings.
11.[pre]	A method for attaching an assembly to a surface of a vulcanized rubber article comprising the steps of;
11.[a]	identifying a surface of a vulcanized rubber article;

Claim Limitations
11.[b] placing an assembly into contact with the identified surface, wherein the assembly comprises:
11.[c] an outer layer of elastomeric material, wherein the outer layer is in contact with an adhesive layer interposed between the identified surface and the assembly that bonds the assembly to the vulcanized rubber article, and
11.[d] wherein the outer layer comprises a barrier material composition to mitigate migration of material from the vulcanized rubber article.
12. The method as recited in claim 11 further comprising preparing the identified surface before the step of placing.
13. The method as recited in claim 11 further comprising applying pressure to the assembly after the step of placing.
14. The method as recited in claim 11 wherein the vulcanized rubber article is tire, wherein the identified surface is a sidewall surface of the tire, and wherein the assembly includes a cavity disposed therein for accommodating placement of an element.
15.[pre] A vulcanized rubber tire comprising:
15.[a] a target surface disposed along a portion of the rubber tire;
15.[b] an assembly disposed onto the target surface and comprising:
15.[c] an outer layer of elastomeric material; and
15.[d] an adhesive layer connected with the outer layer;
15.[e] wherein at least a portion of the outer layer comprises a barrier material composition to mitigate migration of material from the rubber tire.
16. The rubber tire as recited in claim 15 wherein the assembly further comprises a cavity disposed therein.
17. The rubber tire as recited in claim 16 wherein an element is disposed within the cavity.
18. The rubber tire as recited in claim 16 wherein the cavity is disposed beneath the outer layer.
19.[pre] An assembly for attachment to a vulcanized rubber tire comprising;
19.[a] an outer layer formed from an elastomeric material;
19.[b] an adhesive layer bonding the assembly to portion of a vulcanized rubber tire; and
19.[c] a cavity disposed within the assembly for accommodating an element therein;
19.[d] wherein the outer layer comprises a material composition that acts as a barrier to material migrating from the vulcanized rubber tire.
20. The assembly as recited in claim 19 wherein at least a portion of the cavity is disposed beneath the outer layer.

Claim Limitations
21. The assembly as recited in claim 19 wherein the adhesive layer is connected with the outer layer.
22. The assembly as recited in claim 19 wherein the outer layer includes an indicia along an outer surface.
23. The assembly as recited in claim 19 further comprising an intermediate layer disposed beneath the outer layer.