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- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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(54) **Title:** A SEALING PAD FOR PREVENTING AIR LEAKS FROM A VEHICLE TIRE

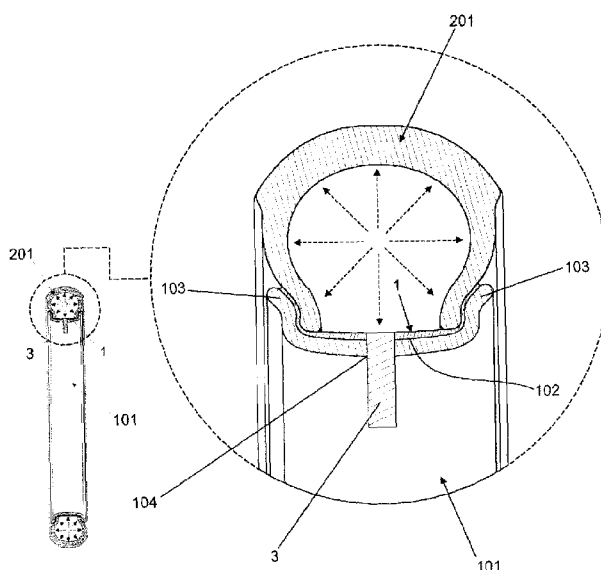


FIG. 4

(57) **Abstract:** A sealing pad for preventing air leaks from a vehicle tire is composed of an elastic material, wherein the sealing pad is formed or molded into a cylindrical loop with diameter corresponding to diameter of circumferential surface of the wheel drum, and the surface area of the sealing pad has a width corresponding to entire surface size from one side of wheel drum rim to the other side of wheel drum rim of said wheel drum. Air filling valve is located in the middle of the surface area of the sealing pad, and is attached to the sealing pad as one unit, wherein the air filling valve is inserted via the through hole of said wheel drum to fill air into said vehicle tire; and the sealing pad is provided between said wheel drum and the vehicle tire, wherein the sealing pad is covered on entire surface from one side of wheel drum rim to the other side of wheel drum rim, and both rim sides of the vehicle tire superimpose on both sides of the sealing pad.

A SEALING PAD FOR PREVENTING AIR LEAKS FROM A VEHICLE TIRE

Technical Field

The mechanical engineering related to a sealing pad for preventing air leaks from a vehicle tire.

5 Background Art

Due to the constantly increasing number of motorcyclists and according to the collected data, it is found that the most common problem faced by the consumers or the motorcyclists is air leakage from a tire. To address the aforementioned problem, the invention, therefore, will focus on the inner tube, because of the inner tube acting as an
10 air confinement, in particular, of the motorcycle tire which contains an inner tube. The most common problem encountered by the users is the problem of the air leakage from the inner tube which is caused by several possible reasons, such as a sharp object penetrating through tire, the tire friction, or inner tubes degeneration, etc. In the event of the air leakage from a tire, the users need to have the inner tube patched or replaced.
15 According to the aforementioned problem, it is found that the average life span of the inner tube is approximately 6 – 8 months. Due to its non-reusable and non-recyclable condition, these damaged inner tubes cause waste problem. With this regard, the concept of inventing the novel products is initiated. That is the sealing pad for preventing air leaks from a tire that can confine the air better than or equivalent to the inner tube, but
20 easier to use, with lesser risks of air leakage during its use, and has longer life span.

Summary and Object of the Invention

A sealing pad for preventing air leaks from a vehicle tire according to the present invention is composed of an elastic material, wherein the sealing pad is formed or molded into a cylindrical loop with a diameter corresponding to diameter of circumferential
25 surface of wheel drum, and the surface area of the sealing pad has a width corresponding to entire surface size of wheel drum from one side of rim to the other side of wheel drum rim. An air filling valve is placed in the middle of surface area of the sealing pad and is attached to the sealing pad as one unit., wherein the air filling valve is inserted via a

through hole of said wheel drum to fill air into a vehicle tire; and the sealing pad is placed between the wheel drum and the vehicle tire. The sealing pad is covered on the entire surface from one side of wheel drum rim to the other side of wheel drum rim, and both sides of the vehicle tire superimpose the area of both rim sides of the sealing pad.

- 5 Therefore, the surface area of the sealing pad is compressed between the wheel drum and the vehicle tire to allow the sealing pad to do its job for preventing air leakage from the vehicle tire when filling air into the vehicle tire.

An object of this invention is to provide a sealing pad for preventing air leakage from a vehicle tire. When air is filled through the sealing pad, pressure inside the vehicle
10 tire will be created. Then, the inside pressure causes vehicle tire to inflate, pushing the sealing pad against entire surface of the wheel drum; thus preventing filled air from leaking out. When in use, the weight of the vehicle pressuring on the tire will change the volume inside the vehicle tire. This results in increasing pressure inside the vehicle tire. Thus, the compression between the vehicle tire and the sealing pad will be increased,
15 enabling higher ability to confine air in the tire. In this regard, said sealing pad is adopted to replace inner tube because it is easier to use than the existing tires, as well as lesser risks of damage during its use.

Brief Description of the Drawings

Fig.1 shows three-dimension view of a sealing pad for preventing air leaks from a
20 vehicle tire according to the invention, a wheel drum, and a vehicle tire;

Fig. 2 shows sectional view of a sealing pad for preventing air leaks from a vehicle tire, according to the invention, which is mounted onto the wheel drum and the vehicle tire;

Fig.3 shows mounting of a sealing pad for preventing air leaks from a vehicle tire,
25 according to the invention, onto the wheel drum and the vehicle tire; and

Fig. 4 shows air filling into the vehicle tire when the sealing pad for preventing air leaks from the vehicle tire, according to the invention, has been mounted.

Detailed Description of a preferred embodiment

Fig.1 and Fig. 2 illustrate a sealing pad for preventing air leaks from a vehicle tire according to the invention. The sealing pad (1) is formed of an elastic material, such as natural rubber or synthetic rubber. The sealing pad (1) is formed or molded to cylindrical loop with diameter corresponding to diameter of circumferential surface of wheel 102 of the wheel drum 101, and surface area 2 of the sealing pad 1 has a width corresponding to entire surface size from one rim side of wheel drum rim 103 to the other side of wheel drum rim 103 of the wheel drum 101. In the middle area of the surface area 2 of the sealing pad 1, there is an air filling valve 3 attached to the sealing pad 1 as one unit, in which the air filling valve 3 is inserted via a through hole 104 of the wheel drum 101 to fill air into the vehicle tire 201.

The sealing pad 1 is placed between the wheel drum 101 and the vehicle tire 201 when vehicle tire 201 is mounted on wheel drum 101, wherein the sealing pad 1 is covered on entire surface from one rim side of wheel drum 103 to the other side of wheel drum rim 103 of the wheel drum 101, and both rim sides of the vehicle tire 201 are placed over the area of both sides of the sealing pad 1. Therefore, the surface area 2 of sealing pad 1 is compressed between wheel drum 101 and vehicle tire 201 to allow sealing pad 1 to do its job for preventing air leaks from vehicle tire when filling air into the vehicle tire 201.

Referring to Fig. 3, it shows mounting of sealing pad for preventing air leaks from the vehicle tire, according to the invention, on wheel drum 101 and vehicle tire 201, wherein the sealing pad 1 is placed between the wheel drum 101 and the vehicle tire 201, the sealing pad 1 will cover entire surface from one side of wheel drum rim 103 to the other side of wheel drum rim 103 of the wheel drum 101. The air filling valve 3 of the sealing pad 1 is inserted via the through hole 104 of the wheel drum 101 to fill the air into the vehicle tire 201. Both rims of the vehicle tire 201 are placed over both sides of the sealing pad 1.

Referring to Fig. 4, it shows air filling into the vehicle tire 201 when the sealing pad for preventing air leaks from the vehicle tire, according to the invention, has been mounted on wheel drum 101 and vehicle tire 201. Filled air through air filling valve 3 of

the sealing pad 1 creates the pressure inside the vehicle tire 201, wherein said inner pressure causes the inflation of the vehicle tire 201, pushing sealing pad 1 against entire surface from one side of wheel drum rim 103 to the other side of wheel drum rim 103 of the wheel drum 101. This prevents the filled air from leaking out. When the vehicle is in
5 use, the weight of the vehicle will change the inner volume of the vehicle tire 201, resulting in increasing pressure inside the vehicle tire 201. Thus, the compression between the vehicle tire 201 and the sealing pad 1 will be increased, enabling higher ability to confine air.

The Best Mode of Invention

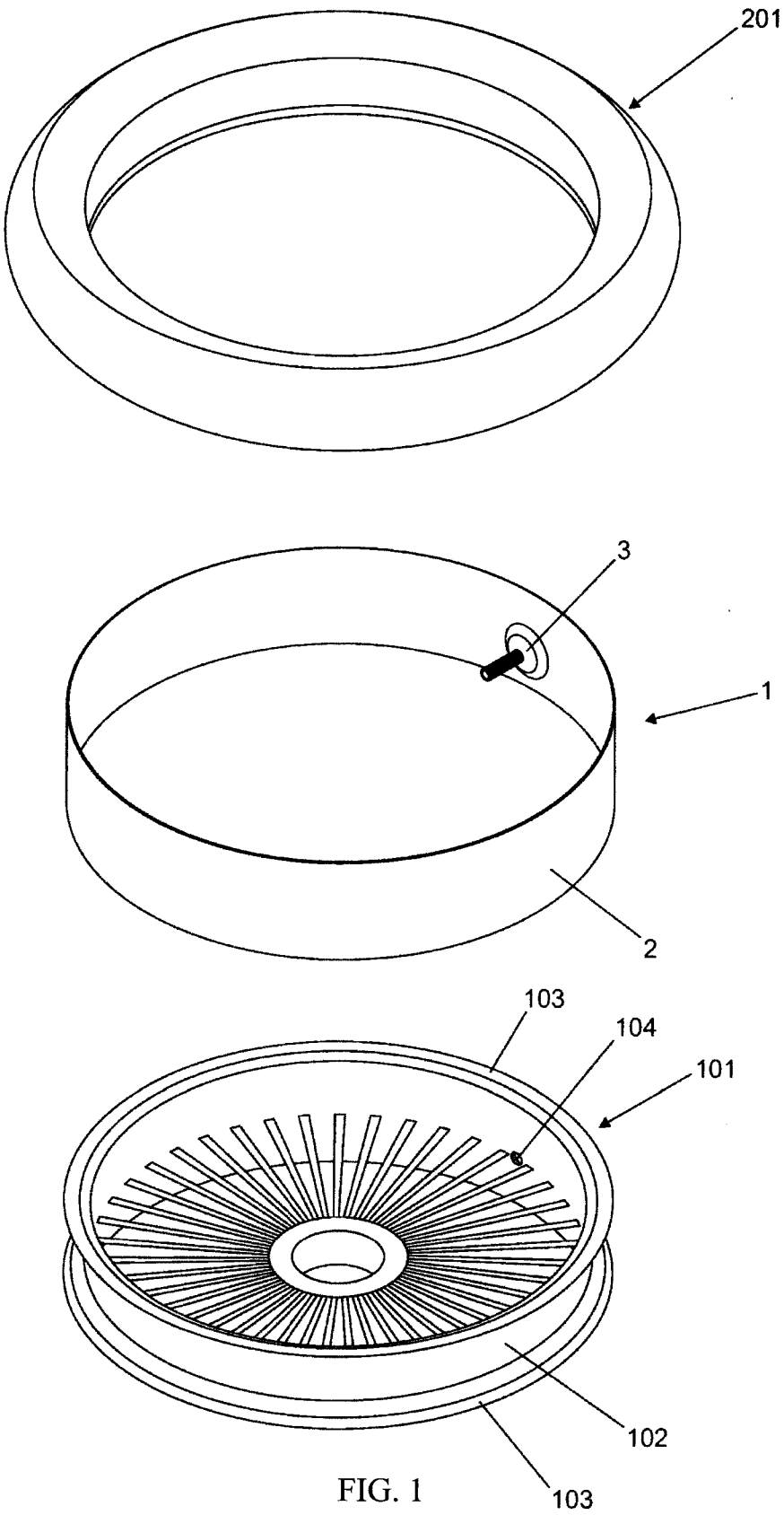
10 As same as mentioned in Detailed Description of a preferred embodiment.

Claim

1. A sealing pad (1) for preventing air leaks from a vehicle tire is composed of an elastic material,

Its characteristics are:

5 The sealing pad (1) is formed or molded into a cylindrical loop with diameter corresponding to diameter of circumferential surface of the wheel drum, and the surface area (2) of the sealing pad (1) has a width corresponding to entire surface size from one side of a wheel drum rim to the other side of wheel drum rim of said wheel drum; In the middle of the surface area (2) of the sealing pad (1), locates an air filling valve (3) which
10 is attached to the sealing pad (1) as one unit, wherein the air filling valve (3) is inserted via a through hole of said wheel drum to fill the air into said vehicle tire; and the sealing pad (1) is placed between said wheel drum and said vehicle tire, wherein the sealing pad (1) covers on entire surface from one side of a wheel drum rim to the other side of wheel drum rim of said wheel drum, and both sides of said vehicle tire rim superimpose on both
15 sides of the sealing pad (1).



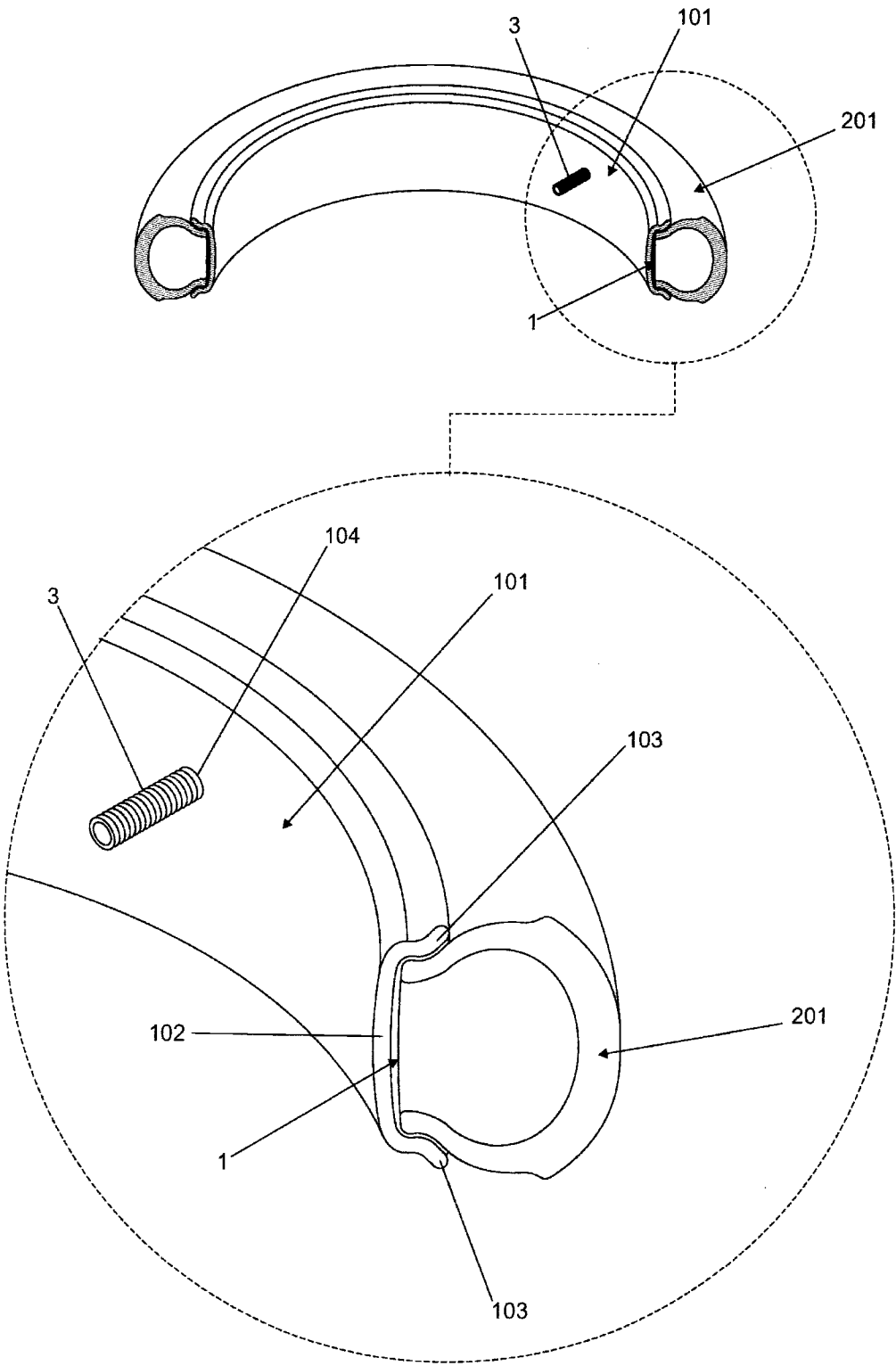


FIG. 2

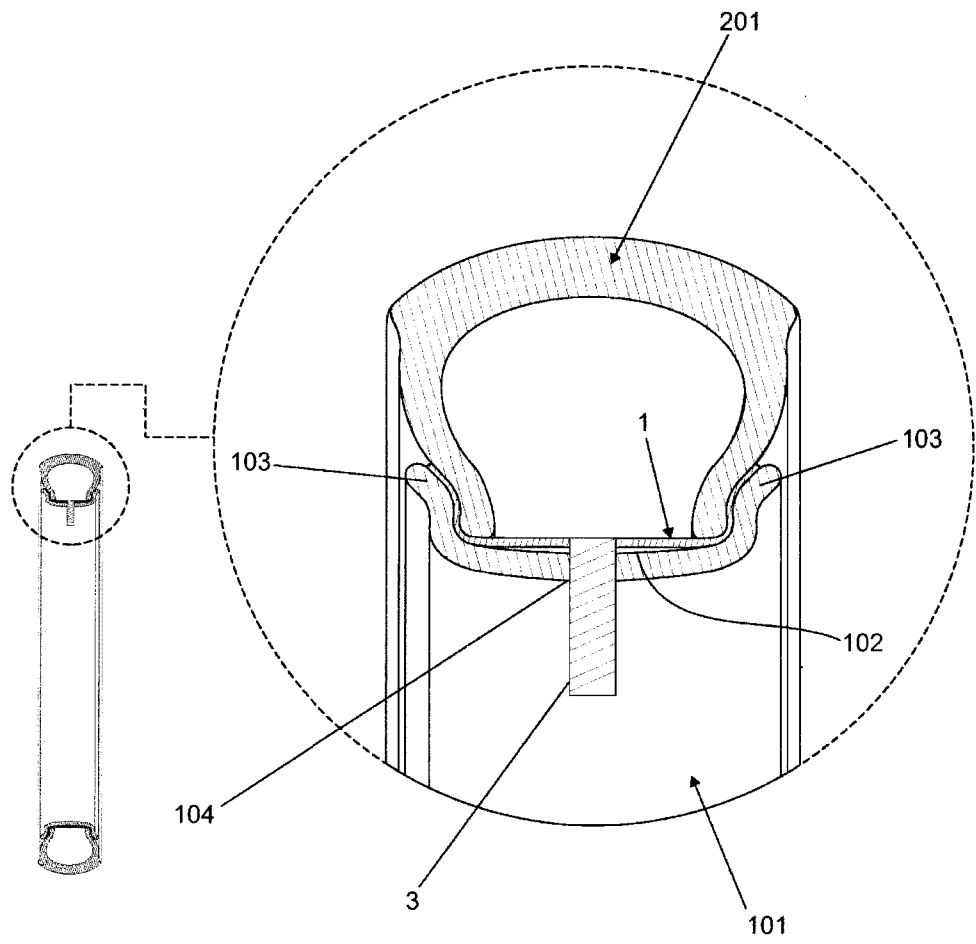


FIG. 3

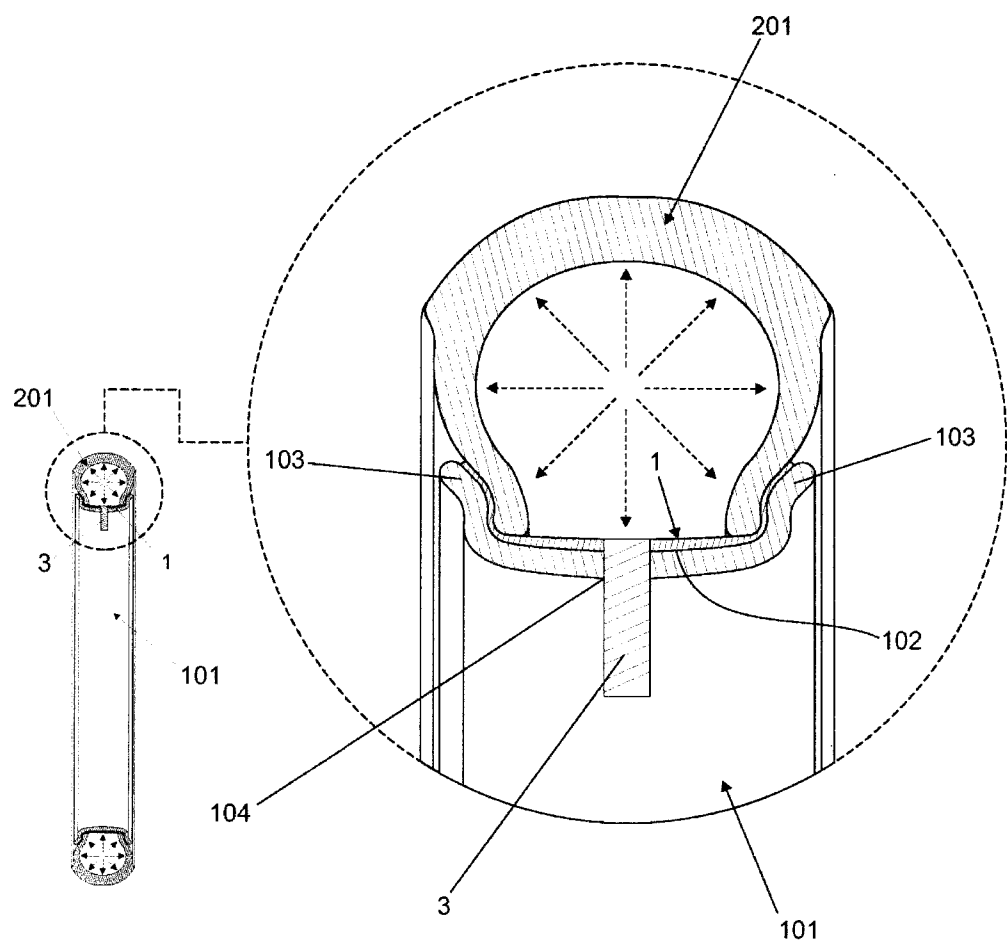


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/TH2016/000036

A. CLASSIFICATION OF SUBJECT MATTER

B60C 5/16 (2006.01) B60B 21/12 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPIAP; IPC/CPC Marks B60C5/16, B60B21/12 and Keywords: elastic, seal, annular, tyre, rim, conform, valve and similar terms.

TXPEA, TXPEB, TXPEC, TXPEE, TXPEF, TXPEH, TXPEI, TXPEP, TXPES, TXPEPEA, TXPUSE0A, TXPUSE1A, TXPUSEA, TXPUSEB, TXPW0EA and Keywords: elastic, seal, annular, tyre, rim, conform, valve and similar terms.

Google Patents/Espacenet/Auspat/Google and Keywords: B60C5/16, B60B21/12, rim, seal, conform and similar terms; applicant/inventor names searched.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	



Further documents are listed in the continuation of Box C



See patent family annex

* "A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 11 July 2016		Date of mailing of the international search report 11 July 2016	
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA Email address: pct@ipaustalia.gov.au		Authorised officer Yew-Seng How AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. 0262832945	

INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		PCT/TH2016/000036
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011/0121637 A1 (GANGLOFF et al) 26 May 2011 Abstract; Figures 1-5; Paragraphs 0001-0048	1
X	US 2011/0181100 A1 (ABAD et al) 28 July 2011 Abstract; Figure; Paragraphs 0001-0074	1
X	US 2009/0301626 A1 (GILBERT) 10 December 2009 Abstract; Figures 1-5; Paragraphs 0001-0054	1
X	US 6318428 B1 (LO) 20 November 2001 Abstract; Figures 3-4; Column 1 Line 4 – Column 2 Line 39	1
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X	GB 827849 A (DUNLOP RUBBER COMPANY LIMITED) 10 February 1960 Figures 1-3; Page 1 Line 5 – Page 2 Line 31	1

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INTERNATIONAL SEARCH REPORT		International application No.	
Information on patent family members		PCT/TH2016/000036	
This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.			
Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
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End of Annex			
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001. Form PCT/ISA/210 (Family Annex)(July 2009)			