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(72) Inventor; and
(71) Applicant : **DELA HOUSSAYE, Arthur, J.** [US/US]; 249 Corporate Drive, Houma, LA 70360 (US).

(74) Agents: **SIEBERTH, John, S.** et al.; Mcglinchey Stafford, PLLC, 301 Main Street, 14th Floor, Baton Rouge, LA 70801 (US).

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(54) **Title**: TAMPER EVIDENT WHEEL SUPPORT

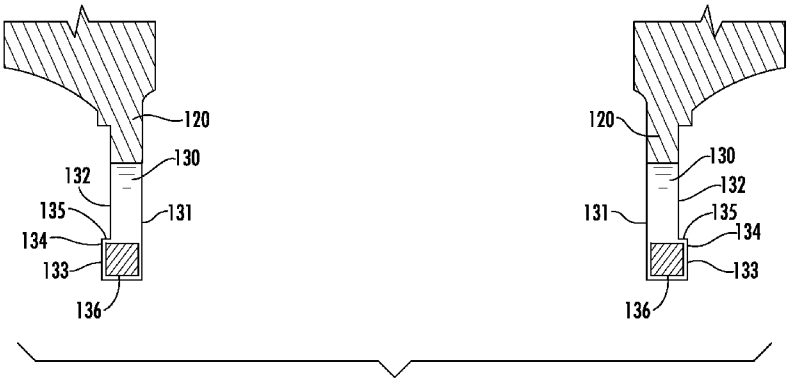

FIG. 6

(57) **Abstract**: A wheel support for a bicycle and a bicycle are disclosed. The wheel support includes a first end and a second end. The first end is configured to support the bicycle, and the second end is configured to be tamper evident and to support a wheel. The bicycle includes a frame, a wheel, and the wheel support.

TITLE OF THE INVENTION

Tamper Evident Wheel Support

REFERENCE TO RELATED APPLICATIONS

[0001] Claim is hereby made to the benefit of the priority of U.S. Patent Appl. No. 14/694,460, filed on April 23, 2015, now U.S. Patent No. 9,266,576, issued on February 23, 2016, the disclosure of which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] The present disclosure relates to a bicycle and/or a wheel support for a bicycle.

BACKGROUND

[0003] Many bicycles have a quick release assembly for securing a hub of a wheel to a wheel support of the bicycle. However, the quick release assembly can accidentally release or fail if the bicycle is subjected to a jarring force such as that occurring when the bicycle wheel encounters a pot hole or a bump on the road. Typically, the wheel support includes a safety retention device for holding the hub in the wheel support even if the quick release assembly accidentally releases or fails.

[0004] Sometimes the safety retention device on the wheel support is tampered with (i.e., completely or substantially removed by grinding, filing, sanding and so forth) so that quick release assembly can release the wheel from the wheel support more rapidly. For example, this often happens in the case when the bicycle is resold and the previous owner forgets to tell the subsequent owner that the bicycle has been altered by the removal of the safety retention device(s). Thus, the rider often does not realize that someone has tampered with the safety retention device of the wheel support. Without the retention device, if the quick release assembly inadvertently or accidentally releases or fails, then the wheel can separate from the wheel support, which can cause substantially injury or even death to the rider.

[0005] Accordingly, there remains a need in the art for a wheel support that is tamper evident.

NON-LIMITING BRIEF SUMMARY

[0006] The present disclosure meets the foregoing and/or other needs by providing at least in some aspects of the disclosure, a wheel support for a bicycle having a first end for supporting the bicycle, and a second end for supporting a wheel. The second end includes a safety retention device and a tamper indicator, and at least a portion of the tamper indicator is covered by the safety retention device and configured to be exposed only if the safety retention device is tampered with or substantially worn. Among the many different possibilities contemplated, the tamper indicator can be positioned between an inner surface and an outer surface of the second end of the wheel support. It is further contemplated that the tamper indicator may be configured to provide a visual indication if the safety retention device is tampered with or substantially worn. It is still further contemplated that the wheel support can be a front fork. It is still further contemplated that the safety retention device can be provided on at least one of the inner surface and the outer surface. It is still further contemplated that the safety retention device can include a raised surface protruding from the second end to form a restraining surface, and the restraining surface can be configured to prevent the wheel from separating from the wheel support.

[0007] In another aspect, the disclosure provides a bicycle including a frame, a wheel, and a wheel support. The wheel support includes a first end and a second end. The wheel support is coupled to the frame at the first end and supports the wheel at the second end. The second end includes a safety retention device and a tamper indicator, and at least a portion of the tamper indicator is covered by the safety retention device and configured to be exposed only if the safety retention device is tampered with or substantially worn. Among the many different possibilities contemplated, the tamper indicator can be positioned between an inner surface and an outer surface of the second end of the wheel support. It is further contemplated that the tamper indicator may be configured to provide a visual indication if the safety retention device is tampered with or substantially worn. It is still further contemplated that the wheel support can be a front fork. It is still further contemplated that the safety retention device can be provided on at least one of the inner surface and the outer surface. It is still further contemplated that the safety retention device can include a raised surface protruding from the second end to form a restraining surface, and the restraining surface can be configured to prevent the wheel from separating from the wheel support.

[0008] In yet another aspect, the disclosure provides a wheel support, having an elongated body, for a bicycle having a first end for supporting the bicycle, and a second end for

supporting a wheel. The second end includes a dropout having an inner surface, an outer surface, a safety retention device and a tamper indicator. At least a portion of the tamper indicator is covered by the safety retention device and configured to be exposed only if the safety retention device is tampered with or substantially worn. Among the many different possibilities contemplated, the tamper indicator can be embedded in the dropout. It is further contemplated that the tamper indicator can be optically discernible from the safety retention device thereby providing an indication that the safety retention device has been tampered with or substantially worn. It is further contemplated that the safety retention device can include a raised surface protruding from the dropout to form a restraining surface, and the restraining surface is configured to prevent the wheel from separating from the wheel support. It is further contemplated that the safety retention device can include a lawyer tab or lawyer lip. It is still further contemplated that the safety retention device can be located on the inner surface or/and the outer surface of the dropout.

[0009] The above brief summary of presents a simplified summary of the claimed subject matter in order to provide a basic understanding of some aspects of the claimed subject matter. This summary is not an extensive overview of the claimed subject matter. It is intended to neither identify key or critical elements of the claimed subject matter nor delineate the scope of the claimed subject matter. Its sole purpose is to present some concepts of the claimed subject matter in a simplified form as a prelude to the more detailed description that is presented below.

[0010] Additionally, the above brief summary has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows may be understood. Additional features and advantages of the invention will be described hereinafter, which form the subject of the claims of the invention. It should be appreciated by those skilled in the art that the conception and specific embodiments disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims. The novel features, which are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is to be expressly understood, however, that each of the figures is provided for the

purpose of illustration and description only and is not intended as a definition of the limits of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The accompanying drawings illustrate preferred embodiments of this invention. However, it is to be understood that these embodiments are not intended to be exhaustive, nor limiting of the invention. These embodiments are but examples of some of the forms in which the invention may be practiced. Like reference numbers or symbols employed across the several figures are employed to refer to like parts or components illustrated therein.

[0012] **Figure 1** illustrates an embodiment of a bicycle with a wheel support in accordance with this invention.

[0013] **Figure 2** illustrates a side view of an embodiment of a wheel support in accordance with this invention.

[0014] **Figure 3** illustrates a second end of a wheel support secured to a hub of a wheel.

[0015] **Figure 4** illustrates a second end of a wheel support having a safety retention device.

[0016] **Figure 5** illustrates a second end of a wheel support with the safety retention device tampered with or substantially worn.

[0017] **Figure 6** illustrates an embodiment of a second end of a wheel support in accordance with this invention.

[0018] **Figure 7** illustrates an embodiment of a second end of a wheel support in accordance with this invention with the safety retention device tampered with or substantially worn.

[0019] **Figure 8** illustrates an embodiment of a second end of a wheel support in accordance with this invention with the safety retention device tampered with or substantially worn.

[0020] **Figure 9** illustrates another embodiment of a second end of a wheel support having a safety retention device.

[0021] **Figure 10** illustrates the second end of the wheel support shown in **Figure 9** with the safety retention device tampered with or substantially worn.

[0022] **Figure 11** illustrates another embodiment of a second end of a wheel support having a safety retention device.

[0023] **Figure 12** illustrates the second end of the wheel support shown in **Figure 11** with the safety retention device tampered with or substantially worn.

DETAILED DESCRIPTION

[0024] Without any intent to limit the scope of this invention, reference is made to the figures in describing various embodiments of the invention. **Figures 1-2 and 6-8** illustrate various embodiments of a wheel support **100** and/or a bicycle **200** in accordance with certain aspects of this invention. **Figure 1** illustrates a bicycle **200** in accordance with certain aspects of this invention. The bicycle **200** comprises a wheel support **100**, a wheel **300**, a frame **400**. The frame **400** supports a seat **600** and a rear wheel **300a**, and the wheel support **100** supports a handlebar **700** and a front wheel **300b**. A rider sits on the seat **600** and pedals the bicycle **200** to rotate the rear wheel **300a** and propel the bicycle **200**. The wheel support **100** passes through a portion of the frame **400** and pivotally supports the front wheel **300b** so that the rider is able to steer the bicycle **200**. A stem **140** is attached to, or is formed as part of, the wheel support **100** and facilitates the attachment of the handlebar **700** to the wheel support **100**. It should be noted that the bicycle **200** shown in **Figure 1** is but one example of a bicycle suited to use with the present invention. As such, the present invention should not be limited to the illustrated example.

[0025] The wheel support **100** comprises an elongated body having a first end **110** and a second end 120. The wheel support **100** is coupled to the frame **400** at the first end **110**, and is coupled to a hub **301** of the wheel **300** at the second end **120** to support the wheel **300**. The second end **120** of the wheel support **100** is configured to be tamper evident. The second end **120** of the wheel support **100** comprises at least one dropout **130**. For example, in one aspect, the wheel support **100** can comprise a front fork with two substantially parallel arms extending from the first end **110** of the wheel support **100**. The second end **120** of the wheel support **300** can comprise a set of substantially "C" shaped dropouts **130** that are configured to accept and support the hub **301** of the wheel **300**.

[0026] The dropout **130** comprises an inner surface **131**, an outer surface **132**, a safety retention device **133**, and a tamper indicator **136**. The safety retention device **133** is configured to prevent the wheel **300** from separating from the wheel support **100**. In one aspect, the

safety retention device **133** comprises a raised surface **134** protruding from the dropout **130** to form a restraining surface **135**. For example, the safety retention device **133** can comprise a tab such as a lawyer tab or lawyer lips. The safety retention device **133** is preferably provided on at least one of the inner surface **131** and the outer surface **132**. The restraining surface **135** is configured to prevent the wheel **300** from separating from the wheel support **100**, e.g., in the event that a quick release assembly **500** inadvertently or accidentally releases or fails.

[0027] The tamper indicator **136** is configured to be exposed and provide an indication to a person if the safety retention device **133** is tampered with or substantially worn. In a preferred embodiment, the tamper indicator **136** will not be exposed when subjected to normal non-detrimental wear. However, in the case of significant and detrimental wear to the safety retention device **133**, the tamper indicator **136** will become exposed and provide an indication that the safety retention device is compromised. For example, the tamper indicator **136** can be configured to be optically discernible from the safety retention device **133** thereby providing the indication that the safety retention device has been tampered with or substantially worn. The tamper indicator **136** can have a first visual effect and the safety retention device **133** can have a second visual effect, e.g., red color and black color, red color and silver color , white color and black color, glossy finish and matte finish, shimmering effect and non-shimmering effect, and so forth.

[0028] In one aspect, the tamper indicator **136** comprises an inner core located on the dropout **130** or positioned between the inner surface **131** and the outer surface **132** of the dropout **130.** For example, the tamper indicator **136** can be embedded in the second end **120** of the wheel support **100**, e.g., in the dropout **130** and/or safety retention device **133**. In this configuration, if the safety retention device **133** is tampered with or substantially worn (e.g., ground off, worn off, or otherwise substantially removed from the dropout **130**), then at least a portion of the tamper indicator **136** will be exposed to provide a visual indication to an individual such as the rider. The height of the tamper indicator **136** is preferably about 2 millimeters, and the length of the tamper indicator **136** is preferably about 8 millimeters. However, it should be appreciated that the dimensions of the tamper indicator **136** can be varied depending on the specifications of the wheel support **100** and/or tamper indicator **136** (e.g., dimensions of the second end and/or dropout, materials of construction, and so forth). The tamper indicator **136** is preferably constructed from anodized aluminum, but it can be constructed from any suitable material including, but not limited to, metals, metal alloys, plastics, carbon fiber, and so forth.

[0029] The operation of a wheel support **100** and/or a bicycle **200** in accordance with this invention will now be discussed with reference to the figures. In operation, a bicycle is provided with a wheel support **100**, a wheel **300**, a frame **400**. The wheel support **100** is coupled to the frame **400** at its first end **110**, and is coupled to a hub **301** of the wheel **300** at its second end **120** to support the wheel **300**. The second end **120** of the wheel support **100** has at least one dropout **130** with a safety retention device **133**. If someone or something tampers with the safety retention device **133** (e.g., lawyer tabs are filed off, ground off, or otherwise substantially removed from the dropout **130**), then at least a portion of the tamper indicator **136** will be exposed thereby providing an indication (e.g., optically discernible color) to an individual such as the rider. The indication should alert the individual that the safety retention device **133** may be compromised thereby presenting a potentially unsafe riding condition that requires additional attention before riding the bicycle **200**.

[0030] Contrast the above described operation with the operation of a wheel support **100** and/or bicycle without a tamper indicator as shown in **Figures 3-5**. If someone or something tampers with the safety retention device **133**, e.g., lawyer tabs are filed, ground, or otherwise removed from the dropout **130**, then the rider will probably not receive any substantially noticeable indication (e.g, optically discernible color) that the safety retention device **133** has been tampered with. As a result, the rider probably will not realize that the safety retention device **133** may be compromised. In such a situation, if the quick release assembly **500** inadvertently or accidentally releases or fails, then the wheel support **100** can separate from the hub **301** of the wheel **300**, which may cause the substantial injury or even death. to the rider.

[0031] **Figure 9** illustrates another embodiment of the wheel support **100** having the safety retention device **133** located in two locations. **Figure 10** illustrates the second end **120** of the wheel support **100** shown in **Figure 9** wherein each safety retention device **133** has been tampered with or substantially worn thereby revealing at least a portion of each tamper indicator **136**. It should be appreciated that although two safety retention devices **133** and two tamper indicators **136** are provided (i.e., those on the front and rear) in the second end **120** of the wheel support **100** embodiment shown in **Figures 9 and 10**, one safety retention device **133** and one tamper indicator **136** (i.e., front only or rear only) can be utilized in still a further embodiment as shown in **Figures 11 and 12**, which depict an embodiment of a "rear only" configuration.

[0032] In an aspect, the disclosure provides a wheel support **100** includes a first end **110** and a second end **120**. The first end **110** is configured to support the bicycle **200**. The second end **120** includes a safety retention device **133** and a tamper indicator **136**, and at least a portion of the tamper indicator **136** is covered by the safety retention device **133** and configured to be exposed only if the safety retention device **133** is tampered with or substantially worn. Among the many different possibilities contemplated, the tamper indicator **136** can be positioned between an inner surface **131** and an outer surface **132** of the second end **120** of the wheel support **100**. It is further contemplated that the tamper indicator **136** may be configured to provide a visual indication if the safety retention device **133** is tampered with or substantially worn. It is still further contemplated that the wheel support **100** can be a front fork. It is still further contemplated that the safety retention device **133** can be provided on at least one of the inner surface **131** and the outer surface **132**. It is still further contemplated that the safety retention device **133** can include a raised surface protruding from the second end **120** to form a restraining surface 1**35**, and the restraining surface **135** can be configured to prevent the wheel **300** from separating from the wheel support **100**.

[0033] In another aspect, the disclosure provides a bicycle **200** including a frame **400**, at least one wheel **300**, and a wheel support **100**. The wheel support includes a first end **110** and a second end **120**. The wheel support **100** is coupled to the frame **400** at the first end **110** and supports the wheel **300** at the second end **120**. The second end **120** includes a safety retention device **133** and a tamper indicator **136**, and at least a portion of the tamper indicator **136** is covered by the safety retention device **133** and configured to be exposed only if the safety retention device **133** is tampered with or substantially worn. Among the many different possibilities contemplated, the tamper indicator **136** can be positioned between an inner surface **131** and an outer surface **132** of the second end **120** of the wheel support **100**. It is further contemplated that the tamper indicator **136** may be configured to provide a visual indication if the safety retention device **133** is tampered with or substantially worn. It is still further contemplated that the wheel support **100** can be a front fork. It is still further contemplated that the safety retention device **133** can be provided on at least one of the inner surface **131** and the outer surface **132**. It is still further contemplated that the safety retention device **133** can include a raised surface **134** protruding from the second end **120** to form a restraining surface **135**, and the restraining surface **135** can be configured to prevent the wheel **300** from separating from the wheel support **100**.

[0034] In yet another aspect, the disclosure provides a wheel support **100**, having an elongated body, for a bicycle **200** having a first end **110** for supporting the bicycle **200**, and a second end **120** for supporting a wheel **300**. The second end **120** includes a dropout **130** having an inner surface **131**, an outer surface **132**, a safety retention device **133** and a tamper indicator **136**. At least a portion of the tamper indicator **136** is covered by the safety retention device **133** and configured to be exposed only if the safety retention device **133** is tampered with or substantially worn. Among the many different possibilities contemplated, the tamper indicator **136** can be embedded in the dropout **130**. It is further contemplated that the tamper indicator **136** can be optically discernible from the safety retention device **133** thereby providing an indication that the safety retention device **133** has been tampered with or substantially worn. It is further contemplated that the safety retention device **133** can include a raised surface **134** protruding from the dropout **130** to form a restraining surface **35**, and the restraining surface **135** is configured to prevent the wheel **300** from separating from the wheel support **100**. It is further contemplated that the safety retention device **133** can include a lawyer tab or lawyer lip. It is still further contemplated that the safety retention device **133** can be located on the inner surface **131** or/and the outer surface **132** of the dropout **130**.

[0035] Except as may be expressly otherwise indicated, the article "a" or "an" if and as used herein is not intended to limit, and should not be construed as limiting, the description or a claim to a single element to which the article refers. Rather, the article "a" or "an" if and as used herein is intended to cover one or more such elements, unless the text expressly indicates otherwise. Furthermore, aspects of the invention may comprise, consistent essentially of, or consist of the indicated elements or method steps.

[0036] Any reference to patents, documents and other writings contained herein shall not be construed as an admission as to their status with respect to being or not being prior art. Unless the meaning is clearly to the contrary, all ranges set forth herein are deemed to be inclusive of the endpoints. Although the present invention and its advantages have been described in detail, it is understood that the array of features and embodiments taught herein may be combined and rearranged in a large number of additional combinations not directly disclosed, as will be apparent to one having ordinary skill in the art. The invention disclosed herein may be practiced in the absence of any element which is not specifically disclosed herein. It should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the invention as defined by the following claims. There are, of course, other embodiments, which are alternatives to the

foregoing descriptions of the invention, which are intended to be included within the scope of the invention, as defined by the following claims.

CLAIMS

What is claimed is:

1. A wheel support for a bicycle, the wheel support comprising:

a) a first end for supporting the bicycle; and

b) a second end for supporting a wheel, the second end comprising a safety retention device and a tamper indicator:

wherein

at least a portion of the tamper indicator is covered by the safety retention device and configured to be exposed only if the safety retention device is tampered with or substantially worn.

2. The wheel support of claim 1 wherein the tamper indicator is positioned between an inner surface and an outer surface of the second end.

3. The wheel support of claim 2 wherein the tamper indicator is configured to provide a visual indication if the safety retention device is tampered with or substantially worn.

4. The wheel support of claim 3 wherein the wheel support is a front fork.

5. The wheel support of claim 3 wherein the safety retention device is provided on at least one of the inner surface and the outer surface.

6. The wheel support of claim 1 wherein the safety retention device comprises:

a) a raised surface protruding from the second end to form a restraining surface; wherein the restraining surface is configured to prevent the wheel from separating from the wheel support.

7. A bicycle comprising:

a) a frame;

b) a wheel; and

c) a wheel support comprising a first end and a second end, the second end comprising a safety retention device and a tamper indicator: wherein

the wheel support is coupled to the frame at the first end and supports the wheel at the second end; and
at least a portion of the tamper indicator is covered by the safety retention device and configured to be exposed only if the safety retention device is tampered with or substantially worn.

8. The bicycle of claim 7 wherein the tamper indicator is positioned between an inner surface and an outer surface of the second end.

9. The bicycle of claim 7 wherein the safety retention device comprises:
a) a raised surface protruding from the second end to form a restraining surface; wherein the restraining surface is configured to prevent the wheel from separating from the wheel support.

10. The bicycle of claim 7 wherein the tamper indicator is configured to provide a visual indication if the safety retention device is tampered with or substantially worn.

11. The bicycle of claim 10 wherein the wheel support is a front fork.

12. The bicycle of claim 10 wherein the safety retention device is provided on at least one of the inner surface and the outer surface.

13. A wheel support for a bicycle, the wheel support having an elongated body, the wheel support comprising:
a) a first end for supporting the bicycle; and
b) a second end for supporting a wheel, the second end comprising a dropout, the dropout having an inner surface, an outer surface, a safety retention device and a tamper indicator; wherein
at least a portion of the tamper indicator is covered by the safety retention device and configured to be exposed only if the safety retention device is tampered with or substantially worn.

14. The wheel support of claim 13 wherein the tamper indicator is embedded in the dropout.

15. The wheel support of claim 14 wherein the tamper indicator is optically discernible from the safety retention device thereby providing an indication that the safety retention device has been tampered with or substantially worn.

16. The wheel support of claim 15 wherein the safety retention device comprises a raised surface protruding from the dropout to form a restraining surface;
wherein
the restraining surface is configured to prevent the wheel from separating from the wheel support.

17. The wheel support of claim 16 wherein the safety retention device comprises a lawyer tab or a lawyer lip.

18. The wheel support of claim 14 wherein the safety retention device is located on the inner surface and/or the outer surface.

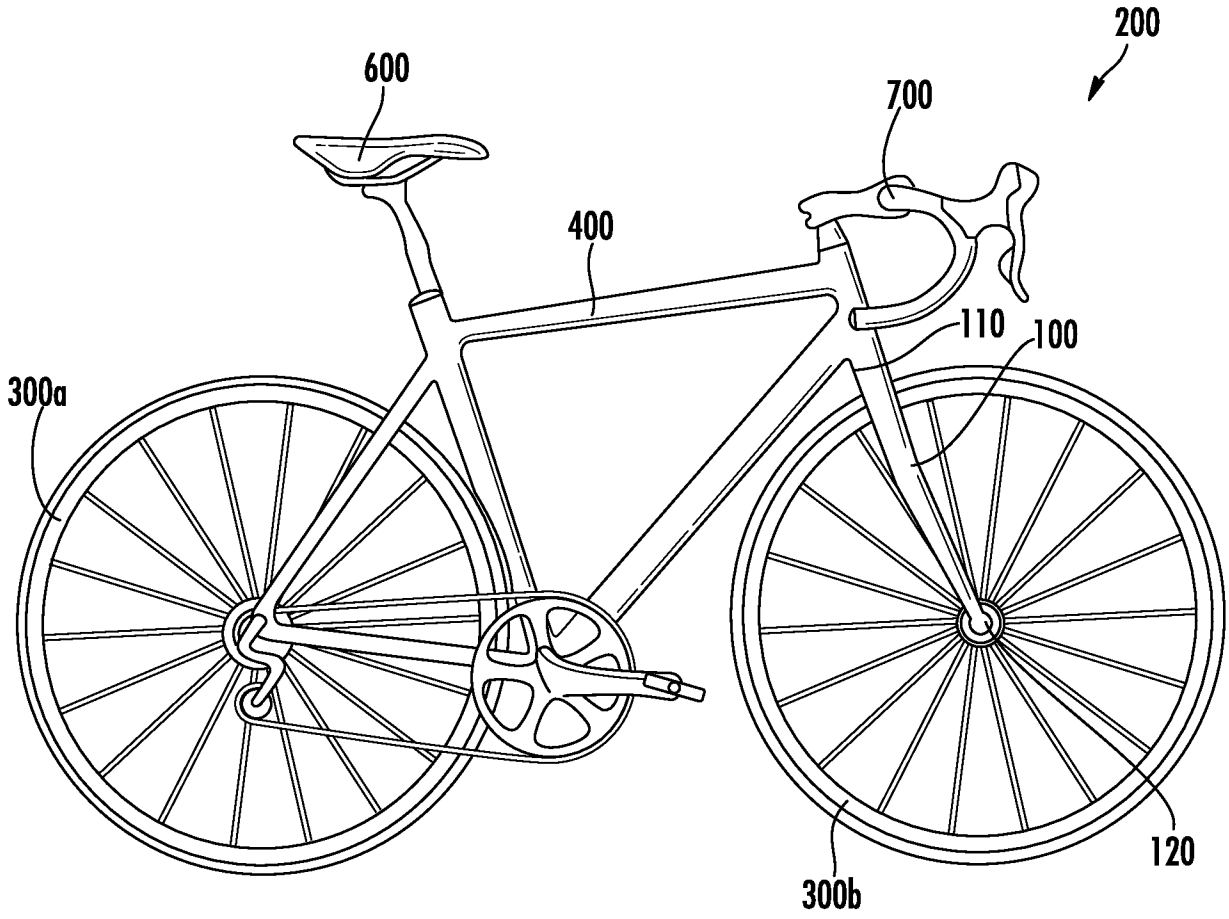

FIG. 1

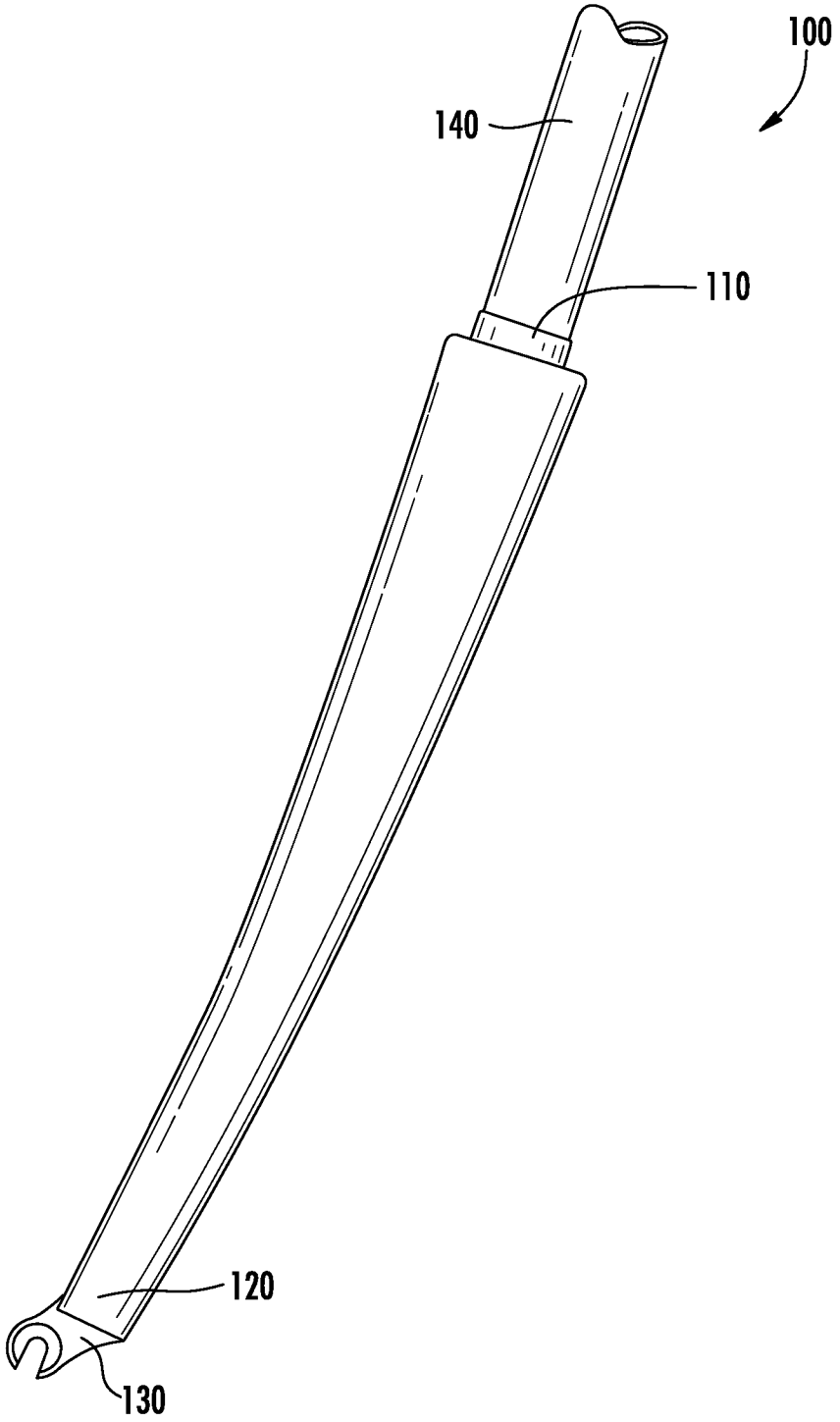

FIG. 2

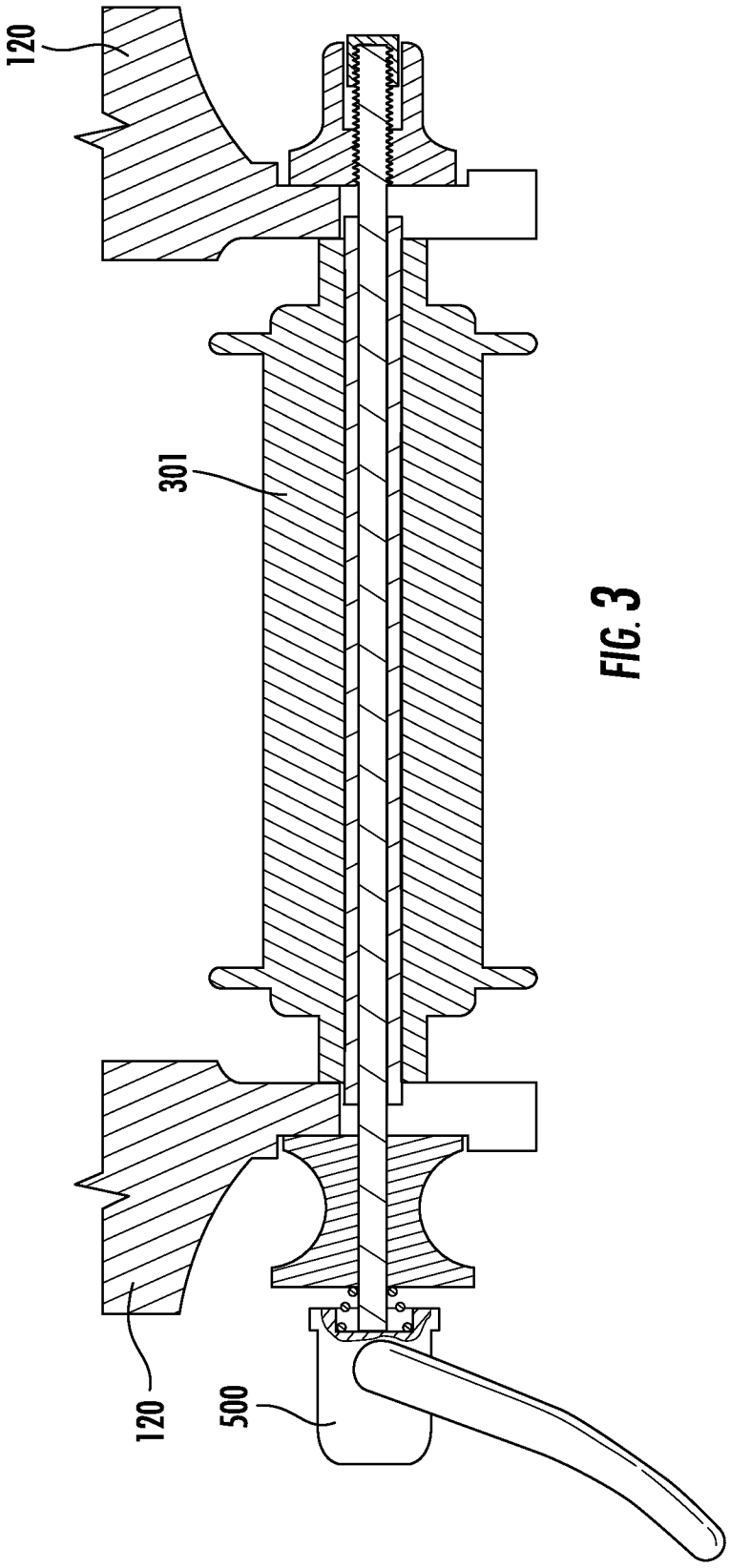

FIG. 3

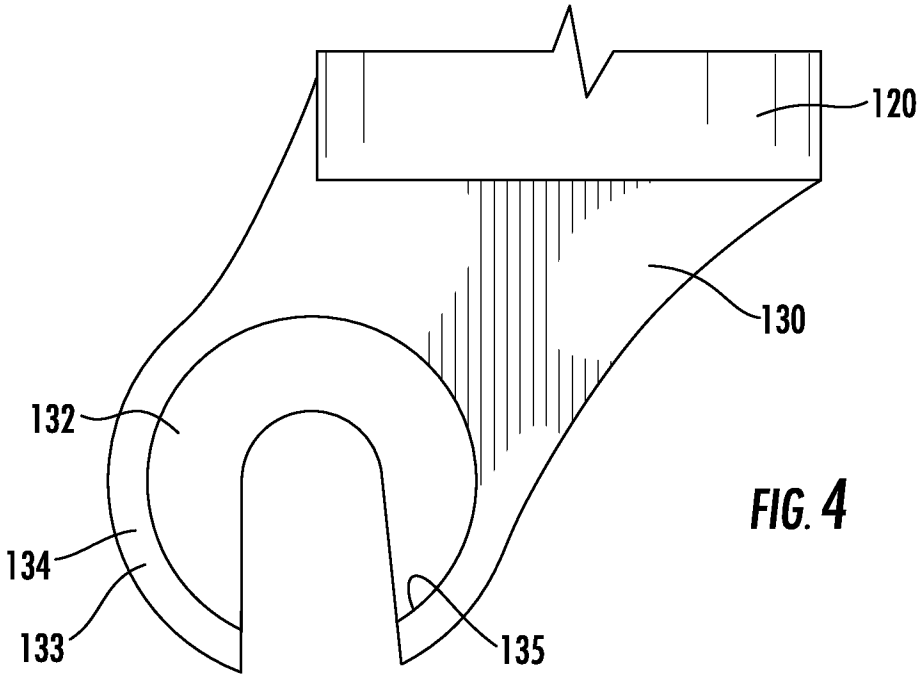

FIG. 4

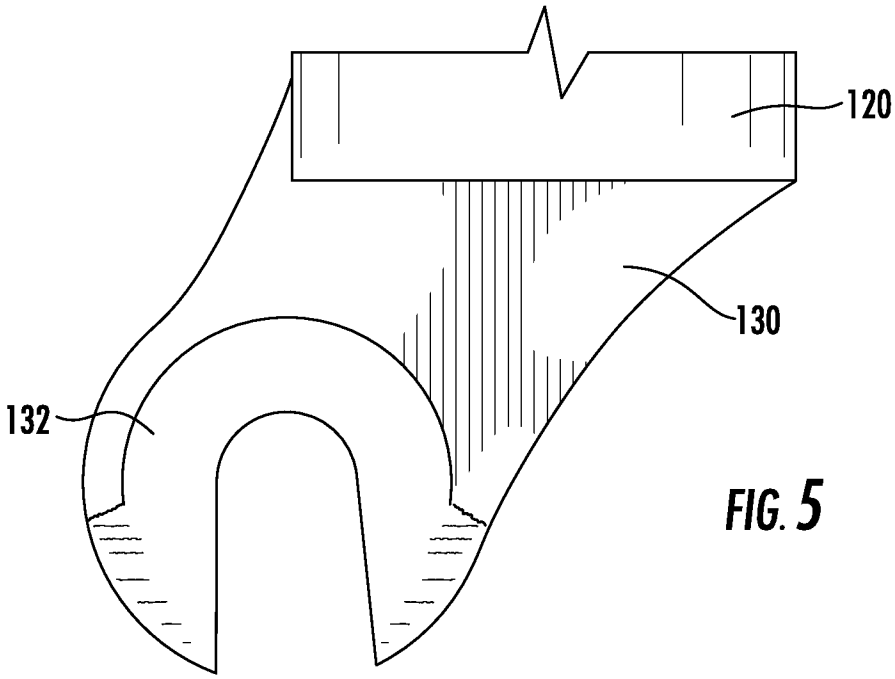

FIG. 5

FIG. 6

FIG. 7

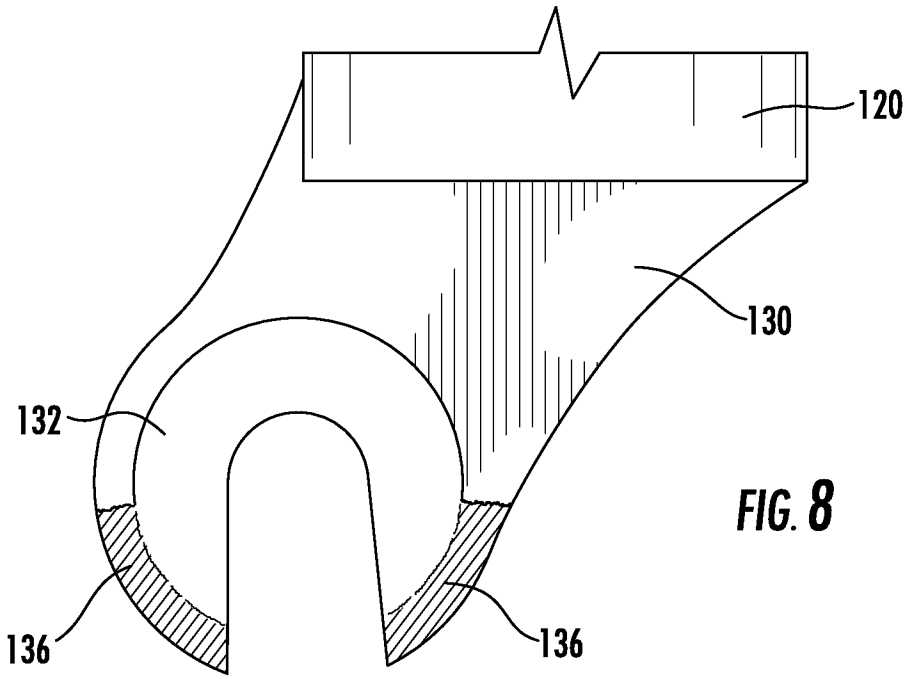

FIG. 8

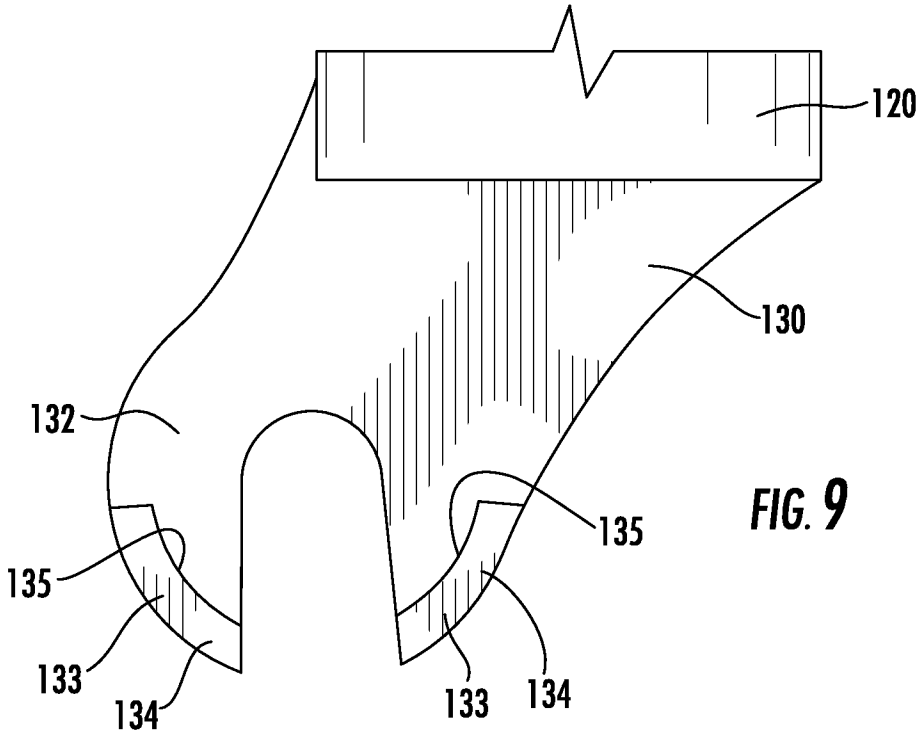

FIG. 9

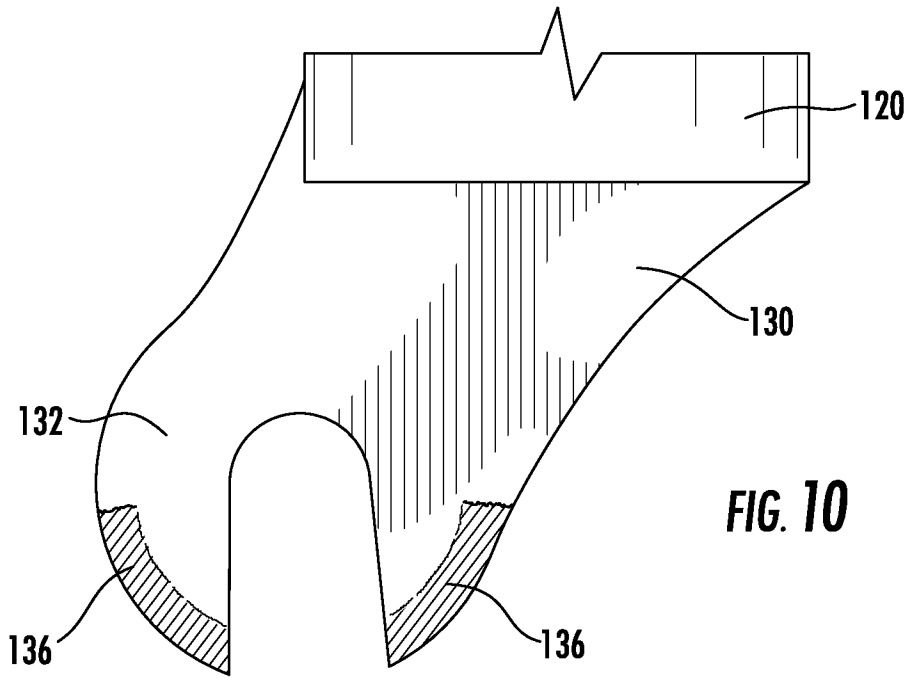

FIG. 10

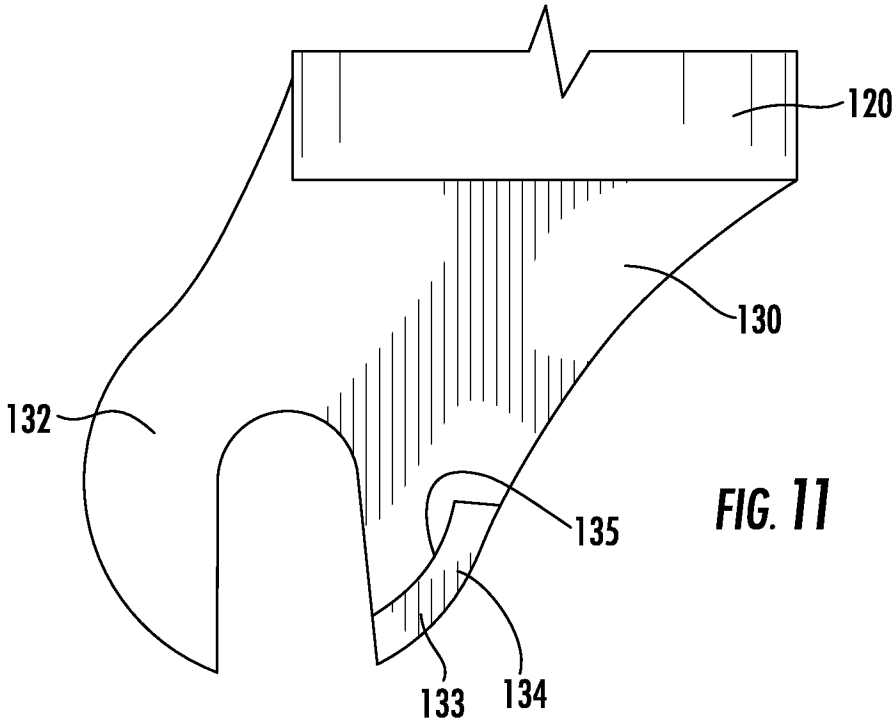

FIG. 11

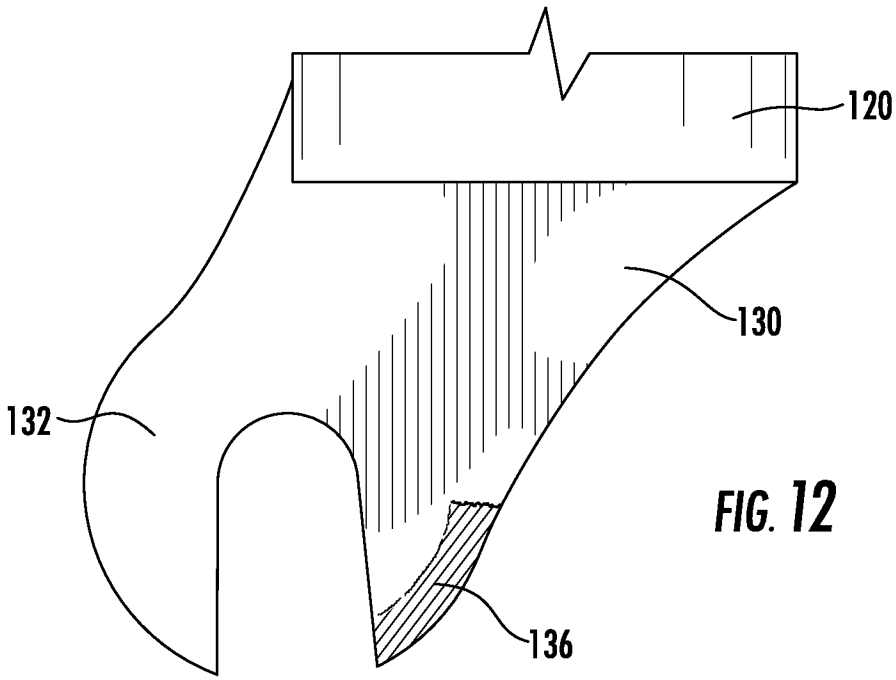

FIG. 12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 16/27036

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - B60B 27/02, B31B 1/74, B31B 41/14, B60B 37/00, B62J 99/00, B62K 25/02, B62K 3/02 (2016.01)
CPC - B60B 27/02, B60B 27/023, B60B 27/026, B62J 2099/008, B62J 99/00, B62K 2206/00, B62K 25/02
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)
IPC (8): B60B27/02 (2016.01)
CPC: B60B27/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
IPC (8): B31B1/74, B31B41/14, B60B37/00, B62J99/00, B62K25/02, B62K3/02, B65D33/16, B65D55/06 (2016.01). CPC: B60B27/023, B60B27/026, B62J2099/008, B62J99/00, B62K2206/00, B62K25/02, B62K3/02, B65D33/16, B65D33/34, B65D63/1027

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PatBase. Google (Web, Patent, Scholar). Search Terms: Alteration, Axle, Bicycle, Clip, Counterbore, Cycling, D shape, Dropout, Ear, Eclipse, Ends, Evident, Fastener, Filing, Fork, Indicating, Lawyer, Machining, Metal, Mill, Modification, Modify, Off, Owner, Proof, Prov*, Remove, Retain, Retention, Reveal, Sacrificial, Shave, Shear, Shimano.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,121,973 A (PHILLIPS) 16 June 1992 (16.06.1992) Figs. 1, 3-6; col 3 ln 23 - 47, col 4 ln 8-23, 26-53.	1-18
A	US 2010/0239190 A1 (MCNAMARA et al.) 23 September 2010 (23.09.2010) Figs. 1, 3; paras [0063-6].	1-18
A	US 8,974,009 B2 (LAIRD et al.) 10 March 2015 (10.03.2015) Figs. 1A-D, 2, 4B-C; col 9, ln 57-65, col 10 ln 9-41.	1-18
A	US 5,653,512 A (PHILLIPS) 05 August 1997 (05.08.1997) Figs. 1-2, 7-9, 16, 21-22; col 4 ln 27 - 50, col 5 ln 34-42.	1-18
A	US 7,954,906 B2 (MONTAGUE et al.) 07 June 2011 (07.06.2011) Figs. 1-9, 15, 27, 32, 63; col 08 ln 66 - col 9 ln 9, col 10 ln 29-57.	1-18
X,P	US 9,266,576 B1 (DELA HOUSSAYE) 23 February 2016 (23.02.2016) Figs. 2-12; col 2 ln 52 - col 3 ln 5, 20-51, col 4 ln 7-25, 41-62	1-18

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"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
"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
"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 June 2016	11 JUL 2016
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)