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• **Weidner, Richard**
Barrington 60010 (US)

(72) Inventors:
• **Borak, Daniel**
Streamwood 60107 (US)
• **Weidner, Richard**
Barrington 60010 (US)

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(74) Representative: **Caspary, Karsten et al**
Kroher-Strobel
Rechts- und Patentanwälte PartmbB
Bavariaring 20
80336 München (DE)

(71) Applicants:
• **Borak, Daniel**
Streamwood 60107 (US)

(54) **SAFETY DEVICE FOR EXERCISE RESISTANCE BAND**

(57) A flexible elastic resistance exercise cord including an outer tube having first and second ends and an inside wall, an inner safety-member tube within and extending the length of the outer tube and having inner-member end portions each connected to a respective one of the first and second ends and an outside surface movable with respect to the inside surface of the outer tube therealong. The exercise cord also includes first and

second securing balls each within the outer tube at a respective one of the first and second ends with a respective inner-member end portion sandwiched between the ball and the inside wall of the outer tube and a handle member at at least one of the first and second ends. The safety-member tube is able to stretch at least as far as the outer tube.

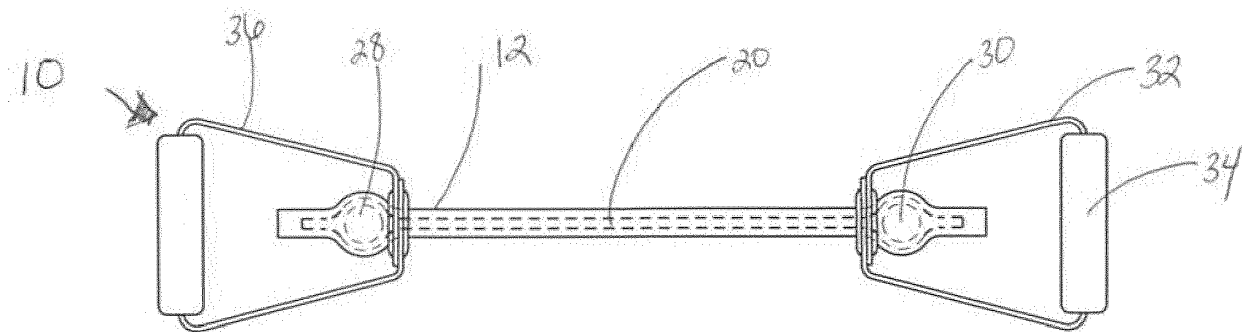


FIG. 1

Description

FIELD

[0001] The present invention relates to exercise devices and more particularly to an exercise resistance band with an inner safety device to prevent injury.

BACKGROUND

[0002] Exercise bands made of elastic, rubber or a similar material are well-known in the art. Exercise bands of the prior art are generally either bands that look like big ribbons or bands that are made of tubing. Traditional exercise bands made of tubing consist of a flexible and stretchable elastic or rubber tube which have handles on each end. The user holds on to the handles and can perform a variety of resistance/strengthening exercises. Exercise bands made of tubing come in different sizes relative to the diameter of the tubing. The smaller the diameter of the tubing the easier it is for the user to stretch the resistance band. The larger the diameter of tubing the more difficult it is for the user to stretch the exercise band.

[0003] Exercise bands can also be anchored to various structures such as doorways or incorporated into exercise machines. Examples of typical exercise bands of the prior art and their variety of uses can be seen in U. S. Patent Nos. 4,059,265; 5,387,171; 7,585,254; US D670345 and U.S. Publication Nos. 2014/0110545; 2013/0225376; 2011/0237410.

[0004] One drawback of exercise bands made of elastic or rubber is that over time due to user wear the tube material breaks down and this can lead to the exercise band snapping in half or in pieces and resulting in possible injury. This is especially dangerous if the user is engaged in stretching the band while exercising when the band unpredictably breaks. It would be advantageous to have an exercise band made of elastic or rubber which has an inner safety device within the tube which would prevent injury to the user if the elastic or rubber tube failed while the user was exercising.

SUMMARY

[0005] In accordance with the present device, a flexible elastic resistance exercise cord with an inner safety-member tube is provided. The exercise cord of this application overcomes certain problems and shortcomings of the prior art and provides a unique structure satisfying safety concerns.

[0006] The flexible resistance exercise cord includes an outer tube having first and second ends and an inside wall, an inner safety-member tube within and extending the length of the outer tube and having inner-member end portions each connected to a respective one of the first and second ends and an outside surface movable with respect to the inside surface of the outer tube the-

realong, the safety-member tube being selected to resist breakage for the life of the exercise cord, first and second securing balls each within the outer tube at a respective one of the first and second ends with a respective inner-member end portion sandwiched between the ball and the inside wall of the outer tube, and a handle member at at least one of the first and second ends, wherein the safety-member tube is of latex or rubber and able to stretch at least as far as the outer tube.

[0007] In highly preferred embodiments, the cross-sectional dimensioning and materials of the safety-member tube and outer tube are selected such that a given length of the safety-member tube is able to stretch farther than the same length of the outer tube. It is also highly preferred that the sandwiching of the inner-member end portion is sandwiching of the full cross-section thereof centered at one radial location.

[0008] In certain preferred embodiments the handle member includes a grip portion and a strap loop extending from either end of the grip portion and having an eyelet centered therealong with an opening through which the outer tube extends. Preferably, the opening and the ball are sized for engagement of the end of the outer tube with the strap loop. In preferred embodiments, a handle is secured at each of the first and second ends. In other embodiments, at one or both of the first and second ends a clip can be used instead of a handle.

[0009] It is highly preferred that the outside surface of the safety-member tube is smooth to avoid or minimize surface abrasion. It is also highly preferred that the outer tube and safety-member tube have a Shore A hardness of at least about 20.

[0010] The term "ball" as used herein means a round or cylindrical or somewhat roundish body (such as oblong or triangular) of various sizes and materials, which can be either hollow or solid.

[0011] The term "smooth" as used herein means free from protrusions, indentations or ridges.

[0012] A wide variety of exercise bands have been created and are available. However, there is a need for improvement in the safety of exercise resistance bands, and it is to this safety need that this device is directed.

BRIEF DESCRIPTION OF THE DRAWINGS

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[0013] The drawings illustrate a preferred embodiment including the above-noted characteristics and features of the device. The device will be readily understood from the descriptions and drawings. In the drawings:

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FIGURE 1 is a front view of the flexible elastic resistance exercise cord showing the outer tube and dotted lines indicating the internal location of the inner safety-member tube.

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FIGURE 2 is a similar front view of FIGURE 1 but with the exercise cord stretched.

FIGURE 3 is a similar front view of FIGURE 2 but with a cutaway showing the inner safety-member

tube.

FIGURE 4 is an enlarged cross-sectional view of the exercise cord taken along section 4-4 as indicated in FIGURE 3 with dotted lines indicating the internal location of the ball and inner safety-member tube.

FIGURE 5 is an enlarged cross-sectional view of the exercise cord of FIGURE 1 specifically showing the ball within the outer tube and inner safety-member tube.

FIGURE 6 is a cross-sectional view taken along section 6-6 as indicated in FIGURE 5.

FIGURE 7 is an enlarged cross-sectional view of the exercise cord of FIGURE 1 specifically showing the ball within only the outer tube.

FIGURE 8 is a cross-sectional view taken along section 8-8 as indicated in FIGURE 7.

DETAILED DESCRIPTION

[0014] Referring to FIGURES 1-8, a flexible elastic resistance exercise cord in accordance with the present device is generally designated by the reference numeral 10. Exercise cord 10 provides an outer tube 12 and an inner safety-member tube 20. Outer tube 12 has first end 14 and second end 16 as well as inside wall 18. Inner safety-member tube 20 is within and extending the length of outer tube 12 and has inner-member end portions 22 each connected to a respective one of the first and second ends 14, 16 and outside surface 24 is movable with respect to inside surface 26 of outer tube 12. Safety-member tube 20 is selected to resist breakage for the life of exercise cord 10.

[0015] FIGURES 1-8 also illustrate first and second securing balls 28, 30 each within outer tube 12 at a respective one of first and second ends 14, 16 with a respective inner-member end portion 22 sandwiched between ball 28, 30 and inside wall 18 of outer tube 12. The sandwiching of inner-member end portion 22 is seen best in FIGURES 7-8. Safety-member tube 20 is made of latex or rubber and able to stretch at least as far as the outer tube 12.

[0016] FIGURE 1 illustrates exercise cord 10 in an unstretched position. Outer tube 12 and inner safety tube 20 are visible. In contrast, FIGURES 2-3 show exercise cord 10 in a stretched position which would occur when a user is pulling on one or both ends 14, 16 with handle member 32.

[0017] FIGURES 1-4 illustrate handle member 32 at one of the first and second ends 14, 16. Handle member 32 includes grip portion 34 and a strap loop 36 extending from either end of grip portion 34. Strap loop 36 may or may not include an eyelet 38 centered in strap loop 36 with an opening 40 through which outer tube 12 extends. As best seen in FIGURE 4, opening 40 and ball 28, 30 are sized for engagement of either the first or second end 14, 16 of outer tube 12 with strap loop 36. In some embodiments, handle 32 is secured at each of the first and second ends 14, 16. In other embodiments, at one or

both of first and second ends 14, 16 various types of clips (not shown) can be used instead of handle 32.

[0018] FIGURES 5-6 illustrate that ball 28, 30 can be positioned inside both outer tube 12 and inner safety-member tube 20. FIGURE 6 illustrates a cross-section of FIGURE 5 showing that ball 28, 30 is inside both outer tube 12 and inner safety-member tube 20. Securing ball 28, 30 can have various shapes and is no way limited to the round shape shown in the FIGURES. In some embodiments, ball 28, 30 can be cylindrical, triangular, rectangular or even wedge shaped (not shown). Securing ball 28, 30 can also be hollow or solid.

[0019] FIGURES 7-8 illustrate that ball can be inside the outer tube 12 only and that in such embodiments safety-member tube 20 is secured in place by passing around one section of ball 28, 30 and being held frictionally in place between inside wall of outer tube 12 and ball 28, 30. The sandwiching of inner-member end portion 22 is sandwiching of the full cross-section thereof centered at one radial location as seen best in FIGURE 7. Outside surface 24 is independently movable with respect to inside surface 26 of outer tube 12.

[0020] The cross-sectional dimensioning and materials of safety-member tube 20 and outer tube 12 are selected such that a given length of safety-member tube 20 is able to stretch farther than the same length of outer tube 12.

[0021] Outside surface 24 of safety-member tube 20 is smooth to avoid or substantially minimize surface abrasion. If outside surface 24 was not smooth rubbing between outside surface 24 of safety-member tube 20 could occur which could slowly wear away at inside wall 18 of outer tube 12 causing it to prematurely break.

[0022] Outer tube 12 and safety-member tube 20 can be made of either latex or rubber. Outer tube 12 and safety-member tube 20 should have a Shore A hardness of at least about 20.

[0023] A wide variety of materials are available for the various parts discussed and illustrated herein. While the principles of this device have been described in connection with specific embodiments, it should be understood clearly that these descriptions are made only by way of example and are not intended to limit the scope of the device.

Claims

1. A flexible elastic resistance exercise cord comprising:
 - an outer tube having first and second ends and an inside wall;
 - an inner safety-member tube within and extending the length of the outer tube and having inner-member end portions each connected to a respective one of the first and second ends and an outside surface movable with respect to

the inside surface of the outer tube therealong, the safety-member tube being selected to resist breakage for the life of the exercise cord;

- first and second securing balls each within the outer tube at a respective one of the first and second ends with a respective inner-member end portion sandwiched between the ball and the inside wall of the outer tube; and
- a handle member at at least one of the first and second ends,

wherein the safety-member tube is of latex or rubber and able to stretch at least as far as the outer tube.

2. The exercise cord of claim 1 wherein the cross-sectional dimensioning and materials of the safety-member tube and outer tube are selected such that a given length of the safety-member tube is able to stretch farther than the same length of the outer tube.
3. The exercise cord of claim 1 wherein the sandwiching of the inner-member end portion is sandwiching of the full cross-section thereof centered at one radial location.
4. The exercise cord of claim 3 wherein the handle member includes:
 - a grip portion; and
 - a strap loop extending from either end of the grip portion and having an eyelet centered therealong with an opening through which the outer tube extends, the opening and the ball being sized for engagement of the end of the outer tube with the strap loop.
5. The exercise cord of claim 1 wherein a handle is secured at each of the first and second ends.
6. The exercise cord of claim 5 wherein each handle member includes:
 - a grip portion; and
 - a strap loop extending from either end of the grip portion and having an eyelet therealong with an opening through which the outer tube extends, the opening and the ball being sized for engagement of the end of the outer tube with the strap loop.
7. The exercise cord of claim 1 wherein the outside surface of the safety-member tube is smooth to avoid or minimize surface abrasion.
8. The exercise cord of claim 1 wherein the outer tube and safety-member tube have a Shore A hardness of at least about 20.

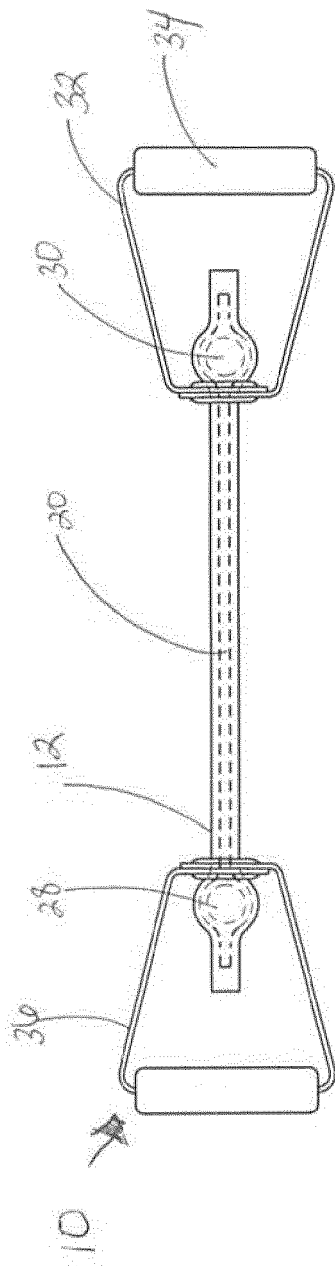


FIG. 1

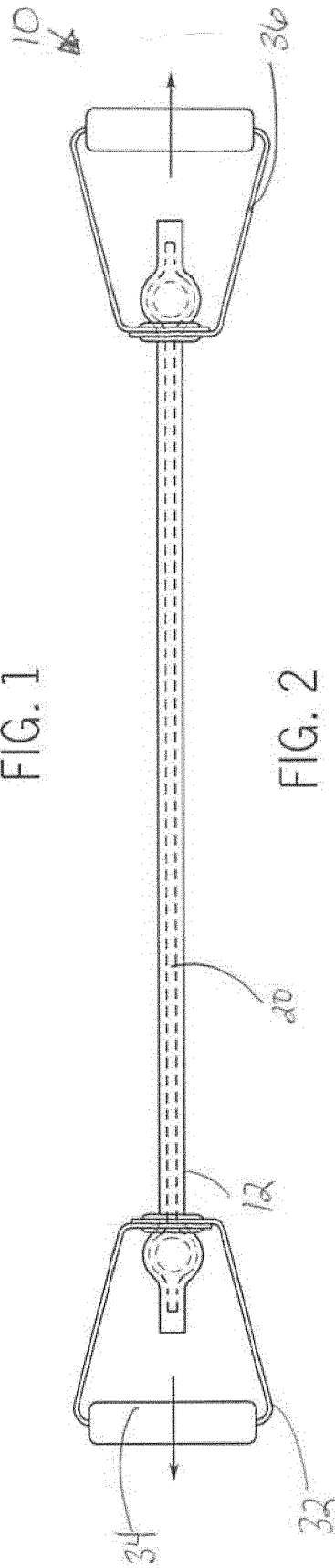


FIG. 2

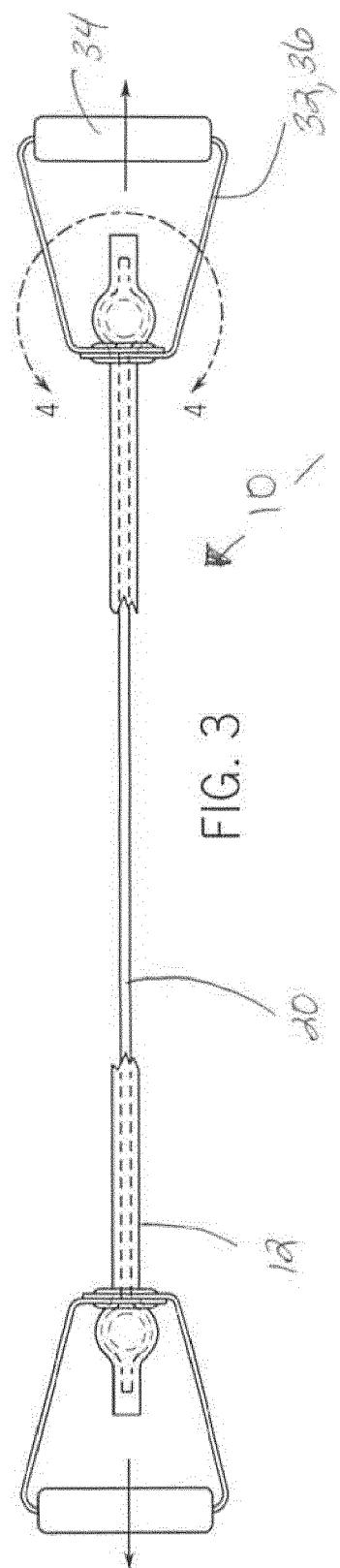
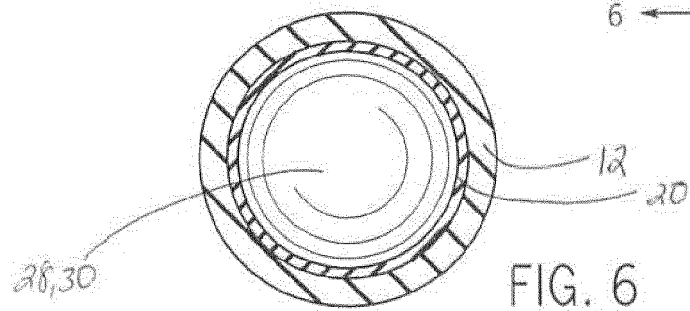
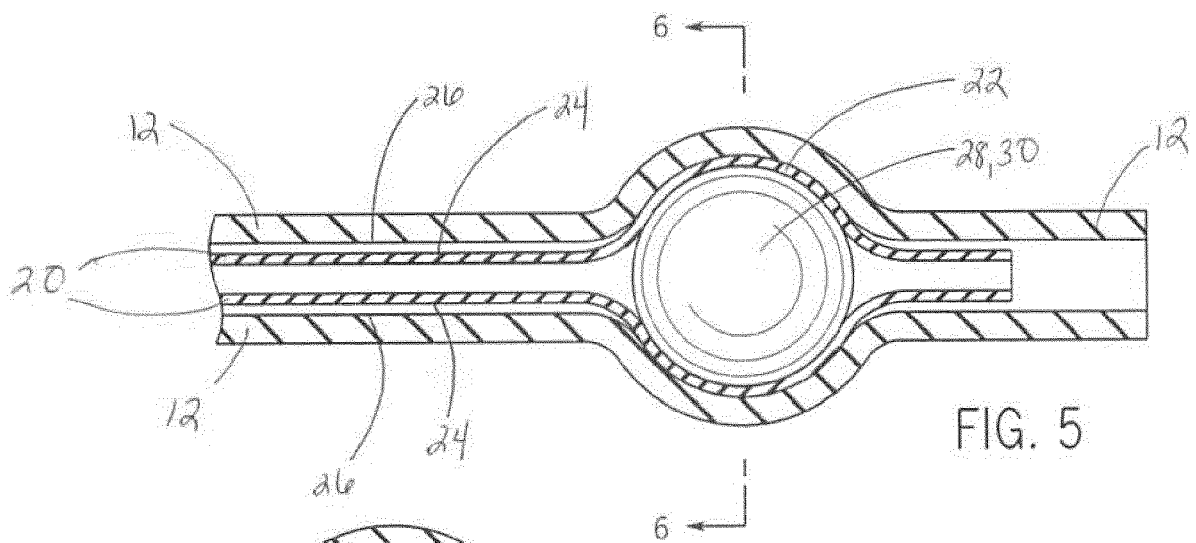
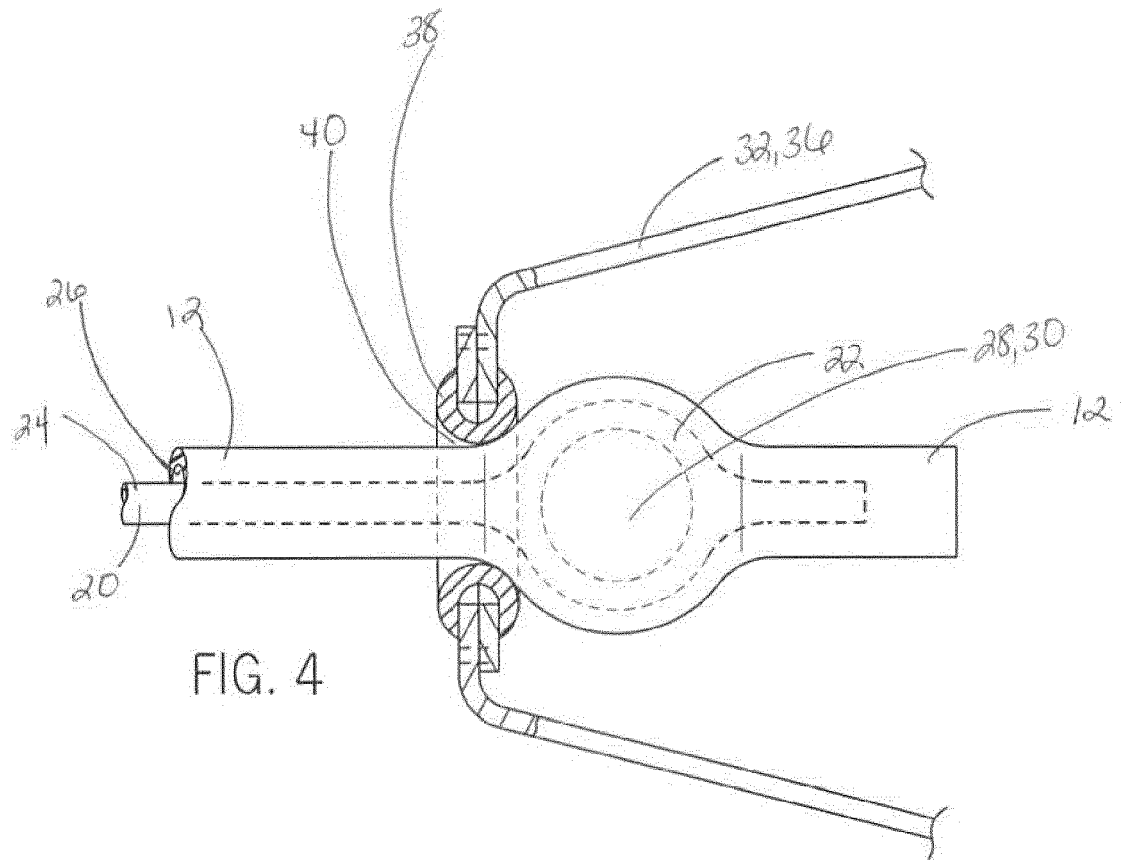
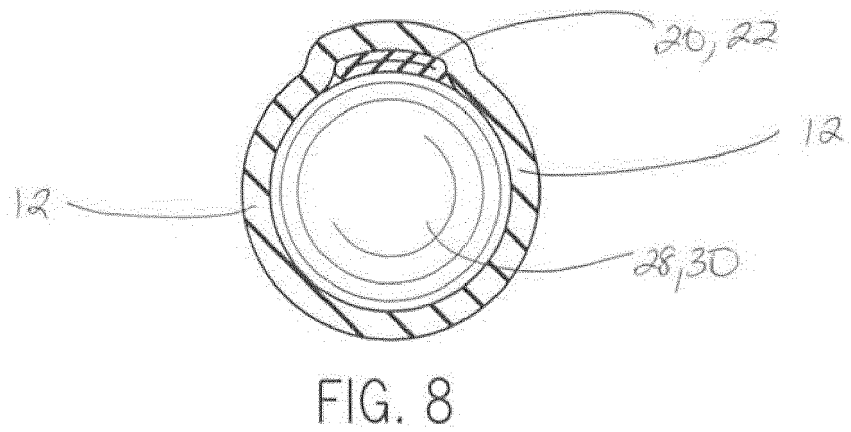
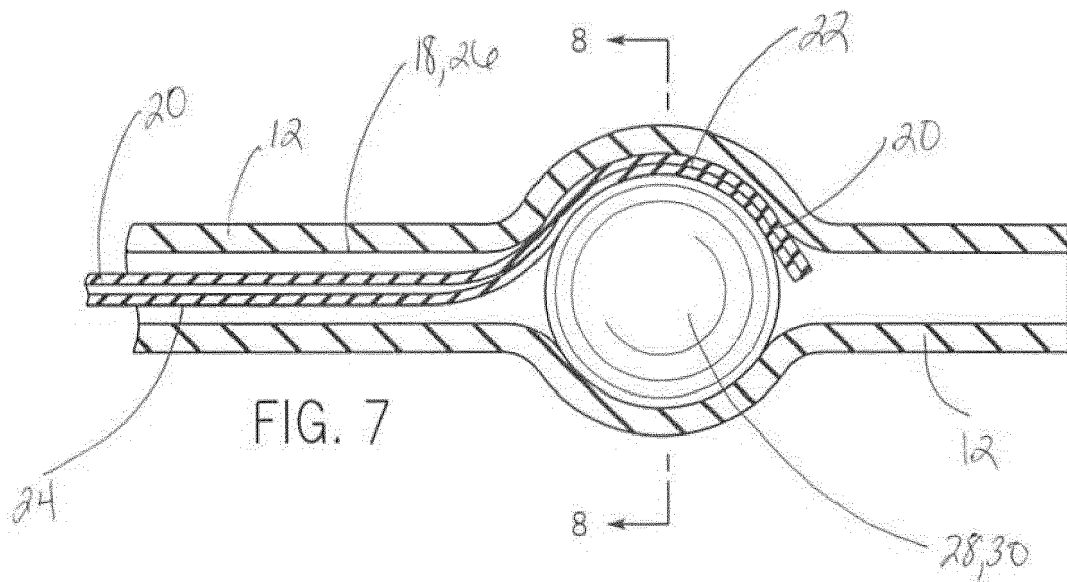


FIG. 3







EUROPEAN SEARCH REPORT

 Application Number
EP 15 20 1099

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2007/155600 A1 (CUNNINGHAM LARRY [US] ET AL) 5 July 2007 (2007-07-05) * the whole document *	1-8	INV. A63B21/04 A63B21/055 A63B21/00 A63B71/00
X	US 2007/015643 A1 (KUNG KUN-TAN [TW]) 18 January 2007 (2007-01-18) * the whole document *	1-8	
X	US 2009/176634 A1 (WU YING-CHING [TW]) 9 July 2009 (2009-07-09) * the whole document *	1-8	
X	WO 2012/027468 A1 (HINDS ROBERT S [US]; STEPHENSON JOHN N [US]; WAGNER LESLIE A [US]) 1 March 2012 (2012-03-01) * the whole document *	1-8	
X	JP 2010 115495 A (WANG WEN-CHING) 27 May 2010 (2010-05-27) * abstract; figures *	1	TECHNICAL FIELDS SEARCHED (IPC)
X	US 2007/119386 A1 (KUNG KUN-TAN [TW]) 31 May 2007 (2007-05-31) * abstract; figures *	1	A63B
X	GB 2 395 442 A (WINDELL JOHANNES HENDRIK JACOB [ZA]) 26 May 2004 (2004-05-26) * abstract; figures *	1	
X	US 6 202 263 B1 (HARKER SHON LES [US]) 20 March 2001 (2001-03-20) * abstract; figures *	1	
A	KR 101 437 403 B1 (UNIV SOGANG IND UNIV COOP FOUN [KR]) 5 September 2014 (2014-09-05) * abstract; figures *	1	
		-/--	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 6 May 2016	Examiner Borrás González, E
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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Application Number
EP 15 20 1099

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2006/075610 A1 (BUCHANAN DOYLE A [US]) 13 April 2006 (2006-04-13) * abstract; figures * -----	1	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 6 May 2016	Examiner Borrás González, E
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03/02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 15 20 1099

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007155600 A1	05-07-2007	NONE	
US 2007015643 A1	18-01-2007	NONE	
US 2009176634 A1	09-07-2009	TW M335293 U US 2009176634 A1	01-07-2008 09-07-2009
WO 2012027468 A1	01-03-2012	NONE	
JP 2010115495 A	27-05-2010	JP 5897781 B2 JP 2010115495 A	30-03-2016 27-05-2010
US 2007119386 A1	31-05-2007	NONE	
GB 2395442 A	26-05-2004	NONE	
US 6202263 B1	20-03-2001	NONE	
KR 101437403 B1	05-09-2014	NONE	
US 2006075610 A1	13-04-2006	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 4059265 A [0003]
- US 5387171 A [0003]
- US 7585254 B [0003]
- US 670345 D [0003]
- US 20140110545 A [0003]
- US 20130225376 A [0003]
- US 20110237410 A [0003]