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(54) **CHOKE-BAND, STRAP, AND RELATED FOOTWEAR**

(57) Choke-band (4) comprising a central body (8) provided with a pressing element (24) rotatable from an unlocked position, in which it identifies a gap with the central body (8) suitable to allow the translation of a first end (16) of a strap (12), to a locked position, in which it exerts a pushing action of the first end (16) of the strap (12) against a stop (28) of the central body (8) so as to lock it in position, the pressing element (24) being pivotal around a transverse pin (32), directed along a transverse direction (Y-Y) perpendicular to said first end (16) of the strap (12). The central body (8) is attached to a fastening appendage (40), parallel to said transverse direction (Y-Y), which identifies, with the central body (8), a transverse groove (44) having an open end (48) on the side of an open lateral edge (52) of the central body (8) and configured to accommodate a second end (20) of the strap (12); an actuating and retaining element (56) is operatively connected to the pressing element (24), arranged on the side of said open lateral edge (52) and rotatable together with the pressing element (24), the actuating and retaining element (56) being shaped so as to occlude said open end (48) when the pressing element (24) is in the locked position.

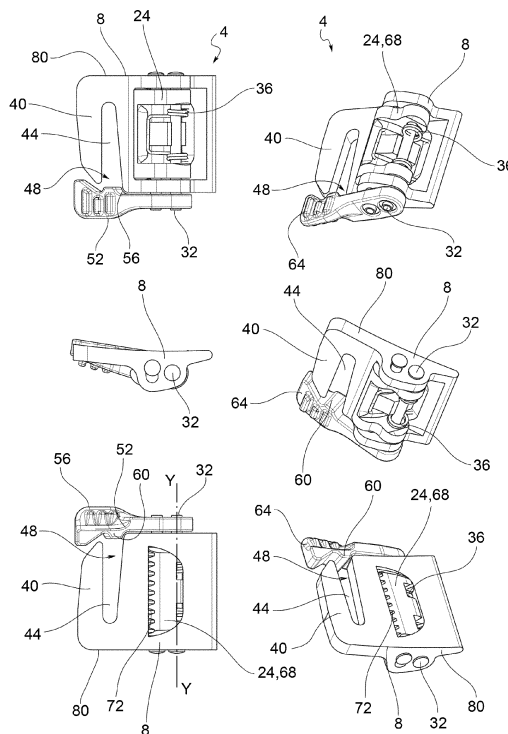


FIG.1

Description

FIELD OF APPLICATION

[0001] The present invention relates to a choke-band for straps, particularly for straps of footwear, typically sports footwear, such as ski boots, hiking boots, etc.

PRIOR ART

[0002] As is well known, sports footwear is fitted with one or more bands or straps that may be adjusted in length to change the relative fit, adapting it to the needs and requirements of users. Said straps may be applied to the upper, in the case of sports and non-sports footwear, or to the cuff and/or shell, in the case of ski boots.

[0003] In any case, there are typically three requirements in the use of choke-bands: first, the strap adjustment mechanism must be convenient and easy to operate, even when the user is wearing a glove (a condition typical of ski boots); second, the mechanism must allow for the adjustment of strap length and pull without exerting excessive friction against the strap, which would otherwise wear out prematurely; third, the mechanism must be reliable and prevent the strap from loosening excessively or opening in strap-loosening operations.

[0004] The requirements listed above are often in conflict with each other, since the mechanisms, for safety reasons, are often hard and awkward to operate and thus lead to premature wear of the strap.

DISCLOSURE OF THE INVENTION

[0005] The need is therefore felt to resolve the drawbacks and limitations mentioned in reference to the prior art.

[0006] Such a need is satisfied by a choke-band according to claim 1 and by a method according to claim 14.

DESCRIPTION OF THE DRAWINGS

[0007] Further features and advantages of this invention will become clearer from the following description of preferred, non-limiting embodiments thereof, in which:

Fig. 1 shows a plurality of perspective and axonometric views of a choke-band, in a locked or closed configuration, mounted on an attachable carrier, according to a possible embodiment of the present invention;

Fig. 2 shows perspective and axonometric views of the choke-band in Fig. 1, sectioned along a transverse centerline plane of the choke-band;

Fig. 3 shows perspective and axonometric views of the choke-band in Fig. 1, in an unlocked or open configuration;

Fig. 4 shows perspective and axonometric views of the choke-band in Fig. 3, in an open or unlocked

configuration, sectioned along a transverse centerline plane of the choke-band;

Fig. 5-7 show perspective views of three additional choke-bands according to the present invention.

[0008] Elements or parts of elements in common in the embodiments described below are referred to with the same reference numerals.

DETAILED DESCRIPTION

[0009] With reference to the aforesaid figures, a choke-band is denoted globally with 4.

[0010] The choke-band 4 comprises a central body 8 to which a strap 12 is attached that extends from a first end 16 to a second end 20.

[0011] For the purposes of the present invention, the strap 12 may be made of any material; preferably it is made of a flexible material.

[0012] The strap 12, together with the choke-band 4, is attached to footwear, according to the present invention. The footwear (not shown) may be of any type, and preferably, but not necessarily, it is sports footwear in which the choke-band 4 serves to tighten or widen a portion of the upper.

[0013] Moreover, the term "footwear" should be considered in a broad sense, so that it also includes a sports boot, such as a ski boot (of any type) in which the strap may be attached to portions of the shell and/or cuff.

[0014] The same footwear, irrespective of the specific type, may comprise a plurality of straps 12 provided with said choke-bands 4.

[0015] The central body 8 is provided with a presser element 24 rotatable from an unlocked position, in which a gap with the central body 8 is defined suitable to allow the translation or sliding of the first end 16 of the strap 12, to a locked position, in which it exerts a pushing action of the first end 16 of the strap 12 against a stop 28 of the central body 8 so as to lock it in position.

[0016] Thus, the locking of the strap 12 in the desired position and tension occurs, as is known, by friction.

[0017] The pressing element 24 is rotatable about a transverse pin 32, directed along a transverse direction Y-Y perpendicular to said first end 16 of the strap 12.

[0018] According to a possible embodiment, the pressing element 24 is equipped with elastic means 36 that elastically bias it toward said locked position, that is, elastically bias it on approach against the stop 28 of the central body 8.

[0019] The elastic means, where provided, may be of any type and comprise, for example, leaf springs, torsion springs and the like.

[0020] It is also possible to provide for the pressing element 24 to be equipped with a toothing that automatically generates the grip necessary for closing the band. The toothing of the pressing element 24 may be used alternatively or concurrently with said elastic means 36.

[0021] A fastening appendage 40, parallel to said

transverse direction Y-Y, is attached to the central body 8, said appendage defining with the central body 8 a transverse groove 44 having an open end 48 on the side of an open lateral edge 52 of the central body 8 and configured to accommodate the second end 20 of the strap 12.

[0022] An actuating and retaining element 56, operatively connected to the pressing element 24, is arranged on the side of said open lateral edge 52 and rotatable together with the pressing element 24.

[0023] According to the present invention, the actuating and retaining element 56 is shaped so as to occlude said open end 48 when the pressing element 24 is in the locked position.

[0024] According to one embodiment of the present invention, the actuating and retaining element 56 is shaped so as to partially occlude said open end 48 when the pressing element 24 is in the unlocked position, so as to allow the possible release of the second end 20 of the strap 12.

[0025] According to a possible embodiment of the present invention, the actuating and retaining element 56 is shaped so as to provide complete access to said open end 48 when the pressing element 24 is in the unlocked position so as to allow the release of the second end 20 of the strap 12.

[0026] Preferably, the actuating and retaining element 56 is pivotal around an axis parallel to said transverse direction Y-Y. The actuating and retaining element 56 may also pivot around the same transverse pin 32, around which the pressing element 24 pivots.

[0027] According to an embodiment of the present invention, the actuating and retaining element 56 is provided with a catch 60, which fits at least partially into said open end 48.

[0028] Said catch 60 helps to prevent the second end 20 of the strap 12 from accidentally falling out of the transverse groove, through the open end 48.

[0029] Said catch 60 is configured so as not to interfere with the central body 8 and/or the fastening appendage 40 during rotation of the actuating and retaining element 56.

[0030] The actuating and retaining element 56 is preferably provided with a gripping appendage 64 suitable for grasping by a user to rotate the actuating and retaining element 56 and the pressing element 24 operatively connected thereto.

[0031] The pressing element 24 may have various configurations.

[0032] According to a possible embodiment, the pressing element 24 comprises a portion with a cam profile 68 that interfaces with said stop 28 of the central body 8.

[0033] For example, the portion with a cam profile 68 is fitted with clasp means 72 for the strap 12, such as a knurling.

[0034] According to an embodiment of the present invention, the pressing element 24 is provided with an actuating portion 76 suitable to be pushed or pulled by a

user to rotate it from the locked position to the unlocked position. The reverse movement from the unlocked position to the locked position is normally accomplished by the elastic retraction action of the elastic means 36, which, as specified, are optional.

[0035] According to an embodiment of the present invention, said actuating portion 76 has a wedge-shaped configuration and is arranged on the side opposite the cam profile portion 68 with respect to the transverse pin 32.

[0036] According to an embodiment of the present invention, the actuating portion 76 has a lever configuration and is arranged on the same side as the cam profile portion 68, relative to the transverse pin 32.

[0037] According to an embodiment of the present invention, the pressing element 24 is operatively connected to an additional actuating lever 80 arranged on a closed lateral edge 84 of the central body 8, opposite the open lateral edge 52 with respect to the transverse direction Y-Y.

[0038] The choke-band 4 may be made of metal or plastics materials, and/or composite fibers.

[0039] The choke-band 4 may be made by molding or even by chip removal machining.

[0040] The operation of a solution according to the present invention will now be described.

[0041] In particular, as shown, the first end 16 of the strap 12 is normally attached to the pressing element 24, which presses it against the central body 8 due to the elastic means 36, while the second end 20 of the strap 12 is attached to the fastening appendage 40. Typically, the second end 20 is closed in a loop about the fastening appendage 40, while the first end 16 is open and passes around the pressing element 24.

[0042] As long as the user does not actuate the pressing element 24, said pressing element is in the locked position in which, due to the action of the elastic means 36, the first end 16 is locked in place against the stop 28, and the strap 12 is prevented from tightening or loosening.

[0043] If the user intends to change the length and thus the traction exerted by the strap 12, it is sufficient to grasp and move the pressing element 24 with one hand from the locked position to the unlocked position, where the first end 16 is free to slide relative to the stop. In order to bring the pressing element 24 from the locked position to the unlocked position, the user may act directly either on the actuating and retaining element 56 (with related gripping appendage 64), which is operatively connected to the pressing element 24, on the actuating portion 76 of said pressing element 24 (if provided), or on the additional actuating lever 80, which is connected to the pressing element 24 (if provided).

[0044] Once the pressing element 24 has been brought to the unlocked position, the first end 16 of the strap 12 may be easily slid, adjusting its length and thus the pull as best desired.

[0045] As may be appreciated from that which is de-

scribed above, this invention overcomes the drawbacks of the prior art.

[0046] In particular, the choke-band according to the present invention first of all allows the traction of the strap to be adjusted conveniently and easily using one hand, even while wearing a glove. Therefore, the invention is particularly advantageous in use on ski boots.

[0047] Moreover, the choke-band does not subject the strap to premature wear and tear during all stages of adjustment.

[0048] In addition, the mechanism is particularly secure since, even during the loosening stages of the strap, said strap may not slip out of the choke-band fastening appendage.

[0049] A person skilled in the art, in order to satisfy contingent and specific needs, may make numerous modifications and variations to the solutions described above.

[0050] The scope of protection of the invention is defined by the following claims.

Claims

1. Choke-band (4) comprising:

- a central body (8) provided with a pressing element (24) rotatable from an unlocked position, in which it identifies a gap with the central body (8) suitable to allow the translation of a first end (16) of a strap (12), to a locked position, in which it exerts a pushing action of the first end (16) of the strap (12) against a stop (28) of the central body (8) so as to lock it in position, the pressing element (24) being pivotal around a transverse pin (32), directed along a transverse direction (Y-Y) perpendicular to said first end (16) of the strap (12),

- wherein the central body (8) is attached to a fastening appendage (40), parallel to said transverse direction (Y-Y), which identifies with the central body (8) a transverse groove (44) having an open end (48) on the side of an open lateral edge (52) of the central body (8) and configured to accommodate a second end (20) of the strap (12),

- wherein an actuating and retaining element (56) is operatively connected to the pressing element (24), arranged on the side of said open lateral edge (52) and rotatable together with the pressing element (24), the actuating and retaining element (56) being shaped so as to occlude said open end (48) when the pressing element (24) is in the locked position.

2. The choke-band (4) according to claim 1, wherein the actuating and retaining element (56) is shaped to partially occlude said open end (48) when the

pressing element (24) is in the unlocked position so as to allow the possible release of the second end (20) of the strap (12).

3. The choke-band (4) according to claim 1, wherein the actuating and retaining element (56) is shaped to allow full access to said open end (48) when the pressing element (24) is in the unlocked position, so as to allow the release of the second end (20) of the strap (12).

4. The choke-band (4) according to claim 1, 2 or 3, wherein the actuating and retaining element (56) is rotatable about an axis parallel to said transverse direction (Y-Y).

5. The choke-band (4) according to claim 1, 2, 3 or 4, wherein the actuating and retaining element (56) is provided with a catch (60) which is at least partially inserted in said open end (48).

6. The choke-band (4) according to any of the claims from 1 to 5, wherein the actuating and retaining element (56) is provided with a gripping appendage (64) suitable to be grasped by a user to rotate the actuating and retaining element (56) and the pressing element (24) operatively connected thereto.

7. The choke-band (4) according to any of the claims from 1 to 6, wherein the pressing element (24) comprises a cam-profile portion (68) that interfaces with said stop (28) of the central body (8), wherein said cam-profile portion (68) is provided with clamping means (72) for the strap (12), such as a knurling.

8. The choke-band (4) according to any of the claims from 1 to 7, wherein the pressing element (24) is provided with an actuation portion (76), suitable for being pushed or pulled by a user to rotate it from the locked position to the unlocked position.

9. The choke-band (4) according to claim 8 in combination with claim 7, wherein said actuation portion (76) has a wedge-shaped configuration and is arranged on the opposite side to the cam-profile portion (68) with respect to the transverse pin (32).

10. The choke-band (4) according to claim 8 in combination with claim 7, wherein said actuation portion (76) has a lever configuration and is arranged on the same side as the cam-profile portion (68), with respect to the transverse pin (32).

11. The choke-band (4) according to any of the claims from 1 to 10, wherein the pressing element (24) is operatively connected to an additional actuating lever (80), arranged on a closed lateral edge (84) of the central body (8), opposite the open lateral edge

(52) with respect to the transverse direction (Y-Y).

12. The choke-band (4) according to any of the claims from 1 to 11, wherein the pressing element (24) is provided with elastic means (36) that elastically bias it towards said locking position, in juxtaposition against the stop (28) of the central body (8). 5
13. The choke-band (4) according to any of the claims from 1 to 12, wherein the pressing element (24) is provided with a tothing that generates the grip necessary for closing the band. 10
14. A strap (12) extending from a first end (16) to a second end (20), coupled to a choke-band (4) according to any of the claims from 1 to 13, wherein the first end (16) of the strap (12) is wound around the pressing element (24) so as to be compressed between the pressing element (24) and the stop (28) of the central body (8), and the second end (20) of the strap (12) is coupled to the fastening appendage (40) of the central body (8), passing inside the transverse groove (44). 15 20
15. Footwear comprising at least one choke-band (4) according to any of the claims from 1 to 13 and/or at least one strap (12) according to claim 14. 25

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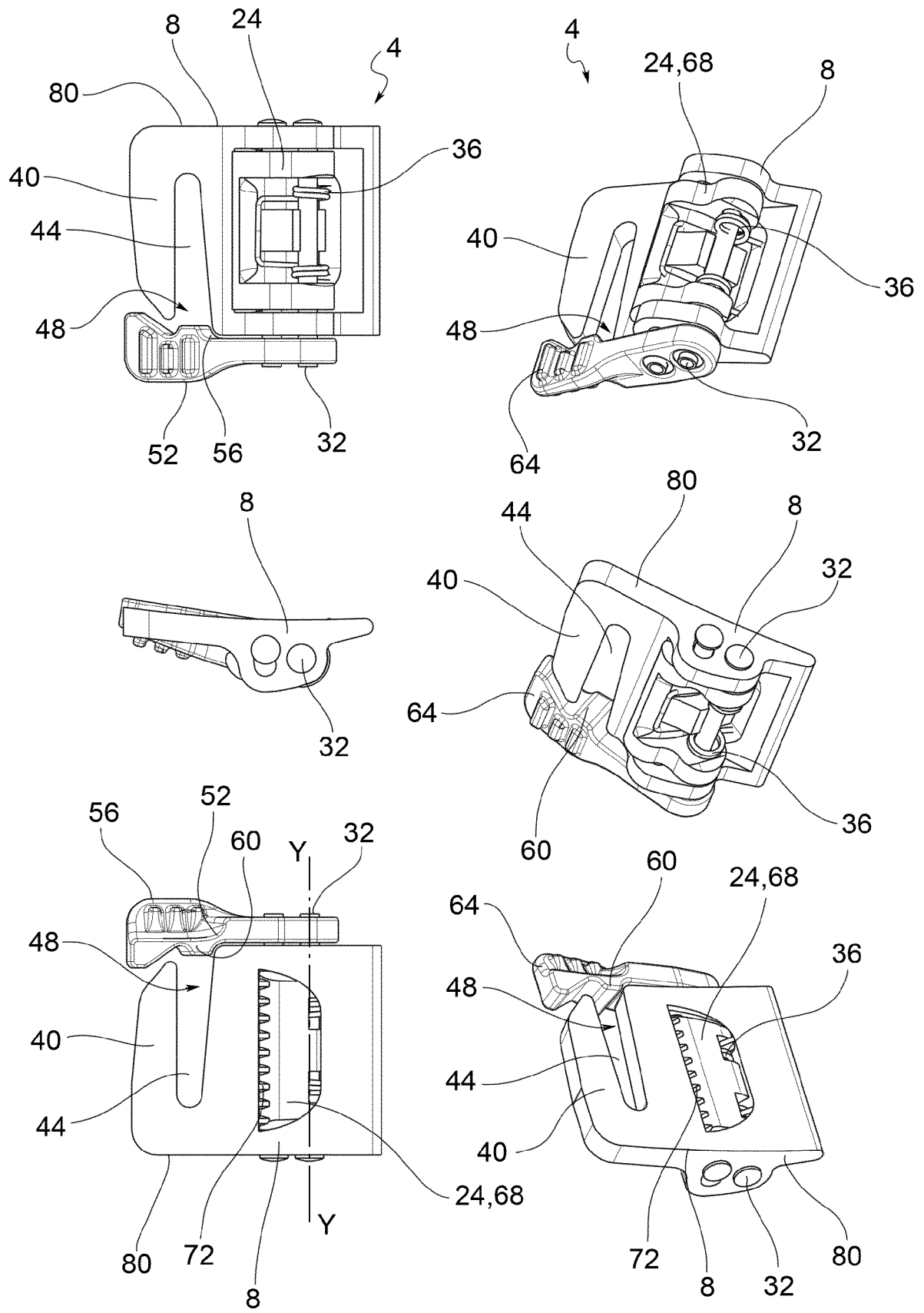


FIG.1

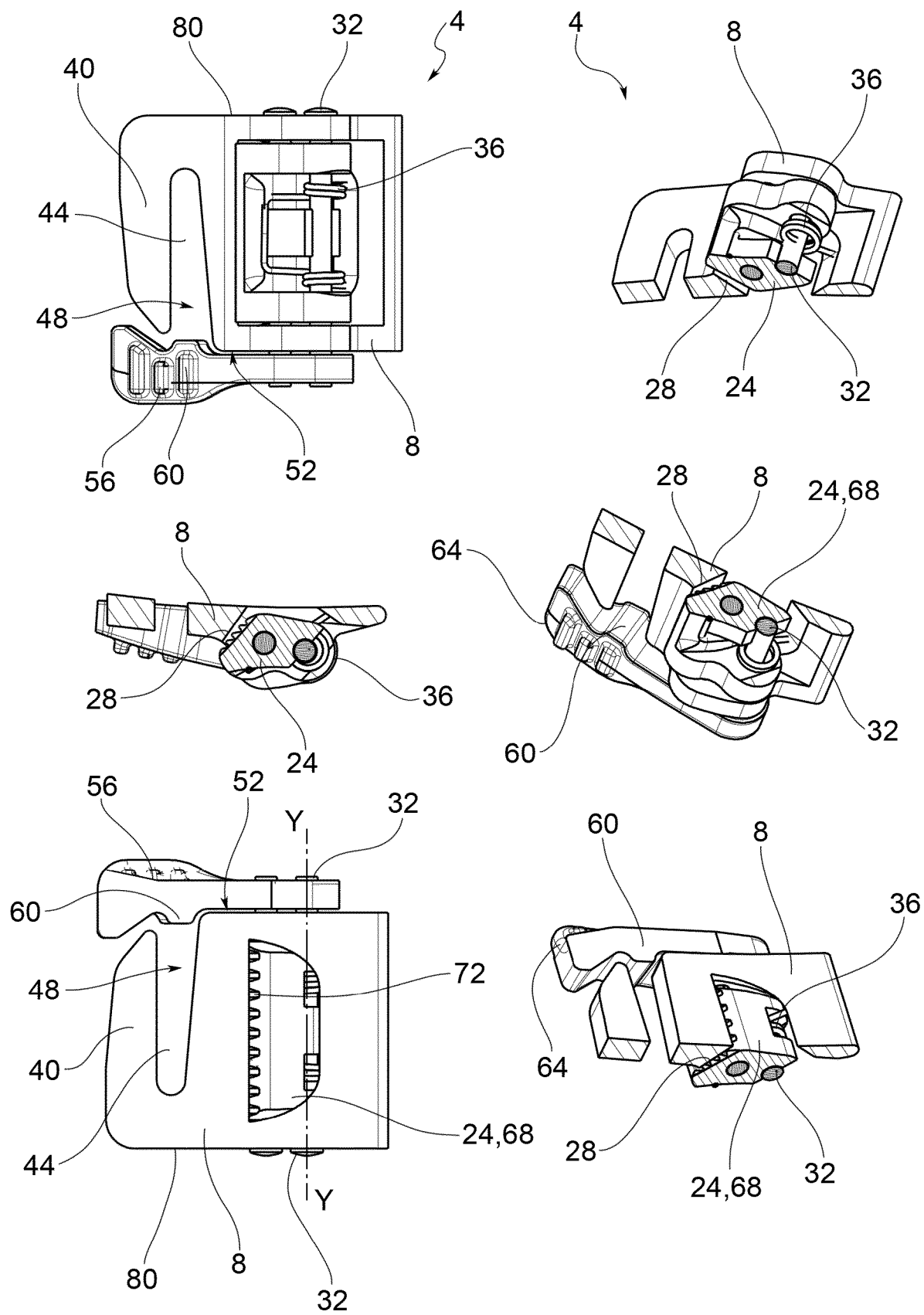


FIG.2

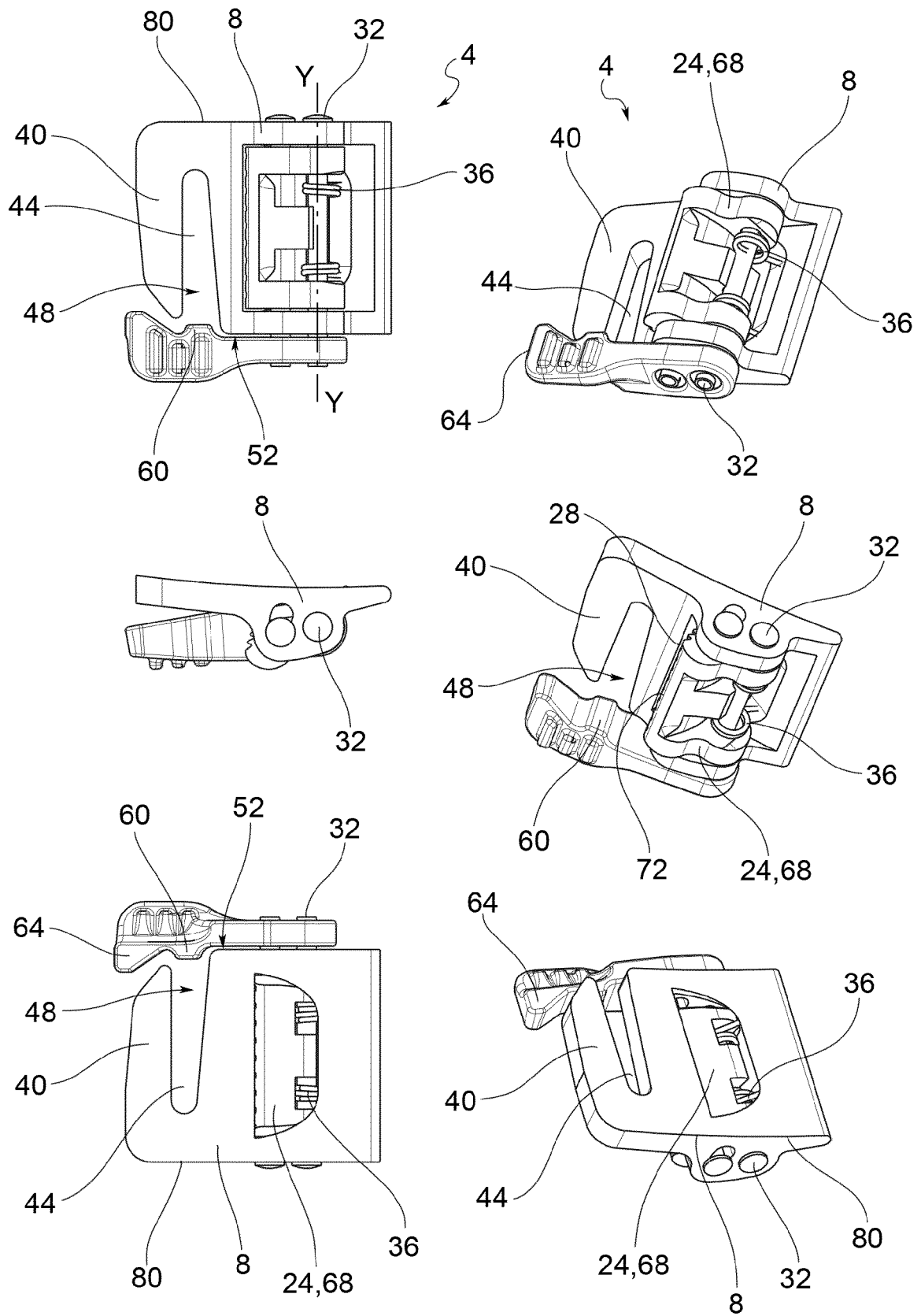


FIG.3

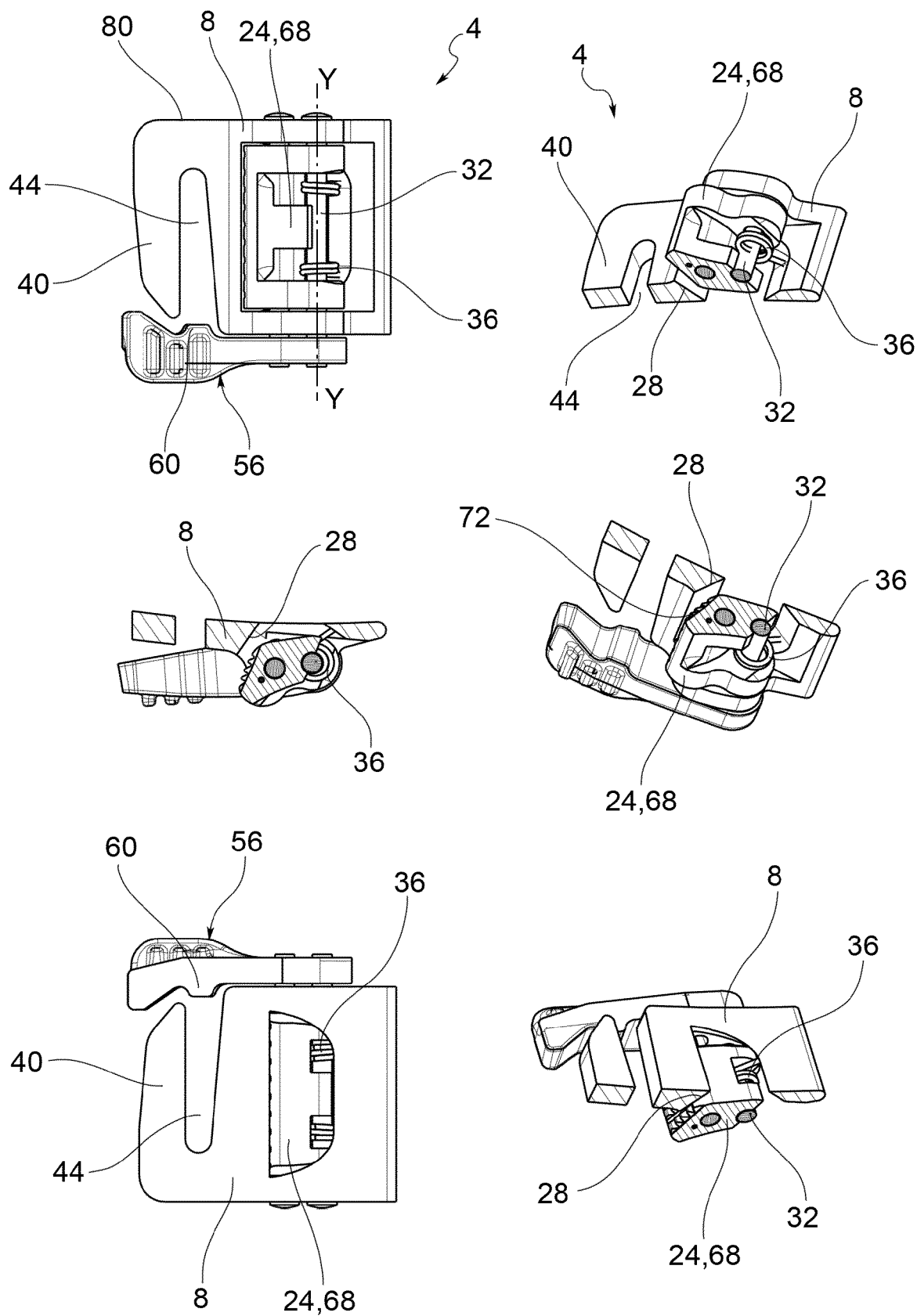


FIG.4

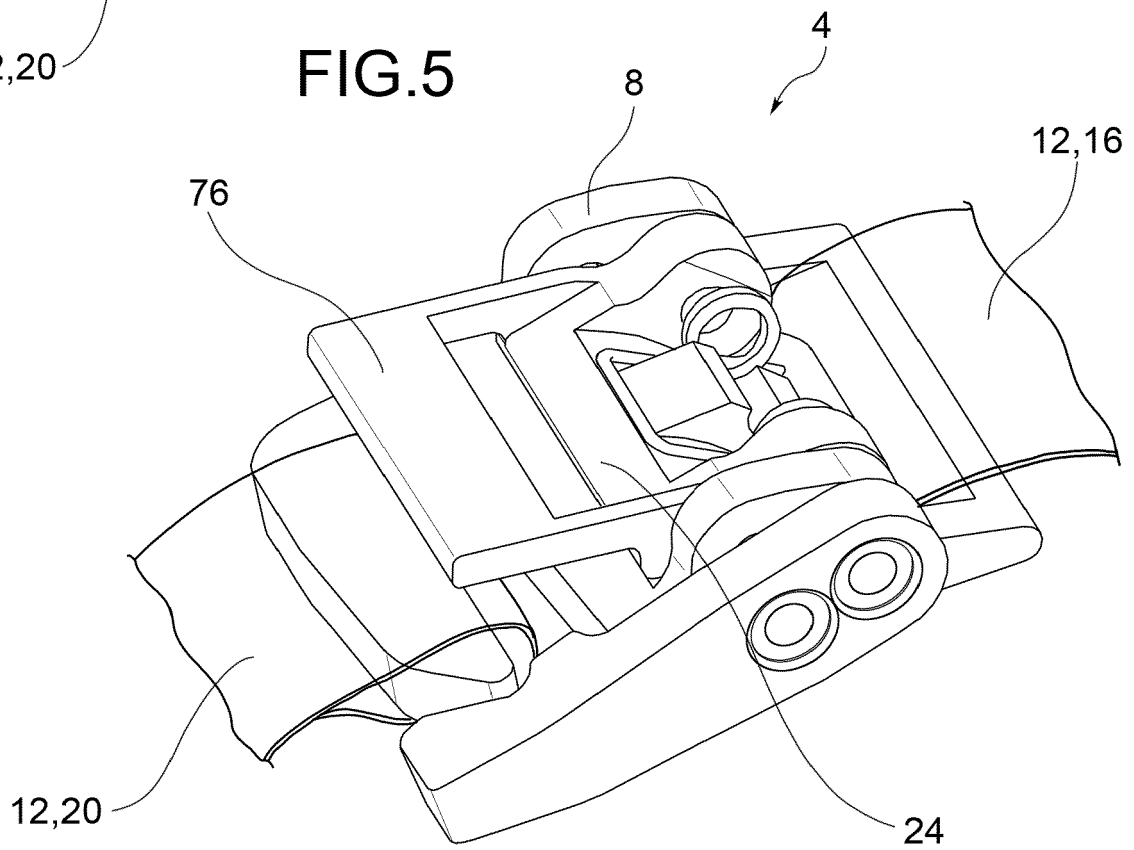
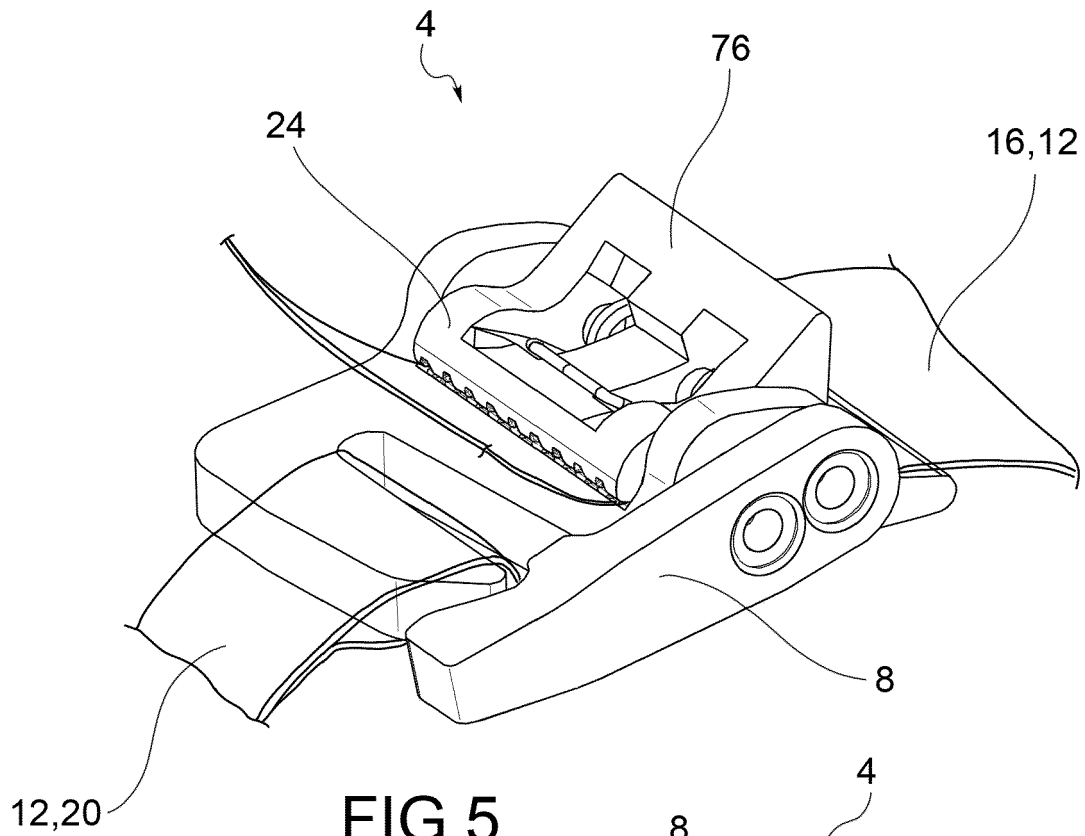


FIG. 6

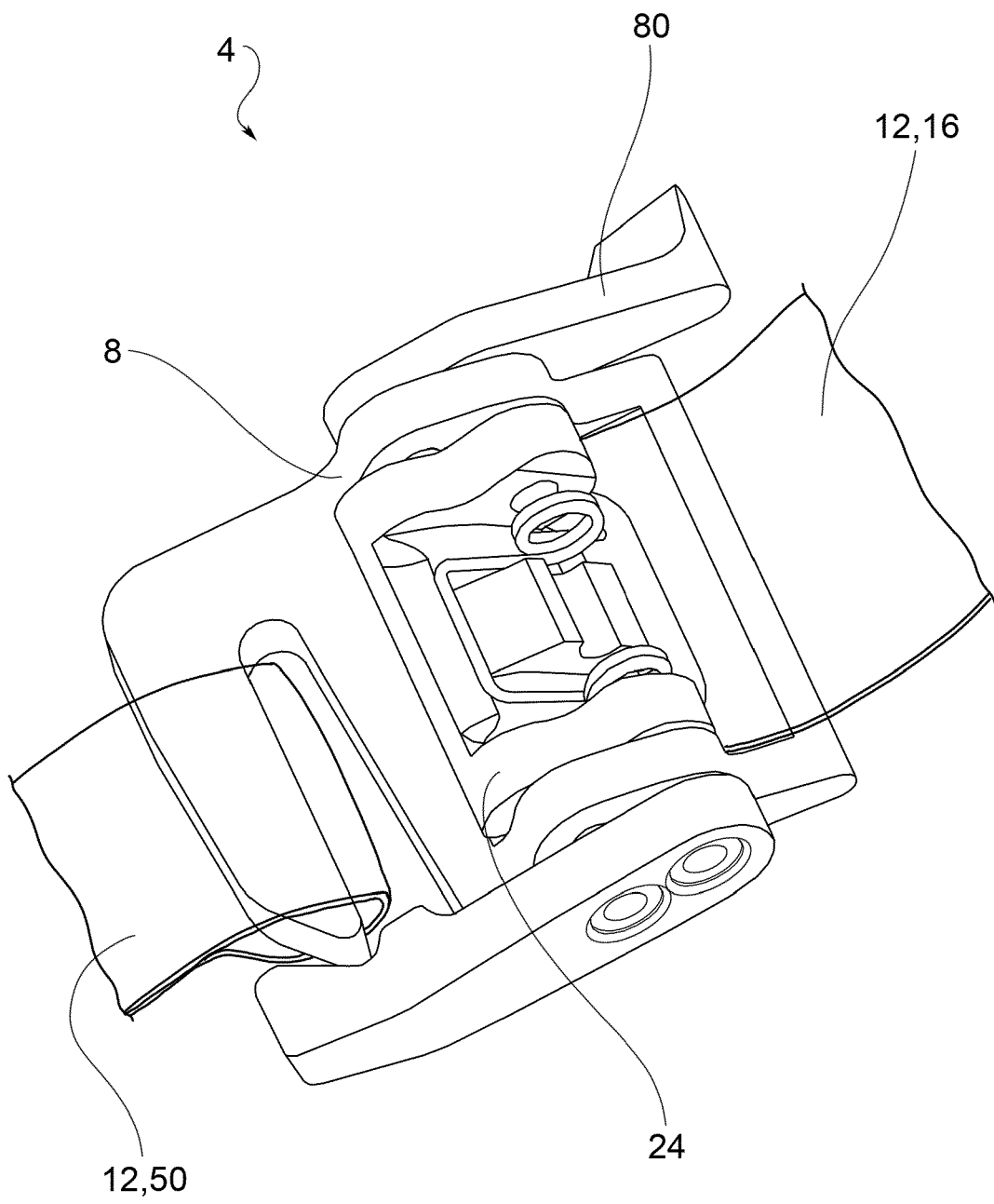


FIG.7



EUROPEAN SEARCH REPORT

Application Number

EP 22 17 4507

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	DE 103 13 390 A1 (LUEHMANN DIETER [DE]; MARTENS HORST [DE]) 21 October 2004 (2004-10-21) * figures 1a, 1b, 2 *	1-15	INV. A44B11/12 A43B5/04 A44B11/00
A	EP 2 978 635 B1 (TAKKINEN ESA [FI]) 6 May 2020 (2020-05-06) * figures 1a-c *	1-15	
A	FR 422 815 A (MARCEL ADOLPHE CLICHY [FR]) 31 March 1911 (1911-03-31) * figure 1 *	1-15	
A	US 7 051 407 B2 (HSU YU-LI [TW]) 30 May 2006 (2006-05-30) * figure 1 *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			A44B B29D A43B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		5 October 2022	van Voorst, Frank
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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05-10-2022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 10313390	A1	21-10-2004	NONE
EP 2978635	B1	06-05-2020	EP 2978635 A1
			03-02-2016
			FI 125037 B
			30-04-2015
			WO 2014154947 A1
			02-10-2014
FR 422815	A	31-03-1911	NONE
US 7051407	B2	30-05-2006	NONE