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(54) **Closure device, particularly for sports shoes**

Schliessvorrichtung, insbesondere für Sportschuhe

Dispositif de fermeture, en particulier pour chaussures de sport

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Description

[0001] The present invention relates to a closure device particularly for sports shoes.

[0002] In the field of sports shoes it is known to use closure devices which comprise levers adapted to allow the fastening of a first flap and a second flap, which constitute the shoe.

[0003] Levers are known which comprise a lever arm, which can be gripped by the user and is associated with a first flap to be joined, which is connected, by means of an interconnection element, to a ring or hook which interacts for example with the teeth of a rack or a strap or band with teeth, which can be associated with the second flap to be joined of the shoe.

[0004] The problem due to difficulty in opening and closing the lever owing to the limited length of the lever arm, to the fact that the user usually wears gloves and to the fact that sports activity occurs in low-temperature atmospheric conditions, which make it more difficult to handle the lever arm, is observed.

[0005] Italian patent No. 0000232825 is known which discloses a buckle for a shoe, particularly for ski boots, which comprises a base designed to be fixed on a boot part, a tensioning lever with two arms, which is articulated on this base by means of the ends of its arms, a first engagement element, which is designed to be fastened to a second engagement element which is fixed to another part of the shoe, and means for joining the first engagement element and the tensioning lever, such buckle being constituted by two telescopic parts.

[0006] In this solution, one of the two telescopic parts has adapted holes which provide two distinct mutual arrangement positions.

[0007] This solution has several drawbacks: extraction of one of the two telescopic parts is not easy, since it has to be performed by gripping it laterally by means of the thumb and index, so as to apply a vise-like pressure; moreover, the protrusion of one part with respect to the other is limited, thus making it awkward for the user to grip so as to open the lever.

[0008] Further, if the user grips the extracted part, trying to impart thereto a rotation in order to open the lever, the applied force tends to reposition the extracted part within the other part, so that the two telescopic parts tend to return to the initial position, thus voiding any practical usefulness.

[0009] This is observed both during opening and during closure of the lever.

[0010] Italian patent No. 1298824 is also known which is constituted by a lever, particularly for sports shoes, which comprises a lever arm which is rotatably associated, at a first end, with a support which is coupled to a flap of the shoe, an auxiliary grip lever for the user being associated or associable with the lever arm and being adapted to increase temporarily the useful length of the lever arm.

[0011] In this solution, the auxiliary lever, if it is not

distinct and therefore not associated with the lever arm, must be stored necessarily by the user, for example in a pocket, during sports practice, with the consequent possibility of losing it; in any case, interconnection with the lever arm is not easy, since sports activity usually occurs while wearing gloves and the seat for insertion in the lever arm is usually filled with snow or ice.

[0012] If the auxiliary lever is articulated to one end of the lever arm, a drawback is observed due to the fact that in order to perform closure, the user must lift the auxiliary lever, gripping it in a vise-like manner between the thumb and index finger until he can insert the palm of his hand under the auxiliary lever and then turn it in the closing direction.

[0013] This operation is awkward due to difficulty in gripping and due to the fact that sports activity is usually performed in atmospheric conditions that have very low temperatures, which make it even more difficult for the user to achieve grip.

[0014] Moreover, during use the auxiliary lever, rotated with respect to the lever arm, increases considerably the vertical space occupation during rotation steps.

[0015] Finally, this solution is applied during closure of the lever but not in the opening step as well.

[0016] The aim of the present invention is to solve the above mentioned technical problems, eliminating the drawbacks of the cited background art, by providing a closure device that allows to achieve both opening and closure of a lever rapidly and easily and with an effort containment that can be applied in both cases.

[0017] Within this aim, an object of the invention is to provide a closure device for sports shoes that can be activated easily even in the presence of snow on the lever arm.

[0018] Another object is to obtain a closure device for sports shoes that does not modify the vertical dimensions of the lever arm.

[0019] Another object is to obtain a closure device for sports shoes in which its activation and deactivation are easy for the user even if he is wearing gloves and even in low-temperature conditions.

[0020] Another object is to obtain a device which combines the above cited characteristics with those of being structurally simple and of having low production costs.

[0021] This aim and these objects, as well as others which will become better apparent hereinafter, are achieved by a closure device, particularly for sports shoes, which comprises a lever arm, which is coupled to a first flap of said shoe and articulated to an interconnection element for a means for engagement with a second flap of said shoe, **characterized in that** an extension is slidably associated with said lever arm, in contrast with elastically compressible means, and interacts selectively, in the fully extracted condition, with a temporary stop means.

[0022] Further characteristics and advantages of the invention will become better apparent from the following detailed description of a particular but not exclusive em-

bodiment thereof, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a view of the mutually assembled components present at the lever arm;
 Figure 2 is an exploded view of the components, with reference to Figure 1;
 Figure 3 is a top view of the device according to the invention, in which the extension is not extracted;
 Figure 4 is a side view of the device according to the invention;
 Figure 5 is a sectional view, taken along the line V-V of Figure 3;
 Figure 6 is a sectional view, taken along the line VI-VI of Figure 3;
 Figure 7 is a sectional view, taken along the line VII-VII of Figure 6;
 Figure 8 is a sectional view, taken along the line VI-II-VIII of Figure 6;
 Figure 9 is a sectional view, taken along the line IX-IX of Figure 6;
 Figure 10 is a sectional view, taken along the line X-X of Figure 6;
 Figure 11 is a bottom view of the components of the lever arm, in which a base has been omitted;
 Figure 12 is a top view of the device according to the invention in which the extension is extracted;
 Figure 13 is a sectional view, taken along the line XIII-XIII of Figure 12;
 Figure 14 is a sectional view, taken along the line XIV-XIV of Figure 12;
 Figure 15 is a sectional view, taken along the line XV-XV of Figure 14;
 Figure 16 is a sectional view, taken along the line XVI-XVI of Figure 14;
 Figure 17 is a sectional view, taken along the line XVII-XVII of Figure 14;
 Figure 18 is a sectional view, taken along the line XVIII-XVIII of Figure 14;
 Figures 19 to 22 are schematic views of the steps for opening and closing the lever.

[0023] In the exemplary embodiments that follow, individual characteristics, given in relation to specific examples, may actually be interchanged with other different characteristics that exist in other exemplary embodiments.

[0024] Moreover, it is noted that anything found to be already known during the patenting process is understood not to be claimed and to be the subject of a disclaimer.

[0025] With reference to the figures, the reference numeral 1 designates a closure device, particularly for sports shoes, which comprises a lever arm 2, which is associated rotatably, by means of a pair of first pivots 3 and 4, with a pair of first shoulders 5a, 5b, which protrude from a base 6 which is coupled to a first flap 7a of the shoe by means of a first rivet or screw 8.

[0026] The lever arm 2 is articulated, by means of a second pivot 9, to an end of an interconnection element 10, which at the other end is rotatably associated, for example by means of a pivot 11, with a first end 12 of a hook 13, which interacts selectively with the teeth of a rack 14 which can be associated, by means of a second rivet or screw 15, with a second flap 7b of the shoe.

[0027] The lever arm 2 has, in a lower region, a first central longitudinal seat 16, which is interposed between a pair of second longitudinal seats 17a, 17b, which accordingly are provided at the sides of the lever arm 2.

[0028] The arms 18a, 18b of an extension 19 are associated slidably within the pair of second longitudinal seats 17a, 17b, and the extension 19 is U-shaped so as to form a first base 20, which is slightly inclined away from the first flap 7a and protrudes beyond the front perimetric edge 21 of the lever arm 2.

[0029] The extension 19 is preferably made of steel wire and interacts with elastically compressible means constituted by a pair of first springs 22a, 22b which are arranged coaxially to the arms 18a, 18b.

[0030] The pair of first springs 22a, 22b abuts at its ends at adapted protrusions 23a, 23b, which protrude proximate to one end of the pair of arms 18a, 18b and a wall 24 of a pair of tabs 25a, 25b which protrude downward along the sides of the lever arm 2 proximate to the front perimetric edge 21.

[0031] The protrusions 23a, 23b are also designed to trap the extension 19 with respect to the lever arm 2 and at the same time leave the extension 19 free to move in the two directions which are longitudinal with respect to the lever arm 2.

[0032] Each one of the pair of tabs 25a, 25b is provided with holes to allow the arrangement of a third pivot 26, which is arranged transversely to the lever arm 2 in a region that lies below the pair of arms 18a, 18b.

[0033] A second substantially V-shaped spring 27 is arranged coaxially to the third pivot 26 and has an end which interacts with the lower surface of the lever arm 2 in the region of the first longitudinal seat 16 and the other end which interacts with a temporary stop means for the extension 19.

[0034] Such means is constituted by a pawl 28, which is U-shaped in plan view so as to form a second base 29, which is flat and tapers slightly at the tip in the direction of the base 6, and from which two wings 30a, 30b protrude which have a tip 31a, 31b shaped like a slider, which is slightly arc-like with the concavity directed toward the base 6.

[0035] Two second shoulders 32a, 32b protrude at right angles laterally and externally to the pair of wings 30a, 30b and are conveniently provided with holes for rotary interconnection with the second pivot 9.

[0036] The slider-shaped tips 31a, 31b lie in a region located above adapted openings 33a, 33b formed on the underlying base 6.

[0037] The operation of the closure device of the invention therefore entails that the user extracts the exten-

sion 19 by simply placing a finger at the first base 20, which is slightly inclined away from the first flap 7a; once the extension 19 has been extracted, even if it is drawn back continuously by the compression of the pair of first springs 22a, 22b, it remains firmly extended, since its retraction is contrasted by the pawl 28, the second base 29 of which is drawn counterclockwise by the second spring 27 toward the inside of the lever arm 2, arranging itself against the end of the arms 18a, 18b.

[0038] The extension 19 can be retracted manually by compressing the tips 31a, 31b of the pawl 28 on the opposite side with respect to the base 6.

[0039] The extension 19 is retracted automatically whenever the lever is closed, in view of the interaction of the tips 31a, 31b with the base 6.

[0040] In the step shown in Figure 19, existing friction, due to the force imparted by the user, keeps the extension extracted, overcoming the force of the first springs 22a, 22b up to the arrangement shown in Figure 21, in which locking with the pawl 28 occurs again.

[0041] It has thus been found that the invention has achieved the intended aim and objects, a device having been devised which allows to obtain both the opening and the closure of a lever rapidly and easily and with a containment of the effort that can be applied in both cases, the device being activatable even in the presence of snow on the lever arm.

[0042] The lever arm can thus be extended functionally by extraction of the extension at will on the part of the user both during closure and during the opening of the lever, reducing the effort both during opening and during closure.

[0043] Once the extension has been extracted, it is retained firmly externally with respect to the lever arm by the pawl, which hinders its retraction, while once it is extracted the extension requires no further maneuvers and is therefore immediately ready to be gripped with the palm of the hand in order to facilitate closure of the lever or to be gripped with the index finger in order to facilitate the opening of the lever.

[0044] The overall thickness of the lever is low, because the extension is arranged in a central space of the lever arm that is normally unused.

[0045] Since the extension can be made for example of steel wire, it is possible to achieve a scarcely visible aesthetic impact.

[0046] The materials and the dimensions that constitute the individual components of the invention may of course be more pertinent according to specific requirements.

[0047] The various means for performing certain different functions need not certainly coexist only in the illustrated embodiment but can be present per se in many embodiments, including ones that are not illustrated.

[0048] The characteristics indicated as advantageous, convenient or the like may also be omitted or be replaced with equivalents.

[0049] Where technical features mentioned in any

claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A closure device (1), particularly for sports shoes, comprising a lever arm (2), which is adapted to be coupled to a first flap (7a) of a shoe and articulated to an interconnection element (10) for a means for engagement with a second flap (7b) of said shoe, **characterized in that** an extension (19) is slidingly associated with said lever arm (2), in contrast with elastically compressible means, and interacts selectively, in the fully extracted condition, with a temporary stop means.
2. The device according to claim 1, **characterized in that** said lever arm (2) is provided, in a lower region, with a first central longitudinal seat (16), which is interposed between a pair of second longitudinal seats (17a, 17b), arms (18a, 18b) of the extension (19) being associated slidingly within said pair of second longitudinal seats (17a, 17b), said extension (19) being U-shaped so as to form a first base (20), which is slightly inclined away from the first flap (7a) and protrudes beyond the front perimetric edge (21) of said lever arm (2), said extension (19) being preferably made of steel wire.
3. The device according to claims 1 and 2, **characterized in that** said extension (19) interacts with elastically compressible means, which are constituted by a pair of first springs (22a, 22b), which are arranged coaxially to the arms (18a, 18b), said pair of first springs (22a, 22b) abutting at its ends at adapted protrusions (23a, 23b), which protrude proximate to one end of said pair of arms (18a, 18b) and at a wall (24) of a pair of tabs (25a, 25b), which protrude downward along the sides of said lever arm (2) proximate to the front perimetric edge (21), said protrusions (23a, 23b) trapping said extension (19) with respect to said lever arm (2) and at the same time leaving said extension (19) free to move in both longitudinal directions with respect to said lever arm (2).
4. The device according to claims 1 and 3, **characterized in that** each one of said pair of tabs (25a, 25b) is provided with holes so as to allow the arrangement of a third pivot (26), which is arranged transversely to said lever arm (2) in a region that lies below said pair of arms (18a, 18b), a second substantially V-shaped spring (27) being arranged coaxially to said third pivot (26) and having an end which interacts

with the lower surface of said lever arm (2) in the region of said first longitudinal seat (16) and another end which interacts with a means for temporarily stopping said extension (19).

5. The device according to claims 1 and 4, **characterized in that** said temporary stop means for said extension (19) is constituted by a pawl (28), which is U-shaped in plan view so as to form a second base (29), which is flat and tapers slightly at the tip in the direction of the base (6) and from which two wings (30a, 30b) protrude which have a slider-shaped tip (31 a, 31 b), and is slightly arclike, with the concavity directed toward the base (6).
6. The device according to claims 1 and 5, **characterized in that** two second shoulders (32a, 32b) protrude at right angles laterally and externally to said pair of wings (30a, 30b) and are conveniently provided with holes for rotary interconnection to the second pivot (9), said slider-shaped tips (31a, 31b) being arranged in a region that lies above adapted openings (33a, 33b) provided in said underlying base (6).
7. The device according to one or more of claims 4 to 6, **characterized in that** once said extension (19) has been extracted from said lever arm (2), it is drawn back continuously by the compression of said pair of first springs (22a, 22b) but remains extended because its retraction is contrasted by said pawl (28), whose second base (29) is drawn back so as to rotate counterclockwise by said second spring (27) toward the inside of said lever arm (2), arranging itself against the end of said arms (18a, 18b).
8. The device according to claims 1 and 7, **characterized in that** said extension (19) can be retracted manually by compressing said tips (31a, 31 b) of said pawl (28) on the opposite side with respect to said base (6).
9. The device according to claims 1 and 8, **characterized in that** said extension (19) is retracted automatically whenever said tips (31a, 31 b) interact with said base (6).
10. The device according to claim 3, **characterized in that** during the step for opening said lever arm the friction that exists, due to the force imparted by the user, between said extension (19) and said second longitudinal seats (17a, 17b) keeps said extension extracted, overcoming the force of said first pair of springs (22a, 22b).

Patentansprüche

1. Eine Schließvorrichtung (1), insbesondere für Sport-

schuhe, die einen Hebelarm (2) umfasst, der ausgebildet ist, um mit einer ersten Lasche (7a) eines Schuhs gekoppelt und gelenkig mit einem Verbindungselement (10) für ein Mittel für den Eingriff mit einer zweiten Lasche (7b) des Schuhs verbunden zu werden, **dadurch gekennzeichnet, dass** eine Verlängerung (19), im Kontrast zu elastisch komprimierbaren Mitteln, verschiebbar mit dem Hebelarm (2) verbunden ist und im vollständig herausgezogenen Zustand selektiv mit einem temporären Anschlagmittel zusammenwirkt.

2. Die Vorrichtung gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der Hebelarm (2) in einem unteren Bereich mit einem ersten zentralen Längssitz (16) versehen ist, der zwischen einem Paar zweiter Längssitze (17a, 17b) angeordnet ist, wobei Arme (18a, 18b) der Verlängerung (19) verschiebbar innerhalb des Paares zweiter Längssitze (17a, 17b) verbunden sind und die Verlängerung (19) U-förmig ist, um so eine erste Basis (20) zu bilden, die leicht von der ersten Lasche (7a) fort geneigt ist und über die vordere perimetrische Kante (21) des Hebelarms (2) hinausragt, wobei die Verlängerung (19) vorzugsweise aus Stahldraht besteht.
3. Die Vorrichtung gemäß Ansprüchen 1 und 2, **dadurch gekennzeichnet, dass** die Verlängerung (19) mit elastisch komprimierbaren Mitteln zusammenwirkt, die in einem Paar erster Federn (22a, 22b) bestehen, welche koaxial zu den Armen (18a, 18b) angeordnet sind, wobei das Paar erster Federn (22a, 22b) an seinen Enden an entsprechende Vorsprünge (23a, 23b) anstößt, die nahe einem Ende des Paares von Armen (18a, 18b) und an einer Wand (24) eines Paares von Nasen (25a, 25b) herausragen, welche entlang den Seiten des Hebelarms (2) nahe der vorderen perimetrischen Kante (21) nach unten ragen, wobei die Vorsprünge (23a, 23b) die Verlängerung (19) mit Bezug auf den Hebelarm (2) einschließen und gleichzeitig die Verlängerung (19) frei lassen, sich in beide Längsrichtungen mit Bezug auf den Hebelarm (2) zu bewegen.
4. Die Vorrichtung gemäß Anspruch 1 und 3, **dadurch gekennzeichnet, dass** jede des Paares von Nasen (25a, 25b) mit Löchern versehen ist, um so die Anordnung eines dritten Zapfens (26) zu ermöglichen, der transversal zu dem Hebelarm (2) in einem Bereich angeordnet ist, welcher unterhalb des Paares von Armen (18a, 18b) liegt, wobei eine zweite im Wesentlichen V-förmige Feder (27) koaxial zu dem dritten Zapfen (26) angeordnet ist und ein Ende hat, das mit der unteren Oberfläche des Hebelarms (2) im Bereich des ersten Längssitzes (16) zusammenwirkt, und ein anderes Ende, das mit einem Mittel zum vorübergehenden Anhalten der Verlängerung (19) zusammenwirkt.

5. Die Vorrichtung gemäß Anspruch 1 und 4, **dadurch gekennzeichnet, dass** das temporäre Anschlagmittel für die Verlängerung (19) in einer Klinke (28) besteht, die in der Grundrissansicht U-förmig ist, um so eine zweite Basis (29) zu bilden, die flach ist und sich an der Spitze in Richtung der Basis (6) leicht verjüngt und von der zwei Flügel (30a, 30b) abste-
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6. Die Vorrichtung gemäß Anspruch 1 und 5, **dadurch gekennzeichnet, dass** zwei zweite Schultern (32a, 32b) in rechten Winkeln seitlich und außerhalb des Paares von Flügeln (30a, 30b) herausragen und praktischerweise mit Löchern zur Drehverbindung mit dem zweiten Zapfen (9) versehen sind, wobei die schieberförmigen Spitzen (31a, 31b) in einem Bereich angeordnet sind, der über geeigneten Öff-
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7. Die Vorrichtung gemäß einem oder mehreren der Ansprüche 4 bis 6, **dadurch gekennzeichnet, dass**, sobald die Verlängerung (19) aus dem Hebelarm (2) gezogen wurde, sie kontinuierlich durch die Kompression des Paares erster Federn (22a, 22b) zurückgezogen wird, aber ausgefahren bleibt, weil die Klinke (28) ihrem Zurückziehen entgegenwirkt, deren zweite Basis (29) von der zweiten Feder (27) zum Inneren des Hebelarms (2) hin zurückgezogen wird, so dass sie sich gegen den Uhrzeigersinn dreht und gegen das Ende der Arme (18a, 18b) anordnet.
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8. Die Vorrichtung gemäß Anspruch 1 und 7, **dadurch gekennzeichnet, dass** die Verlängerung (19) durch ein Zusammendrücken der Spitzen (31a, 31b) der Klinke (28) auf der der Basis (6) gegenüberliegenden Seite manuell zurückgezogen werden kann.
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9. Die Vorrichtung gemäß Anspruch 1 und 8, **dadurch gekennzeichnet, dass** die Verlängerung (19) immer dann automatisch zurückgezogen wird, wenn die Spitzen (31a, 31b) mit der Basis (6) zusammen-
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10. Die Vorrichtung gemäß Anspruch 3, **dadurch gekennzeichnet, dass** während des Schritts zum Öffnen des Hebelarms die Reibung, die vorhanden ist, aufgrund der vom Benutzer ausgeübten Kraft, zwi-
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Revendications

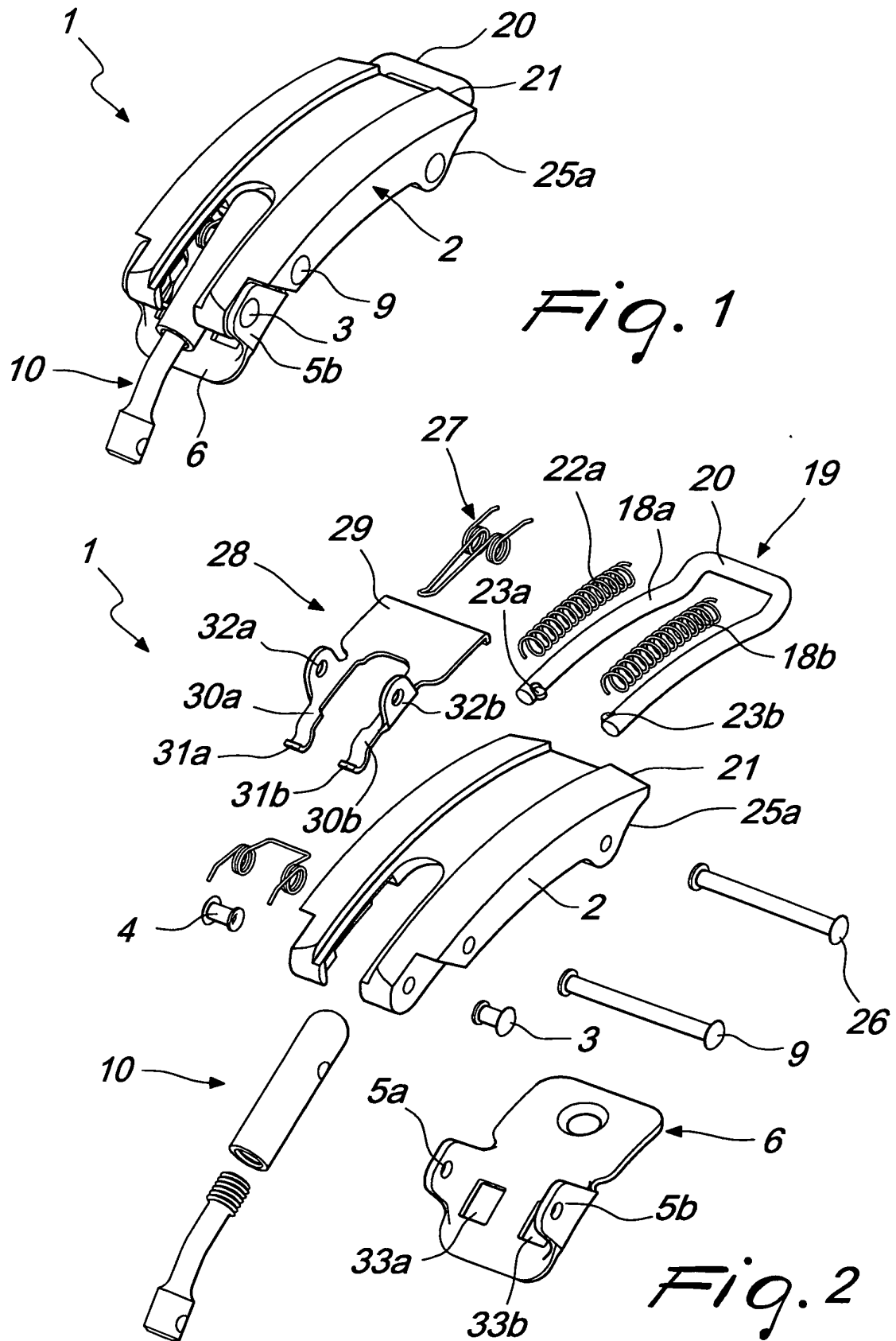
1. Dispositif de fermeture (1), en particulier pour chaus-
sures de sport, comprenant un bras de levier (2) qui
est adapté pour être couplé à un premier rabat (7a)
d'une chaussure et articulé par rapport à un élément
d'interconnexion (10) pour un moyen pour mise en
prise avec un second rabat (7b) de ladite chaussure,
caractérisé en ce qu'une extension (19) est asso-
ciée de manière coulissante avec ledit bras de levier
(2), en opposition avec des moyens élastiquement
compressibles, et interagit de manière sélective,
dans la condition complètement extraite, avec un
moyen de butée temporaire.
2. Dispositif selon la revendication 1, **caractérisé en
ce que** ledit bras de levier (2) comporte, dans une
région inférieure, un premier siège longitudinal cen-
tral (16) qui est intercalé entre une paire de seconds
sièges longitudinaux (17a, 17b), les bras (18a, 18b)
de l'extension (19) étant associés de manière cou-
lissante à l'intérieur de ladite paire de seconds siè-
ges longitudinaux (17a, 17b), ladite extension (19)
étant en forme de U afin de former une première
base (20) qui est légèrement inclinée à distance du
premier rabat (7a) et fait saillie au-delà du bord pé-
rimétral (21) dudit bras de levier (2), ladite extension
(19) étant de préférence réalisée à partir d'un fil
d'acier.
3. Dispositif selon les revendications 1 et 2, **caractéri-
sé en ce que** ladite extension (19) interagit avec des
moyens élastiquement compressibles qui sont cons-
titués par une paire de premiers ressorts (22a, 22b)
agencés de manière coaxiale par rapport aux bras
(18a, 18b), ladite paire de premiers ressorts (22a,
22b) venant en butée au niveau de ses extrémités
avec des saillies adaptées (23a, 23b) qui font saillie
à proximité d'une extrémité de ladite paire de bras
(18a, 18b) et au niveau d'une paroi (24) d'une paire
de languettes (25a, 25b) qui font saillie vers le bas
le long des côtés dudit bras de levier (2) à proximité
du bord périmétral avant (21), lesdites saillies (23a,
23b) piégeant ladite extension (19) par rapport audit
bras de levier (2) et laissant en même temps ladite
extension (19) libre de se déplacer dans les deux
directions longitudinales par rapport audit bras de
levier (2).
4. Dispositif selon les revendications 1 et 3, **caractéri-
sé en ce que** chacune de ladite paire de languettes
(25a, 25b) comporte des trous afin de permettre
l'agencement d'un troisième pivot (26), qui est agen-
cé de manière transversale par rapport audit bras
de levier (2) dans une région qui se trouve au-des-
sous de ladite paire de bras (18a, 18b), un second
ressort sensiblement en forme de V (27) étant agen-
cé de manière coaxiale par rapport audit troisième

pivot (26) et ayant une extrémité qui interagit avec la surface inférieure dudit bras de levier (2) dans la région dudit premier siège longitudinal (16) et une autre extrémité qui se termine avec un moyen pour arrêter temporairement ladite extension (19).

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17b), maintient ladite extension extraite, venant à bout de la force de ladite première paire de ressorts (22a, 22b).

5. Dispositif selon les revendications 1 et 4, **caractérisé en ce que** lesdits moyens de butée temporaires pour ladite extension (19) sont constitués par un cliquet (28) qui est en forme de U vu en plan afin de former une seconde base (29), qui est plate et se rétrécit légèrement progressivement au niveau de la pointe dans la direction de la base (6) et à partir de laquelle font saillie deux ailes (30a, 30b) qui ont une pointe en forme de glissière (31a, 31b) et est légèrement en forme d'arc avec la concavité dirigée vers la base (5). 10
6. Dispositif selon les revendications 1 et 5, **caractérisé en ce que** deux seconds épaulements (32a, 32b) font saillie latéralement en angle droit et extérieurement par rapport à ladite paire d'ailes (30a, 30b) et comportent classiquement des trous pour l'interconnexion rotative par rapport au deuxième pivot (9), lesdites pointes en forme de glissière (31a, 31b) étant agencées dans une région qui se trouve au-dessus d'ouvertures adaptées (33a, 33b) prévues dans ladite base sous-jacente (6). 15 20 25
7. Dispositif selon une ou plusieurs des revendications 4 à 6, **caractérisé en ce qu'**une fois que ladite extension (19) a été extraite dudit bras de levier (2), elle est retirée de manière continue par la compression de ladite paire de premiers ressorts (22a, 22b), mais reste étendue parce que sa rétraction est contrariée par ledit cliquet (28), dont la seconde base (29) est retirée afin d'être entraînée à tourner en rotation dans le sens inverse des aiguilles d'une montre par ledit second ressort (27) vers l'intérieur dudit bras de levier (2) agencé lui-même contre l'extrémité desdits bras (18a, 18b). 30 35 40
8. Dispositif selon les revendications 1 et 7, **caractérisé en ce que** ladite extension (19) peut être rétractée manuellement en comprimant lesdites pointes (31a, 31b) dudit cliquet (28) sur le côté opposé par rapport à ladite base (6). 45
9. Dispositif selon les revendications 1 et 8, **caractérisé en ce que** ladite extension (19) est rétractée automatiquement chaque fois que lesdites pointes (31a, 31b) interagissent avec ladite base (6). 50
10. Dispositif selon la revendication 3, **caractérisé en ce que** pendant l'étape consistant à ouvrir ledit bras de levier, la friction qui existe en raison de la force communiquée par l'utilisateur, entre ladite extension (19) et lesdits seconds sièges longitudinaux (17a, 55



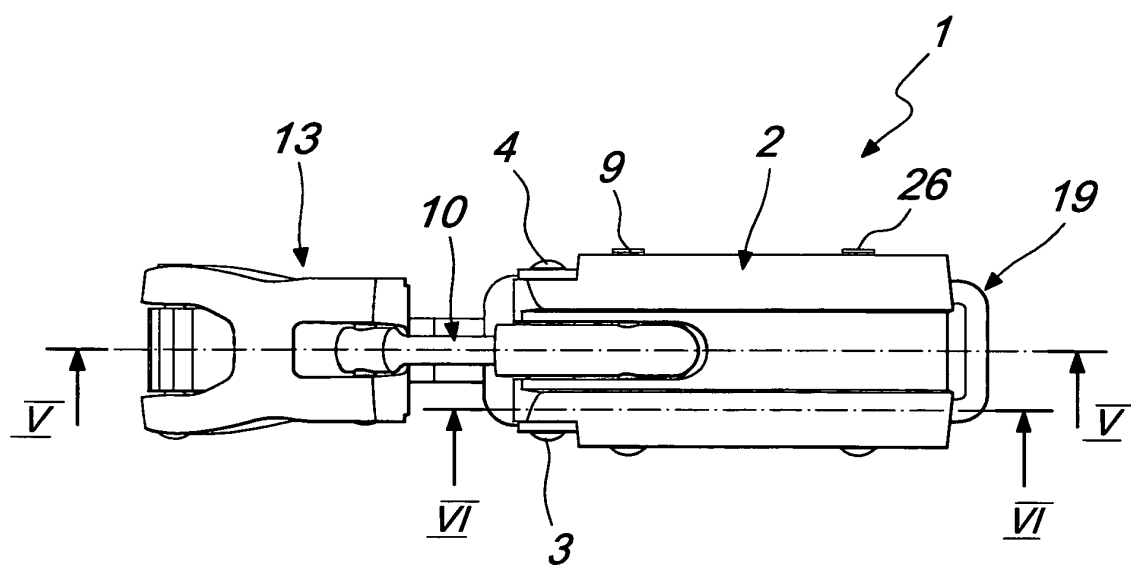


Fig. 3

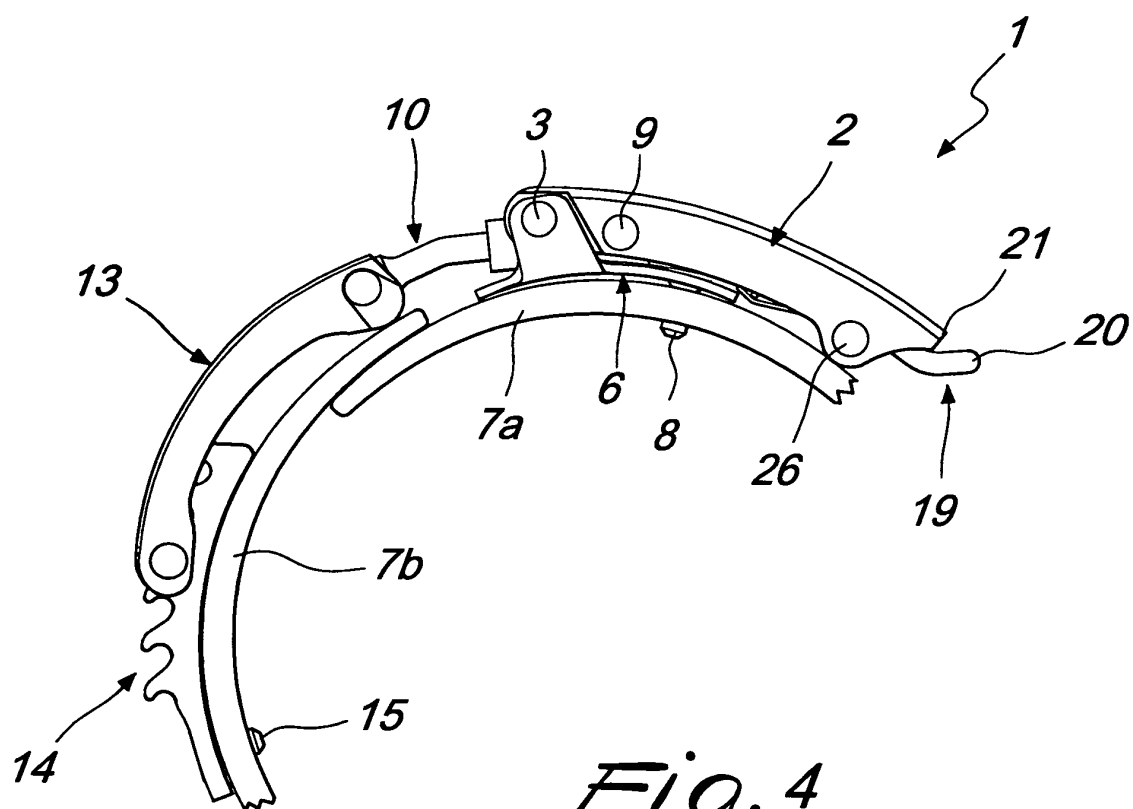
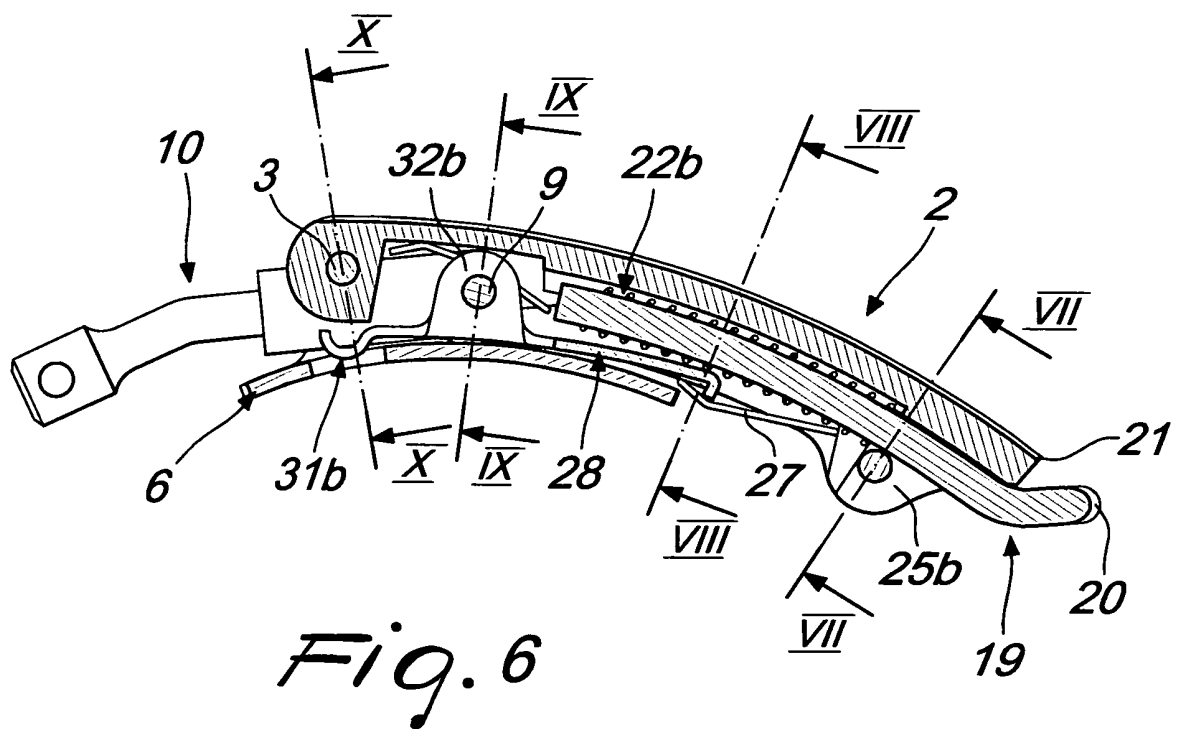
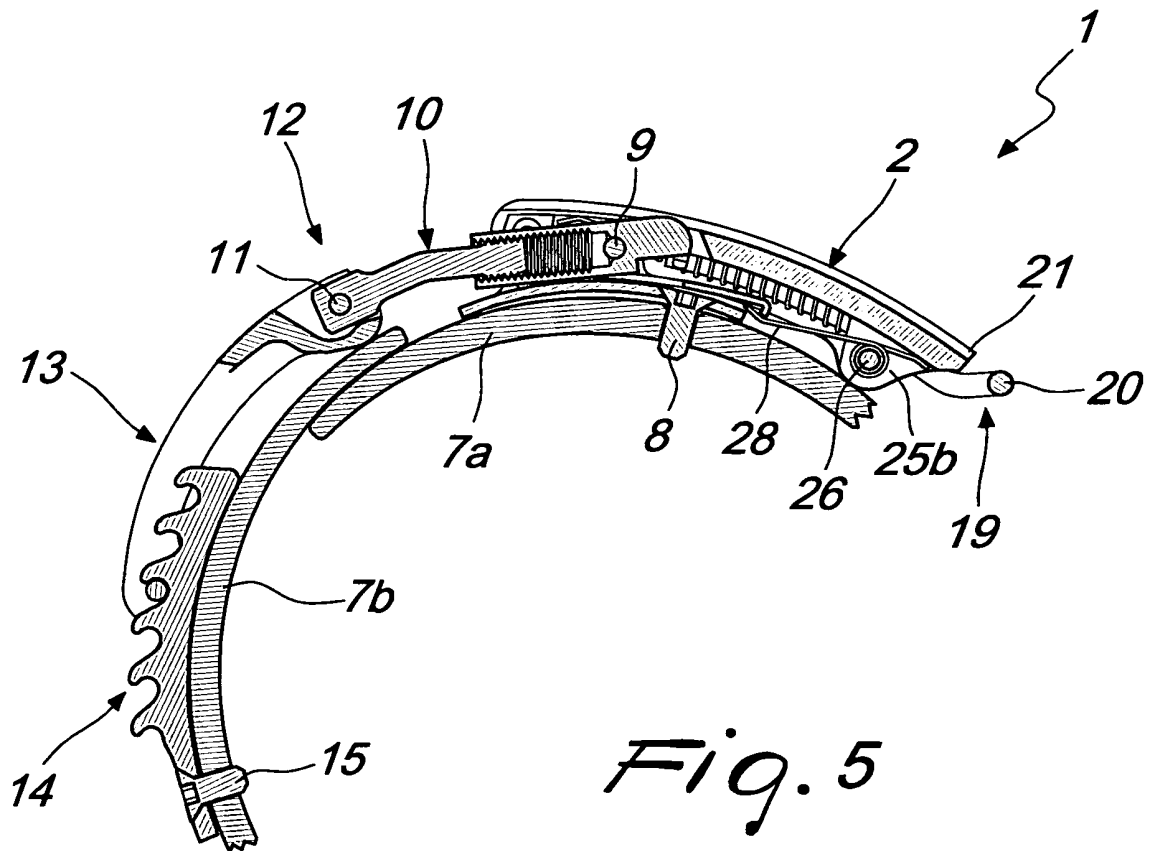


Fig. 4



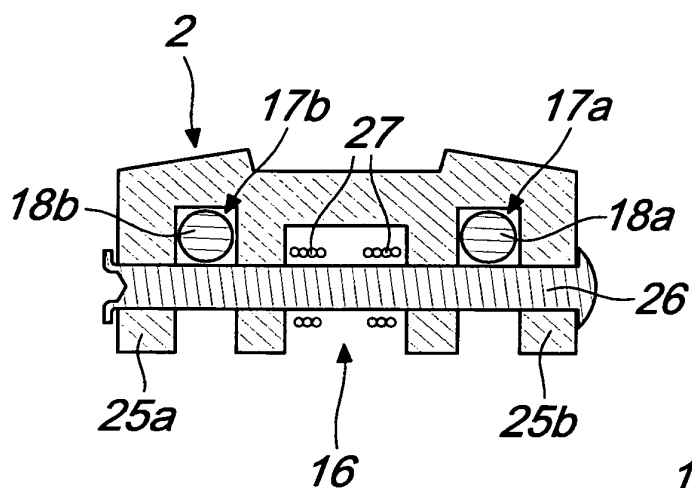


Fig. 7

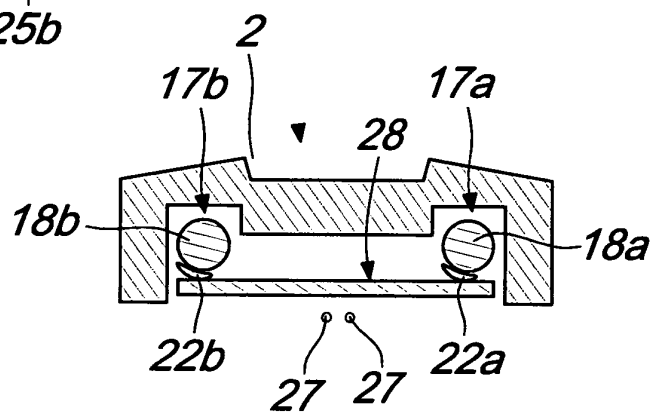


Fig. 8

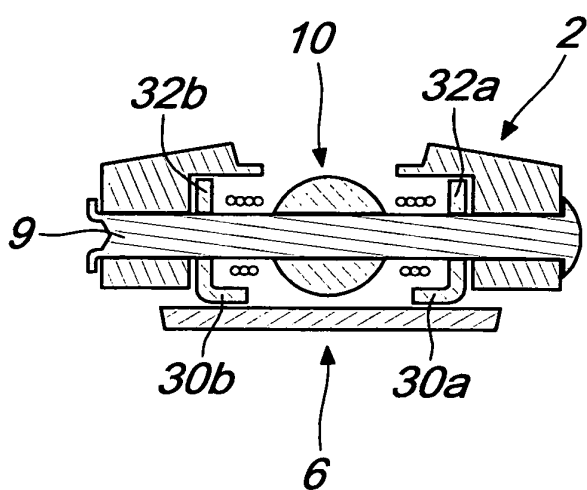
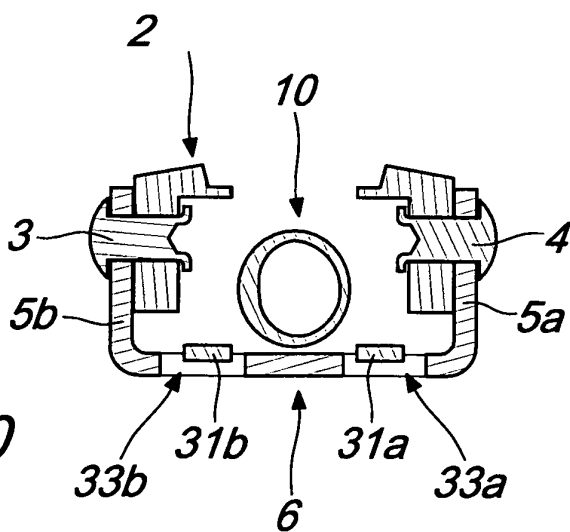


Fig. 9

Fig. 10



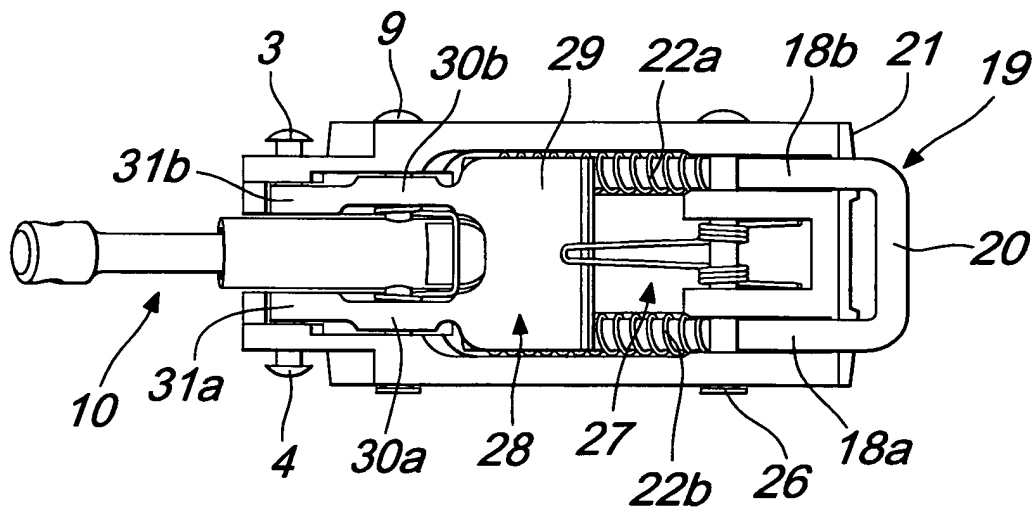


Fig. 11

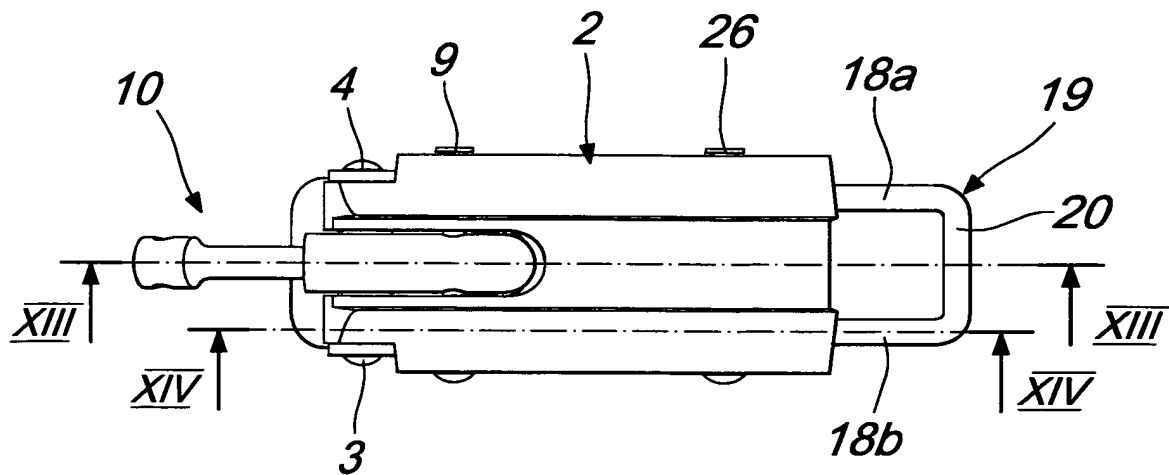
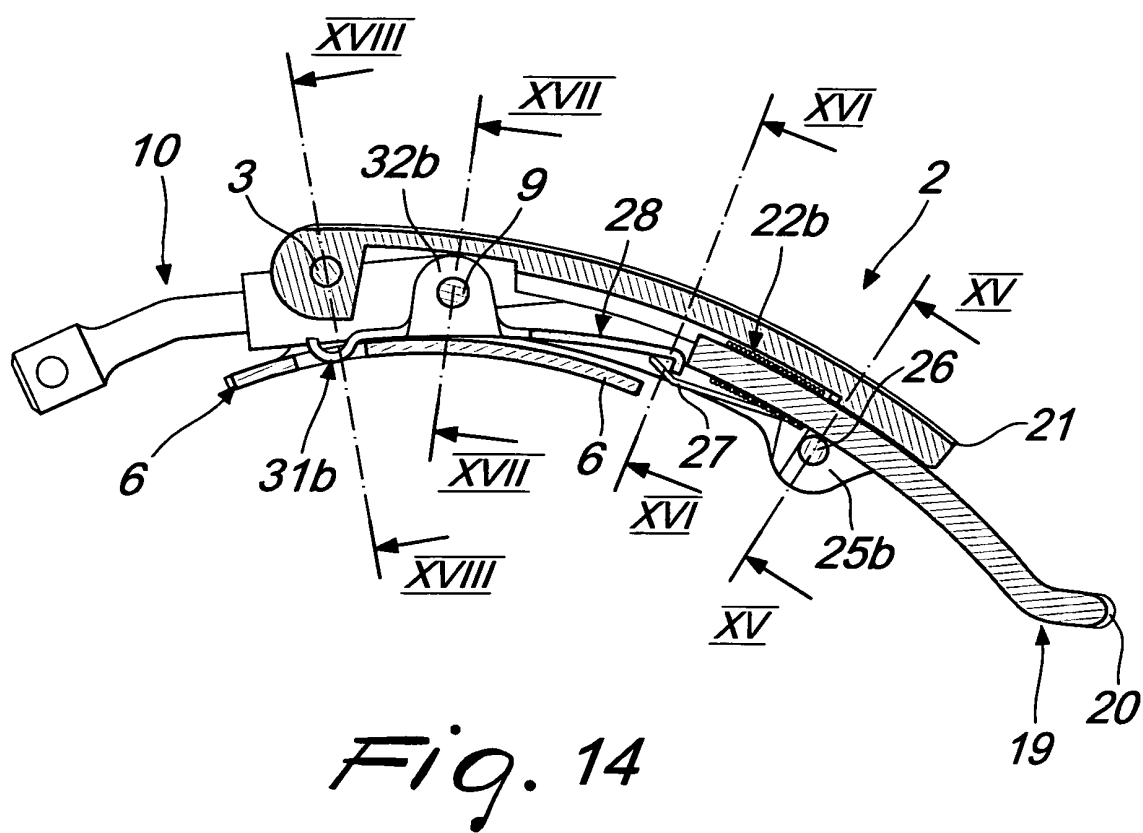
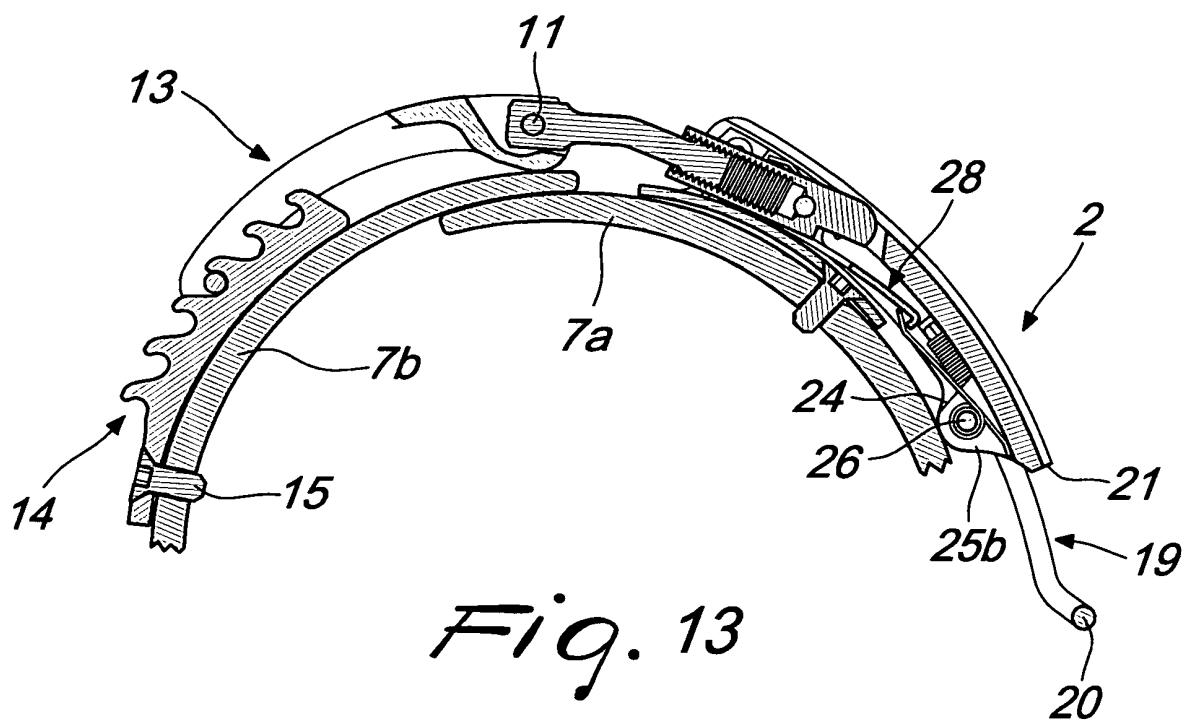


Fig. 12



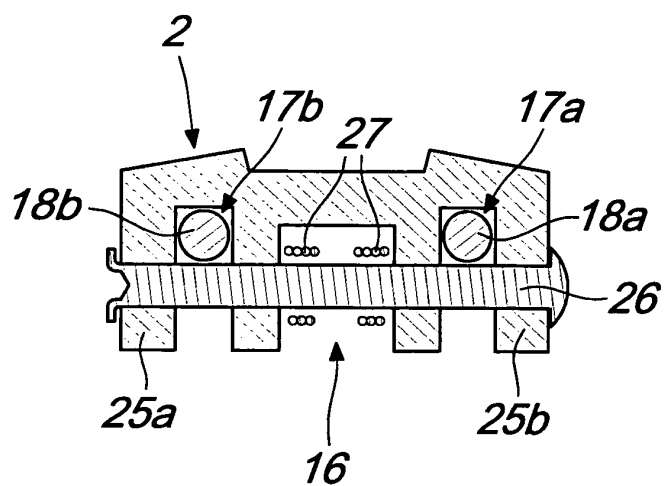


Fig. 15

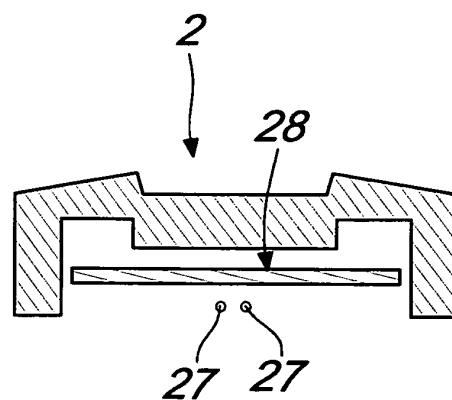


Fig. 16

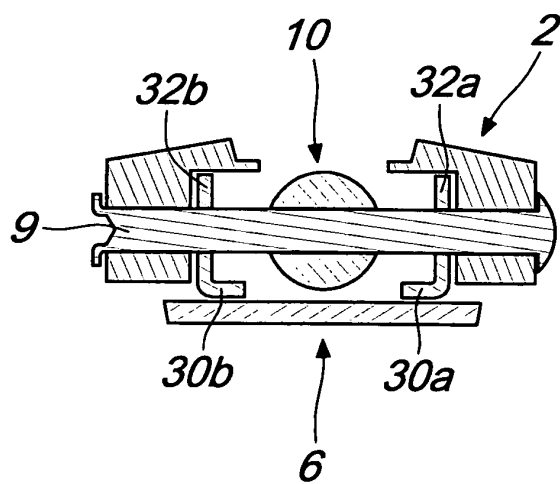


Fig. 17

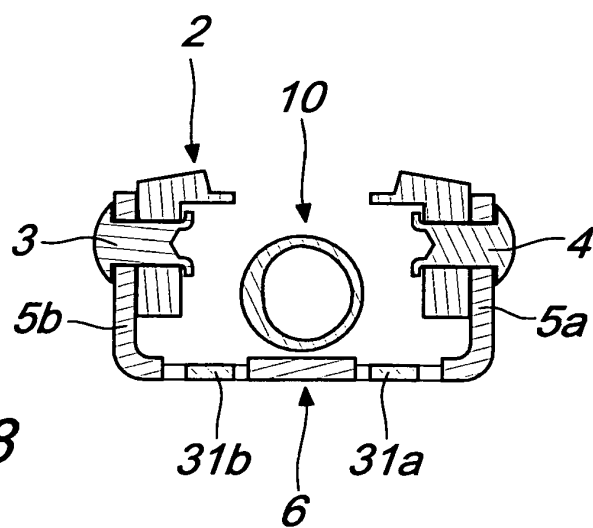
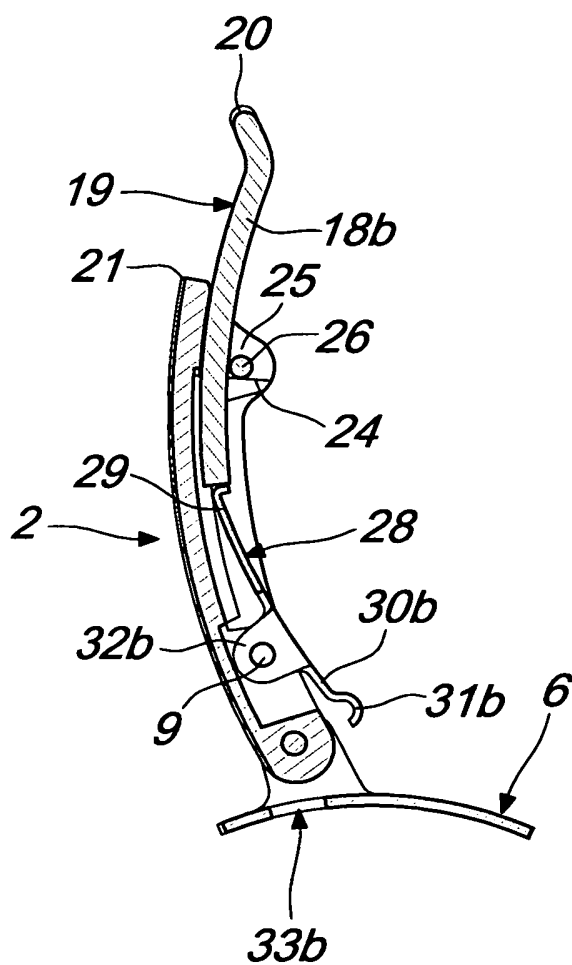
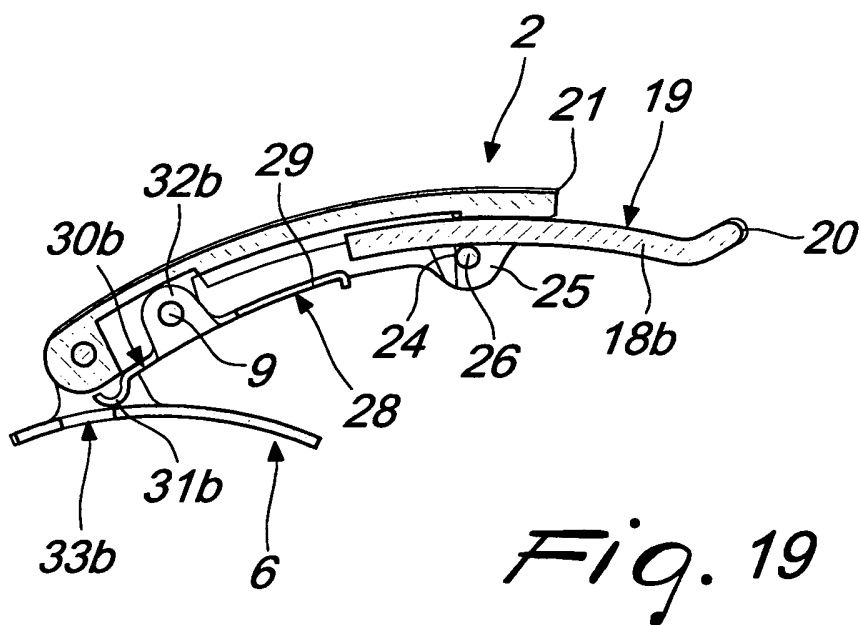


Fig. 18



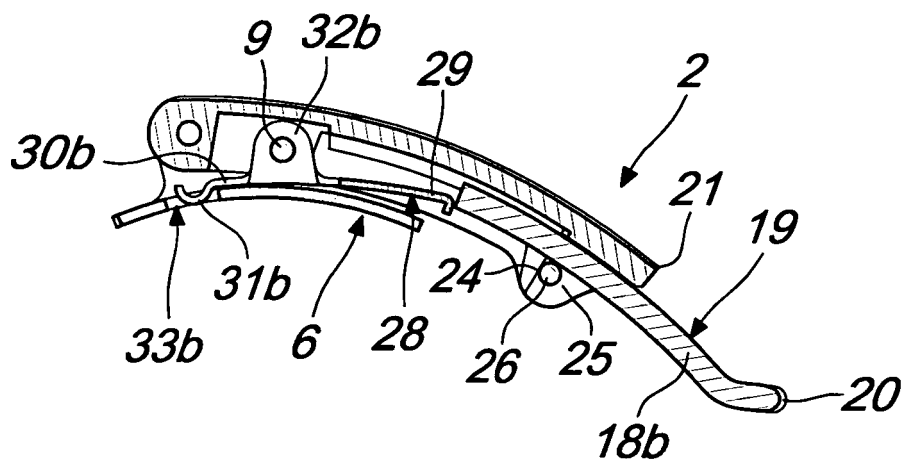


Fig. 21

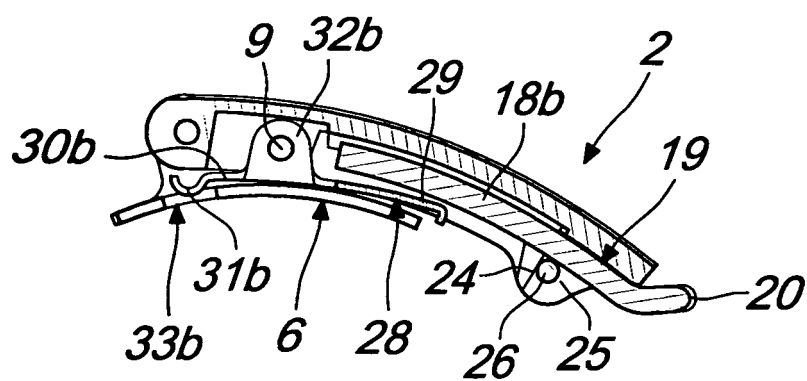


Fig. 22

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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