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(54) **Antipanic handle for right- or left-swing doors**

Antipanicstange für links oder rechts drehende Türen

Barre anti-panique pour portes pivotant à gauche ou à droite

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(73) Proprietor: **CISA S.p.A.**
48018 Faenza RA (IT)

(72) Inventor: **Errani Rodolfo**
98000 Monaco (MC)

(74) Representative: **Modiano, Micaela Nadia et al**
Dr. Modiano & Associati SpA
Via Meravigli 16
20123 Milano (IT)

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Description

[0001] The present invention relates to an antipanic handle that can be adapted to right- or left-swing doors.

[0002] Most currently commercially available antipanic handles are manufactured for the specific type of door on which they are to be installed; accordingly, a handle manufactured for a right-swing door cannot be installed on a left-swing door. This fact causes availability problems at dealers, who must have a supply of both handle types in order to meet user requirements.

[0003] Document EP 0404609 discloses an antipanic handle adaptable for both right and left-swing doors.

[0004] The aim of the present invention is to provide an alternative handle that can obviate the above noted drawbacks, i.e. allows, with simple maneuvers, to preset it selectively for opening doors to the right or to the left.

[0005] Within this aim, an object of the present invention is to provide a handle that has a simple structure and therefore a relatively low cost and is safe and effective in operation.

[0006] Another object of the present invention is to provide a handle in which the parts of the transfer device that are subjected to the greatest mechanical stresses can be easily removed as a single block and replaced with other intact ones.

[0007] This aim is achieved with an antipanic handle that can be adapted selectively to right- or left-swing doors, according to the invention, which has the features set forth in claim 1. Advantageously, the handle is composed of a bar that connects two levers that are articulated about a same axis and actuate respectively a door closure lock and a device for the elastic transfer of said bar between an inactive position and a lock activation position, wherein said transfer device comprises: a pivot, which rotates rigidly with the lever associated with said transfer device and is provided with two radial abutments; a helical spring, which is wound on said pivot and is provided with two opposite end portions that are shaped so as to engage on said abutments; a stop element, which can be engaged by said end portions; a pin, which can slide parallel to said pivot; and elastic means, which are suitable to insert said pin optionally in one of two slots formed in said lever concentrically to said pivot and symmetrically with respect to a neutral position of said lever, so that by rotating the lever in one direction or the other said end portions abut respectively against an abutment of said pivot and against said stop element, the lever is elastically preloaded, and therefore the pin engages in one of said slots so as to keep the lever preloaded in the chosen direction and movable in contrast with the transfer action of said spring.

[0008] Further characteristics and advantages of the invention will become better apparent from the following detailed description of a preferred but not exclusive embodiment of a handle, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a handle without the housings of the lock and of the transfer device; Figure 2 is an enlarged-scale view of the bar transfer device;

Figure 3 is a front view of the transfer device and of the lever associated therewith;

Figure 4 is a sectional view, taken along the line IV-IV of Figure 3;

Figure 5 is a view of the inner face of the lever;

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 VIII-VIII of Figure 7;

Figure 9 is a rear view, with split extension lines, of the transfer device and of the corresponding lever;

Figure 10 is a sectional view, taken along the line X-X of Figure 9.

[0009] With reference to the figures, the reference numeral 1 generally designates an antipanic handle composed of an actuation bar 2, with the opposite ends of which two levers 3 and 4 are rigidly coupled for the actuation of the lock 5 and of the transfer device 6 respectively. The lock 5 and the transfer device 6 are shown without their housing for the sake of clarity.

[0010] The illustrated handle is provided for right-swing doors, i.e., doors that open by rotating about hinges arranged on the right.

[0011] As clearly shown, the bar 2, in order to ensure comfortable and safe actuation on the part of users, must be preset so that it can rotate downward, and its return to the neutral position is determined by the elastic means provided in the transfer device 6, which by means of the lever 4 and the bar 2 lift the lever 3 in order to rearm the lock 5.

[0012] If the described handle were used for a left-swing door, it would be necessary to overturn the handle, with the result that the bar 2 would be directed upward, in a position that is not suitable for lowering it. The present invention provides a refinement of the transfer device 6 which, during assembly of the handle, allows to return the bar 2 to the lowered condition regardless of the direction in which the door opens.

[0013] The transfer device according to the invention comprises a base 7, which is mirror-symmetrical with respect to a centerline plane and from which a U-shaped element rises; the U-shaped element is composed of two parallel walls 8 and 9 connected by a wall 10. The walls 8, 9, 10 are perpendicular to the base 7, and the stem 11 of the lever 4 (see Figure 3) is accommodated inside the wall 10 so that it can rotate about the axis A.

[0014] A support 12, shown more clearly in Figures 6-10, is fixed between the walls 8 and 9. The support 12 is composed of two substantially rectangular plates 13 and 14, which are mutually connected by two rods 15 and 16. The plates 13 and 14 rotatably support a pivot

17, which has, on the side directed toward the wall 10, a square cavity 17a in which a square extension of the stem 11 of the lever 4 is coupled rotationally. In order to fix the support 12 between the walls 8 and 9, the plate 14 has two side wings 14a and 14b, which are recessed in appropriate seats of the walls 8 and 9 and are folded at right angles in order to adhere and be fixed to them by virtue of screw means 14c.

[0015] The pivot 17 has, at its opposite ends, two radial sectors 18, 19 (see Figure 8), from which two abutments 20 and 21 protrude axially; said abutments are constituted by teeth that have a certain angular breadth with respect to the axis A.

[0016] A helical spring 22 is arranged on the pivot 17, between the radial sectors 18 and 19, and its end portions 23, 24 are folded radially outward in order to engage respectively against the tooth 20 and against the tooth 21. As shown more clearly in Figure 6, the end portions 23, 24 are mutually angularly offset, and an abutment element is arranged between them; the abutment element is constituted by a post 25, whose opposite ends are inserted in holes of the plates 13 and 14.

[0017] In a diametrically opposite position with respect to the post 25, the plates 13 and 14 have arc-like expansions in which there are two respective holes in which a pin 26 is guided; the pin protrudes from the wall 13 with a shank 27 that forms a shoulder 28 (see Figures 7 and 8). On the pin 26, between the shoulder 28 and the plate 13, there is an interposed pusher spring 29, which pushes the pin toward the lever 4. The movements of the pin 26 are limited by two rings 30 and 31, which are arranged on the portion of the pin 26 that lies between the plates 13 and 14.

[0018] When the ring 31 rests against the plate 13, the shank 27 engages in one of two slots 32, 33 formed in the opposite face of the lever 4. The slots have a preset angular extension and are arranged mirror-symmetrically with respect to the plane of symmetry of the lever 4.

[0019] Depending on which slot 32, 33 is engaged by the shank 27, the lever 4 is orientated so as to preset the handle 1 in the required door opening direction. Orientation of the lever is performed starting from a position, termed hereinafter neutral for the sake of convenience in description, in which the lever 4 is perpendicular to the base 7. In this position, the shank 27, by way of the action applied by the spring 29, rests on the region 34 (see Figure 5), which acts as a bridge between the slots 32 and 33. In this position, the pivot 17, coupled to the stem 11 of the lever 4, assumes an angular position in which the teeth 20, 21 are mutually opposite with respect to the pin 26 and the end portions 23, 24 of the spring 22 are arranged to the sides of the post 25.

[0020] Orientation of the lever 4 in order to preset the handle 1 for rightward opening of the door, as in the example shown in Figure 1, is performed by rotating the lever 4 until the shank 27, under the thrust of the spring 29, engages the slot 32. The rotation of the lever 4, however, causes a loading of the spring 22 that tends to return

the lever 4 to the neutral position but in practice keeps the lever 4 in a lowered position due to the abutment of the shank 27 against the end of the slot 32. The spring 22 is loaded, as shown more clearly in Figure 10, by virtue of the fact that by turning the lever 4 in the intended direction a portion 23 of the spring 22 stops against the post 25, while the other portion 24 is entrained by the tooth 20 through the angle required to provide the engagement of the shank 27 in the slot 32. The preloaded spring 22 keeps the handle 1 in the lowered inactive position, ready for actuation when the bar 2 is pushed against the door. During the oscillation of the bar 2, the shank 27 moves along the slot 32, producing a further loading of the spring 22 and the return of the bar 2 to the inactive position as soon as thrust thereon ceases.

[0021] If one wishes to preset the handle for opening a door to the left, the maneuvers are repeated in the above described manner, with the difference that the shank 27, starting from the idle position of the lever 4, is moved so as to engage the other slot 33. Accordingly, the end portion 24 engages against the post 25, while the other end portion 23 is turned by the tooth 20, so that the lever 4, due to the abutment of the shank 27 in the slot 33, assumes an orientation that is mirror-symmetrical with respect to the one described above and shown in Figure 1, which allows, by overturning the handle, to have the lock 5 on the right and the bar 2 in the correct pushing position.

[0022] As clearly shown, the described handle achieves perfectly the intended aim and objects. In particular, from a constructive and commercial standpoint, it offers the considerable advantage of being a single item for two kinds of application.

[0023] A considerable advantage of the described handle lies in the support 12. The support in fact constitutes a module that is easy to replace and can be removed easily after unscrewing the screws 14c and replaced with another identical one, for example if the spring 22 breaks.

[0024] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept. All the details may further be replaced with other technically equivalent elements.

[0025] In practice, the materials used, as well as the shapes and the dimensions, may be any according to requirements without thereby abandoning the scope of the invention as defined by the appended claims.

[0026] 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. An antipanic handle selectively adaptable to right- or left-swing doors, composed of a bar (2) that connects two levers (3, 4) that are articulated about a same axis and actuate respectively a door closure lock (5) and a device (6) for the elastic transfer of said bar (2) between an inactive position and a lock activation position, said transfer device comprising: a pivot (17), which rotates rigidly with the lever (4) associated with said transfer device (6); two radial abutments (20, 21); a helical spring (22), which is wound on said pivot (17) and is provided with two opposite end portions (23, 24) that are shaped so as to engage on said abutments (20, 21); **characterized in that** said two radial abutments (20, 21) are provided on said pivot (17), **and in that** the transfer device further comprises: a stop element (25), which can be engaged by said end portions (23, 24); a pin (26), which can slide parallel to said pivot (17); and elastic means (29), which are suitable to insert said pin (26) optionally in one of two slots (32, 33) formed in said lever (4) concentrically to said pivot (17) and symmetrically with respect to a neutral position of said lever (4), so that by rotating the lever (4) in one direction or the other said end portions (23, 24) abut respectively against an abutment (21) of said pivot (17) and against said stop element (25), the lever (4) is elastically preloaded, and therefore the pin (26) engages in one (32) of said slots (32, 33) so as to keep the lever (4) preloaded in the chosen direction and movable in contrast with the transfer action of said spring (22).
2. The handle according to claim 1, **characterized in that** said radial abutments are constituted by two axial teeth (20, 21), which protrude in mutually opposite directions from radial sectors (18, 19) formed at the ends of said pivot (17).
3. The handle according to one of claims 1 and 2, **characterized in that** the ends (23, 24) of said pivot (17) are supported in two flat and parallel plates (13, 14), which are fixed to a base (7) and are mutually connected by rods (15, 16), the ends of a post (25) that constitutes said stop element being fixed to said plates (13, 14).
4. The handle according to claim 3, **characterized in that** said pin (26) for engagement in said slots (32, 33) protrudes from a said plate (13) with a shank (27) that forms a shoulder (28), on said pin (26), a pusher spring (29) being interposed between said shoulder (28) and said plate (13), said spring (29) actuating the pin (26) toward said lever (4) so as to engage in one of said slots (32, 33), the movements of the pin (26) being limited by two rings (30, 31) arranged on the portion of said pin (26) that lies between said

plates (13, 14).

5. The handle according to one of claims 3 and 4, **characterized in that** said plates (13, 14), said post (25), said pin (26) and said pivot (17) with the corresponding spring (22), supported in said plates (13, 14), constitute a module (12) that is interchangeably associated with a base (7) for the rotary support of said lever (4).

Patentansprüche

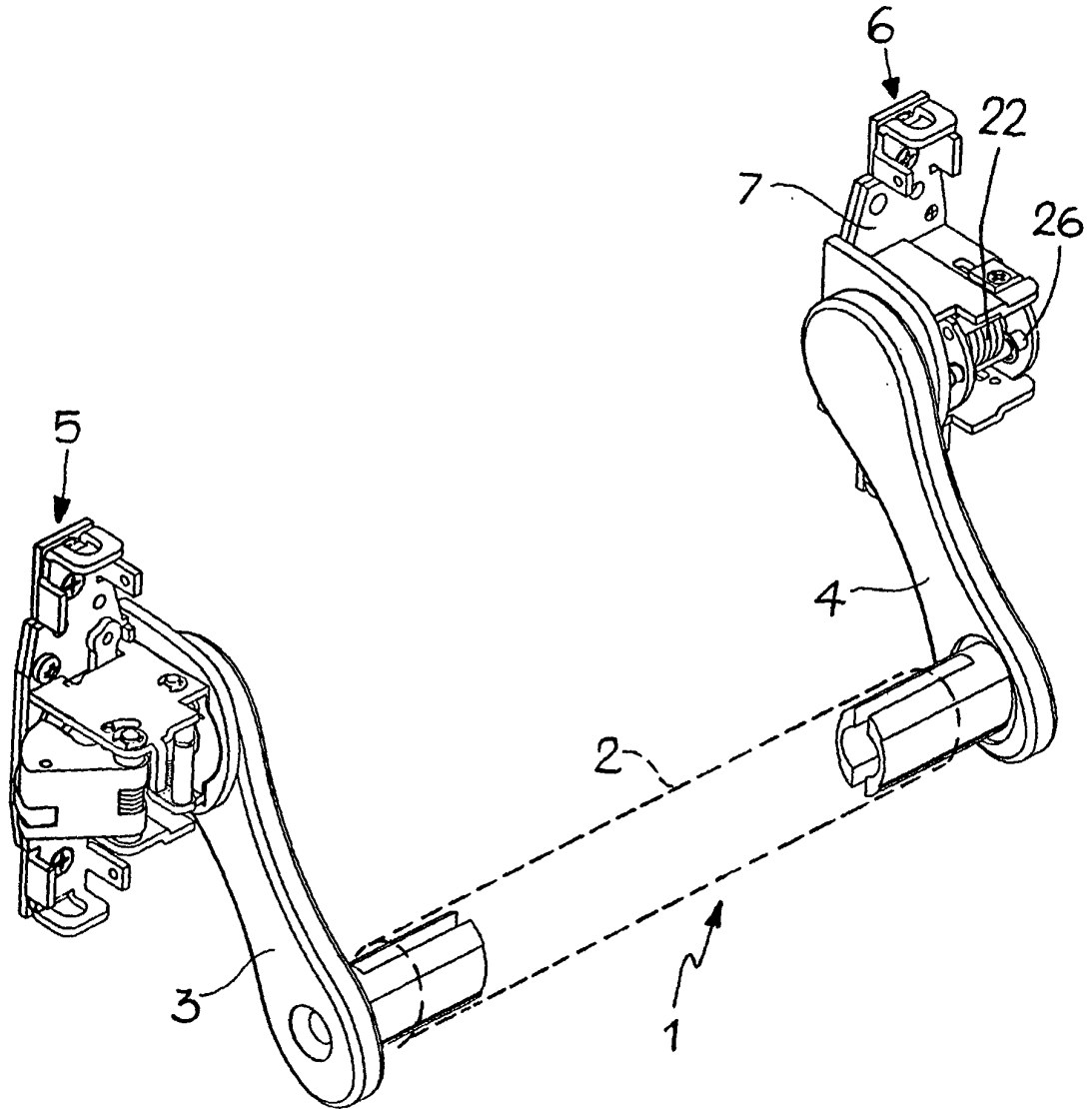
1. Eine Antipanikstange, selektiv anpassbar an rechts- oder linksdrehende Türen, bestehend aus einer Stange (2), die zwei Hebel (3, 4) verbindet, die gelenkig um eine selbe Achse angeordnet sind und die einen Türverschluss-Riegel (5) beziehungsweise eine Vorrichtung (6) zur elastischen Überführung der Stange (2) zwischen einer inaktiven Position und einer Riegel-Aktivierungsposition betätigen, wobei die Überführungsvorrichtung Folgendes umfasst: einen Drehzapfen (17), der sich starr verbunden mit dem Hebel (4) dreht, der mit der Überführungsvorrichtung (6) verknüpft ist; zwei radiale Widerlager (20, 21); eine Spiralfeder (22), die auf den Drehzapfen (17) gewickelt ist und mit zwei gegenüberliegenden Endabschnitten (23, 24) versehen ist, die geformt sind, um in die Widerlager (20, 21) einzugreifen; **dadurch gekennzeichnet, dass** die zwei radialen Widerlager (20, 21) am Drehzapfen (17) angebracht sind, und **dadurch**, dass die Überführungsvorrichtung weiter Folgendes umfasst: ein Anschlagselement (25), in das von den Endabschnitten (23, 24) eingegriffen werden kann; einen Stift (26), der parallel zum Drehzapfen (17) gleiten kann; und elastische Mittel (29), die geeignet sind, den Stift (26) wahlweise in einen von zwei Schlitz (32, 33) einzuführen, die geformt sind in dem Hebel (4) konzentrisch mit dem Drehzapfen (17) und symmetrisch zu einer neutralen Position des Hebels (4), so dass durch Drehen des Hebels (4) in eine oder die andere Richtung die Endabschnitte (23, 24) an ein Widerlager (21) des Drehzapfens (17) beziehungsweise an das Anschlagselement (25) anstoßen, wobei der Hebel (4) ist elastisch vorgespannt ist, und daher greift der Stift (26) in einen (32) der Schlitz (32, 33) ein, um den Hebel (4) in die gewünschte Richtung vorgespannt und entgegen der Übertragungswirkung der Feder (22) beweglich zu halten.
2. Die Stange gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die radialen Widerlager aus zwei axialen Zähnen (20, 21) bestehen, die in entgegengesetzten Richtungen aus radialen Abschnitten (18, 19) herausragen, welche an den Enden des Drehzapfens (17) gebildet sind.

3. Die Stange gemäß einem der Ansprüche 1 und 2, **dadurch gekennzeichnet, dass** die Enden (23, 24) des Drehzapfens (17) in zwei flachen und parallelen Platten (13, 14) gelagert sind, die an einer Basis (7) befestigt sind und durch Stangen (15, 16) miteinander verbunden sind, wobei die Enden eines Pfostens (25), der das Anschlagselement bildet, an den Platten (13, 14) befestigt sind.
4. Die Stange gemäß Anspruch 3, **dadurch gekennzeichnet, dass** der Stift (26) zum Eingreifen in die Schlitze (32, 33) aus der Platte (13) mit einem Schaft (27) herausragt, der eine Schulter (28) an dem Stift (26) bildet, wobei eine Schubfeder (29) zwischen der Schulter (28) und der Platte (13) angeordnet ist, wobei die Feder (29) den Stift (26) zum Hebel (4) hin betätigt, um in einen der Schlitze (32, 33) einzugreifen, wobei die Bewegungen des Stifts (26) von zwei Ringen (30, 31) begrenzt werden, die an dem Abschnitt des Stifts (26) angebracht sind, welcher zwischen den Platten (13, 14) liegt.
5. Die Stange gemäß einem der Ansprüche 3 und 4, **dadurch gekennzeichnet, dass** die Platten (13, 14), der Pfosten (25), der Stift (26) und der Drehzapfen (17) mit der dazugehörigen Feder (22), gelagert in den Platten (13, 14), ein Modul (12) bilden, das zur Drehlagerung des Hebels (4) austauschbar mit einer Basis (7) verbunden ist.

Revendications

1. Poignée anti-panique adaptable de manière sélective sur des portes pivotant à droite ou à gauche, comprenant une barre (2) qui relie deux leviers (3, 4) qui sont articulés autour d'un même axe et actionnent respectivement un verrou (5) de fermeture de porte et un dispositif d'actionnement élastique (6) de ladite barre (2) entre une position inactive et une position d'activation de verrou, ledit dispositif d'actionnement comportant : un pivot (17), qui tourne d'une manière solidaire du levier (4) associé audit dispositif d'actionnement (6) ; deux butées radiales (20, 21) ; un ressort hélicoïdal (22), qui est enroulé sur ledit pivot (17) et est pourvu de deux parties d'extrémités opposées (23, 24) qui sont configurées pour venir contre lesdites butées (20, 21) ; **caractérisée en ce que** lesdites deux butées radiales (20, 21) sont disposées sur ledit pivot (17), et **en ce que** le dispositif d'actionnement comporte en outre : un élément d'arrêt (25), contre lequel peuvent venir en prise les dites parties d'extrémités (23, 24) ; un doigt (26), apte à coulisser parallèlement audit pivot (17) ; et des moyens élastiques (29), qui permettent d'insérer ledit doigt (26) au choix dans l'une de deux rainures (32, 33) formées dans ledit levier (4) d'une manière concentrique audit pivot (17) et symétriquement par rapport à une position neutre dudit levier (4), de façon qu'à la suite d'une rotation du levier (4) dans un sens ou dans l'autre lesdites parties d'extrémités (23, 24) butent respectivement contre une butée (21) dudit pivot (17) et contre ledit élément d'arrêt (25), le levier(4) soit mis en précontrainte élastique, et que le doigt (26) s'engage par conséquent dans l'une (32) desdites rainures (32, 33) afin de maintenir le levier (4) en précontrainte dans le sens choisi et mobile à l'encontre de l'action d'actionnement exercée par ledit ressort (22).
2. Poignée selon la revendication 1, **caractérisée en ce que** lesdites butées radiales sont constituées par deux dents axiales (20, 21), qui font saillie dans des directions mutuellement opposées depuis des secteurs radiaux (18, 19) formés aux extrémités dudit pivot (17).
3. Poignée selon l'une des revendications 1 et 2, **caractérisée en ce que** les extrémités (23, 24) dudit pivot (17) sont supportées dans deux plaques planes et parallèles (13, 14), qui sont fixées à une embase (7) et sont reliées l'une à l'autre par des tiges (15, 16), les extrémités d'une colonne (25) qui constitue ledit élément d'arrêt étant fixées auxdites plaques (13, 14).
4. Poignée selon la revendication 3, **caractérisée en ce que** ledit doigt (26) destiné à s'engager dans lesdites rainures (32, 33) dépasse d'une dite plaque (13) par une queue (27) qui forme un épaulement (28) sur ledit doigt (26), un ressort de poussée (29) étant intercalé entre ledit épaulement (28) et ladite plaque (13), ledit ressort (29) déplaçant le doigt (26) vers ledit levier (4) afin qu'il s'engage dans l'une desdites rainures (32, 33), les mouvements du doigt (26) étant limités par deux bagues (30, 31) montées sur la partie dudit doigt (26) qui se trouve entre lesdites plaques (13, 14).
5. Poignée selon l'une des revendications 3 et 4, **caractérisée en ce que** lesdites plaques (13, 14), ladite colonne (25), ledit doigt (26) et ledit pivot (17) avec le ressort correspondant (22), supportés dans lesdites plaques (13, 14), constituent un module (12) qui est associé de manière interchangeable avec une embase (7) pour le soutien rotatif dudit levier (4).

FIG. 1



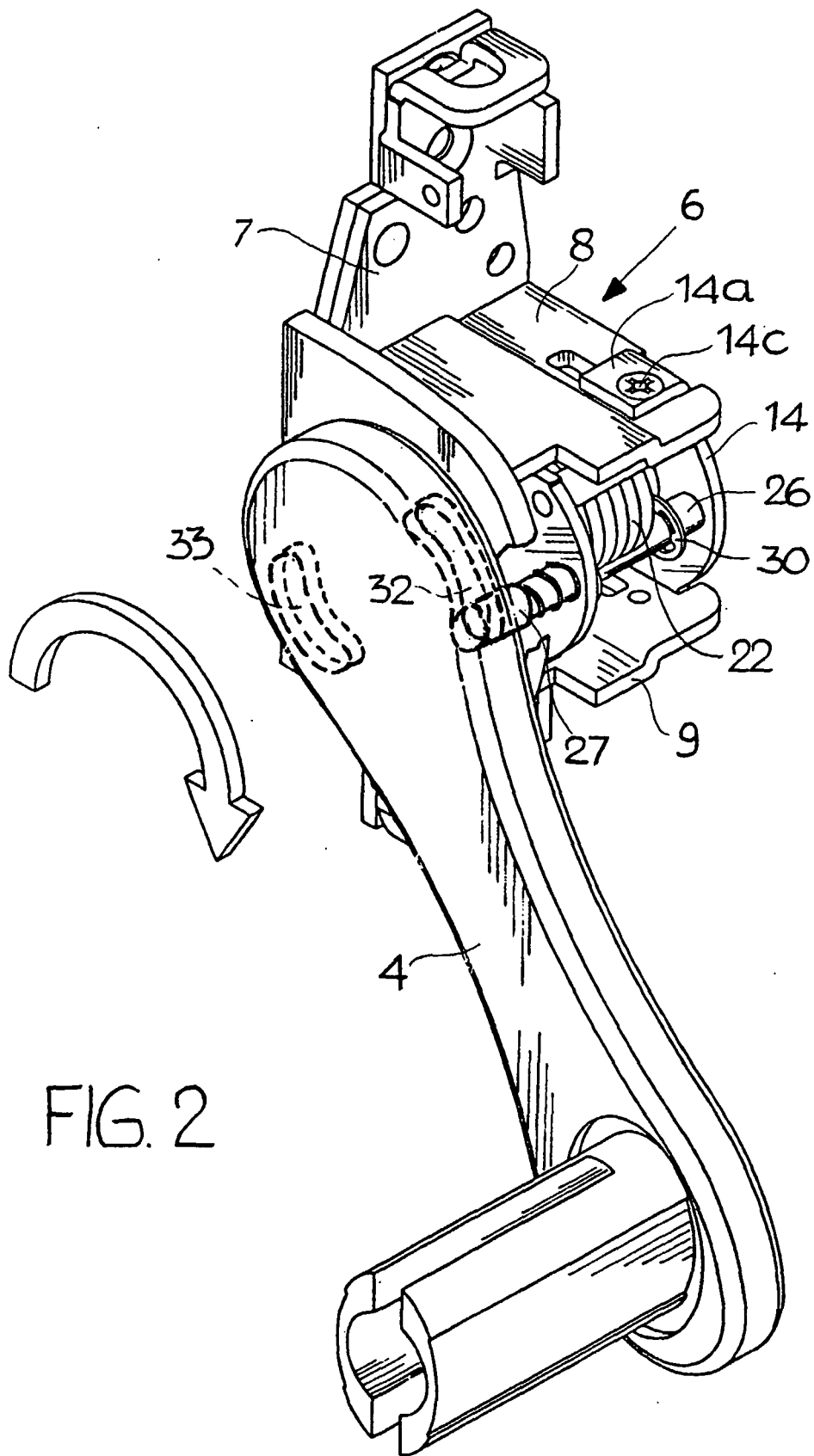


FIG. 2

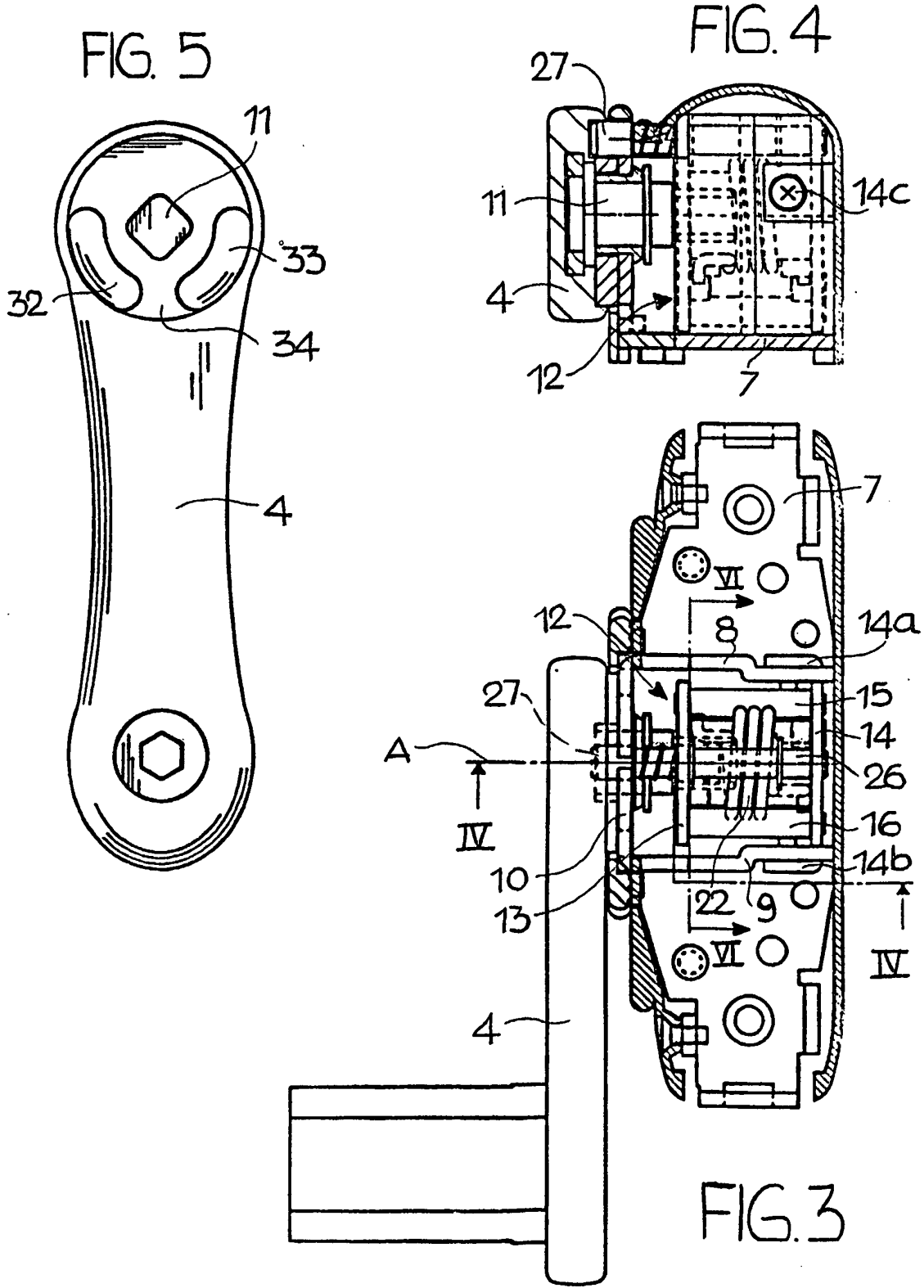


FIG. 6

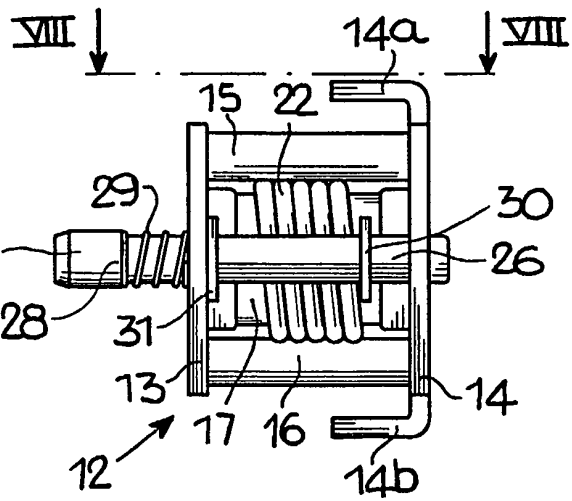
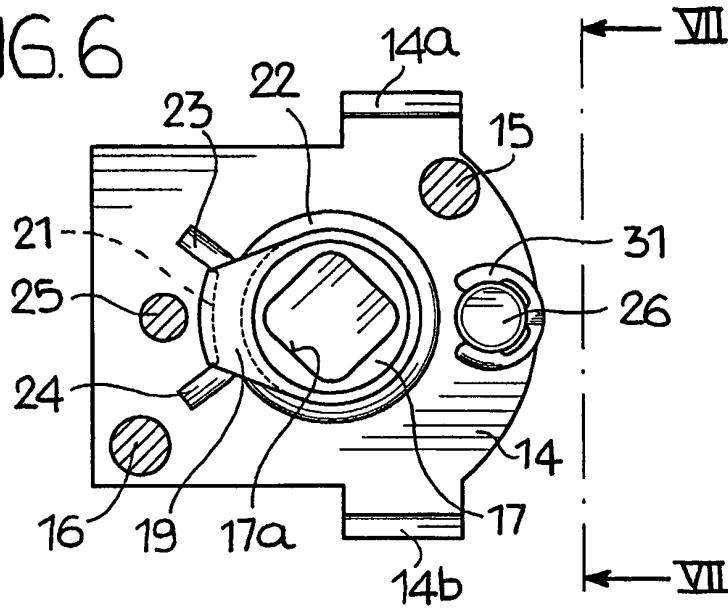
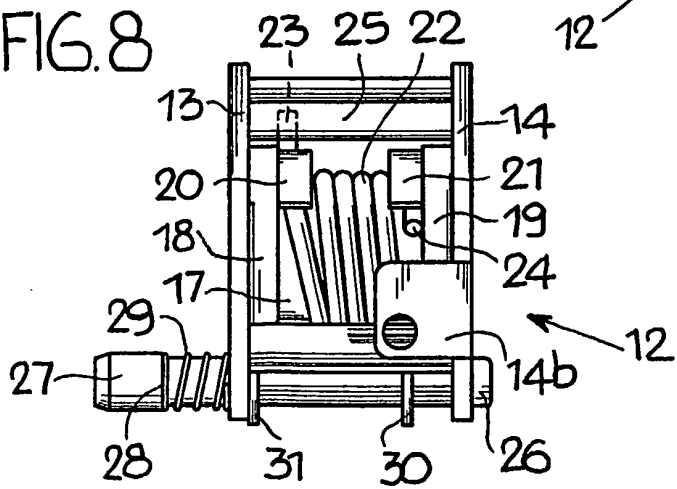
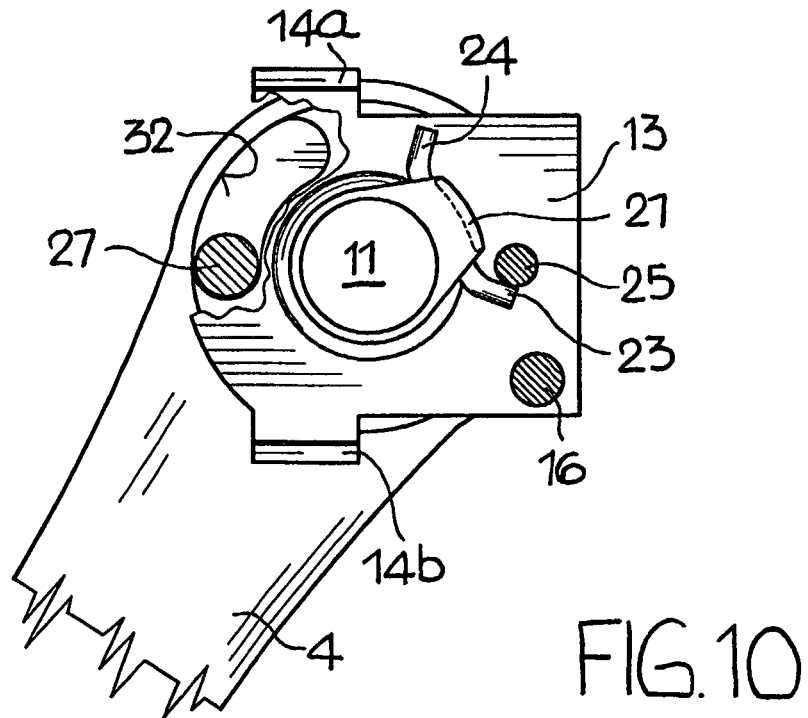
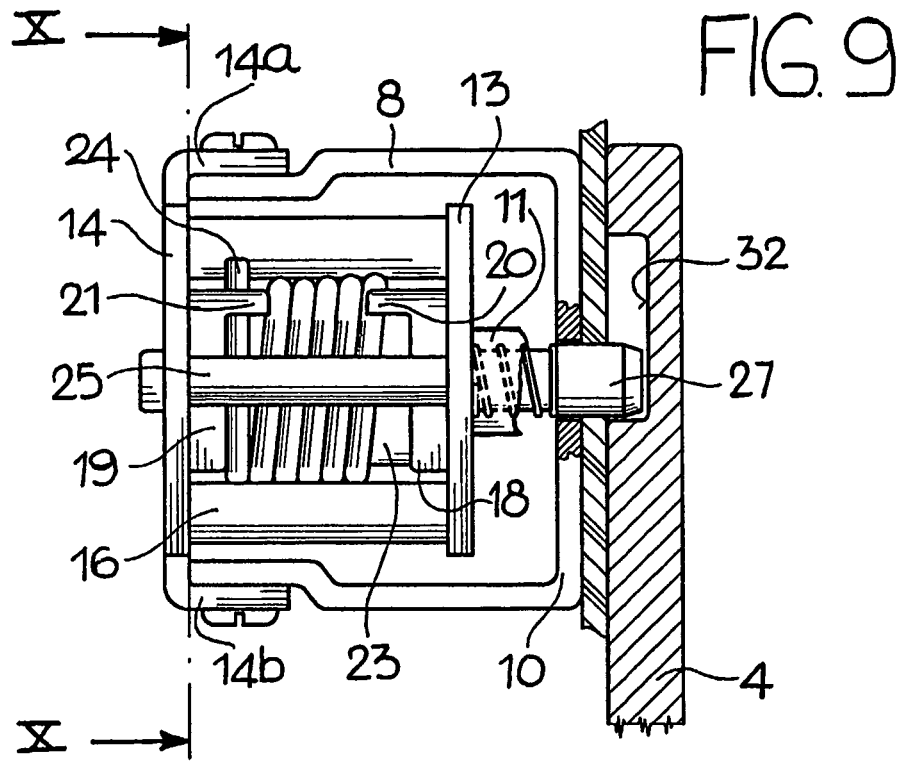


FIG. 7

FIG. 8





REFERENCES CITED IN THE DESCRIPTION

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