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# (54) MULTI-PURPOSE CASING FOR REVERSIBLE ACTUATION AND TRADITIONAL AND/OR ANTIPANIC ACTUATION IN LOCKS FOR JOINERY BASED ON METALLIC PROFILE SECTIONS

(57) The present invention relates to a multipurpose casing for reversible actuation and traditional and/or antipanic actuation in locks for joinery based on metallic profile sections, which comprises a body (1), a lateral cover (2) and a front (3); the cover (2) has a separate first bearing (2a), second bearing (2b) and third bearing (2c), and, matched with the vertical window (1j) and the horizontal groove (1 k) of the body (1), this cover (2) has a vertical window (2d) and a horizontal groove (2e); the pairs of first bearings (1e, 2a), second bearings (1f, 2b) and third bearings (1g, 2c) have diameters that are reciprocals of those of the shaft lugs corresponding to a follower (4) and follower supplement (4a) assembly, and to a first toothed rotary lever (10) and second toothed rotary lever (11); the horizontal groove (1 k) of the lateral wall (1a) is longer than the horizontal groove (2c) of the cover (2) and has a width adjusted to exceed that of a button (7h) of a supporting element (7b) of an articulated latch (7).

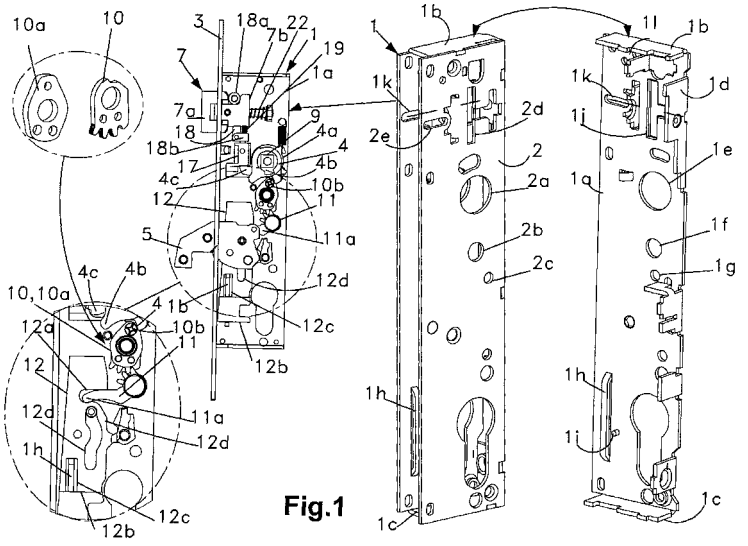



**Fig.1**

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## Description

**[0001]** Multipurpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections, which comprises a body (1), a lateral cover (2) and a front (3); the cover (2) has a separate first bearing (2a), second bearing (2b) and third bearing (2c), and, matched with the vertical window (1j) and the horizontal groove (1k) of the body (1), this cover (2) has a vertical window (2d) and a horizontal groove (2e); the pairs of first bearings (1e, 2a), second bearings (1f, 2b) and third bearings (1g, 2c) have diameters that are reciprocals of those of the shaft lugs corresponding to a follower (4) and follower supplement (4a) assembly, and to a first toothed rotary lever (10) and second toothed rotary lever (11); the horizontal groove (1 k) of the lateral wall (1 a) is longer than the horizontal groove (2c) of the cover (2) and has a width adjusted to exceed that of a button (7h) of a supporting element (7b) of an articulated latch (7).

**Text:**

### Field of the invention

**[0002]** This invention aims at being applied in mortise locks, particularly in those locks that are bound to be crammed into doors or other locking elements constructed on the base of metallic sections, what is commonly known as metallic joinery.

**[0003]** This invention refers to a mechanism of automatic withdrawal of an articulated latch which is acting in combination with an anti-panic withdrawal mechanism of the locking lever.

### State-of-the-art

**[0004]** By its proper nature the joinery based on metallic sections is suffering from a notable lack of space in respect of cramming the casing of the lock into the reduced size of the normalized sections used for this purpose.

**[0005]** On the other hand, as un undesired consequence of the aforesaid, the locks used for this purpose are of simple and cheap constitution; this means that their actuation in regard of functioning modes, applied adaptability and safety conditions is very limited, as it turns out to be quite complicated to insert a mechanism in such a reduced space that offers different alternatives of functioning and application, as larger locks, which additionally should be cheap. It is most common that in this class of locks exist different designs, each of them with determined characteristics that include very limited actuations and some shortcomings that can be found in other designs of the same class, but which are not directly interchangeable. One has to choose one or the other, which is sometimes conditional to the specific section used in each case among the different ones that are normalized. Among the most necessary applications in a lock considered as conventional are: It should have a simple constitution, its functioning should be reliable, it should have safety features that offer a reasonable inviolability in regard of the most common techniques of fraudulent opening, it should have an anti-panic feature (allows to open from the inside in any case by actuating only the inner handle), and it should be simply adaptable for doors opening to the right or the left.

**[0006]** The present invention also proposes that a radial extension of the follower supplement is attached under a vertical carriage that incorporates a vertical arm reaching through the supporting element of the articulated latch, the vertical arm of which has a superior protrusion in a position corresponding to a state of rigidity of the articulated latch. In this respect claims 2 to 6 precise the following: That the vertical arm has an inferior protrusion the ascending vertical run of which towards the articulated latch is superior to the vertical arm and the brackets of the supporting element; that the inferior protrusion is driven by the vertical carriage; that a vertical spring is intercalated between the inferior protrusion of the vertical arm and the supporting element of the articulated latch; that the vertical arm has a lowered position corresponding to a relaxed state of the vertical spring and that the superior protrusion remains inserted in a free space between the head and the supporting element of the articulated latch; and that the vertical arm has an elevated position corresponding to a compressed state of the vertical spring and that the superior protrusion remains outside of the free space between the head and the supporting element of the articulated latch.

**[0007]** Corresponding to these means, in respect to the lowered position of the vertical arm in which its superior protrusion stays inserted in the free space between the head and the supporting element of the articulated latch it results that in its posterior part or the part opposed to the back of said head said superior protrusion of the vertical arm remains abutted against the flat frontal face of the brackets of the supporting element; which can bring about that during the maneuver of inserting and withdrawing the superior protrusion into the free space a friction occurs that is detrimental to a larger smoothness of it.

### Description of the invention and advantages

**[0008]** At this state, by means of the present invention a casing for locking for cramming in joinery on the basis of metallic sections is proposed that - as will be exposed in the following - is designed to be able to accommodate locking mechanisms with anti-panic function, with the ability of simple adaptation to right-hand and left-hand doors, with safety anti-violation devices by using different embodiments of levers for locking and latches, and for all of that using a reduced number of pieces integrated into simple constructions, and functioning reliably.

**[0009]** For this purpose, taking as references superior, inferior, anterior and posterior as corresponding to the

working position of the lock built in a door, the casing according to the invention consists of a casing body, a lateral cover and of a front; the body is delimited by a lateral wall, a superior wall, an inferior wall and a posterior wall; the lateral wall has openings for the first bearing, second bearing and third bearing, respectively, as well as a vertical rip and a retraction appearing at its interior face, a vertical window and a horizontal groove; paired with those of the body the cover has a first bearing, second bearing and third bearing, respectively, and paired with the vertical window and the horizontal groove of the body this cover has a vertical window and a horizontal groove. The pairs of first bearings, second bearings and third bearings have diameters reciprocal to those of the shaft lugs corresponding to an assembly of follower and follower supplement, and to a first toothed rotatory lever and a second toothed rotatory lever; the horizontal groove of the lateral wall is larger than the horizontal groove of the cover and has a width adjusted to exceed that of a button of a supporting element of an articulated latch. The vertical rip has a width adjusted by default to that of a vertical groove of a vertical plate that has a cleavage in which a radial arm of said second toothed rotatory lever enters that is geared with a first toothed rotatory lever provided with a jut that with a certain delay is inserted into the run of a radial protrusion of the follower in the rotational direction for opening the lock, at the same time the radial extension of the follower supplement is attached under a vertical carriage that comprises a vertical arm located through the supporting element of the articulated latch the vertical arm of which has a superior protrusion in a position corresponding to the state of rigidity of the articulated latch. It can be seen that the elements the multi-purpose casing of the invention is provided with enable the installation of a set of toothed rotatory levers (first and second) that - in combination with a follower - enable to move the vertical plate upwards which by means of its wound channel will trigger the withdrawal of the lever of the lock which constitutes an antipanic feature operated by the handle built in the square hole in which also the follower is disposed. This mechanism can be combined with a device able to withdraw also the latch without further intervention of the user.

**[0010]** It is also proposed that the brackets of the supporting element of the latch exist as collateral half shafts axially aligned to those in which each of the diameter rollers is disposed so that they protrude in front of the proper brackets and their anterior vertical tangential plane is at a distance to the back of the head of the articulated latch in a measure reciprocal to the diameter of the superior protrusion of the vertical arm.

**[0011]** Herein, said roller has - according to a distinctive feature of the invention - an internal diameter that is reciprocal to the external diameter of an internal half-shell that at its end that is closest to the respective bracket is provided with a discoid flange. In this respect, it is another distinctive feature of the invention that at least the half-shells are made of a plastic with a good resistance to friction.

**[0012]** This proposed simple solution shows a high efficacy in achieving a high smoothness for the maneuver of inserting/withdrawing the superior protrusion of the vertical arm in the free space between the head and the supporting element of the articulated latch; a smoothness which is also traduced into a highly reliable and silent functioning.

**[0013]** This and other characteristics and use options of the invention are illustrated in detail by means of graphic representation contained in the enclosed drawing pages.

## Drawings and reference signs

**[0014]** For a better understanding of the nature of the invention an industrial embodiment is represented in the enclosed drawings. Its character is merely illustrative and nonlimiting.

Figure 1 is a view of a casing of a lock according to the invention that is shown in its assembled state in a form of a casing body (1) and a cover (2); another view is shown from body (1), seen from its internal side. Additionally, also a view in perpendicular projection of a lock is included in this figure in which the lever (5) of the lock is pulled and mounted in a casing (1-2) according to the invention from which the cover (2) has been withdrawn and a detail has been incorporated in which the lever (5) of the lock is loosened and which is at the same time shown in detail in an exploded view of the first toothed rotatory lever (10) and of the supplement (10a) of the same.

Figure 2 shows a lock included in figure 1, but with the lever (5) of the lock in an intermediate position on its way of withdrawal.

Figure 3 is the same as figure 2, but showing the lever (5) of the lock completely withdrawn.

Figure 4 is an amplified view of detail V indicated in figure 3.

Figure 5 is the section V-V indicated in figure 4.

Figure 6 is another position of the mechanism shown in figure 4.

Figure 7 is the same as figure 5, but referring to the position of figure 6.

Figure 8 is another position of the mechanism shown in figures 4 and 6.

Figure 9 is the same as figures 5 and 7, but referring to the position of figure 8.

Figure 10 shows the lateral upright projection of the supporting element (7b) of the articulated latch (7).

Figure 11 is the view from the superior level corresponding to figure 10.

Figure 12 is the section XII-XII indicated in figure 11.

Figure 13 shows two views of the head (7a) of the articulated latch (7).

Figure 14 is a view of the supporting element (7b) of the articulated latch (7) in which the vertical shaft (7c) and the retractable pin (7e) are incorporated.

Figure 15 is another view of the supporting element (7b).

Figure 16 is a view of the vertical carriage (17).

Figure 17 is a view of the vertical arm (18), with its superior protrusion (18a) and its inferior protrusion (18b).

Figure 18 is a lock as included in figure 1 but provided with a cover (2) and the loosened lever (5) of the lock.

Figure 19 is the same as figure 18, but viewed directly at the lateral wall (1a) of the body of the casing (1).

Figure 20 is an amplification of detail XX indicated in figure 18.

Figure 21 is an amplification of detail XXI indicated in figure 19.

Figure 22 is the section XXII-XXII indicated in figure 20. It includes an enlarged detail.

Figure 23 is the same as figure 20, but showing a different position of the articulated latch (7).

Figure 24 is the same as figure 22, but referring to the position of figure 23.

Figure 25 is a view that illustrates the maneuver of reversibility of the articulated latch (7).

Figure 26 is a view that illustrates the assembly of the horizontal carriage (13) in the retract (12b) of the vertical plate (12) following the indication of the arrow included herein.

Figure 27 shows a side view of the vertical plate (12), as is shown in figures 1 to 3.

Figure 28 is the left profile of figure 27.

Figure 29 is the inferior level of figure 27.

Figure 30 is the inferior level of the horizontal carriage (13) according to its assembly position in the vertical plate (12) of figure 27.

Figure 31 illustrates the assembly of the horizontal carriage (13) in retract (12b) of the vertical plate (12), as shown in figure 28.

Figure 32 is the same as figure 31, but referring to the final assembly position.

Figure 33 is the lateral right view corresponding to figure 32.

Figure 34 is the section XXXIV-XXXIV indicated in figure 33.

Figure 35 shows a lock as in figure 1 but provided with a lever (5) of the lock in a different form and with a one-piece latch (6). Herein, the rotatory first and second levers (10 and 11) are omitted, and the tappet (8) of the key cylinder is highlighted, as in horizontal carriage (13).

Figures 36 and 37 are the same as figure 35, but referring to the partial and total withdrawal, respectively, of the lever (5) of the lock.

Figures 38, 39 and 40 show the enlarged respective details indicated in figures 35, 35 and 37.

Figure 41 is an amplification of detail XLI indicated in figure 35.

Figures 42 and 43 show two positions that illustrate the reversible function of the one-piece latch (6).

Figure 44 is the same as figure 41, but with another solution for the elastic mount of the horizontal balancer (15).

Figure 45 is the same as figure 41 and illustrates the frontal functioning of the horizontal balancer (15).

Figure 46 is the lateral left view of figure 45.

Figures 47 and 48 show a view of two solutions for the horizontal balancer (15), the first with an elastic membrane (15b), the second without.

Figure 49 is a view of the complete latch (6) of figures 35 to 46, both included.

Figure 50 is a representation of a lock similar to the one of figure 2 that includes an enlarged detail of the part referred to therein, omitting the lateral wall (1a)

and the front (3) of body (1).

Figure 51 is a lateral right view corresponding to the amplification of figure 50.

Figure 52 is an exploded view that shows the essential disassembling that corresponds to the amplification of figure 50.

**[0015]** In these figures the following reference signs are indicated:

1. - body of the casing
1a. - lateral wall of the body (1)
1b. - superior wall of the body (1)
1c. - inferior wall of the body (1)
1d. - posterior wall of the body (1)
1e. - first bearing in the lateral wall (1 a)
1f. - second bearing in the lateral wall (1 a)
1g. - third bearing in the lateral wall (1 a)
1h. - vertical rip in the lateral wall (1 a)
1i. - retention in the lateral wall (1 a)
1j. - vertical window in the lateral wall (1 a)
1k. - horizontal groove in the lateral wall (1 a)
1l. - superior tip in the lateral wall (1 a)
1m. - foot of the casing (1)
2. - cover of the body (1)
2a. - first bearing in the cover (2)
2b. - second bearing in the cover (2)
2c. - third bearing in the cover (2)
2d. - vertical window in the cover (2)
2e. - horizontal groove in the cover (2)
3. - opening in the front (3)
4. - follower
4a. - follower (4) supplement
4b. - radial protrusion of the follower (4)
4c. - radial extension in the follower (4) supplement (4a)
5. - lever of the lock
6. - one-piece latch
6a. - vertical posterior crossbar in the one-piece latch (6)
6b. - curves of the crossbar (6a) 7. - articulated latch
7a. - articulated head of the latch (7)
7b. - supporting element of the latch (7)
7c. - vertical shaft of the latch (7)
7d. - annular deepening in the shaft (7c)
7e. - transversal retractable pin
7f. - annular recess of the retractable pin (7e)
7g. - helicoid spring of the retractable pin (7e)
7h. - button on the supporting element (7b)
7i. - brackets of the supporting element (7)
7k. - half shafts in the brackets (7i)
8. - tappet of the key cylinder
9. - square hole in follower (4) for the handle or knob
10. - first toothed rotatory lever
10a. - supplement of the first toothed rotatory lever (10)
10b. -jut of the first toothed rotatory lever (10)
11. - second toothed rotatory lever
11 a. - radial arm of the second toothed rotatory lever (11)
12. - vertical plate
12a. - cut-out of the vertical plate (12)
12b. - concave retract of the vertical plate (12)
12c. - vertical groove of the vertical plate (12)
12d. - wound channel of the vertical plate (12)
12e. - guide rail for the horizontal spring (14)
12f. - rivet of the vertical plate (12)
12g. - horizontal recess of the retract (12b)
12h. - dividing wall of the retract (12b)
12i. - first hollow of the retract (12b)
12k. - teeth of the retract (12b)
13. - horizontal carriage
13a. - vertical partition of the carriage (13)
14. - horizontal spring
15. - horizontal balancer
15a. - shaft of the balancer (15)
15b. - elastic membrane in the balancer (15)
16. - torsion spring
17. - vertical carriage
18. - vertical arm
18a. - superior protrusion of the vertical arm (18)
18b. - inferior protrusion of the vertical arm (18)
18c. - ring at the superior protrusion (18a)
19. - vertical spring
20. - locking plate
21. - one-piece latch spring
22. - anti-panic latch spring
23. - rollers
24. - internal half-shells
24a. - discoid flange in the internal half-shells (24)

## Description of a preferred embodiment

**[0016]** Referring to the drawings and reference signs listed above a preferred execution mode of the object of the invention is described in consequent levels. It concerns a multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic sections. Taking as references superior, inferior, anterior and posterior corresponding to the working position of the lock built in a door, the casing according to the invention consists (figure 1) of a body (1) of a casing, a lateral cover (2) and a front (3); the body (1) is limited by a lateral wall (1a), a superior wall (1b), an inferior wall (1c) and a posterior wall (1d); the lateral wall (1a) has an opening for the first bearing (1e), second bearing (1f) and third bearing (1g), respectively, as well as a vertical rip (1h) and a retention (1i) emerging from its internal face, a vertical window (1j) and a horizontal groove (1k); paired with those of the body (1) the cover (2) has a first bearing (2a), second bearing (2b) and third bearing (2c), respectively, and paired with the vertical window (1j) and the horizontal groove (1 k) of the body (1) this cover has a vertical window (2d) and a horizontal

groove (2e). The pairs of first bearings (1e, 2a), second bearings (1f, 2b) and third bearings (1g, 2c) have diameters reciprocal to those of the shaft lugs corresponding to an assembly of follower (4) and follower supplement (4a), and to a first toothed rotatory lever (10) and a second toothed rotatory lever (11); the horizontal groove (1 k) of the lateral wall (1 a) is larger than the horizontal groove (2e) of the cover (2) and has a width adjusted to exceed that of a button (7h) of a supporting element (7b) of an articulated latch (7); the vertical rip (1 h) has a width adjusted by default to that of the vertical groove (12c) of a vertical plate (12) that has a cut-out (12a) in which a radial arm (11a) of said second toothed rotatory lever (11) enters that is engaged with said first toothed rotatory lever (10) provided with a jut (10b) that with a certain delay is inserted into the run of a radial protrusion (4b) of the follower (4) corresponding to the rotational direction for opening the lock, at the same time the radial extension (4c) of the follower supplement (4a) is attached under a vertical carriage (17) that engages with a vertical arm (18) reaching through the supporting element (7b) of the articulated latch (7) the vertical arm (18) of which has a superior protrusion (18a) with a position corresponding to the state of rigidity of the articulated latch (7). This description includes an application of the casing for housing an anti-panic mechanism the functioning of which is clearly illustrated by means of figures 1 to 3: On turning the follower (4) by means of the handle the radial protrusion (4b) triggers the protrusion (10b) of the first toothed rotatory lever (10) that by its engagement with the second toothed rotatory lever (11) effects this one to be turned and that by its radial arm (11 a) inserted in the cut-out (12a) of the vertical plate (12) the elevation of the latter is triggered that by means of its rivet (12f) of the vertical plate (12) will withdraw the lever (5) of the lock.

**[0017]** This mechanism of anti-panic withdrawal of the lever (5) of the lock can be combined with another of automatic withdrawal of an articulated latch (7). Its construction and functioning are illustrated by figures 4 to 9, while figures 10 to 17 show the corresponding exploded view. According to the constitutive particularities of the invention it is required in this respect that the vertical arm (18) has an inferior protrusion (18b) that is at a distance to the superior protrusion (18a) to a larger measure than the height of the supporting element (7b) of the articulated latch (7); that the inferior protrusion (18b) is applied on the vertical carriage (17); that there is a vertical spring (19) intercalated between the inferior protrusion (18b) of the vertical arm (18) and the supporting element (7b) of the articulated latch (7); that the vertical arm (18) has a lowered position corresponding to the relaxed state of the vertical spring (19) and in which the superior protrusion (18a) remains inserted in a hollow between the head (7a) and the supporting element (7b) of the articulated latch (7); and that the vertical arm (18) has an elevated position corresponding to the compressed state of the vertical spring (19) and in which the superior protrusion (18a) remains outside the hollow between the head (7a) and the supporting element (7b) of the articulated latch (7). In order to explain how the anti-panic withdrawal of the articulated latch (7) is effectuated we start from the position reflected in figures 4 and 5 in which the head (7a) is turned such that one face is abutted against the rim of the locking plate (20) (in the rotational direction for opening the door. See arrow in figure 5), the vertical carriage (17) is resting in the radial extension (4c) of the follower supplement (4a), the vertical spring (19) is expanded and the vertical arm (18) is lowered so that its superior protrusion (18a) is situated between the head (7a) and the supporting element (7b) of the articulated latch (7); on continuing the turn with the handle (figures 6 and 7) (after withdrawing the lever (5) of the lock) the radial extension (4c) triggers the lifting of the vertical carriage (17), thereby compressing the vertical spring (19) and producing the lifting of the vertical arm (18) unto a position in which its superior protrusion (18a) is not blocking anymore the free turn of the head (7a) on its vertical shaft (7c) so that on continuing the opening movement of the door it results that the head (7a) is turned into a position of figure 7. This is the moment when, as the latter can't be continued to be turned anymore, the horizontal retraction of the whole set is produced by the proper force of the thrust of the door until the position of figures 8 and 9 is reached, at which the door is already open. According to another distinctive feature of the invention it is realized that: The articulation between the head (7a) and the supporting element (7b) of the articulated latch (7) is materialized in a shaft (7c) that has an annular intermediate recess; that transversal to the shaft (7c) a retractable pin (7e) is inserted into the supporting element (7b) with which a helicoid spring (7g) is associated. Its retractable pin (7e) has an annular recess (7f) that crosses especially (figure 14) with the annular deepening (7d) of the shaft (7c) and its radius corresponds to the radius of this shaft (7c). That its retractable pin (7e) has a head that is located along the horizontal groove (2e) of the cover (2); that the retractable pin (7e) has a non-triggered position corresponding to that its head is located along the horizontal groove (2e) and that its annular recess (7f) is deviated from the annular deepening (7d) of the shaft (7c) (figure 22); that the retractable pin (7e) has a triggered position corresponding to that its head is outside the horizontal groove (2e) and more inside than the internal face of the cover (2): and that said triggered position corresponds to an extended position of the articulated latch (7) in which the button (7h) of the supporting element (7b) is at the anterior end of the horizontal groove (1 k) of the lateral wall (1 a) of the body (1), the head of the retractable pin (7e) is in the broadside of the wall of the front (3) of the body (1), and the shaft (7c) is ahead of this front (3). This construction is also compatible with the favored multipurpose casing in its mounting and functioning by means of figures 20 to 25; starting from the resting situation shown in figures 20 to 22, on triggering the retractable pin (7e) in combination with the anti-panic spring latch (22) expulsing it the situation of figures 23 and 24 can be

reached in which the retractable pin (7e) is maintained compressed by the rim of the opening that for its exit has the front (3) whereby the annular recess (7f) is not inhibiting anymore that the vertical shaft (7c) is already staying outside of said front (3) (figure 24); all this by turning the head (7a) upside down by 180° (figure 25) the reversibility of the articulated latch (7) is achieved so that it serves for the lock of a door that is opening in the opposite direction than originally; the extraction of the articulated latch (7) indicated in figures 23 and 24 is enabled thanks to the larger length of the horizontal groove (1 k) (figure 21) in respect to that of the horizontal groove (2e) (figure 23).

**[0018]** The casing according to the invention is also compatible with a safety device that is illustrated by figures 26 to 40. According to that it is required: That because the concave retract (12b) has a vertical profile bridged with an inferior foot in which a first hollow (12i) and a second hollow (12j) are separated by a division wall (12h); the first hollow (12i) has a somewhat larger width than the vertical rip (1 h) of the lateral wall (1 a) of the body (1) of the casing and is vertically aligned with this vertical rip (1h); the second hollow (12) has a somewhat larger width than the retention (1i) of the lateral wall (1 a) with which it is vertically aligned; that the concave retract (12b) has a horizontal recess that opens in its posterior rim and that in its back has a guiding rail (12e) for a horizontal spring (14) interposed between the back of this horizontal recess (12g) and an anterior front of a horizontal carriage (13) and some teeth (12k) that bring the horizontal carriage (13) to its initial position; that there is a horizontal carriage (13) that has a height reciprocal to the internal height of the concave retract (12b) and a horizontal measure less than the deepness of the horizontal recess (12g) of the latter; that at the posterior end of the superior ramification of the horizontal recess (12g) there is a part interfering with the opening turn of the tappet (8) in a section of it corresponding to the outmost positions (superior and inferior) of the vertical plate (12); that the horizontal carriage (13) is in a position corresponding to the expanded state of the horizontal spring (14); and that the horizontal carriage (13) is in a position corresponding to the compressed state of the horizontal spring (14) and with an intermediate position of the turn for opening the tappet interfered by the position of the horizontal carriage (13) which corresponds to said expanded state of the horizontal spring (14). Figures 26 to 32 show an exploded view and the mounting of the subset built by the vertical plate (12) and the horizontal carriage (13). In the following paragraph the functioning is explained.

**[0019]** For violating a lock of this type a splint is inserted into the hollow between the front (3) and the lever (5) that acts on the rivet (12f), pushing it upwards and effectuating the withdrawal of the lever (5) of the lock. For avoiding it, according to the invention, when the lock is in a resting position (figures 35 and 38) the horizontal carriage locates its vertical partition (13a) directly under the retention (1i) of the lateral wall (1 a) of the body (1) of the casing which will block the fraudulent lifting of the vertical plate (12); when the key is turned in the cylinder of the lock it occurs (figure 39) that its tappet (8) effectuates the displacement of the horizontal carriage (13) by compressing the horizontal spring (14) so that the vertical partition (13a) withdraws from its blocking position and allows the operative lifting of the vertical plate (12), as is shown in figure 40.

**[0020]** Another device that is compatible with the inventive casing is illustrated by figures 41 to 49. Its construction requires: That there is a horizontal balancer (15) that in one site of its body has a horizontal shaft (15a) which crosses the broadside of the casing (1-2); that the balancer (15) displays - in regard of its shaft (15a) - anterior and posterior arms that are substantially horizontal; that the balancer (15) has a non-swiveled position corresponding to that its anterior arm is adjacent with its end and somewhat lower than an opening (3a) in the front (3) of the casing (1-2); that the balancer (15) has a non-swiveled position corresponding to that its anterior arm remains facing laterally the respective vertical windows (1j and 2d) of the lateral wall (1a) of the body (1) of the casing; that the balancer (15) has a non-swiveled position corresponding to that its posterior arm has its end right in front of the vertical posterior crossbar (6a) of a one-piece latch (6); that the balancer (15) has a swiveled position corresponding to that its posterior arm has its end somewhat higher of a vertical posterior crossbar (6a) of a one-piece latch (6); that the pairs of vertical windows (1j, 2d) are somewhat broader than a vertical posterior crossbar (6a) of a one-piece latch (6) and that they are located corresponding to a position of forced extension of this one-piece latch (6). This device allows for the reversibility of the complete latch (6) in a very simple and quick way: Starting from the resting position of figure 41 in which the vertical posterior crossbar (6a) doesn't allow that the one-piece latch (6) exits further because it hits against the posterior arm of the balancer (15); this resting position of the balancer (15) is marked by the foot (1 m) of the casing (1) when it presses against the face (15c) of the balancer (15). Thus, the resistance against cycles of this balancer (15) is larger, when the latch (6) after withdrawing returns to its position by action of the latch spring (22); it is the face (15c) that upholds the pressure against the face (1 m) of the casing (1). On introducing the tip of a screwdriver or the like through the opening (3a) of the front (3) (figure 46) or through the respective vertical windows (1j and 2d) of the body (1) and the cover (2) it is achieved that the balancer (15) passes to the position indicated in figure 42 by the action of the one-piece latch spring (21), whereby the one-piece latch (6) can be extracted and turned (figure 43) to the position opposite to that of the beginning. For recovering the resting position a respective execution mode consists in that the balancer (15) comprises (figures 45 and 47) an elastic membrane that emerges as a cantilever between the posterior arm of the balancer (15) and a superior tip (1l)

comprised in the lateral wall (1a) of the body (1) of the casing; another execution mode consists (figure 44) in that there is a torsion spring (16) mounted between the superior wall (1 b) of the body (1) of the casing and the superior arm of the balancer (15).

**[0021]** Furthermore, by means of the curves (6b) located on the vertical posterior crossbar (6a) the balancer (15) is lifted which allows the one-piece latch to turn. Once a complete turn is carried out the mere insertion of the latch brings the latch in the final position (figure 41) by means of the elastic membrane (15b) or, if applicable, by the torsion spring (16).

**[0022]** The brackets (7i) of the supporting element (7b) of the latch (4) have some collateral half-shafts (7k) axially aligned with those that are mounted on the respective rollers (23) with a diameter that they protrude in front of the proper brackets (7i) and that their vertical anterior tangential plane is distant from the head of the articulated latch in a reciprocal measure to the external diameter of the ring (18c) being concentric with the superior protrusion (18a) of the vertical arm (18). In figures 50 and 51 only the lowered position of the vertical arm (18) is shown, as this is the most enlightening for this purpose; the elevated positions of figures 3, 4, 6 and 7 can be easily deducted when bearing in mind that the brackets (7) are now equipped with the roller (23) device.

**[0023]** The exploded view of figure 52 clearly illustrates the new device as being operatively mounted in figures 50 and 51. At the same time the distinctive feature of the invention is highlighted that consists in that the internal rotatory half-shell (24) is in the middle between a roller (23) and the half-shaft (7k). These rollers (23) have an internal diameter that is reciprocal to the external diameter of an internal half-shell (24) that at its end that is closest to the respective bracket (7i) is provided with a discoid flange (24a).

**[0024]** According to another distinctive feature of the present invention it is required that at least the internal half-shells (24) are made of a plastic with a good resistance to friction.

**[0025]** The new benefit of this device in regard to its reference patent is that during the maneuver accomplished by the ring (18c) that is concentric with the protrusion (18a) of the arm (18) for passing from its lowered position to its elevated position for unblocking and allowing the turn of the latch (7) in which it exits from the free space between the brackets (7i) of the supporting element (7b) and the back of the articulated head (7a) of the latch (7), the rollers (23) will then start rolling on the surface of the ring (18c) that is concentric with the protrusion (18a) of the arm (18). This effects that the maneuver runs very smoothly; the same occurs in the reverse maneuver when the vertical arm (18) passes from its elevated position to its lowered position. At the same time this new arrangement is in favor of the liability of the maneuver of facilitating the insertion, even when there is a small deviation or misalignment in the movement of said superior protrusion (18a) of the vertical arm (18).

**[0026]** In this operative mode it is supposed that the maneuvers of insertion/withdrawal of the ring (18c) that is concentric with the protrusion (18a) of the arm (18) are produced by turning, in contrast to the frictional gliding as in conventional locks.

## Claims

1. Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections, **characterized in that**, when taking superior, inferior, anterior and posterior as reference points for the operative position of the lock crammed into a door, it comprises a body (1) of the casing, a lateral cover (2) and a front (3); the body (1) is delimited by a lateral wall (1a), a superior wall (1b), an inferior wall (1c) and a posterior wall (1 d); the lateral wall (1 a) has openings for a first bearing (1e), second bearing (1f) and third bearing (1g), respectively, as well as a vertical rip (1 h) and a retention (1i) that emerge at its internal face, a vertical window (1j) and a horizontal groove (1 k); paired with those of the body (1) the cover (2) has a first bearing (2a), second bearing (2b) and third bearing (2c), respectively, and paired with the vertical window (1j) and the horizontal groove (1 k) of the body (1) this cover (2) has a vertical window (2d) and a horizontal groove (2e); the pairs of the first bearings (1e, 2a), second bearings (1f, 2b) and third bearings (1 g, 2c) have diameters reciprocal to those of the shaft lugs corresponding to a set of a follower (4) and follower supplement (4a), and to a first toothed rotary lever (10) and second toothed rotary lever (11); the horizontal groove (1k) of the lateral wall (1a) is longer than the horizontal groove (2e) of the cover (2) and has a width adjusted to exceed that of a button (7h) of a supporting element (7b) of an articulated latch (7); the vertical rip (1 h) has a width adjusted by default to that of a hollow (12i) of a vertical plate (12) that has a cut-out (12a) into which a radial arm (11 a) of said second toothed rotary lever (11) enters that is engaged with said first toothed rotary lever (10) provided with a protrusion (10b) that is interposed in the run of a radial protrusion (4b) of the follower (4) corresponding to the rotational direction for opening the lock, while a radial extension (4c) of the follower supplement (4a) is attached under a vertical carriage (17) that comprises a vertical arm (18) located across the supporting element (7b) of the articulated latch (7) the vertical arm (18) of which has a superior protrusion that has a position corresponding to a rigidity state of the articulated latch (7).

2. Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to claim 1, **characterized in that** the vertical arm (18) has

an inferior protrusion (18b) the vertical upside run of which up to the articulated latch (7) is superior in length to the interference that exists between the superior protrusion of the vertical arm (18a) that has a position corresponding to a rigidity state of the articulated latch (7).

**3.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to claim 2, **characterized in that** the inferior protrusion (18b) is triggered by the vertical carriage (17).

**4.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to claims 2 and 3, **characterized in that** a vertical spring (19) is intercalated between the inferior protrusion (18b) of the vertical arm (18) and the supporting element (7b) of the articulated latch (7).

**5.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to claims 2 to 4, **characterized in that** the vertical arm (18) has a lowered position corresponding to a relaxed state of the vertical spring (19) and **in that** the superior protrusion (18a) remains inserted in the free space between the head (7a) and the supporting element (7) of the articulated latch (7).

**6.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to claims 2 to 4, **characterized in that** the vertical arm (18) has an elevated position corresponding to a compressed state of the vertical spring (19) and **in that** the superior protrusion (18a) remains outside the free space between the head (7a) and the supporting element (7b) of the articulated latch (7).

**7.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** the articulation between the head (7a) and the supporting element (7b) of the articulated latch (7) is realized in a shaft (7c) that has an intermediate annular deepening (7d).

**8.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to claim 7, **characterized in that** transversally to the shaft (7c) a retractable pin (7e) is inserted into the supporting element (7b) that is associated with a helicoid spring (7g) the retractable pin (7e) of which has an annular recess (7f) that spatially crosses the annular deepening (7d) of the shaft (7c) and **in that** its radius is complementary to the radius of this shaft (7c), and the retractable pin (7e) of which has a head that is located along the horizontal groove (2e) of the cover (2).

**9.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to claims 7 and 8, **characterized in that** the retractable pin (7e) has a non-pressed position corresponding to that its head is located along the horizontal groove (2e) and that its annular recess (7f) is diverted by the annular deepening (7d) of the shaft (7c).

**10.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to claims 7 and 8, **characterized in that** the retractable pin (7e) has a pressed position corresponding to that its head is outside the horizontal groove (2e) and more inside than the internal face of the cover (2).

**11.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to claims 7 and 8, **characterized in that** said pressed position corresponds to an extended position of the articulated latch (7) in which a button (7h) of the supporting element (7b) is at the anterior end of the horizontal groove (1 k) of the lateral wall (1a) of the body (1), and the shaft (7c) is ahead of this front (3).

**12.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** the concave retract (12b) has a vertical profile bridged with an inferior foot in which by means of a dividing wall (12h) a first hollow (12i) and a second hollow (12j) are delimited; the first hollow (12i) has a width somewhat larger than the vertical rip (1 h) of the lateral wall (1a) of the body (1) of the casement and is vertically aligned with this vertical rip (1 h); the second hollow (12j) has a width somewhat larger than the retention (1 i) of the lateral wall (1a) with which it is vertically aligned.

**13.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** the concave retract (12b) has a horizontal recess (12g) that opens at its posterior rim and that in its back has a guiding rail (12e) for a horizontal spring (14) interposed between the back of this horizontal recess (12g) and an anterior front of a horizontal carriage (13); further it includes some teeth (12k) what

delimits the horizontal position of the carriage (13).

**14.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** there is a horizontal carriage (13) having a height reciprocal to the internal height of the concave retract (12b) and a horizontal measure smaller than the deepness of the horizontal recess (12g) of the latter.

**15.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** at the posterior end of the superior ramification of the horizontal recess (12g) there is a part interfering with the opening turn of the tappet (8) in a section of it corresponding to the outmost positions, superior and inferior, of the vertical plate (12).

**16.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** the horizontal carriage (13) has a position corresponding to the expanded state of the horizontal spring (14) and **in that** it inhibits the vertical displacement of the vertical plate (12) by fraudulent means.

**17.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** the horizontal carriage (13) has a first position corresponding to the compressed state of the horizontal spring (14) and a second position corresponding to an expanded state of the horizontal spring (14), the first position of which corresponds also to an intermediate position of the turn of the tappet (8) corresponding to an opening maneuver of the lock mechanism.

**18.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** there is a horizontal balancer (15) that instead of its body has a horizontal shaft (15a) and runs across to the thick side of the body (1-2).

**19.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according claim 18, **characterized in that** in regard to its shaft (15a) the balancer (15) forms anterior and posterior arms that are substantially horizontal.

**20.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according claim 19, **characterized in that** the balancer (15) has a non-swiveled position corresponding to that its anterior arm has its end adjacent and somewhat below an opening (3a) in the front (3) of the casement (1-2).

**21.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according claim 19, **characterized in that** the balancer (15) has a non-swiveled position corresponding to that its anterior arm remains facing laterally the respective vertical windows (1j and 2d) of the lateral wall (1a) of the body (1) of the casing.

**22.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according claim 19, **characterized in that** the balancer (15) has a non-swiveled position corresponding to that its posterior arm has its end right in front of a vertical posterior crossbar (6a) of a one-piece latch (6).

**23.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to claim 20, **characterized in that** the vertical crossbar (6a) has some curves (6b) what allows to lift the balancer (15).

**24.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** the pairs of vertical windows (1j, 2d) are somewhat broader than the vertical posterior crossbar (6a) of a one-piece latch (6) and they are located corresponding to a position of forced extension of this one-piece latch (6) by action of the one-piece latch spring (21).

**25.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** the balancer (15) comprises an elastic membrane (15b).

**26.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to the preceding claim, **characterized in that** the elastic membrane (15b) emerges as a cantilever between the posterior arm of the balancer (15) and a superior tip (11) mounted in the lateral wall (1a) of the body (1) of the casing.

**27.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims 1 to 25, **characterized in that** alternatively to the membrane (15b) there could be a torsion spring (16) built in between the superior wall (1 b) of the body (1) of the casement and the superior arm of the balancer (15).

**28.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** the latch (6) is solid, of only one piece, without sub-assemblies, and it turns completely when being changed.

**29.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to one or more of the preceding claims, **characterized in that** the horizontal carriage (13) has a horizontal movement inside the recess (12g) of the vertical plate (12) triggered by actuating the tappet and a second vertical movement that matches the one of the vertical plate also actuated by the tappet.

**30.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to the preceding claims, **characterized in that** at the brackets (7i) of the supporting element (7b) of the latch (4) there are some collateral shafts (7k) axially aligned with those that are mounted in the respective rollers (23) with such a diameter that they stand out in front of the proper brackets (7i) and that in its vertical anterior tangential plane is distant from the head of the articulated latch to a measure reciprocal to the external diameter of the ring (17c) that is concentric with the superior protrusion (18a) of the vertical arm (18).

**31.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to the preceding claims, **characterized in that** the rings (18c) are in the middle between the latch (7) and the rollers (23), said rollers having an internal diameter reciprocal to the external diameter of an internal half-shell (24) that its end that is closest to the respective bracket (7i) is provided with a discoid flange (24a).

**32.** Multi-purpose casing for reversible actuation and traditional and/or anti-panic actuation in locks for joinery based on metallic profile sections according to the preceding claims, **characterized in that** at least the internal half-shells (24) are made of a plastic having a good resistance to friction.

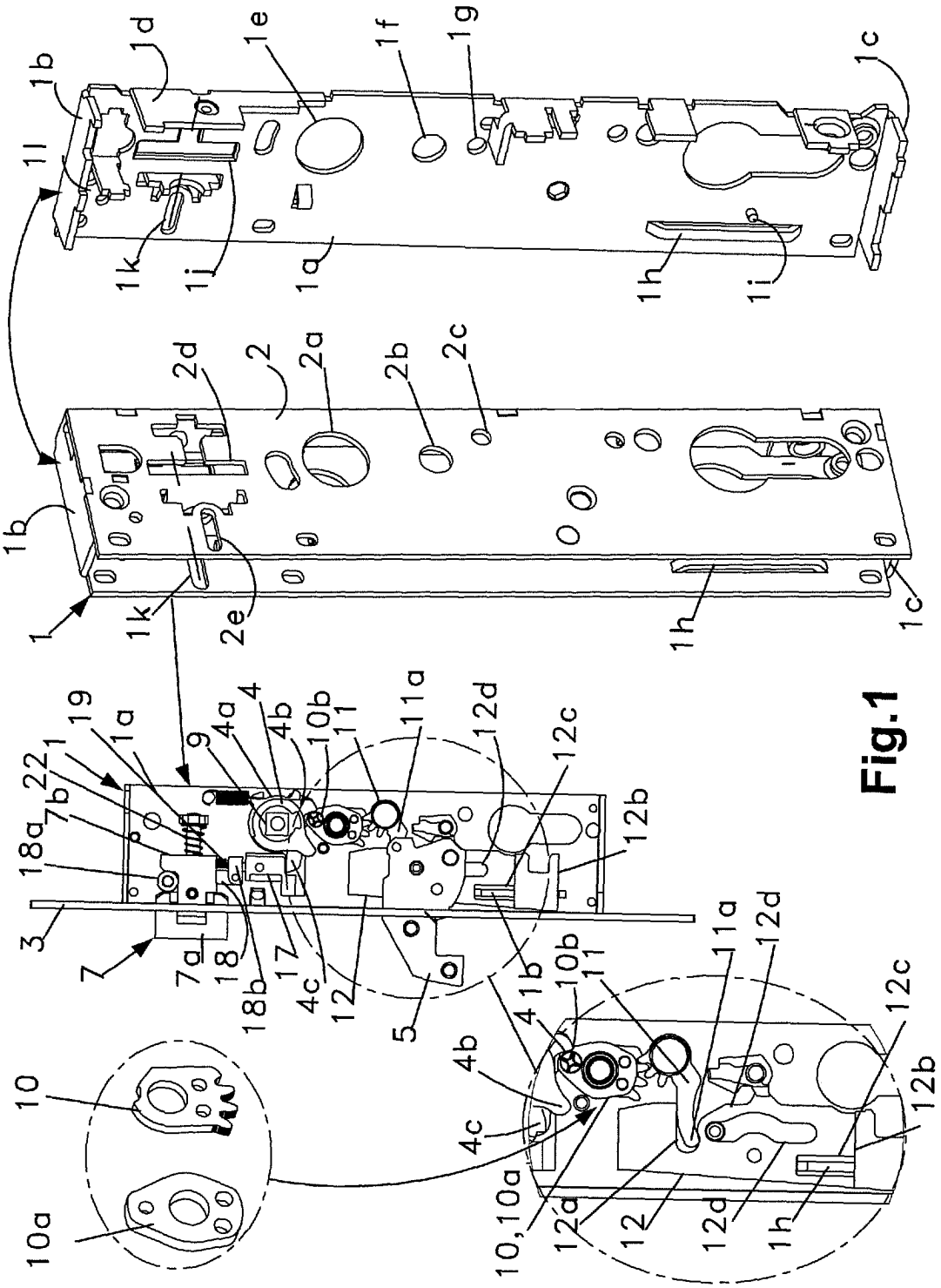

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Fig.1

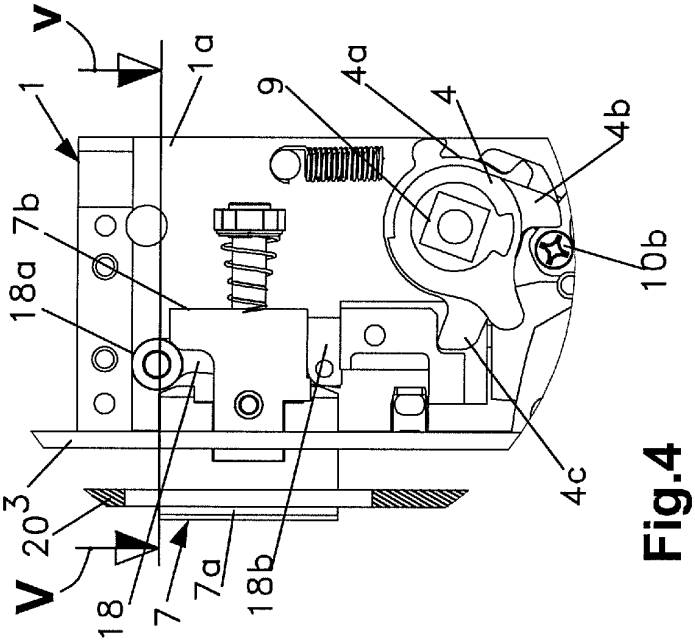



Fig.4

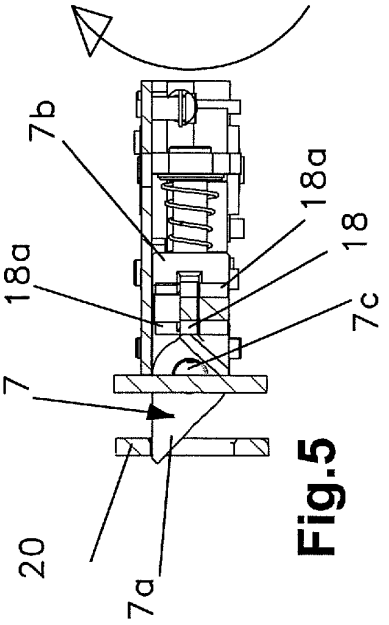



Fig.5

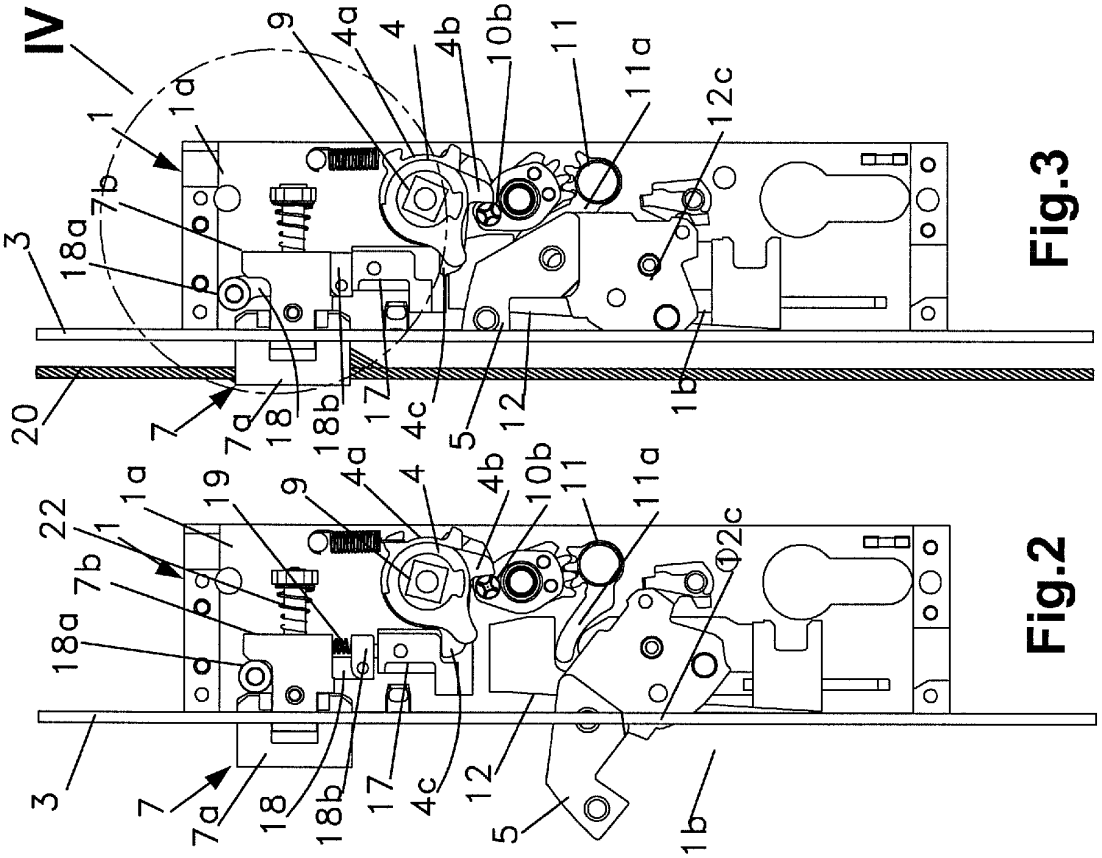



Fig.3

Fig.2

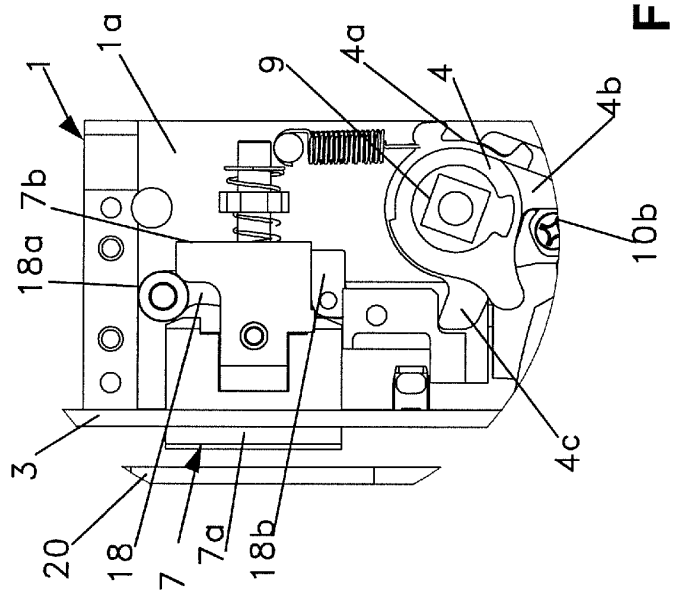



Fig.8

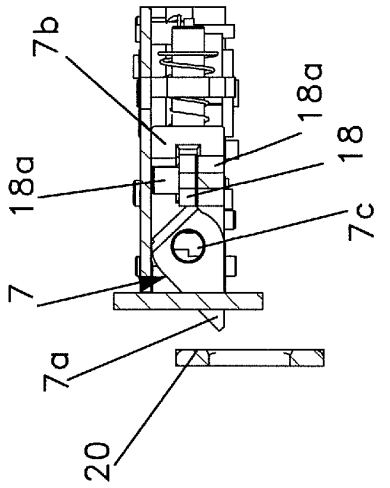



Fig.9

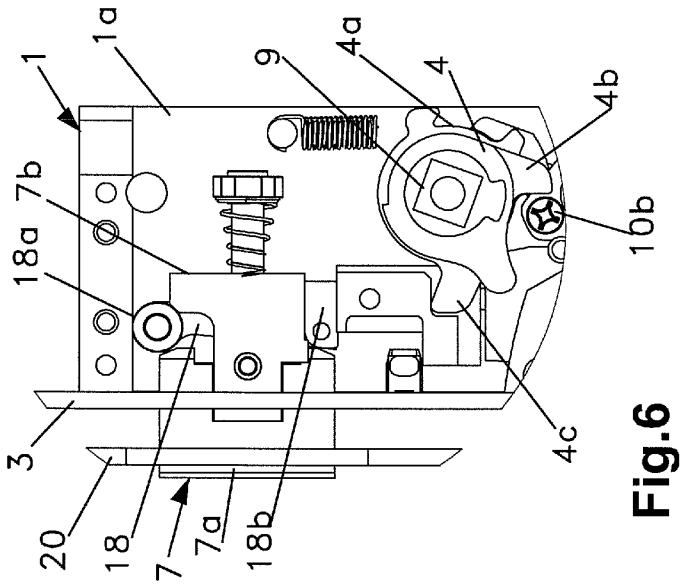



Fig.6

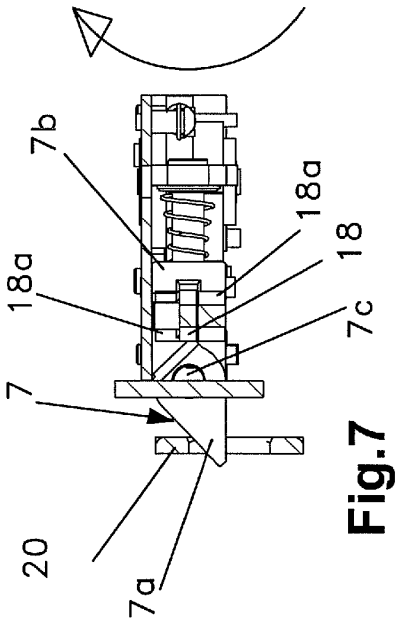



Fig.7

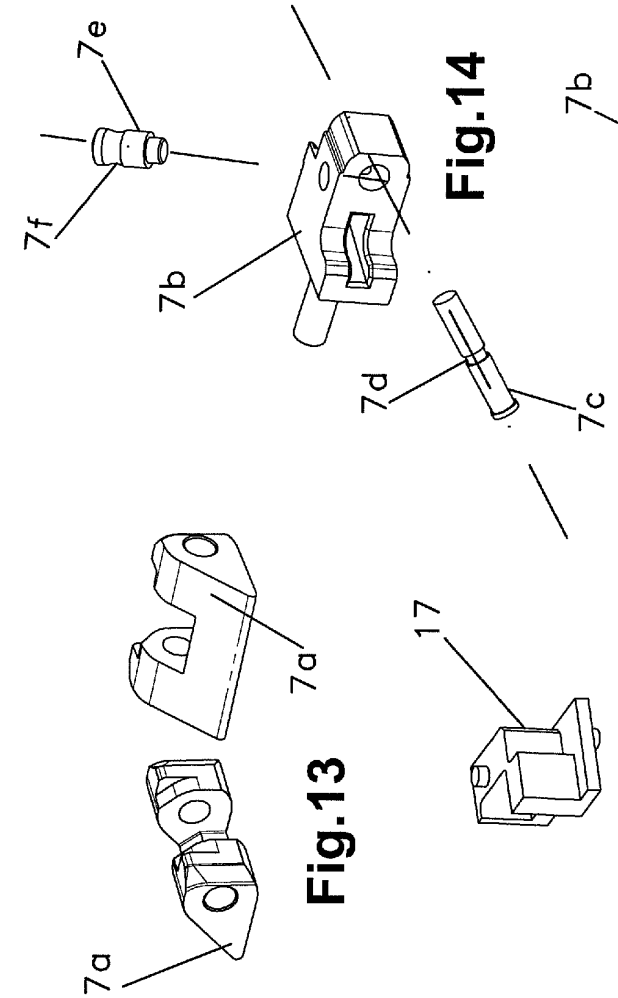



Fig.14

Fig.13

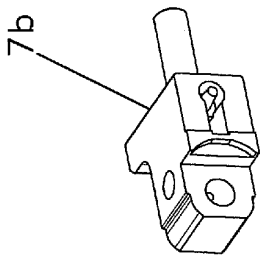



Fig.15




Fig.16

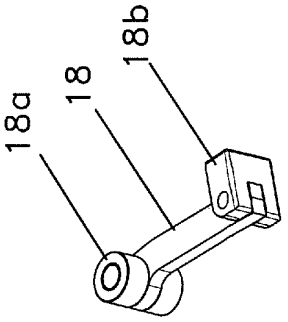



Fig.17

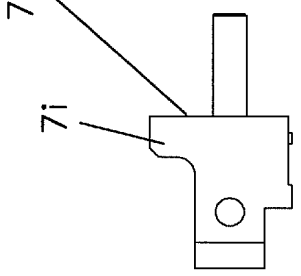



Fig.10

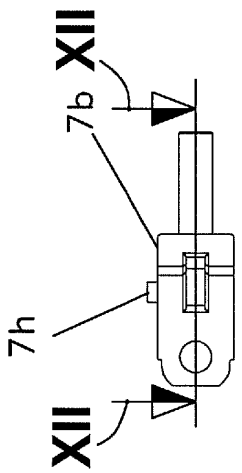



Fig.11

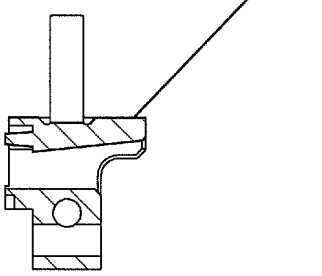
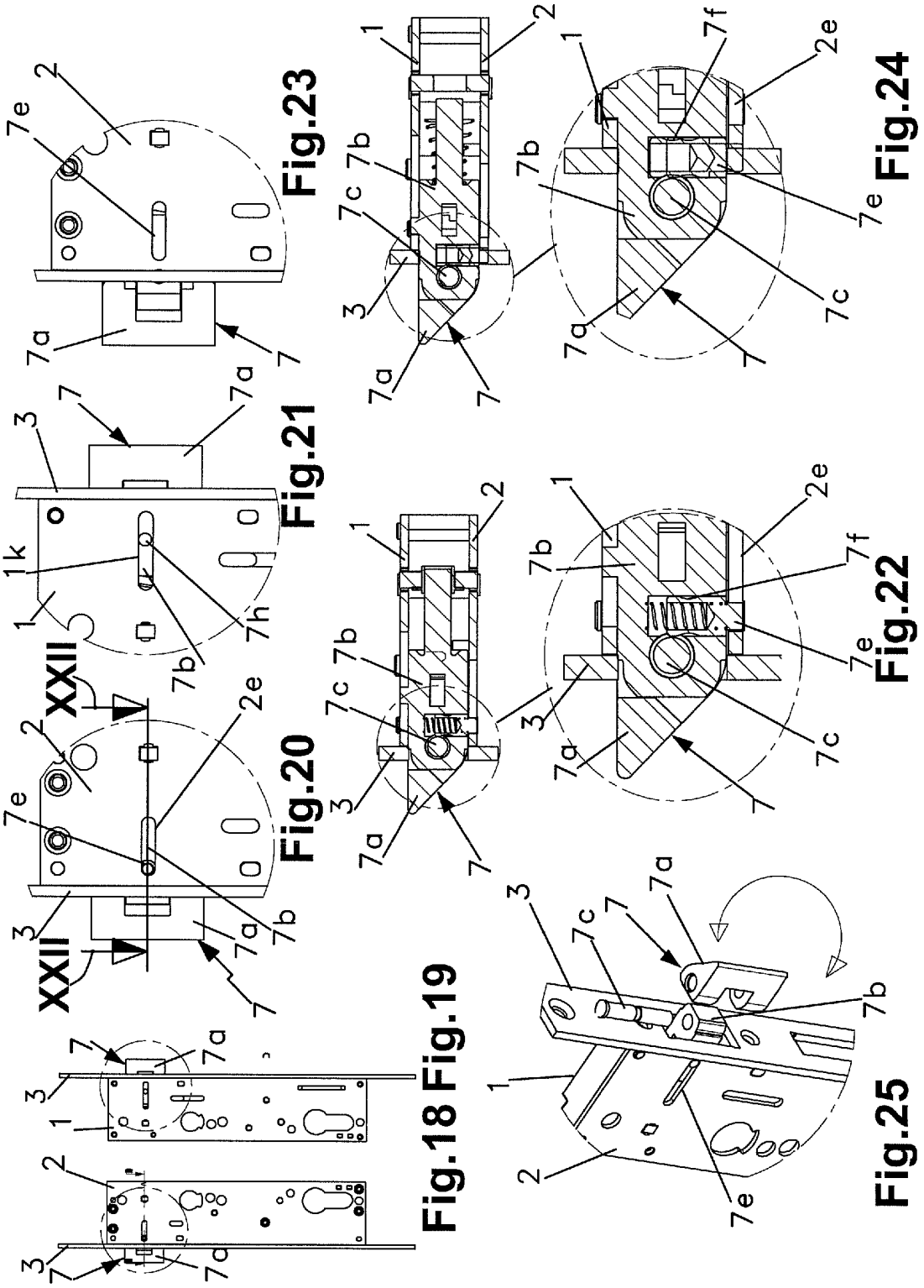



Fig.12


Fig.18
Fig.19
Fig.20
Fig.21
Fig.22
Fig.23
Fig.24
Fig.25
XXII
XXII

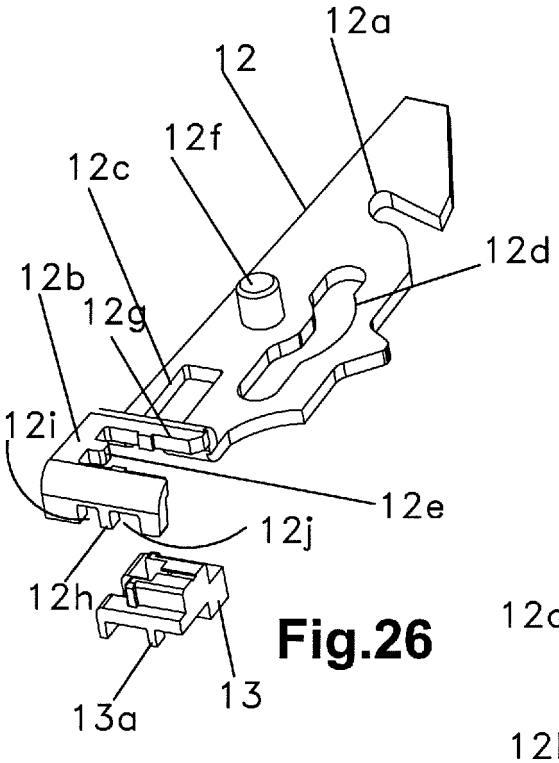



Fig.26

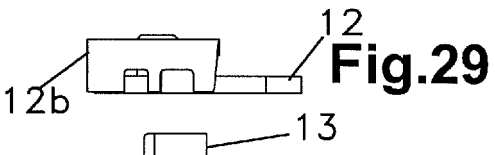



Fig.29

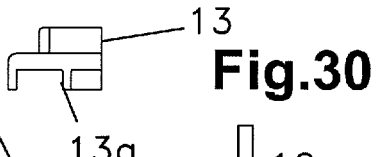



Fig.30

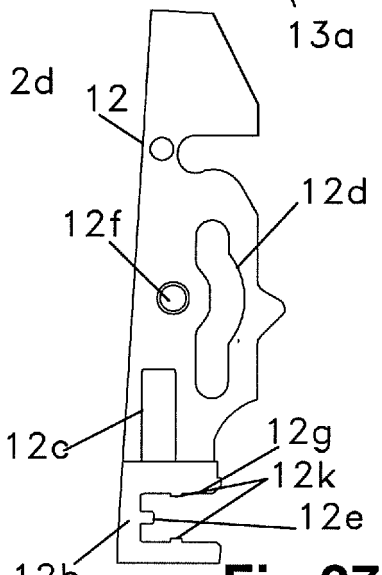



Fig.27

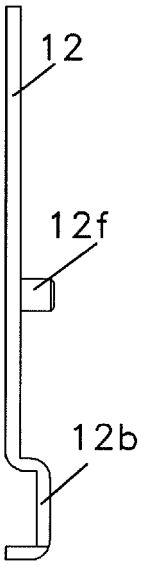



Fig.28

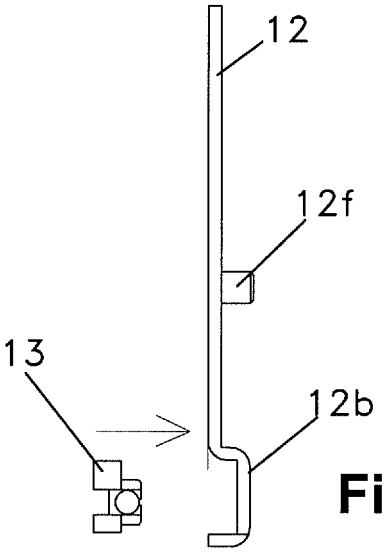



Fig.31

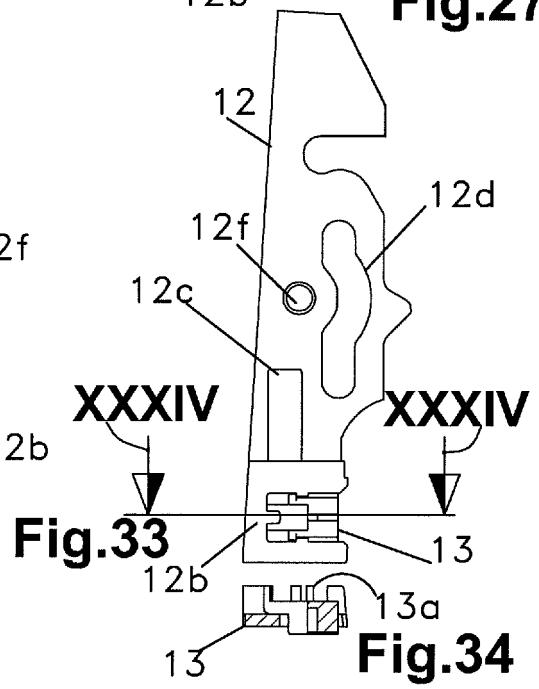



Fig.33

Fig.34

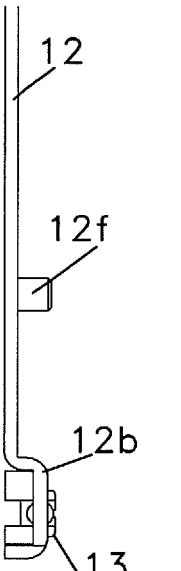



Fig.32

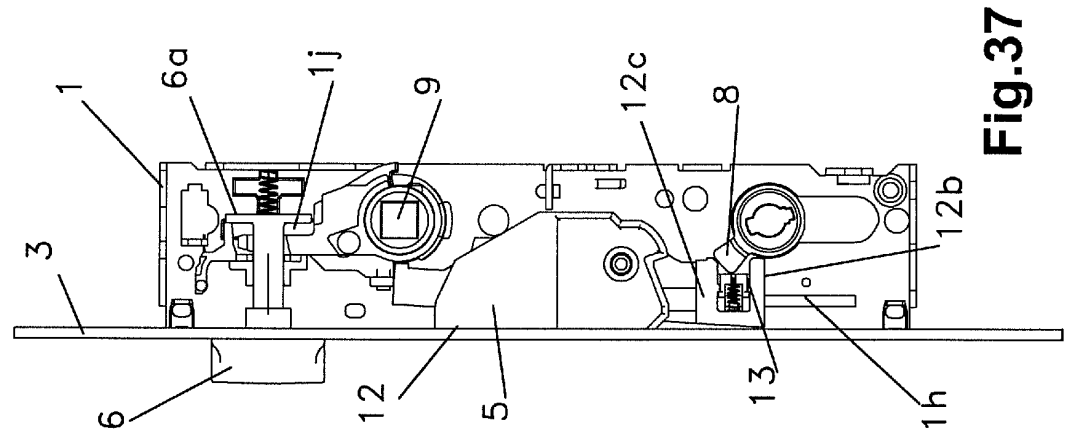



Fig.37

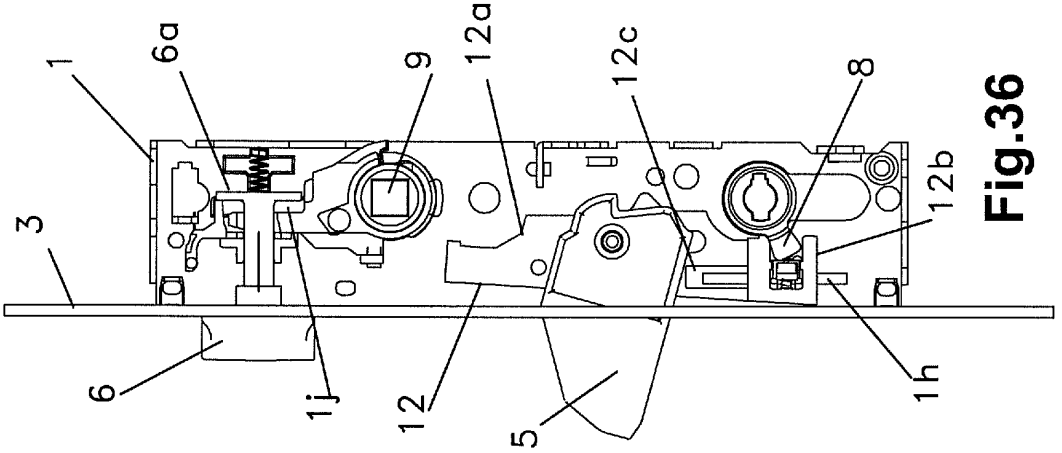



Fig.36

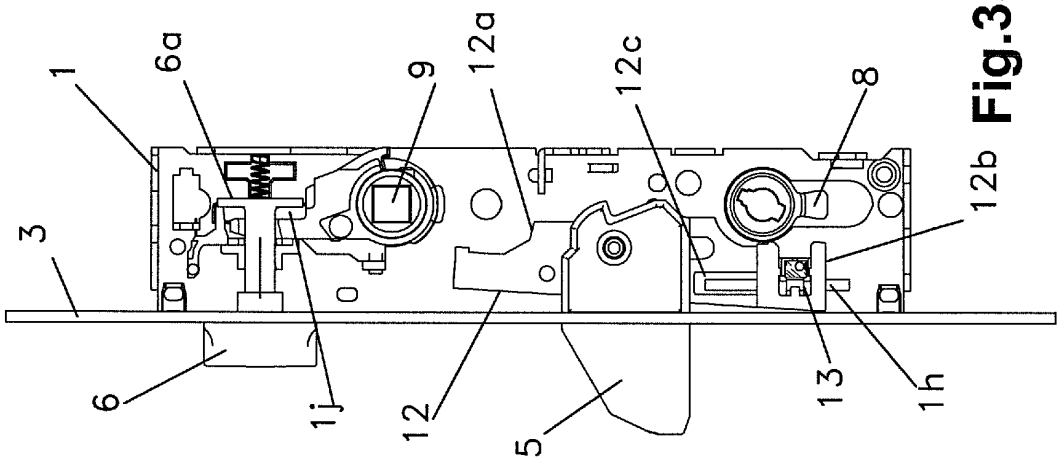



Fig.35

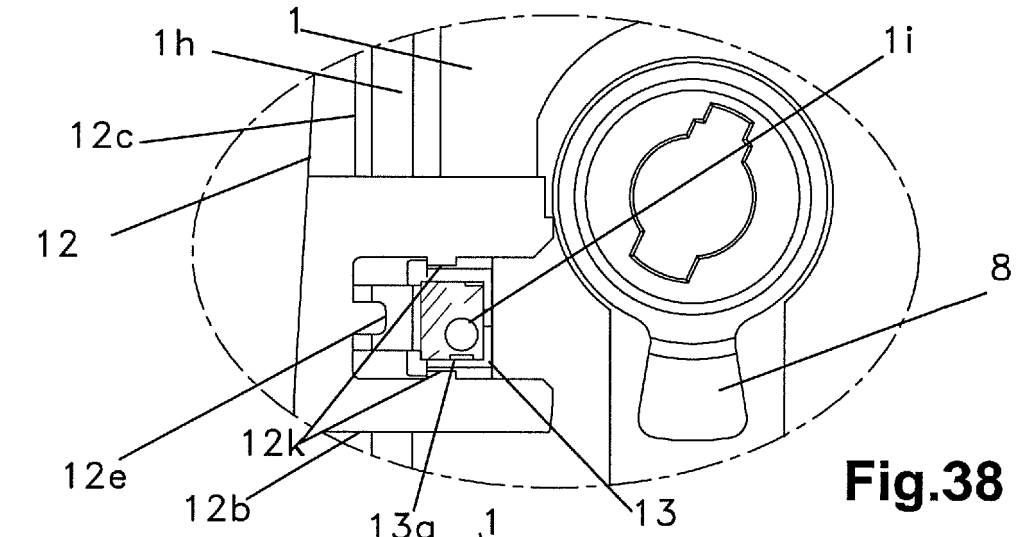



Fig.38

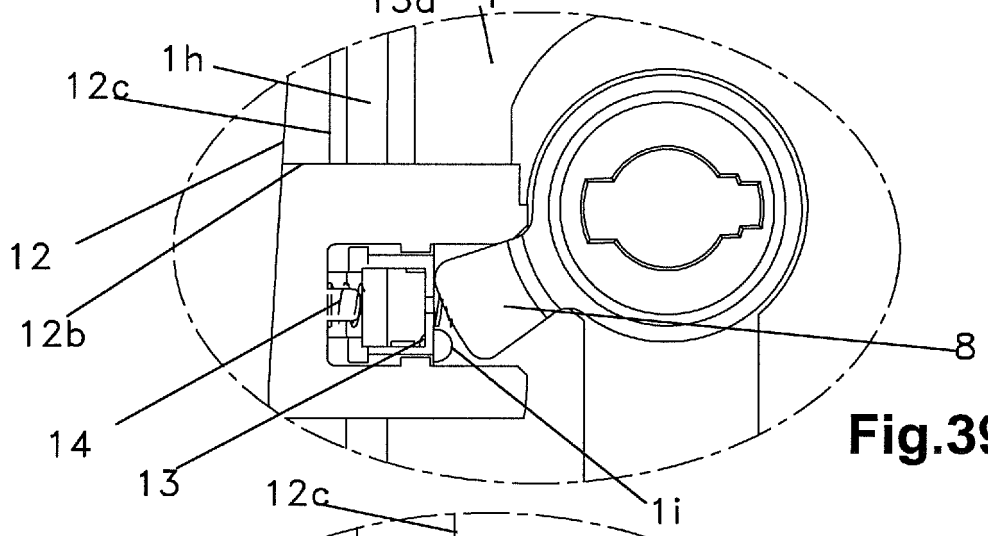



Fig.39

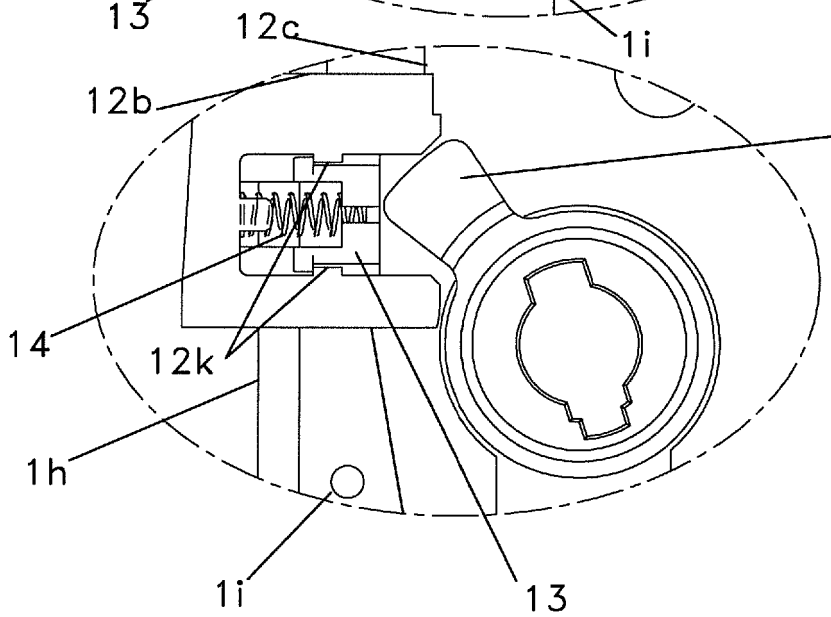



Fig.40

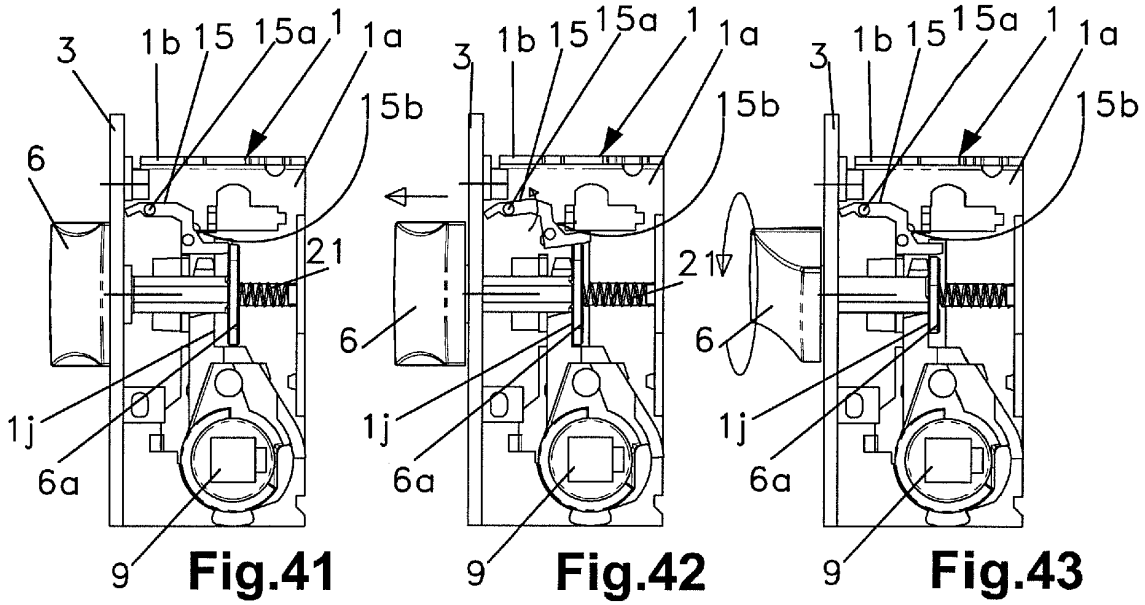



Fig.41 Fig.42 Fig.43

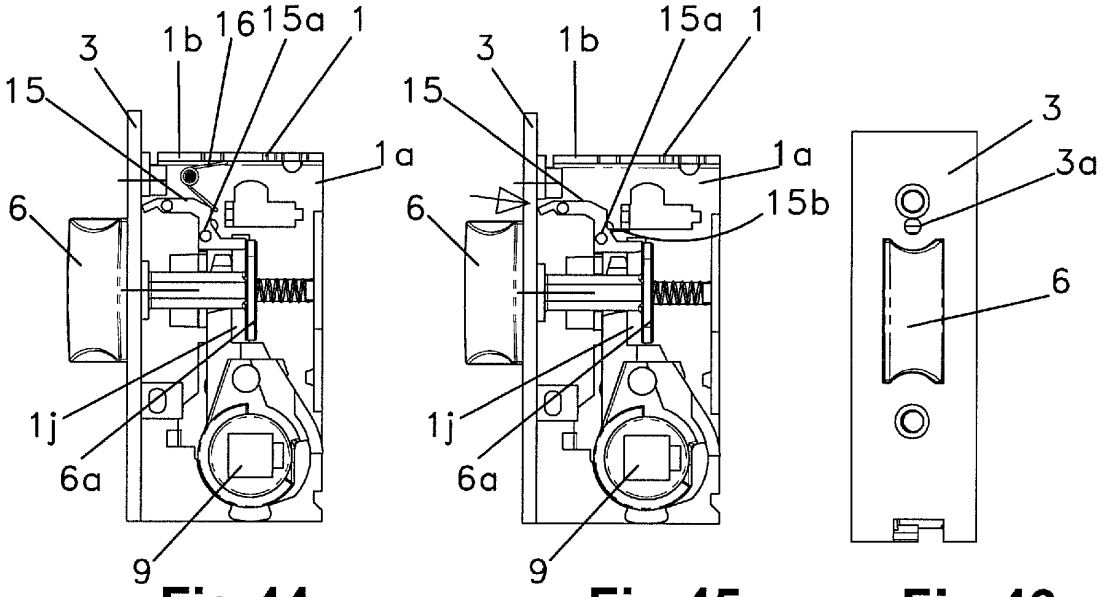



Fig.44 Fig.45 Fig.46

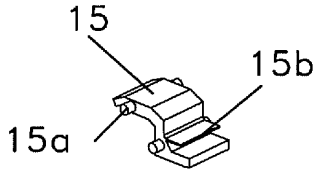



Fig.47

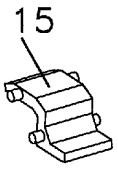



Fig.48

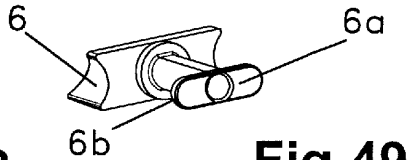



Fig.49

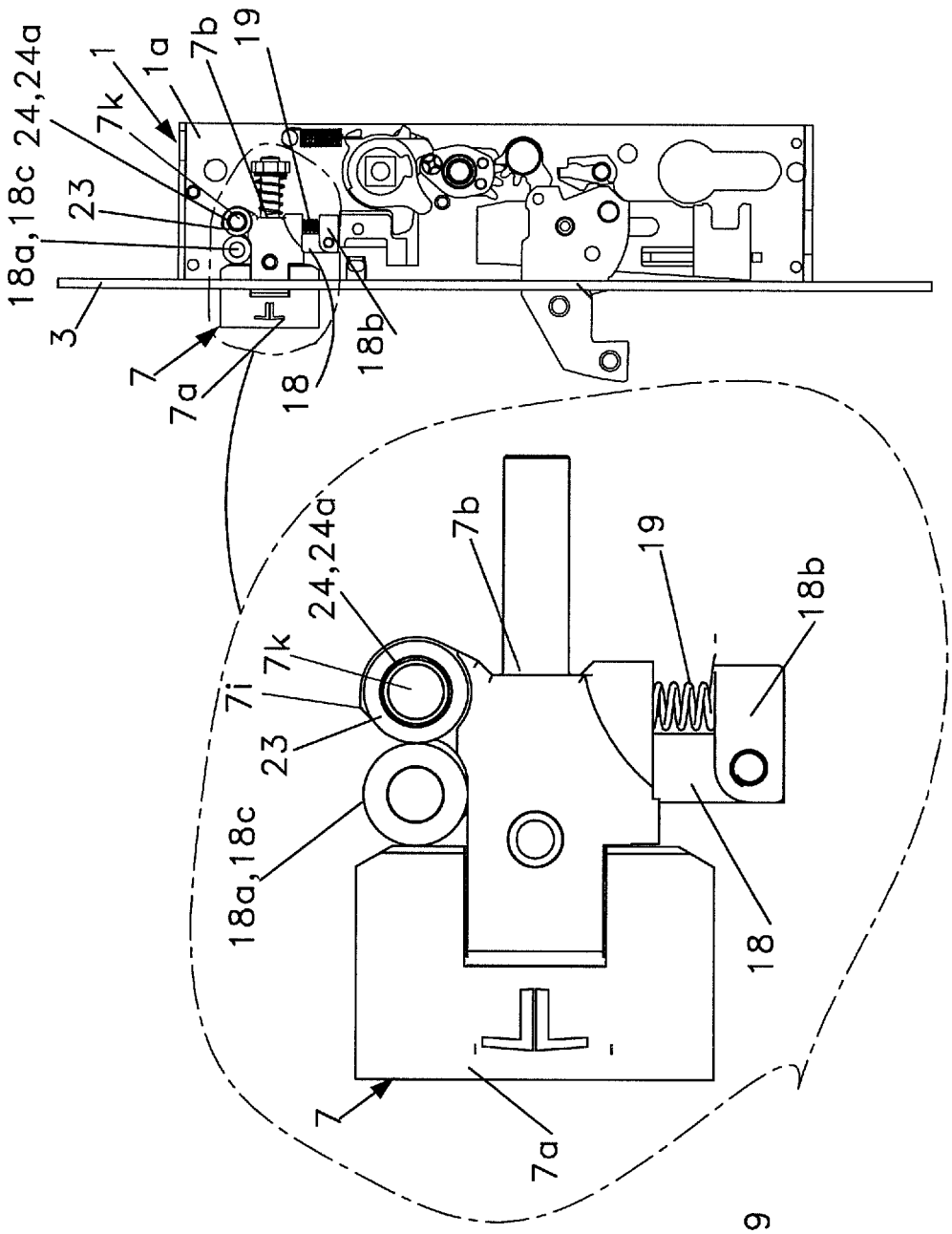

18a,18c 24,24a
23
3
7
7a
18
18b
7k
1
1a
7b
19
7i
24,24a
18a,18c
7

Fig.50

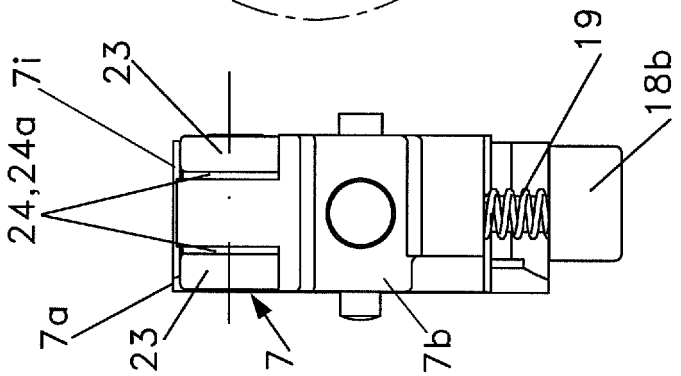

7i
23
24,24a
7a
23
7
7b
19
18b

Fig.51

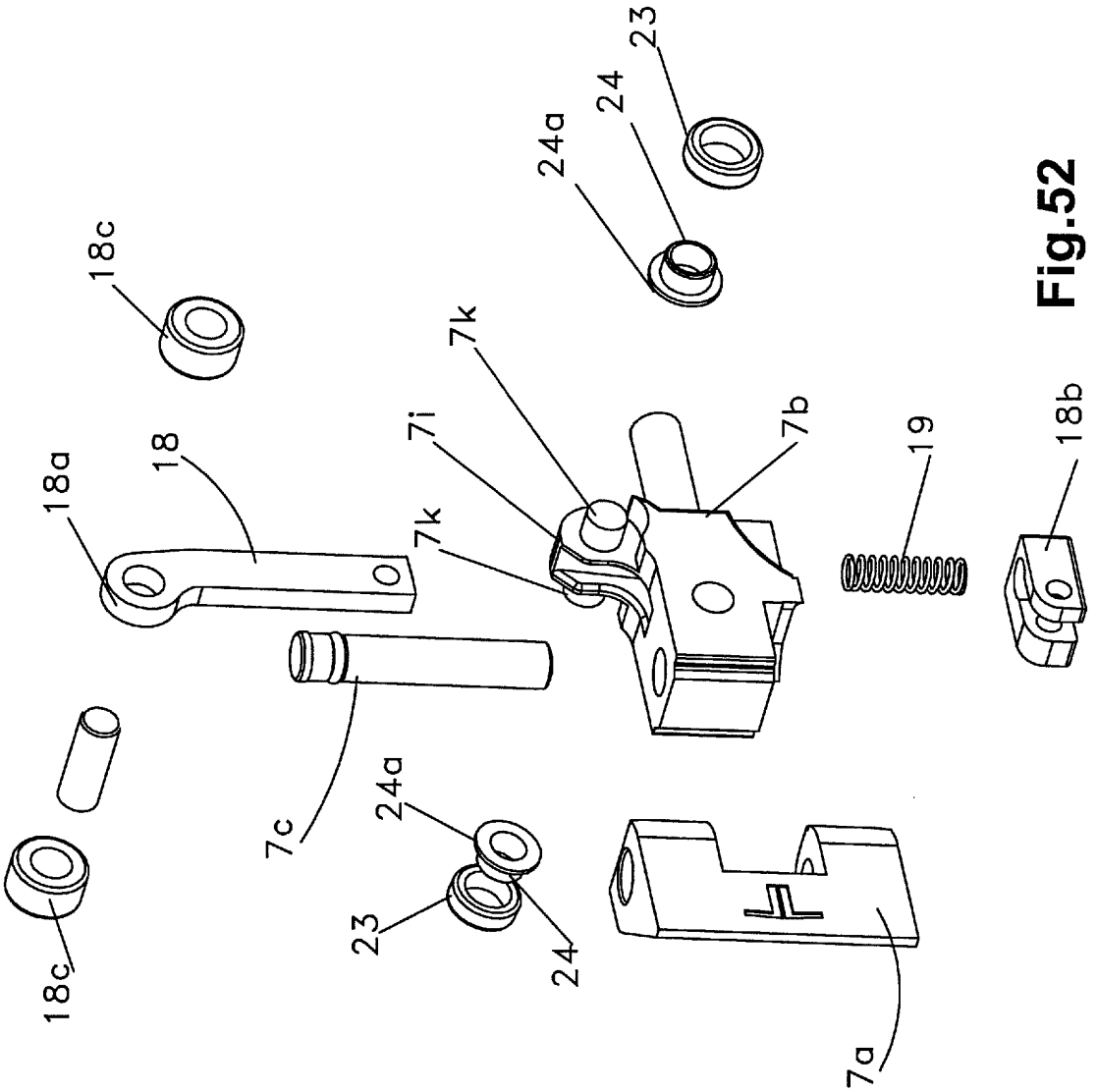



Fig.52