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(56) References cited:
**EP-A1- 0 735 220 EP-A1- 0 792 980
EP-A2- 1 033 459 DE-U1- 9 304 388
NL-C- 30 270 US-B1- 6 209 931**

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Description

[0001] The present invention relates to a lock provided with a spring latch.

[0002] As it is known, among the various locks that are currently commercially available, one of the most widely used is generally composed of a box-shaped body, a spring latch which protrudes partially from an opening formed on a wall of the box-shaped body, and means, accommodated inside the box-shaped body, for connecting the spring latch to one or more actuators, such as for example a cylinder for locks (or directly a key) or a handle.

[0003] Optionally, a bolt may be present which is connected mechanically to a cylinder or a key.

[0004] The box-shaped body is constituted generally by two base plates and by walls which substantially enclose all the mechanisms of the lock, and is inserted traditionally in a complementarily shaped compartment formed in the closure element (typically a door) with which the lock is to be associated.

[0005] The spring latch protrudes from one wall of the box-shaped body which is substantially aligned with the edge of the door or window.

[0006] The part of the spring latch that protrudes from the box-shaped body is substantially triangular and in practice has one side which is inclined with respect to the wall from which it protrudes, in order to allow sliding on the edge of the retention seat formed in the frame of the door jamb, and an opposite side which is substantially perpendicular to the wall from which it protrudes and is adapted to abut within the retention seat in order to prevent the door from opening.

[0007] It is evident that the inclined side of the spring latch must be oriented appropriately depending on whether the door opens to the right or to the left.

[0008] To do this, currently known spring latches are constituted substantially by a prism-shaped body, which protrudes partially from the box-shaped body, and by a pivot, which is rigidly fixed to the prism-shaped body which is located inside the box-shaped body; such pivot is connected to the mechanisms of the lock.

[0009] The pivot can be pushed (for example by means of a screwdriver) so as to move the prism-shaped body entirely outside of the box-shaped body and then turn it through 180 degrees; in this manner, it is possible to choose the orientation of the spring latch depending on the opening of the door with which the lock is associated.

[0010] An appropriately calibrated spring is associated with the pivot and acts so as to return the spring latch inward when it is pushed outward in order to reverse its rotation.

[0011] Another spring is associated with such spring latch and is adapted to provide the free retraction of the spring latch when it strikes the edge of the retention seat formed in the frame of the door jamb.

[0012] During the installation of locks in doors, the installation technician may make a mistake in correctly orienting the spring latch, associating a lock with left-hand-

ed spring latch with a door with right-handed opening.

[0013] In this case, the installation technician must disassemble the lock, turn the spring latch correctly and then reassemble the lock.

[0014] Moreover, the locks fitted in doors by the installation technician may have, on the exposed side, a certain type of color finish (such as for example brass coating or chroming of the spring latch which protrudes, a need which is felt in the field of designer doors and windows), while the handles, which are fixed at a later time, have different color finishes, for example because they are purchased at a later time or for other reasons.

[0015] In this case, the installation technician must replace the locks with others which have the same finish as the handles, for example with adequately colored spring latches.

[0016] The problem of the finishes of locks also affects the storage facilities of lock manufacturers; such manufacturers must in fact manufacture and store an adapted number of locks depending on the type of finish required by the market.

[0017] NL-30 270 C discloses a lock as defined in the preamble of claim 1.

[0018] In particular, the lock disclosed in NL-30 270 C comprises a spring latch having a first body, which is partially external to the box-shaped lock body and is designed to close the lock according to a right- or left-handed closure orientation, and a second body, which is internal to said box-shaped lock body. The first body is coupled to the second body by way of quick-locking means of the reversible type with a snap action for the coupling, with elastic deformation, of one retention tooth on a wing formed on a shank of the rear portion of the first body. The shank and the wing are inserted slidably into a hole formed in a central portion of the second body, until the retention tooth engages the other side of the hole.

[0019] The aim of the present invention is to provide an alternative quick-locking means for coupling the first body to the second body.

[0020] Within this aim, an object of the present invention is to provide a lock which solves the above-mentioned drawbacks in known types.

[0021] Within this aim, another object of the present invention is to provide a lock which can be fitted on a corresponding door or window, reducing the possibility of errors in orienting the spring latch during the installation of the lock.

[0022] Another object of the present invention is to provide a lock which facilitates its installation in the corresponding door or window.

[0023] Another object of the present invention is to provide a lock which allows easy orientation of the spring latch during installation.

[0024] Another object of the present invention is to provide a lock which facilitates the planning of production for lock manufacturers and its storage in stock and also facilitates the association of the aesthetic finishes related

to the spring latch and to the handles.

[0025] A further object of the present invention is to provide a lock which can be manufactured with known equipment and technologies.

[0026] This aim and these and other objects, which will become better apparent hereinafter, are achieved by a lock as defined in claim 1.

[0027] Further characteristics and advantages of the invention will become better apparent from the following detailed description of a preferred but not exclusive embodiment thereof, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a plan view of the lock, illustrating its interior and with the spring latch fully extended in the closure position without turning the key;

Figure 2 is a plan view of the same lock as in Figure 1, with the spring latch fully retracted by way of the rotation of the handle (not shown in the figure);

Figure 3 is a plan view of the lock of Figure 1, with the spring latch fully extracted in the closure position with the key turned;

Figure 4 is an exploded plan view of the spring latch of the lock shown in the preceding figures;

Figure 5 is a plan view of the spring latch of the lock shown in the preceding figures;

Figure 6 is an exploded plan view of some components of the lock shown in the preceding figures;

Figure 7 is a variation, with respect to the preceding figures, of the second body which composes a spring latch of a lock according to an embodiment of the invention.

[0028] With reference to the figures, a lock according to an embodiment of the invention is generally designated by the reference numeral 10.

[0029] The lock 10 comprises a box-shaped body 11, which is constituted by two base plates, respectively a first base plate 12 and a second base plate, not shown in the figures, which are mutually parallel, and by four walls 14, from one of which, termed front wall 14a, a spring latch 15 protrudes.

[0030] Externally with respect to the front wall 14a, a longitudinal plate 16 is rigidly fixed, protrudes longitudinally from the front wall and has, at its ends, holes for fixing to the door or window with which the lock is to be associated; such holes are not shown in the figures.

[0031] An opening 17 is provided in the front wall 14a and correspondingly on the plate 16, and the spring latch 15 protrudes from it.

[0032] The means 18 for mechanical connection of the spring latch 15 to two different actuators, such as for ex-

ample a key 20 (shown inserted at the front in the keyhole of the lock in Figures 1 and 2 and in broken lines in Figure 3) and a cam 21 to be rigidly associated with a handle (not shown in the figures), are also provided inside the box-shaped body 11.

[0033] The spring latch 15 is constituted by a first body 22, which is partially external to the box-shaped body 11 and is designed to close the lock according to a closure orientation of the right- or left-handed type, and by a second body 23, which is internal to such box-shaped body 11 and is mechanically connected to the actuators; the second body 23 can move in a guided manner in the direction of translational motion of the spring latch 15.

[0034] The first body 22 is coupled to the second body 23 by way of quick locking means of the reversible type 24, which are described hereinafter.

[0035] The first body 22 has a prism-shaped front portion, which has a substantially trapezoidal transverse cross-section 25 (the shape of such cross-section is not shown in the figures but is of a substantially known type) and is partially external to the box-shaped body 11 (when the spring latch is not fully retracted to open the door or window), and a rear portion 26, which is designed for connection to the second body 23.

[0036] The rear portion 26 runs substantially symmetrically along a central plane which divides longitudinally the prism-shaped front portion having a substantially trapezoidal transverse cross-section 25.

[0037] In this manner, the first body 22 can be inserted in the opening 17 for connection to the second body 23 equally with a right- or left-handed orientation (with reference to the opening of the door or window with which the lock is to be associated).

[0038] The quick-locking means 24 of the reversible type are of the snap-acting type for the coupling, with elastic deformation, of at least one retention tooth in a complementary retention seat, as described hereinafter.

[0039] In this embodiment, the quick-locking means 24 of the snap-acting reversible type are clearly visible in Figures 4 and 5 and comprise a shank 27, which is formed at the rear portion 26 of the first body 22 and is inserted slidingly in a complementary receptacle 28 formed in the central portion 29 of the second body 23, and two wings 30 (which extend toward the opening 17 from the central portion 29) which have, at their ends, a respective retention tooth 31, which is adapted to mate, by elastic flexing of the respective wing 30, with a respective retention seat 32 formed laterally with respect to the rear portion 26 of the first body 22.

[0040] The quick-locking means 24 of the reversible type comprise means 33 for unlocking the snap coupling of the retention teeth 31 with respect to the respective retention seats 32.

[0041] The release means 33 are constituted by two flat tabs 34, which protrude respectively from the wall of a corresponding retention tooth 31 toward the central plane of the spring latch 15, so as to provide in practice, by means of the respective wings 30, two facing L-shaped

portions.

[0042] The ends 35 of the flat tabs 34 are mutually proximate, substantially without touching each other; in this manner, by inserting a divaricator tool (not shown in the figures) between the ends 35, making it pass through a through hole provided in the second base plate at the region occupied by the ends 35, it is possible to move mutually apart the flat tabs 34, flexing the wings 30 and therefore uncoupling the retention teeth 31 from the corresponding retention seats 32 (as clearly shown in Figure 5).

[0043] A similar through hole 19 is shown in Figure 6 and is formed in the first base plate 12; a through slot 26a is provided in the rear portion 26 of the first body 22 in order to allow the passage of the divaricator tool through the similar through hole 19 at the ends 35 of the flat tabs 34.

[0044] Advantageously, complementary guiding recesses 36 for the insertion of the divaricator tool are provided at the ends 35.

[0045] The second body 23 has guiding studs 37, which are arranged slidingly in respective first parallel guides 38, which are provided through the first base plate 12 and through the second base plate (on the second base plate there is a single first parallel guide, the contour of which is shown in broken lines if it is designated by the reference numeral 38a) and are oriented in the direction of entry and exit motion of the spring latch 15 with respect to the box-shaped body 11.

[0046] An elastic element 39 for contrasting the retraction of the spring latch into the box-shaped body 11 is associated with the spring latch 15.

[0047] The elastic element 39 is constituted for example by a helical spring, which is arranged between an abutment 40, such as for example the wall 14 which lies opposite the front wall 14a, and the second body 23.

[0048] In particular, the end of the elastic element 39 in contact with the second body 23 is inserted in a cylindrical groove 41 formed in the second body 23, as clearly shown in Figures 4 and 5.

[0049] The cylindrical groove 41 is superimposed on the complementarily shaped receptacle 28 for the shank 27 which is formed at the rear portion 26 of the first body 22.

[0050] Advantageously, when the shank 27 is fully inserted within the complementarily shaped receptacle 28 (and the first body 22 therefore is locked to the second body 23 by coupling the retention teeth 31 in the corresponding retention seats 32), the end of the elastic element 39 pushes against the end of the shank 27.

[0051] In this manner, when the first and second bodies 22 and 23 are associated, the elastic element 39 pushes them outward as if they were a single body (it pushes on the first body, which is fixed to the second body), while when the retention teeth 31 are disengaged from the complementary seats 32, the elastic element 39 pushes only the first body 22 (which is now free) outward, cooperating to its release from the second body 23.

[0052] In a constructive variation of the second body, shown in Figure 7 and designated by the reference numeral 123 (Figure 7 shows the second body 123 from the opposite face with respect to the one shown in the other figures), the elastic element 39 (not shown in the figure) pushes only on the second body 123, while the elastic push for mutual separation of the first body (not shown in the figure) and the second body 123 is provided by additional elastic means 142, which are interposed between the second body 123 and the first body; in particular, the elastic means 142 are constituted by two flexible wings, which are formed on the abutment position, which is formed on the central portion 129 of the second body 123, for the rear portion 26 of the first body 22 from which the shank 27 protrudes.

[0053] The means 18 for mechanical connection of the spring latch 15 to the two different actuators comprise a flat element 44, which is guided slidingly at right angles to the direction of translational motion of the spring latch 15; in particular, the flat element 44 has, on one face, additional studs 45, which are arranged so that they can slide in second guides 46 formed through the first base plate 12.

[0054] The flat element 44 has an inclined portion 47, which is adapted to slide, when in contact, against a complementarily shaped shoulder 48 (designated by the reference numeral 148 in the variation of Figure 7), which is also inclined in the same direction and is formed on the second body 23.

[0055] A first portion 49, for interaction with the cam 21 to be associated with the handle of the door or window, and a second portion 50, for interaction with, in this embodiment, the eccentric element of the key 20 of the lock, are provided respectively at the ends of the flat element 44.

[0056] The first portion 49 for interaction with the cam 21 comprises a protrusion 51, which is adapted to act as an abutment for an abutment tooth 52 formed on the cam 21.

[0057] The cam 21 is pivoted to the base plates and is associated with an elastic return element 53, such as a helical torsion spring, which is locked in such cam and in which the opposition end is locked against an abutment 54 which protrudes from the first base plate 12.

[0058] The cam is provided centrally with a square through hole 55 for rotation-preventing connection to the handles.

[0059] The second portion 50 for interaction with the eccentric element of the key of the lock comprises an abutment body 56, which is monolithic with the flat element 44 and forms four different abutment points for the eccentric element of the key; in particular, such four abutment points comprise a lower end 57, which allows to push, by means of the clockwise rotation of the key (with reference to the figures), the flat element 44 upward, replacing the movement imparted by the rotation of the cam 21 in order to make the spring latch 15 retract.

[0060] Such four different abutment points further

comprise the inner walls of a recess 58, respectively a lower wall 59 and an upper wall 60, which allow, respectively with a counterclockwise rotation and a clockwise rotation, downward movement (closure of the lock: the spring latch is prevented from retracting by a rear stop element 61, which is rigidly coupled to the flat element 44 which moves downward behind the second body 23) and upward movement (reopening of the lock: the rear stop element 61, together with the flat element 44, moves upward, disengaging the spring latch 15) of the flat element 44.

[0061] The last abutment point corresponds to an element 62 for stopping the closure rotation for the eccentric element of the key when the lock is in the closure position.

[0062] An additional elastic return element 63 is associated with the flat element 44 and contrasts the movement of the flat element 44 toward the cam 21 when the lock is in the open position.

[0063] The additional elastic return element 63 allows to return the flat element 44 to such a position that the spring latch 15 can move from the inside outward.

[0064] The additional elastic return element 63 is constituted by a helical spring, which is accommodated in a cavity 64, which is formed in the abutment body 56 and is open at one end.

[0065] The additional elastic return element 63 is locked at its ends in the cavity 64.

[0066] A lamina 65 protrudes at right angles from the first base plate 12, is aligned with the opening of the cavity 64, and is adapted to enter it when the flat element 44 moves upward, forming in practice an abutment for the additional elastic return element 63.

[0067] The distance that separates the lamina 65 from the additional elastic return element 63 is required in order to allow the closing movement of the lock.

[0068] In order to guide properly the second interaction portion 50 of the flat element 44, on the abutment body 56 there is an additional cavity 66, the axis of which is perpendicular to the flat element 44, such cavity accommodating an elastic spring (not shown in the figures) at the end of which a ball 67 rests.

[0069] Such ball is arranged so that it can slide, when the box-shaped body 11 is closed, on a guide 68 which passes through the second base plate (shown in broken lines on the first base plate 12).

[0070] The guide 68 converges in the direction in which the lock opens.

[0071] A small hole 68a (shown in broken lines on the first base plate 12) is provided in alignment with the guide 68 on the second base plate and is designed to stably accommodate the ball 67 when the flat element 44 is moved downward for closure, as shown in Figure 3; the passage of the ball 67 from the guide 68 to the hole 68a produces a sound (caused by the snap motion imparted by the spring to such ball) which indicates the opening/closing of the lock.

[0072] As regards the materials, the first body 22 and

the second body 23-123 are preferably made of plastics.

[0073] The plastic spring latch has the advantage of producing limited noise during its operation.

[0074] The first body 22 can be conveniently colored according to requirements of the aesthetic finish.

[0075] The operation of the invention is as follows.

[0076] The lock is fitted on the door or window and is in the normal closure position, as shown in Figure 1 (the spring latch 15 is fully extracted and the handle can make it retract by turning).

[0077] By turning the handle (see Figure 2), the cam 21 is turned (clockwise with reference to the drawings) and, by means of the abutment tooth 52, which abuts against the protrusion 51, moves the flat element 44 upward (with reference to the drawings) and therefore makes the inclined portion 47 slide against the complementarily shaped shoulder 48 formed on the second body 23.

[0078] The sliding on the inclined portion 47 which advances upward moves the second body 23 (and therefore the entire spring latch 15) inward, so as to compress the elastic element 39.

[0079] Likewise, the additional elastic return element 63, by advancing rigidly with the flat element 44, is compressed by the lamina 65, which lies along the advancement path.

[0080] By releasing the handle, the abutment tooth 52 detaches from the protrusion 51, thus releasing the flat element 44; the effect of the elastic element 39 which pushes the spring latch 15 on the inclined portion and the effect of the additional elastic return element 63 return the flat element 44 downward, allowing the spring latch 15 to protrude through the opening 17.

[0081] As an alternative to turning the handle, it is possible to turn the key clockwise, moving its eccentric element so that it abuts against the lower end 57 of the abutment body 56, thus pushing the flat element 44 upward and making the spring latch 15 retract.

[0082] By turning the key 20 counterclockwise (with reference to the drawings), the eccentric element of the key is made to push against the lower wall 59 of the recess 58 formed in the abutment body 56, moving downward the flat element 44 and disengaging it from the spring latch 15 and from the lamina 65 (as shown in Figure 3).

[0083] In this manner, the spring latch 15 is fully extracted, while the handle turns idle, since the abutment tooth 52 is higher than the protrusion 51, with no possibility to abut against it.

[0084] As the counter clockwise rotation continues, the eccentric element of the key strikes the closure rotation stop element 62 also formed on the abutment body 56, above the recess 58.

[0085] As regards the installation of the lock in the door or window with which it is associated, the installation technician is supplied with a lock in which the first body 22 is separated from the rest of the lock.

[0086] The installation technician fits the lock body to

the door or window without worrying about the orientation of the spring latch or about the colors of the finish.

[0087] Once the main body of the lock has been fitted, the installation technician inserts the first body 22 of the spring latch 15 through the opening 17, mating it with the second body 23, according to the required right- or left-handed orientation.

[0088] The mating between the first body 22 and the second body 23 occurs by elastic deformation of the wings 30 and by insertion of the retention teeth 31 of the wings 30 in the corresponding retention seats 32 of the first body 22.

[0089] The installation technician conveniently will have chosen first bodies 22 which have suitable color finishes.

[0090] Optionally, if the lock is supplied already assembled and the installation technician needs to reverse the orientation of the spring latch, this operation is extremely simplified, since it is sufficient to move apart the wings 30 by acting with a divaricator tool through the hole 19.

[0091] It should be noted that the lock manufacturer can conveniently manufacture lock bodies which are all identical (optionally differentiating them in the plate 16 for fixing to the door or window) and can produce separately spring latches having various color finishes, thus reducing the variations in stock.

[0092] In practice it has been found that the invention thus described solves the above-mentioned problems in known types of lock; in particular, the present invention provides a lock which can be fitted on a corresponding door or window so as to reduce the possibility of errors in orienting the spring latch during the installation of such lock.

[0093] Moreover, the present invention provides a lock which facilitates its installation in the corresponding door or window.

[0094] Moreover, the present invention provides a lock which allows easy orientation of the spring latch during installation.

[0095] Moreover, the present invention provides a lock which facilitates planning of production for lock manufacturers and the management of the lock in stock and also simplifies the association of the corresponding aesthetic finishes with the spring latch and the handles.

[0096] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0097] In practice, the materials employed, so long as they are compatible with the specific use, as well as the dimensions, may be any according to requirements and to the state of the art.

[0098] 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 exam-

ple by such reference signs.

Claims

1. A lock, which comprises a box-shaped body (11), a spring latch (15) which protrudes from an opening (17) formed in a wall (14a) of said box-shaped body (11), and means (18) for the mechanical connection of said spring latch (15) to at least one actuator (20, 21), wherein said spring latch (15) comprises a first body (22), which is partially external with respect to said box-shaped body (11) and is designed to close the lock according to a right- or left-handed closure orientation, and a second body (23, 123), which is internal to said box-shaped body (11) and is mechanically connected to said at least one actuator (20, 21), said first body (22) being coupled to said second body (23, 123) by way of quick-locking means (24) of the reversible type, the coupling of said first body (22) with said second body (23, 123) occurring, depending on the chosen closure orientation, by inserting said first body (22) through said opening (17), wherein said quick-locking means (24) of the reversible type are of the type with a snap action for the coupling, with elastic deformation, of at least one retention tooth (31) in a complementarily shaped retention seat (32), wherein said quick-locking means (24) of the reversible type, having a snap action, comprise a shank (27), which is formed at the rear portion (26) of said first body (22), which is inserted slidably in a complementarily shaped receptacle (28) formed in a central portion (29) of said second body (23), **characterized in that** said second body (23) includes two wings (30), which protrude toward said opening (17) from said central portion (29) and have, at their end, a respective retention tooth (31), which is adapted to mate, by elastic flexing of the respective said wing (30), with a respective retention seat (32) formed laterally with respect to said rear portion (26) of said first body (22).
2. The lock according to claim 1, **characterized in that** said quick-locking means (24) of the reversible type comprise means (33) for releasing the snap coupling of said retention teeth (31) with the respective retention seats (32).
3. The lock according to claim 2, **characterized in that** said release means (33) comprise two flat tabs (34), which extend respectively from the side wall of a corresponding retention tooth (31) towards the central plane of said spring latch (15), the ends (35) of said flat tabs (34) being mutually proximate substantially without mutual contact, at least one through hole (19) being provided in the box-shaped body (11) at the region occupied by said ends (35) and being adapted for the insertion of a divaricator tool for said flat tabs

- (34).
4. The lock according to claim 3, **characterized in that** complementarily shaped guiding recesses (36) for the insertion of said divaricator tool are provided at said ends (35). 5
 5. The lock according to claim 1, **characterized in that** said rear portion (26) lies substantially symmetrically along a central plane, which divides longitudinally the front portion of the spring latch (15) which is external with respect to the box-shaped body (11). 10
 6. The lock according to one or more of the preceding claims, **characterized in that** said box-shaped body (11) is constituted by two parallel base plates (12) and by walls (14, 14a), said second body (23) having guiding studs (37) which are arranged slidably within respective first parallel guides (38, 38a), which are formed through said base plates (12) and are oriented in the direction of the inward and outward motion of said spring latch (15) with respect to said box-shaped body (11), an elastic element (39) for contrasting the retraction of said spring latch (15) into said box-shaped body (11) being associated with said spring latch (15). 15 20 25
 7. The lock according to claims 1 and 6, **characterized in that** said elastic element (39) is constituted by a helical spring (39), which is arranged between an abutment (40) rigidly coupled to said box-shaped body (11) and the second body (23), the end of said helical spring (39) in contact with said second body (23) being inserted in a groove (41) which is formed in said second body (23), said groove (41) being superimposed on said complementarily shaped receptacle (28) for said shank (27). 30 35
 8. The lock according to claim 7, **characterized in that** when said shank (27) is inserted fully within the complementarily shaped receptacle (28) and said first body (22) is locked to the second body (23) by coupling of said retention teeth (31) in the corresponding retention seats (32), the end of said elastic element (39) pushes against the end of said shank (27). 40 45
 9. The lock according to claim 7, **characterized in that** it comprises elastic means (142), which are interposed between said second body (123) and said first body (22). 50
 10. The lock according to claim 9, **characterized in that** said elastic means (142) comprise at least one flexible wing, which is formed on the abutment portion, which is formed on the central portion (129) of said second body (123), for the rear portion (26) of said first body (22) from which said shank (27) protrudes. 55
 11. The lock according to one or more of the preceding claims, **characterized in that** said means (18) for the mechanical connection of said spring latch (15) to at least one actuator (20, 21) comprise a flat element (44), which is guided slidably at right angles to the direction of translational motion of said spring latch (15), said flat element (44) having an inclined portion (47) which is adapted to slide, when in contact, against a complementarily shaped shoulder (48, 148), which is also inclined in the same direction and is formed on said second body (23), said flat element (44) having, at at least one end, at least one portion (49, 50) for interaction with said at least one actuator (20, 21).
 12. The lock according to claim 11, **characterized in that** said flat element (44) has, on one face, additional studs (45), which are arranged slidably in second guides (46) which pass through at least one of said base plates (12).
 13. The lock according to claim 11, **characterized in that** it comprises two interaction portions (49, 50), respectively a first interaction portion (49) and a second interaction portion (50), with two respective actuators, such as the cam (21) to be associated with a handle and the eccentric element of the key (20) of the lock.
 14. The lock according to claim 13, **characterized in that** said first portion (49) for interaction with said cam (21) comprises a protrusion (51) which is adapted to act as an abutment for an abutment tooth (52) formed on said cam (21), said cam (21) being pivoted to said base plates and being associated with an elastic return element (53), said cam being provided centrally with a through hole which has a polygonal contour (55) for rotation-preventing connection to at least one handle.
 15. The lock according to claim 13, **characterized in that** said second portion (50) for interaction with the eccentric element of the key of the lock comprises an abutment body (56), which is monolithic with said flat element (44) and forms four different abutment points for the eccentric element of the key, including a first abutment point, constituted by a lower end (57) which allows to push, by way of the clockwise rotation of the key, said flat element (44) upward, a second abutment point an a third abutment point which are constituted by the inner walls of a recess (58), respectively the lower wall (59) and the upper wall (60), and allow, respectively with a counterclockwise rotation and a clockwise rotation, the downward and upward movement of said flat element (44), a fourth abutment point constituted by an element for stopping the closure rotation (62) for said eccentric element of the key when the lock is in the closure posi-

tion.

16. The lock according to claim 11, **characterized in that** an additional elastic return element (63) is associated with said flat element (44) in order to contrast the movement of said flat element (44) toward said cam (21) when the lock is in the open position, said additional elastic return element (63) allowing to return the flat element (44) to such a position that said spring latch (15) is able to move from the inside toward the outside of said box-shaped body (11), said additional elastic return element (63) for return to position being accommodated in a cavity (64), which is formed in said flat element (44) and is open at one end, said additional elastic return element (63) being locked at its ends in said cavity (64), a lamina (65) protruding at right angles from one of said base plates (12), being aligned with the opening of said cavity (64), and being adapted to enter it when said flat element (44) moves toward said cam (21), forming in practice an abutment for said additional elastic return element (63).
17. The lock according to claim 11, **characterized in that** an additional cavity (66) is provided in said flat element (44), has an axis which is perpendicular to said flat element (44), and accommodates an elastic spring, at the end of which there is a ball (67) in contact therewith, said ball (67) being arranged so that it can slide, with the box-shaped body (11) closed, on a guide (68) which passes through one of said base plates (12), said guide (68) converging toward said cam (21), in alignment with said guide (68) there being, on the same base plate, a hole (68a) for stably accommodating said ball (67) when said flat element (44) is lowered for closure, the passage of said ball (67) from said guide (68) to said hole (68a) producing a sound which indicates the opening-closure of the lock.
18. The lock according to one or more of the preceding claims, **characterized in that** said first body (22) and said second body (23, 123) are made of plastics.

Patentansprüche

1. Ein Schloss, das Folgendes umfasst: einen kastenförmigen Körper (11), eine Federklinke (15), die aus einer Öffnung (17) herausragt, die in einer Wand (14a) des kastenförmigen Körpers (11) geformt ist, und Mittel (18) zur mechanischen Verbindung der Federklinke (15) mit mindestens einem Betätigungselement (20, 21), wobei die Federklinke (15) einen ersten Körper (22) umfasst, der teilweise außerhalb des kastenförmigen Körpers (11) liegt und konstruiert ist, um das Schloss entsprechend einer rechts- oder linkshändigen Verschluss-Ausrichtung zu ver-

schließen, und einen zweiten Körper (23, 123), der innerhalb des kastenförmigen Körpers (11) liegt und mechanisch mit dem mindestens einen Betätigungselement (20, 21) verbunden ist, wobei der erste Körper (22) mit dem zweiten Körper (23, 123) durch Schnellverriegelungsmittel (24) des reversiblen Typs gekoppelt ist und die Kopplung des ersten Körpers (22) mit dem zweiten Körper (23, 123), abhängig von der ausgewählten Verschluss-Ausrichtung, durch Einführen des ersten Körpers (22) durch die Öffnung (17) stattfindet, wobei die Schnellverriegelungsmittel (24) des reversiblen Typs von dem Typ mit einer Schnappwirkung für die Kopplung, mit elastischer Verformung, mindestens eines Haltesahns (31) mit einem komplementär geformten Haltesitz (32) sind, wobei die Schnellverriegelungsmittel (24) des reversiblen Typs, die eine Schnappwirkung haben, einen Schaft (27) umfassen, welcher am hinteren Abschnitt (26) des ersten Körpers (22) geformt ist, der schiebend in einen komplementär geformten Behälter (28) eingeführt wird, welcher in einem zentralen Abschnitt (29) des zweiten Körpers (23) geformt ist, **dadurch gekennzeichnet, dass** der zweite Körper (23) Folgendes einschließt: zwei Flügel (30), die von dem zentralen Abschnitt (29) zu der Öffnung (17) hin ragen und an ihrem Ende einen entsprechenden Haltezahn (31) haben, welcher ausgebildet ist, um, durch elastisches Biegen des entsprechenden Flügels (30), in einen entsprechenden Haltesitz (32) zu passen, der seitlich von dem hinteren Abschnitt (26) des ersten Körpers (22) geformt ist.

2. Das Schloss gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Schnellverriegelungsmittel (24) des reversiblen Typs Mittel (33) zur Lösung der Schnappverbindung der Haltezähne (31) mit den entsprechenden Haltesitzen (32) umfassen.
3. Das Schloss gemäß Anspruch 2, **dadurch gekennzeichnet, dass** die Lösemittel (33) zwei flache Laschen (34) umfassen, die sich jeweils von der Seitenwand eines entsprechenden Haltezahns (31) zur zentralen Ebene der Federklinke (15) erstrecken, wobei die Enden (35) der flachen Laschen (34) im Wesentlichen nahe beieinander liegen, ohne sich gegenseitig zu berühren, wobei mindestens ein durchgehendes Loch (19) im kastenförmigen Körper (11) in dem Bereich bereitgestellt ist, der von den Enden (35) eingenommen wird, und zum Einführen eines Spreizwerkzeugs für die flachen Laschen (34) geeignet ist.
4. Das Schloss gemäß Anspruch 3, **dadurch gekennzeichnet, dass** komplementär geformte Führungsvertiefungen (36) zum Einführen des Spreizwerkzeugs an den Enden (35) bereitgestellt sind.

5. Das Schloss gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der hintere Abschnitt (26) im Wesentlichen symmetrisch entlang einer zentralen Ebene liegt, die den vorderen Abschnitt der Federklinke (15), der außerhalb des kastenförmigen Körpers (11) liegt, in Längsrichtung teilt. 5
6. Das Schloss gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** der kastenförmige Körper (11) aus zwei parallelen Grundplatten (12) und aus Wänden (14, 14a) besteht, wobei der zweite Körper (23) Führungsbeschläge (37) hat, die verschiebbar innerhalb entsprechender ersten parallelen Führungen (38, 38a) angeordnet sind, die durch die Grundplatten (12) geformt und in die Richtung der Einwärts- und Auswärtsbewegung der Federklinke (15) im Verhältnis zu dem kastenförmigen Körper (11) ausgerichtet sind, wobei ein elastisches Element (39) zum Entgegenwirken gegenüber dem Zurückziehen der Federklinke (15) in den kastenförmigen Körper (11) mit der Federklinke (15) verbunden ist. 10 15 20
7. Das Schloss gemäß den Ansprüchen 1 und 6, **dadurch gekennzeichnet, dass** das elastische Element (39) aus einer Spiralfeder (39) besteht, die zwischen einem Widerlager (40), das starr mit dem kastenförmigen Körper (11) gekoppelt ist, und dem zweiten Körper (23) angeordnet ist, wobei das Ende der Spiralfeder (39), das in Kontakt mit dem zweiten Körper (23) steht, in eine Nut (41) eingeführt ist, die in dem zweiten Körper (23) geformt ist, wobei die Nut (41) auf dem komplementär geformten Behälter/ (28) für den Schaft (27) aufliegt. 25 30
8. Das Schloss gemäß Anspruch 7, **dadurch gekennzeichnet, dass**, wenn der Schaft (27) vollständig in den komplementär geformten Behälter/ (28) eingeführt ist und der erste Körper (22) an den zweiten Körper (23) durch Kopplung der Haltezähne (31) mit den entsprechenden Haltesitzen (32) verriegelt ist, das Ende des elastischen Elements (39) gegen das Ende des Schafts (27) drückt. 35 40
9. Das Schloss gemäß Anspruch 7, **dadurch gekennzeichnet, dass** es elastische Mittel (142) umfasst, die zwischen dem zweiten Körper (123) und dem ersten Körper (22) angeordnet sind. 45
10. Das Schloss gemäß Anspruch 9, **dadurch gekennzeichnet, dass** die elastischen Mittel (142) mindestens einen biegsamen Flügel umfassen, der an dem Widerlagerabschnitt geformt ist, welcher am zentralen Abschnitt (129) des zweiten Körpers (123) geformt ist, für den hinteren Abschnitt (26) des ersten Körpers (22), aus dem der Schaft (27) herausragt. 50 55
- gen Ansprüche, **dadurch gekennzeichnet, dass** die Mittel (18) zur mechanischen Verbindung der Federklinke (15) mit mindestens einem Betätigungselement (20, 21) ein flaches Element (44) umfassen, das verschiebbar in rechten Winkeln zur Richtung der Translationsbewegung der Federklinke (15) geführt wird, wobei das flache Element (44) einen schrägen Abschnitt (47) hat, der ausgebildet ist, um, wenn er sich in Kontakt befindet, gegen eine komplementär geformte Schulter (48, 148) zu gleiten, die ebenfalls in dieselbe Richtung geneigt und auf dem zweiten Körper (23) geformt ist, wobei das flache Element (44) an mindestens einem Ende mindestens einen Abschnitt (49, 50) zur Interaktion mit dem mindestens einen Betätigungselement (20, 21) hat.
12. Das Schloss gemäß Anspruch 11, **dadurch gekennzeichnet, dass** das flache Element (44) auf einer Seite zusätzliche Stifte (45) hat, die verschiebbar in zweite Führungen (46) angeordnet sind, welche durch mindestens eine der Grundplatten (12) verlaufen.
13. Das Schloss gemäß Anspruch 11, **dadurch gekennzeichnet, dass** es zwei Interaktionsabschnitte (49, 50) umfasst, nämlich einen ersten Interaktionsabschnitt (49) und einen zweiten Interaktionsabschnitt (50), mit zwei entsprechenden Betätigungselementen, wie zum Beispiel dem Nocken (21), der mit einem Griff zu verbinden ist, und dem exzentrischen Element des Schlüssels (20) des Schlosses. 25 30 35
14. Das Schloss gemäß Anspruch 13, **dadurch gekennzeichnet, dass** der erste Abschnitt (49) zur Interaktion mit dem Nocken (21) einen Vorsprung (51) umfasst, der ausgebildet ist, um als Widerlager für einen Anschlagzahn (52) zu dienen, der an dem Nocken (21) geformt ist, wobei der Nocken (21) drehgelenkig an den Grundplatten angeordnet und mit einem elastischen Rückstellelement (53) verbunden ist, wobei der Nocken in der Mitte mit einem durchgehenden Loch versehen ist, das eine Vieleckform (55) für die Drehungs-verhindernde Verbindung mit mindestens einem Griff hat. 40 45 50
15. Das Schloss gemäß Anspruch 13, **dadurch gekennzeichnet, dass** der zweite Abschnitt (50) zur Interaktion mit dem exzentrischen Element des Schlüssels des Schlosses einen widerlagerkörper (56) umfasst, der monolithisch mit dem flachen Element (44) ist und vier verschiedene Anschlagpunkte für das exzentrische Element des Schlüssels bildet, die Folgendes einschließen: einen ersten Anschlagpunkt, bestehend aus einem unteren Ende (57), der es ermöglicht, durch Drehung des Schlüssels im Uhrzeigersinn das flache Element (44) nach oben zu schieben, einen zweiten Anschlagpunkt und ei-

nen dritten Anschlagpunkt, die von den Innenwänden einer Vertiefung (58) gebildet sind, nämlich der unteren Wand (59) und der oberen Wand (60), und mit einer Drehung gegen den Uhrzeigersinn beziehungsweise im Uhrzeigersinn die Abwärts- und Aufwärtsbewegung des flachen Elements (44) ermöglichen, einen vierten Anschlagpunkt, der in einem Element zum Anhalten der Verschlussdrehung (62) für das exzentrische Element des Schlüssels, wenn das Schloss sich in der Verschlussposition befindet, besteht.

16. Das Schloss gemäß Anspruch 11, **dadurch gekennzeichnet, dass** ein zusätzliches elastisches Rückstellelement (63) mit dem flachen Element (44) verbunden ist, um der Bewegung des flachen Elements (44) zu dem Nocken (21) hin entgegenzuwirken, wenn das Schloss in der offenen Position ist, wobei das zusätzliche elastische Rückstellelement (63) es ermöglicht, das flache Element (44) wieder in eine solche Position zu bringen, dass die Federklinke (15) sich von der Innenseite zur Außenseite des kastenförmigen Körpers (11) bewegen kann, wobei das zusätzliche elastische Rückstellelement (63) zur Rückstellung in die Position in einem Hohlraum (64) untergebracht ist, der in dem flachen Element (44) geformt und an einem Ende offen ist, wobei das zusätzliche elastische Rückstellelement (63) an seinen Enden in dem Hohlraum (64) verschlossen ist und ein Plättchen (65) in rechten Winkeln aus einer der Grundplatten (12) herausragt, das mit der Öffnung des Hohlraums (64) fluchtet und ausgebildet ist, um in ihn einzudringen, wenn das flache Element (44) sich zu dem Nocken (21) hin bewegt, und so in der Praxis einen Anschlagpunkt für das zusätzliche elastische Rückstellelement (63) bildet.
17. Das Schloss gemäß Anspruch 11, **dadurch gekennzeichnet, dass** ein zusätzlicher Hohlraum (66) in dem flachen Element (44) bereitgestellt ist, eine Achse hat, die senkrecht zu dem flachen Element (44) ist, und eine Sprungfeder aufnimmt, an deren Ende sich eine Kugel (67) im Kontakt damit befindet, wobei die Kugel (67) so angeordnet ist, dass sie, wenn der kastenförmige Körper (11) geschlossen ist, auf einer Führung (68) gleiten kann, die durch eine der Grundplatten (12) verläuft, wobei die Führung (68) zu dem Nocken (21) hin konvertiert und sich, fluchtend mit der Führung (68), auf derselben Grundplatte ein Loch (68a) zur stabilen Aufnahme der Kugel (67), wenn das flache Element (44) zum Schließen gesenkt wird, befindet, wobei der Übergang der Kugel (67) von der Führung (68) zu dem Loch (68a) einen Ton erzeugt, welcher das Öffnen/Schließen des Schlosses anzeigt.
18. Das Schloss gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass**

der erste Körper (22) und der zweite Körper (23, 123) aus Kunststoff bestehen.

5 Revendications

1. Serrure, comprenant un corps (11) en forme de boîtier, un pêne (15) à ressort qui dépasse d'une ouverture (17) formée dans une paroi (14a) dudit corps (11) en forme de boîtier, et un moyen (18) pour l'accouplement mécanique dudit pêne (15) à ressort avec au moins un actionneur (20, 21), ledit pêne (15) à ressort comportant un premier corps (22), qui est partiellement extérieur par rapport audit corps (11) en forme de boîtier et est conçu pour fermer la serrure suivant une orientation de fermeture à droite ou à gauche, et un second corps (23, 123), qui est intérieur par rapport audit corps (11) en forme de boîtier et est accouplé mécaniquement avec ledit au moins un actionneur (20, 21), ledit premier corps (22) étant assemblé avec ledit second corps (23, 123) à l'aide de moyens à serrage rapide (24) du type réversible, l'assemblage dudit premier corps (22) avec ledit second corps (23, 123) s'effectuant, en fonction de l'orientation de fermeture choisie, en introduisant ledit premier corps (22) à travers ladite ouverture (17), lesdits moyens à serrage rapide (24) du type réversible étant du type à déclic pour l'enclenchement, avec déformation élastique, d'au moins une dent de retenue (21) dans un évidement de retenue (32) d'une forme complémentaire, lesdits moyens à verrouillage rapide (24) du type réversible, à déclic, comportant une tige (27), formée dans la partie arrière (26) dudit premier corps (22), qui est insérée par coulissement dans un logement (28) d'une forme complémentaire formé dans une partie centrale (29) dudit second corps (23), **caractérisée en ce que** ledit second corps (23) comporte deux ailes (30), qui font saillie vers ladite ouverture (17) depuis ladite partie centrale (29) et ont, à leur extrémité, une dent de retenue respective (31), qui est apte à s'accoupler, par flexion élastique de ladite aile respective (30), avec un évidement de retenue respectif (32) formé latéralement par rapport à ladite partie arrière (26) dudit premier corps (22).
2. Serrure selon la revendication 1, **caractérisée en ce que** lesdits moyens à verrouillage rapide (24) du type réversible comportent des moyens de libération (33) pour supprimer l'engagement à déclic desdites dents de retenue (31) dans les évidements de retenue respectifs (32).
3. Serrure selon la revendication 2, **caractérisée en ce que** lesdits moyens de libération (33) comportent deux languettes planes (34), qui s'étendent respectivement depuis la paroi latérale d'une dent de retenue correspondante (31) vers le plan central dudit

- pêne (15) à ressort, les extrémités (35) desdites languettes planes (34) étant très proches l'une de l'autre sensiblement sans contact mutuel, au moins un trou traversant (19) étant ménagé dans le corps (11) en forme de boîtier dans la région occupée par lesdites extrémités (35) et permettant l'insertion d'un outil écarteur pour lesdites languettes planes (34).
4. Serrure selon la revendication 3, **caractérisée en ce que** des creux de guidage (36), de forme complémentaire, pour l'insertion dudit outil écarteur sont présents auxdites extrémités (35).
 5. Serrure selon la revendication 1, **caractérisée en ce que** ladite partie arrière (26) se situe d'une manière sensiblement symétrique dans un plan central, qui divise longitudinalement la partie avant du pêne (15) à ressort qui est à l'extérieur du corps (11) en forme de boîtier.
 6. Serrure selon une ou plusieurs des revendications précédentes, **caractérisée en ce que** ledit corps (11) en forme de boîtier est constitué par deux plaques de base parallèles (12) et par des parois (14, 14a), ledit second corps (23) ayant des ergots de guidage (37) disposés par coulissement dans des premiers guides parallèles respectifs (38, 38a), qui sont formés à travers lesdites plaques de base (12) et sont orientés dans le sens du mouvement de va-et-vient dudit pêne (15) à ressort vers l'intérieur et l'extérieur par rapport audit corps (11) en forme de boîtier, un élément élastique (39) pour contrarier la rentrée dudit pêne (15) à ressort dans ledit corps (11) en forme de boîtier étant associé audit pêne (15) à ressort.
 7. Serrure selon les revendications 1 et 6, **caractérisée en ce que** ledit élément élastique (39) est constitué par un ressort hélicoïdal (39) disposé entre une butée (40) solidaire dudit corps (11) en forme de boîtier et du second corps (23), l'extrémité dudit ressort hélicoïdal (39) au contact dudit second corps (23) étant insérée dans une gorge (41) formée dans ledit second corps (23), ladite gorge (41) étant superposée audit logement (28) de forme complémentaire pour ladite tige (27).
 8. Serrure selon la revendication 7, **caractérisée en ce que**, lorsque ladite tige (27) est complètement insérée dans le logement (28) de forme complémentaire et ledit premier corps (22) est verrouillé avec le second corps (23) par engagement desdites dents de retenue (31) dans les évidements de retenue correspondants (32), l'extrémité dudit élément élastique (39) pousse contre l'extrémité de ladite tige (27).
 9. Serrure selon la revendication 7, **caractérisée en ce qu'elle** comporte des moyens élastiques (142), intercalés entre ledit second corps (123) et ledit premier corps (22).
 10. Serrure selon la revendication 9, **caractérisée en ce que** lesdits moyens élastiques (142) comportent au moins une aile flexible, formée sur la partie de butée, laquelle est formée sur la partie centrale (129) dudit second corps (123), pour la partie arrière (26) dudit premier corps (22) depuis laquelle fait saillie ladite tige (27).
 11. Serrure selon une ou plusieurs des revendications précédentes, **caractérisée en ce que** lesdits moyens (18) pour l'accouplement mécanique dudit pêne (15) à ressort avec au moins un actionneur (20, 21) comportent un élément plat (44), qui est guidé par coulissement perpendiculairement à la direction de mouvement de translation dudit pêne (15) à ressort, ledit élément plat (44) ayant une partie inclinée (47) apte à coulisser, quand elle est au contact, contre un épaulement (48, 148) de forme complémentaire, qui est lui aussi incliné dans la même direction et est formé sur ledit second corps (23), ledit élément plat (44) ayant, à au moins une extrémité, au moins une partie (49, 50) destinée à coopérer avec ledit au moins un actionneur (20, 21).
 12. Serrure selon la revendication 11, **caractérisée en ce que** ledit élément plat (44) a, sur une face, des ergots supplémentaires (45), qui sont disposés par coulissement dans des seconds guides (46) qui traversent au moins une des plaques de base (12).
 13. Serrure selon la revendication 11, **caractérisée en ce qu'elle** comporte deux parties de coopération (49, 50), respectivement une première partie de coopération (49) et une seconde partie de coopération (50), avec deux actionneurs respectifs, tels que la came (21) à associer à une poignée et l'élément excentrique de la clef (20) de la serrure.
 14. Serrure selon la revendication 13, **caractérisée en ce que** ladite première partie (49) pour la coopération avec ladite came (21) comporte une saillie (51) apte à servir de butée pour une dent de butée (52), formée sur ladite came (21), ladite came (21) pivotant par rapport auxdites plaques de base et étant associée à un élément élastique de rappel (53), ladite came étant pourvue, en son centre, d'un trou traversant à profil polygonal (55) pour un accouplement anti-rotation avec au moins une poignée.
 15. Serrure selon la revendication 13, **caractérisée en ce que** ladite seconde partie (50) pour la coopération avec l'élément excentrique de la clef de la serrure comporte un corps de butée (56), qui est formé d'une seule pièce avec ledit élément plat (44) et crée quatre points de butée différents pour l'élément excentrique

de la clef, dont un premier point de butée, constitué par une extrémité inférieure (57) qui permet de pousser vers le haut ledit élément plat (44) à l'aide de la rotation de la clef dans le sens horaire, un deuxième point de butée et un troisième point de butée qui sont constitués par les parois intérieures d'un évidement (58), respectivement la paroi inférieure (59) et la paroi supérieure (60), et permettent, respectivement avec une rotation dans le sens anti-horaire et une rotation dans le sens horaire, l'abaissement et l'élévation dudit élément plat (44), un quatrième point de butée constitué par un élément pour arrêter la rotation de fermeture (62) pour ledit élément excentrique de la clef quand la serrure est dans la position de fermeture.

corps (22) et ledit second corps (23, 123) sont en matière plastique.

16. Serrure selon la revendication 11, **caractérisé en ce qu'un** élément élastique de rappel supplémentaire (63) est associé audit élément plat (44) afin de contrarier le mouvement dudit élément plat (44) vers ladite came (21) quand la serrure est dans la position ouverte, ledit élément élastique de rappel supplémentaire (63) permettant de rappeler l'élément plat (44) dans une position telle que ledit pêne (15) à ressort puisse passer de l'intérieur vers l'extérieur dudit corps (11) en forme de boîtier, ledit élément élastique de rappel supplémentaire (63) pour le rappel en position étant reçu dans une cavité (64), qui est formée dans ledit élément plat (44) et est ouverte à une extrémité, ledit élément élastique de rappel supplémentaire (63) étant verrouillé à ses extrémités dans ladite cavité (64), une lamelle (65) dépassant perpendiculairement d'une desdites plaques de base (12), étant alignée avec l'ouverture de ladite cavité (64), et étant apte à entrer dans celle-ci quand ledit élément plat (44) se rapproche de ladite came (21), en formant concrètement une butée pour ledit élément élastique de rappel supplémentaire (63).
17. Serrure selon la revendication 11, **caractérisée en ce que** dans ledit élément plat (44) est ménagée une cavité supplémentaire (66) qui a un axe perpendiculaire audit élément plat (44) et qui reçoit un ressort élastique, à l'extrémité duquel se trouve une bille (67) au contact de celui-ci, ladite bille (67) étant conçue de façon à pouvoir coulisser, le corps (11) en forme de boîtier étant fermé, sur un guide (68) qui traverse une desdites plaques de base (12), ledit guide (68) convergeant vers ladite came (21), avec ledit guide (68) étant aligné, sur la même plaque de base, un trou (68a) pour recevoir d'une manière stable ladite bille (67) quand ledit élément plat (44) est abaissé pour la fermeture, le passage de ladite bille (67) dudit guide (68) audit trou (68a) produisant un son qui indique l'ouverture/la fermeture de la serrure.
18. Serrure selon une ou plusieurs des revendications précédentes, **caractérisée en ce que** ledit premier

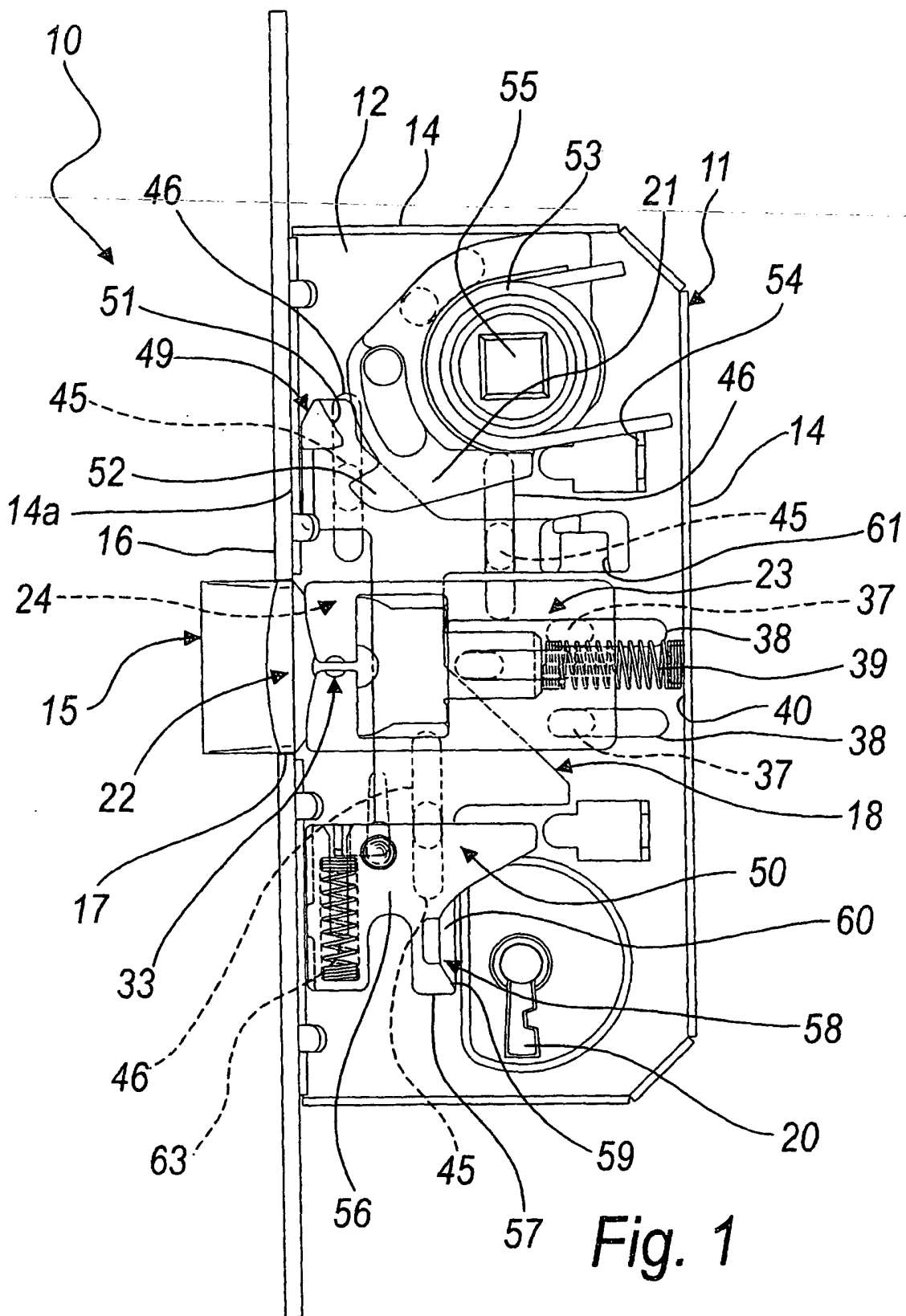
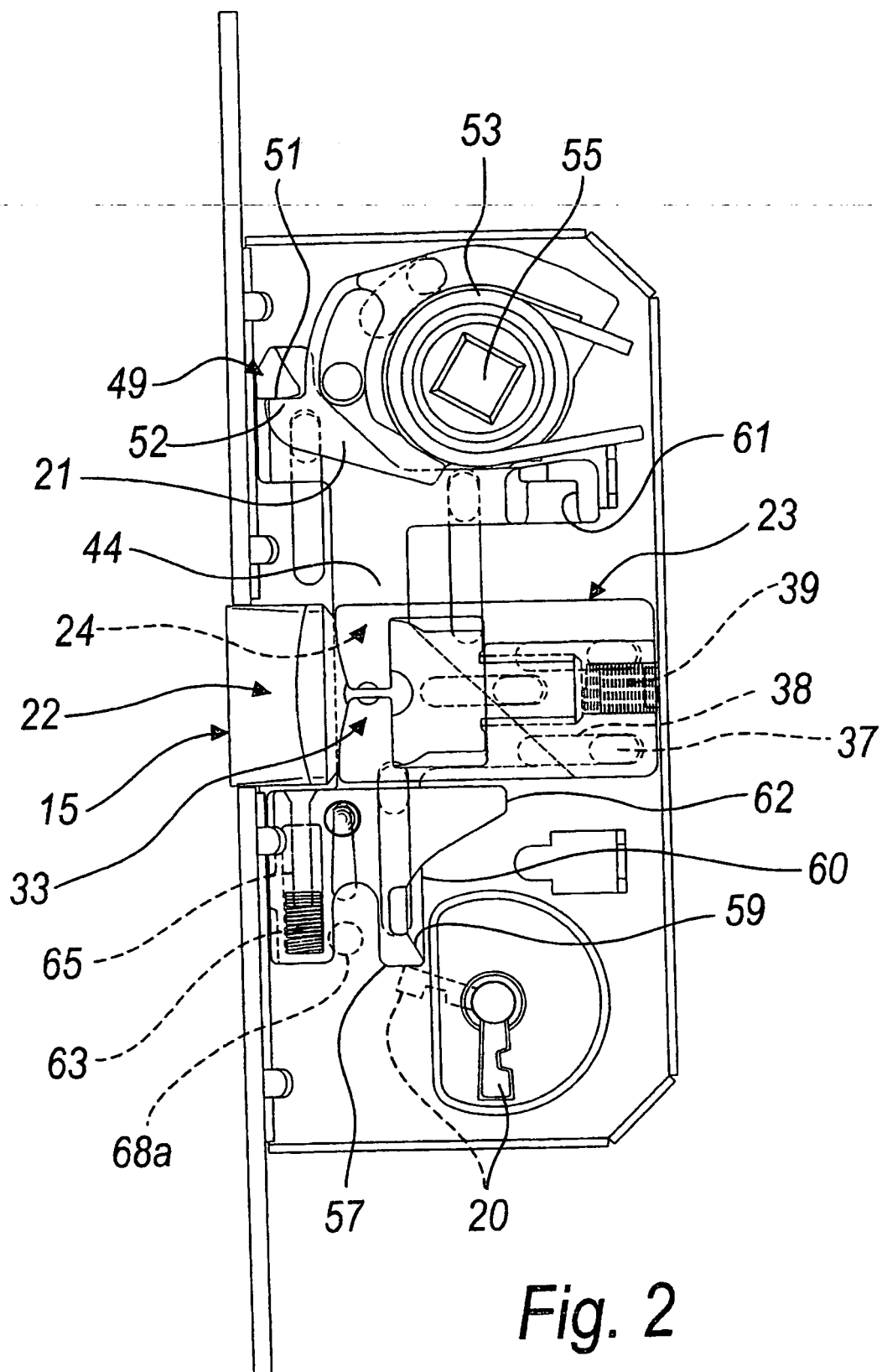


Fig. 1



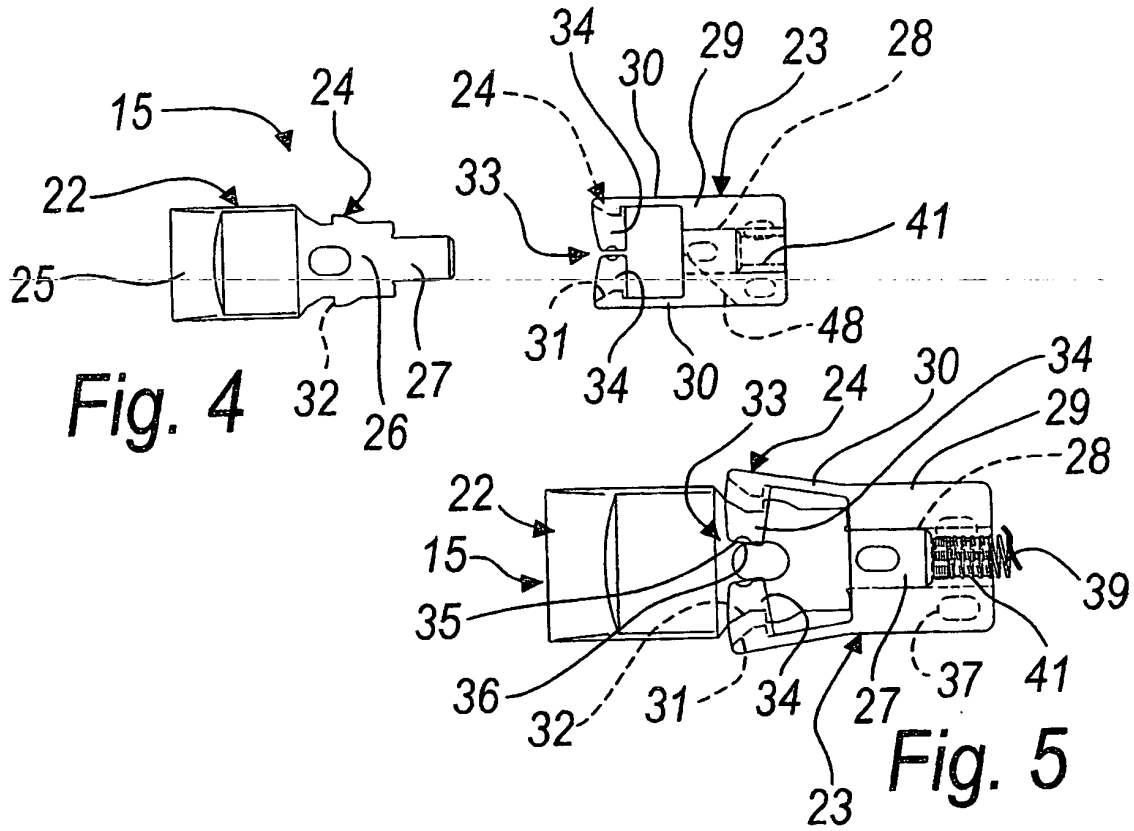


Fig. 4

Fig. 5

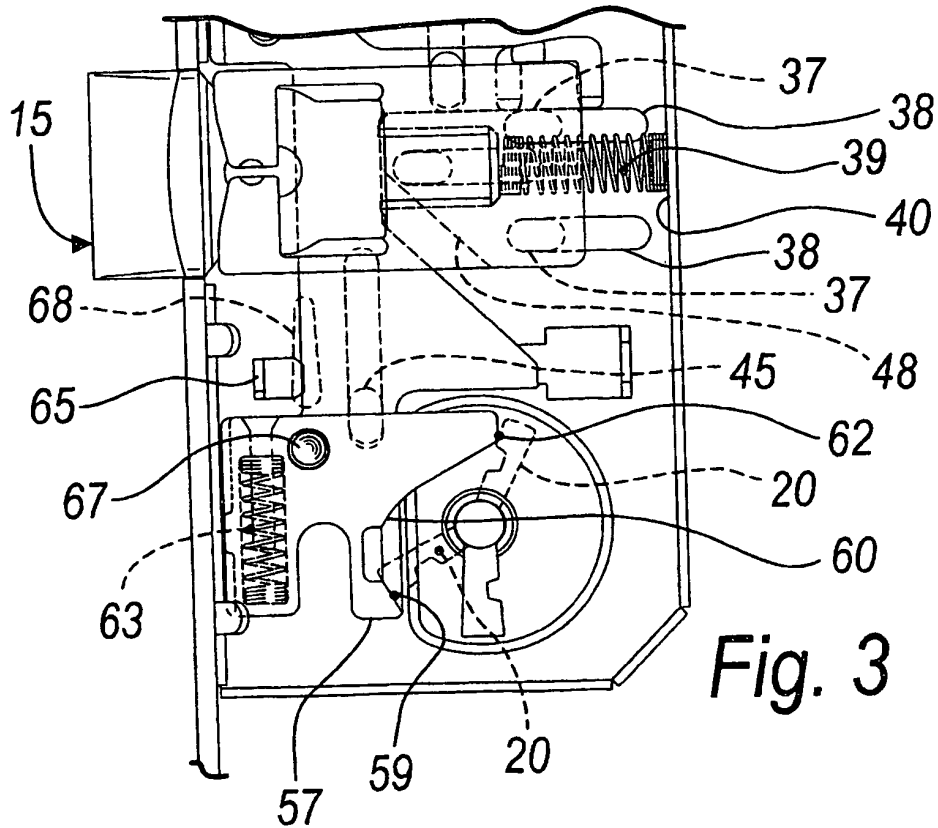
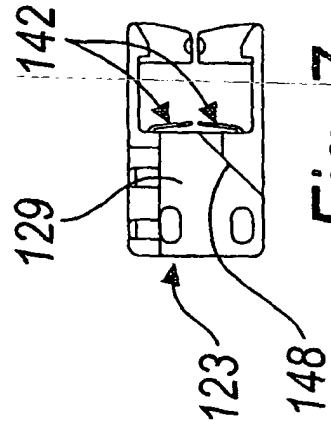
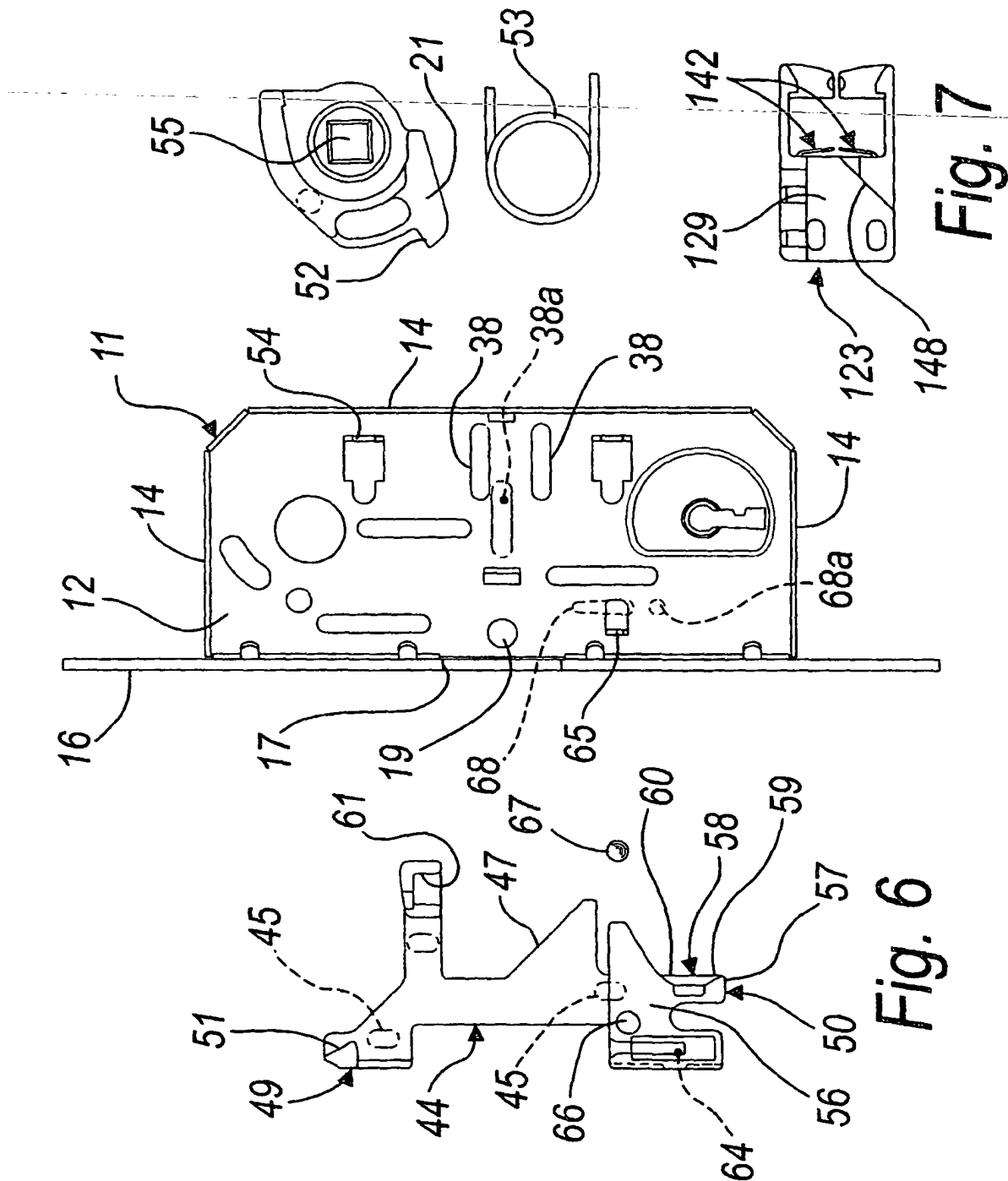


Fig. 3



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- NL 30270 C [0017] [0018]