

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 433 301 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification: **15.06.94** (51) Int. Cl.⁵: **E05B 63/16, E05B 47/06**

(21) Application number: **89909183.9**

(22) Date of filing: **14.08.89**

(86) International application number:
PCT/EP89/00966

(87) International publication number:
WO 90/01603 (22.02.90 90/05)

(54) **LOCK ACTUATOR ASSEMBLY.**

(30) Priority: **15.08.88 SE 8802898**
27.09.88 SE 8803413
01.03.89 SE 8900696
28.03.89 SE 8901053

(43) Date of publication of application:
26.06.91 Bulletin 91/26

(45) Publication of the grant of the patent:
15.06.94 Bulletin 94/24

(84) Designated Contracting States:
DE FR GB IT SE

(56) References cited:
DE-A- 3 520 932
US-A- 1 447 852

(73) Proprietor: **SCANDIA METRIC AB**
Bewator Division
Englundavägen 7
S-171 41 Solna(SE)

(72) Inventor: **NORDOVIST, Leif**
Sveavägen 24
S-181 60 Lidingö(SE)

(74) Representative: **Mossmark, Anders et al**
Albihn West AB
Box 142
S-401 22 Göteborg (SE)

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid (Art. 99(1) European patent convention).

EP 0 433 301 B1

Description

This invention relates to a lock actuator assembly and a housing therefore, of such a kind where the use of a keyed information, e.g. a magnetic card, activates a solenoid, by means of which activation the lock assembly turns to a released state. The assembly is used as a supplement on doors having existing locks which necessitate the use of a key, in order to open the door from the outside.

The installation of this kind of lock assemblies is not always easy to carry out, since the doors are often not prepared for this kind of lock actuator assemblies. Prior it has been common to install either electronically activated, securing plates or handle mechanism (see Fig. 1 and 2). The installation thereof is cumbersome since cables has to be inserted either into the door or the wall adjacent thereto. This is a very costly operation. For garden gates and the like this problem is even worse.

These prior known systems has to be mains-connected, since the solenoid requires power supply during a relatively long period, e.g. five sec.

From SE-B-446 895, for instance, there is known a mechanism which is powered by a battery. This mechanism, however, is mounted on the inside of the door and blocks directly on the inner handle in its non released state. Therefore a certain release mechanism has to be activated if the door shall be opened from within. If there is a fire, for instance, this is a very unfavorable situation.

Therefore it is an object of this invention to provide such a mechanism which does not necessitate the activation of releasing means, in order to open the door from the inside.

The main object of the invention is to provide a lock for keyed information of the above described type, which may be easily and cheaply, whilst still being securely, installed to already existing locks.

It is still a further object to achieve this by providing a mechanism which is as simple as possible and of which the number of parts are as few as possible.

Further it is a strive that the force transmitting parts of the lock actuator assembly mechanism shall not be prone to wear, which is the case if one has camming means and or movable elements within the torque transmitting parts of the mechanism, as is known from for example EP-A-0219694.

Other prior solutions to fulfil the first mentioned object are known. From DE-C-3 537 785, DE-C-3 711 745 and SE-B-442 420, for example, there are known different lock actuator assembly mechanisms of a certain kind. These assemblies have in common that the mechanisms are of the clutch type. Although this invention does not exclude the use of clutch type mechanism, this is not a very favorable solution, since clutch type mechanism

have the disadvantage that they include a relatively large number of parts and more important a relatively large number of movable parts. The function and maintenance of such mechanisms are therefore relatively complicated. Nevertheless, the main advantages with this invention can also be fulfilled when using that kind of lock mechanism.

Therefore, it is a further object of the invention to achieve a design of such a lock actuator assembly mechanism which is relatively uncomplicated.

In accordance with the invention it is provided a lock assembly and casing, for the opening of doors by means of keyed information, comprising; a torque transmitting means, for transmitting force from one end of said casing to the other;

a movable interacting means, which in its activated position allows said torque transmitting means to be rotated;

a solenoid for moving said interacting means when activated;

a power supply for supplying the solenoid in connection with the activation thereof;

and means for the input of keyed information by means of which said activation is initiated, if authorized,

wherein, said torque transmitting means is adapted to be connected to the torque shaft of an existing lock mechanism;

the casing has a set of mounting means which are positioned in order to match the preexisting attachment holes of the existing lock ;

and that the inner handle of the existing lock mechanism, can be rotated independently of the position of said interacting means.

The invention also relates to a method for supplementing an existing lock with a casing in accordance with the above, as is defined in claim 8, and furthermore a door having such a casing, as is defined in claim 10.

The invention will be better understood by an examination of the following description together with the accompanied drawings in which:

Fig. 1 and 2 show a first example of prior art solutions,

Fig. 3 is a view of a commonly used lock assembly mounted on a door,

Fig. 4 shows one preferred mode of a housing for a mechanism in accordance with the invention,

Fig. 5 is vertical cross-section of a housing as shown in fig 4,

Fig. 6 is a view of one mode of example of the lock actuator assembly mechanism in accordance with the invention,

Fig. 7 is a vertical cut through the

- mechanism shown in figure 6,
 Fig. 8 and 9 shows different operating posi-
 tions of this latter mechanism,
 Fig. 10 is an exploded view of a pre-
 ferred mode of example of the
 locking actuator assembly in ac-
 cordance with the invention,
 Fig. 11 is a further exploded view of a
 preferred mode of example,
 Fig. 12 is a perspective view of a cer-
 tain part of the mechanisms
 shown in fig 11,
 Fig. 13 is a first cross-section of the
 parts shown in fig 12,
 Fig. 14 is a second cross-section of the
 parts shown in fig 12,
 Fig. 15 is a perspective view of a pre-
 ferred keyboard of the housing
 showed in fig 4,
 Fig. 16 is a second mode of such a
 keyboard, and
 Fig. 17 is a cross-section through a
 keyboard shown in fig 15 or 16.

Fig 3 shows a door 8 which has an ordinary
 lock assembly 9 mounted thereon, i.e. comprising
 an inner and outer handle 13, 14 as well as at least
 one lock plunger 10 which interacts with a securing
 plate 11.

Fig 4 shows a housing 12, connected to a shaft
 28 in accordance with the invention. Accordingly
 the housing has arranged thereto the handle 14 of
 the existing lock assembly 9 (not shown), which is
 attached thereto by means of special mounting
 means (i.e a ring 14'), cages and screws from the
 inside. The existing screws from the existing lock
 assembly are preferably used. One has only, to
 provide for new lengthy adapted cages passing
 through the ring 14', into which the screws are to
 be threaded.

In the preferred embodiment the housing 12
 has a rear plate 18. It is, however, possible to let
 the casing be open at the back, since this side
 when mounted is facing the door. Since most of
 existing lock assemblies also have a special cyl-
 inder mechanism 16 (dead bolt lock) this plate 18
 extends further than the casing, which extending
 part 18 is adapted for the fitting of the existing
 cylinder device 16 (i.e. holes). For the mounting of
 this cylinder device 16 there is no need for spe-
 cially adapted cages since the plate 18 is very thin.

Further, fig 4 shows one embodiment of a
 keyboard 1. When tapping a special combination
 on this keyboard the lock mechanism will turn to its
 released state and it is possible to open the door.
 Below the handle 14 there is shown a further
 possibility for supplying such a lock mechanism,
 i.e. by the use of solar cells.

Fig 5 is a cross-section through a casing of fig
 4, which shows one mode of example of a lock
 mechanism in accordance with the invention. The
 casing 12 is attached to a door 8 comprising an
 existing lock 9 the casing 12 comprising its locking
 mechanism is attached to the outside of the door.
 The first torque transmitting member 27
 (hereinafter called first torquer) is mounted to the
 shaft 28 of the existing lock 9. This shaft 28 has a
 square cross-section as has the cavity of said first
 torquer 27. Coaxially mounted with the first torquer
 27 there is a second torquer 26 having a stub axle
 protruding into a cavity in said first torquer 27. The
 second torquer is interconnected with the outer
 handle 14 by means of shaft a 25 having the same
 cross-section as the shaft 28 of the existing lock 9.

Now referring to fig 6, there is a torque trans-
 mitting device 34, 35 which can transmit torque
 from the outer handle 14 to the shaft 28 of the
 existing lock. This is only possible in the direction
 indicated by the arrow 36, since a position pin 33
 hinders rotation in the opposite direction. Helical
 springs 31, 32 provide for that the first and second
 torquer 26, 27 normally will be positioned as shown
 in fig 6, in the rest position.

The above described torque transmitting de-
 vice can be blocked by a retaining/releasing
 mechanism. A flattened surface of the second tor-
 quer 26 interacts with a first retaining arm 24 which
 is pivotable about an axis 23 and spring urged 30.
 The first retaining arm 24 interacts with a second
 retaining arm 22, which also is pivotable about an
 axis 21 and spring urged 29. A plunger 20 (see fig
 8) of a solenoid 19 pushes, when activated via
 power from the battery 17, the second retaining
 arm 22 away from its blocking position into a
 second position where it is retained by a toggle 37.

It is now possible to rotate the outer handle
 and thereby also the rest of the torque transmitting
 device. In fig 9 it is shown how the toggle 37
 releases the second retaining arm 22 by means of
 a spring 39 when the second torquer 26 is rotated
 which, in turn by a camming action moves the first
 retaining arm 24 downwardly

As is evident from the figures, especially fig 6,
 it is always possible to rotate the existing shaft 28
 by the use of the inner handle 13, since the part of
 the force transmitting device 35 which is attached
 to the first torquer 27 is rotatable independently of
 the second torquer 26.

Fig 10 shows an exploded view of the best
 mode of example. This view shows that the lock
 mechanism should be mounted between two plates
 101, 201. These plates are arranged with a number
 of attachments holes 106, 206, for attaching the
 casing 12 to the door 8. Further these holes are
 symmetrically positioned in order to provide for the
 possibility to mount the housing on doors, which

are hinged on the left hand side as well as doors hinged on the right hand side. Accordingly these shown plates 101, 201 are prepared for being mounted onto doors of which the outer handle 14 and, its clamping ring 14, is fitted by means of two diametrically placed screws and cages (not shown). It is of course possible to prepare these plates with an even larger number of such attachment holes 106, 206, so that it can be fitted to different kinds of existing locks.

The cages which are to be positioned in the attachment holes, 106, 206 have to be adapted lengthwise to the height of the casing 12, so that the threads of the existing screws can co-operate with the threads of the exchanged longer casings (not shown).

When mounting the casing on a door having an existing lock as shown in fig 3, one starts to disassemble the existing lock by screwing from the inside. After disassembly, one pushes the longer cages through the cylindrical plate 14' supporting the outer handle 14 and further through the holes 206, 106 in the casing 12 and the plates 101, 201, further through the holes in the existing lock 9 where they are joined with the existing screws.

If an extra locking device 16, as shown in fig 3, exists, it is possible to use this in order to more safely attach the housing 12 to the door. The innermost plate 101 then has to be prolonged 12 and is of course prepared with necessary holes for the mounting of the existing extra locking device 16 thereon. Since this rear plate 101 is so thin there is no need for prolonging the existing cages, but one can use the existing ones.

The torque transmitting device 25, 26, 27 and the blocking/releasing-mechanism is fitted between the plates 101, 201 at a certain distance by means of a appropriate spacers 805, 508. Two of the spacers 508 are used to support the pivoting retaining arm 24.

The torque transmitting device 25, 26, 27 is positioned above the spacers 508. The first torquer 27 has a stub shaft 270 for which there is a corresponding cavity 260 in the second torquer 26. First torquer 27 has at its rear end a square cavity which is adapted to fit on the end of the existing shaft 28 of the lock 9. The first torquer 27 has a protruding part 503 threaded thereto, which part has the function of a stop position pin. This protruding part 503, which is movable together with the first torquer 27, interacts with a positioning element 33 which is attached to the rear plate 101. As is evident from the figures this positioning element 33 is movable between two predetermined holes 107, in order to provide for the adaption to left hinged doors as well as right hinged doors.

The second torquer 26 is interconnected with the outer shaft 25 by means of a security release

device, here a ball 505, a resilient element 506 and a screw 504. The ball 505 co-operates with an indentation in the shaft 25. The second torquer 26 also has two holes 263, into one of which a force transmitting part 34 is positioned by means of threads. There are two such holes 263 in order to provide for the possibility to use the mechanism on right hinged doors as well as left hinged doors.

As is evident from fig 10 this force transmitting part 34 interacts with transversely projecting stop surfaces 35 which radially delimit a recess 66 of the first torquer 27. Also the number of these recesses are two, so that the mechanism can be fitted to either right or left hinged doors. Since the recesses 66 are provided for in the first torquer 27 it is always possible to rotate the inner handle and therewith this first torquer 27, without affecting the second torquer 26.

The already mentioned retaining arm 24 is pivotally mounted about an axis 509. The upper end surface 241 of the retaining arm 24 interacts with a substantially flat surface 261 of the second torquer 26. As is evident from fig 13 this surface 261 is arranged parallel to, and non coaxial in relation to, the axis of rotation of the torquers 26, 27. Accordingly the upper surface 241 of the retaining arm 24 prevents the second torquer 26 from rotation when it is in its retaining position, i.e. a position where the concerned surfaces 241, 261 almost are contacting each other. The retaining arm 24 is urged to this retaining position by an helical spring 512.

Referring now to fig 12 and 13, these show that also the first torquer 27 is arranged with a downwardly directed surface 271, which is also non coaxial in relation to the axis of the torquer. This surface 271 is positioned more distanced from said axis than the surface 261 of the second torquer 26. This provides for a protruding shoulder against which the retaining arm 24 can rest in its retaining position.

The second torquer 26 also has a recess which at one end is partly limited by an outwardly directed axial surface 262. This axially directed surface 262 prevents the retaining arm 24 from returning to its retaining position before the second torquer 26 has returned to its rest position.

When the retaining arm is in its non-retaining position it has been pivoted backwardly and therefore its upper surface 241 cannot interact with the stop surface 261 of the second torquer and it is therefore possible to rotate the second torquer 26. As soon as the second torquer 26 has rotated a certain amount, about five degrees, said axial surface 262 hinders the retaining arm 24 from pivoting back to its retaining position. In order to provide the mechanism for left hinged door as well as right hinged doors, there are two such axial end sur-

faces on the second torquer 26.

Now turning to fig 11, this shows that the retaining arm 24 is moved to its non-retaining position by means of a solenoid 19. This solenoid 19 has a plunger 20 which acts on a lever 242 of the retaining arm 24. Preferably the solenoid 19 is attached to the inner plate 101 by means of screws. When the solenoid 19 is effected by a power impulse, being relatively short (e.g. 20 mil-lisec), the plunger 20 moves upwardly and pushes the lever 242 so that retaining arm 24 pivots out-wardly to its releasing position.

To retain the spring urged plunger 20 in its extended position, this mode has exchanged the mechanical retaining device 37, fig 6, for a permanent magnet. By doing so the number of movable parts can be even more reduced. This kind of solenoids are known, so called bistable electromagnets. The force with which the magnet retains the plunger 20 in its extended position, has to be relatively small, so that the plunger can be reset either in a mechanical manner or by a pulse of current of reversed polarity to the solenoid 19 which can be of either the pull or push type.

The resetting action of the best mode is provided for in a mechanical manner by the first torquer 27. The transition area 273 between the substantially flat surface 271 and the cylindrical surface of the first torquer 27, forms a cam surface 273. When the first torquer 27 is rotated this cam surface 273 will strike the top 601, 191 of the plunger 20 and/or the lever 242. This camming action pushes the plunger 20 out of contact with the magnet and the spring force can overcome the magnetic force so that the plunger returns to its rest position. The upper top 191 is preferably threaded onto the plunger 20 so that the length position of it can be adjusted. The mechanism also includes some kind of time based resetting device, by means of which the plunger 20 is reset by a pulse of current of reversed polarity after a predetermined time, if the handle has not been turned.

The function of this best mode is as follows. A keyed information, e.g. via a magnetic card or a keyboard 1, confirms that the person is authorized to pass the door. A short pulse of current from the battery 17 is supplied to the solenoid 19. The plunger 20 moves upwardly and its top part 191 contacts and pushes the lever 242 of the retaining arm 24. At its end position the plunger is securely held by a permanent magnet, within the bistable solenoid, and the retaining arm 24 is put in its releasing position, after pivoting about the shaft 509. By turning the outer handle 14 this rotation will be transferred to the second torquer 26 via a shaft 25, which shaft has a rectangular cross section and is provided with an indication of fracture 145. The force transmitting part 34, of the second

torquer 26 interacts with radially directed stop surface 35 of the first torquer 27. Accordingly also the inner torquer 27 will be rotated and therefore also the existing lock mechanism 9 and its plunger 10.

When the torquers 26, 27 have been rotated about 10 degrees the camming surface 273 of the first torquer 27 will push the top 191 of the plunger 20. The plunger 20 is not any longer held by the magnet and it returns to its reset (rest) position. The retaining arm 24 is no longer pushed into its releasing position by the plunger 20. Helical springs 512 urges the retaining arm 24 in a direction back to its retaining position. Since the torquers 26, 27 are rotated about 10 degrees the retaining arm can not really move back to this retaining position but will contact an axial surface 262 of the second torquer 26. The retaining arm 24 will be in contact with this surface 262 until the second torquer 26 returns closely to its neutral position. The torquers are urged back to this neutral position by means of existing springs in the existing lock 9. Sometimes it is necessary to supplement this spring force, by a stronger spring or an additional spring preferably acting on the first torquer 27. The stop in 503 of the first torquer 27 and the positioning element 33 defines this neutral position. The second torquer 26 is urged back into this position by means of the force transmitting part 34 and stop surface 35 of the first torquer 27.

If this mechanism has to be rearranged to be adapted in order to a right hinged door instead of a left hinged door the following is necessary. The force transmitting part 34 has to be moved from hole 263 on the left hand side to the hole on the right hand side of the second torquer 26 (see fig 5). The positioning element 33 also has to be moved and in this case from a hole 107 on the right hand side to a hole on the left hand side. Accordingly it is only necessary to move two parts 33, 34 in order to rearrange the mechanism to be adapted to a door hinged on the right hand side instead of a left hinged.

Referring now to fig 15, 16, 17, there is shown best mode of example for supplying the keyed information, e.g. by the use of specially designed keyboard 1. The keyboard has an outer panel 5 comprising a number of recesses 6. Each recess 6 has a button 2 lodged therein, in this case ball shaped elements 4.

Fig 16 shows a different mode of example where the bowls 4 has been exchanged for cylindrical elements 4. The envelope surface of this elements 4 can also be convex.

Fig 17 shows a cross section of keyboard as described above. As is evident from this figure the recesses 6 are preferably tapered. The spherically shaped element 4 is kept in its recess 6 by means of a bottom plate 7. The bottom plate 7 comprises

a sensor device 3 which is placed at the area where the surface of the button 2 contacts the bottom plate 7. The sensor elements can be of different well known kind, such as electronic contact elements, which sense if pressure is supplied to a button 2.

The bottom surface 7 is preferably arranged in order to act on the buttons 2 with a resilient force which is directed outwardly. This can be achieved in different ways i.e.g. by using springs underneath said surface 7, by using a resilient material (foam-like), etc. In some cases it is appropriate to arrange the counter resisting force to be discontinuous.

The recesses 6 are adopted to match the form of the element to which it is going to be used, i.e. round if a ball is used. The contact surface of recesses 6, however, does not have to be continuous.

The material for this keyboard should be chosen in such a manner that the buttons 2 can always rotate when they are touched upon. In other words no grippy contact between the surfaces of the elements 2, 4 and their surroundings contact surfaces. Furthermore the material of this element should be of long lasting type and preferably relatively cheap. It has been found that the active parts in bearings, rolls and balls, are perfectly suited for this purpose.

When such a keyboard is used a person applies pressure to the (touched) buttons 2 and they will rotate and accordingly be positioned in another state. Furthermore if someone slides over the keyboard with his hand's palm this will make all elements rotate. This rotation, generally about an axis parallel with the plane of the keyboard, of the elements 4 result in a different part of the surface of the element 4 being exposed through the recess 6. Accordingly it is not only one surface that will be touched upon and polished by the actuation thereof, as is the case with the commonly used keyboards. This is a major disadvantage with commonly used keyboard because this makes it possible to deduce which buttons are used for the keyed information.

The mechanism is preferably arranged with a power supply sensing means, which by means of for example a flashing lamp indicates that the battery has to be exchanged. Further, it is advantageous to have an additional power source, e.g. a battery having less capacity. Such a battery can for example be activated by pressing a special button (or buttons) on the keyboard, whereafter the tapping of the keyed combination would release the lock.

The invention is not limited to the above described mode of examples, but can be widely modified within this scope of the following claims. It would, for instance, always be possible to have the

stub axle 270 arranged on the second torquer 26 instead of the first one. Any kind of cross-section which is appropriate to transmit torque can be used for the shafts 28, 145.

Furthermore it will always be possible to change the arrangement of the stop pin 503. Instead of having a fixed hole 272 in the first torquer 27 it would be possible to have this stop pin 503 arranged to a movable annulus which then could be positioned differently on the first torquer 27. Such an arrangement would make it possible to only have one hole 107 for the positioning element 33.

It would also always be possible to arrange the outer shaft 145 to be integral with the outer torquer 26.

Instead of having the force transmitting part 34 mounted in a hole it would be possible to fix it by an annular movable means, e.g. a tube clamp.

Furthermore it is not a necessity that the cavity 66 forms the force transmitting end surfaces 35. It would be possible to movably attach some means on the first torquer 27 which means would carry those end surfaces 35.

Another possible modification would be that the outer end surface of the second torquer 26 would not comprise any recesses to form the end surfaces 262, but would directly form these end surfaces 262. This, however, is not always preferable since the stub shaft 270 as well as the attachment of the intermediate shaft 25, require that the second torquer 26 has a certain length.

Above the lock mechanism has been exemplified when used within a casing in accordance with the invention. It is obvious, however, that this kind of mechanism also can be directly installed on a door e.g. without being mounted to preexisting lock.

The sensors 3 used together with the preferred keyboard 1, can be of any kind well known to the skilled man within this field, e.g. inductive, capacitive, electronic, electrical etc.

Furthermore it is obvious for the skilled man that many of the above described features, e.g. the keyboard, can be used in connection with other applications than locks, and without this kind of casing.

As has already been mentioned above the arrangement of all necessary parts within one casing having holes matching the preexisting lock is a most essential feature by means of which the main object is obtained. The preferred and shown mechanism, however, does not necessarily have to be of the described type. The main object would also be fulfilled if one used a mechanism of the "clutch" type, but here again we would face the problem that such a mechanism requires more movable parts, which implies higher costs. The

advantage with such a mechanism, however, is that firstly it is always possible to open the door from inside, secondly that the outer handle can always be rotated even if the solenoid is not activated.

An optional way of mounting the casing to a door having a preexisting lock assembly 9, would be to pre-install an outer handle, either a new one or the existing one, on the outwardly projecting shaft 25 of the casing 12. Such a method would exclude the necessity of through holes 106, 206 through the casing 12, but would require an arrangement of matching attachment means on the backside of the casing 12.

Claims

1. Lock assembly and casing, for the opening of doors by means of keyed information, comprising;
 - a torque transmitting means (26, 27), for transmitting force from one end of said casing (12) to the other;
 - a movable interacting means, which in its activated position allows said torque transmitting means (26, 27) to be rotated;
 - a solenoid (19, 20), for moving said interacting means (22, 24) when activated;
 - a power supply (17), for supplying the solenoid (19) in connection with the activation thereof;
 - and means (1) for the input of keyed information by means of which said activation is initiated, if authorized,

characterized in that, said torque transmitting means (26, 27) is adapted to be connected to the torque shaft (28) of an existing lock mechanism;

the casing has a set of mounting means which are positioned in order to match the preexisting attachment holes of the existing lock (9);

and that the inner handle (13) of the existing lock mechanism (9), can be rotated independently of the position of said interacting means.
2. Assembly in accordance with claim 1, **characterized** in that said mounting means are through holes (206, 107).
3. Assembly in accordance with claim 1, **characterized** in that said torque transmitting means, include first and second torque transmitting members (26, 27) which are substantially fixed in the axial direction.
4. Assembly in accordance with claim 2, **characterized** in that said interacting means is a blocking mechanism (24), which in its non activated position, directly blocks a second

torque transmitting member (26) of said torque transmitting means (26, 27), so that the outer handle (14) in this position cannot be rotated.

5. Assembly in accordance with claim 1, **characterized** in that said torque transmitting means (26, 27) comprises means by means of which it is possible to use the mechanism to right hinged doors as well as left hinged door.
6. Assembly in accordance with claim 2 and 4, **characterized** in that the means (33, 35) for transmitting torque between said torquers (26, 27), includes at least one part which is releasable fixed to one of said torquers (26, 27), and a positioning means (33, 503) defining the neutral position for said torquers (26, 27), said positioning means (33, 503) comprising at least one releasable fixed member.
7. Assembly in accordance with claim 1, **characterized** in that said means for input of said keyed information is a keyboard (1) having buttons (2) which are rotatably arranged about an axis being substantially parallel with that plane including the interacting edges of that recess (6) wherein it is lodged.
8. Method for supplementing an existing lock (9) with a lock assembly in accordance with claim 1, **characterized** in the following steps:
 - (A) the loosening of the attachment screws for the handles (13, 14) of the existing lock (9),
 - (B) The movement of the outer handle (14), together with its supporting member (14'), so that the outer end of the existing shaft (28) is exposed,
 - (C) the fitting of the casing (12) at the outside of the door (8) so that the inner part of the torque transmitting means (26, 27) is connected with said outer end of said existing shaft (28),
 - (D) the attachment of the casing (12) by the insertion of lengthy adapted cages through preexisting through holes (107, 206), firstly through the holes of the supporting element (14') for the handle (14), secondly through the holes (106, 206) of the casing (12) and finally through the holes of the remaining part of the existing lock (9), where they accordingly are interconnected with screws from the inside of the door (8), preferably the existing screws from the existing lock (9).

9. A method in accordance with claim 8, wherein the existing lock assembly (9) also comprises, in vicinity thereto, an additional lock assembly (16), **characterized** in the following steps:

(E) to disassemble the additional lock (16) and remove the outer part thereof, before step (c) is carried out,
(F) to reassemble the additional lock (16) on top of a protruding plate (18) of the casing (12), preferably by means of existing screws.

10. A door (8) **characterized** by having a lock assembly in accordance with claim 1 mounted thereon.

Patentansprüche

1. Schloßbausatz und Gehäuse zum Öffnen von Türen mittels einer getasteten Information, umfassend:

- eine Drehmoment-Übertragungsvorrichtung (26, 27), um eine Kraft von der einen Stirnseite des genannten Gehäuses (12) zu der anderen zu übertragen;
- eine bewegbare Wechselwirkungsvorrichtung, die in ihrer betätigten Position zuläßt, daß die besagte Drehmoment-Übertragungsvorrichtung (26, 27) gedreht wird;
- einen Schaltmagneten (19, 20), um, wenn er aktiviert ist, die besagte Wechselwirkungsvorrichtung (22, 24) zu bewegen;
- eine Energiequelle (17), um den Schaltmagneten (19) in Verbindung mit dessen Aktivierung zu speisen;
- und Mittel (1) für die Eingabe einer getasteten Information, mit deren Hilfe die erwähnte Aktivierung im berechtigten Fall eingeleitet wird, dadurch gekennzeichnet,
- daß die besagte Drehmoment-Übertragungsvorrichtung (26, 27) dazu hergerichtet ist, mit der Drehwelle (28) eines bestehenden Schloßmechanismus verbunden zu werden;
- daß das Gehäuse einen Satz von Befestigungsmitteln besitzt, die positioniert sind, um mit den vorher vorhandenen Befestigungslöchern des bestehenden Schlosses (9) zusammenzupassen;
- und daß der innere Griff (13) des bestehenden Schloßmechanismus (9) unabhängig von der Position der besagten Wechselwirkungseinrichtung gedreht werden kann.

2. Bausatz nach Anspruch 1, dadurch gekennzeichnet, daß die genannten Befestigungsmittel

Durchgangslöcher (206, 107) sind.

3. Bausatz nach Anspruch 1, dadurch gekennzeichnet, daß die besagte Drehmoment-Übertragungseinrichtung erste und zweite Drehmoment-Übertragungselemente (26, 27) einschließt, die in der axialen Richtung im wesentlichen fest sind.

4. Bausatz nach Anspruch 2, dadurch gekennzeichnet, daß die besagte Wechselwirkungseinrichtung ein Sperrmechanismus (24) ist, der in seiner unbetätigten Stellung unmittelbar ein zweites Drehmoment-Übertragungselement (26) der besagten Drehmoment-Übertragungsvorrichtung (26, 27) blockiert, so daß der äußere Griff (14) in dieser Stellung nicht gedreht werden kann.

5. Bausatz nach Anspruch 1, dadurch gekennzeichnet, daß die besagte Drehmoment-Übertragungsvorrichtung (26, 27) Mittel enthält, mit deren Hilfe es möglich ist, den Mechanismus bei rechts angeschlagenen Türen wie auch bei links angeschlagenen Türen zu verwenden.

6. Bausatz nach Anspruch 2 und 4, dadurch gekennzeichnet, daß die Organe (33, 35) zur Übertragung eines Drehmoments zwischen den genannten Drehmomenterzeugern (26, 27) wenigstens ein Teil, das lösbar an einem der genannten Drehmomenterzeuger (26, 27) befestigt ist, und ein Positionierelement (33, 503), das die neutrale Position der genannten Drehmomenterzeuger (26, 27) bestimmt, einschließt, wobei das besagte Positionierelement (33, 503) wenigstens ein lösbar befestigtes Bauteil umfaßt.

7. Bausatz nach Anspruch 1, dadurch gekennzeichnet, daß das genannte Mittel zur Eingabe der erwähnten getasteten Information ein Tastenfeld (1) ist, das Drucktasten (2) besitzt, die um eine Achse drehbar angeordnet sind, welche im wesentlichen mit der Ebene parallel ist, die die miteinander zusammenwirkenden Kanten derjenigen Aussparung (6), in der sie aufgenommen sind, einschließt.

8. Verfahren zur Ergänzung eines bestehenden Schlosses (9) durch einen Schloßbausatz gemäß dem Patentanspruch 1, gekennzeichnet durch die folgenden Schritte:

- (A) des LöSENS der Befestigungsschrauben für die Griffe (13, 14) des bestehenden Schlosses (9),
- (B) des BewEGENS des äußeren Griffs (14) zusammen mit seinem lagernden Teil (14'),

so daß das äußere Ende der vorhandenen Welle (28) exponiert ist,

(C) des Ansetzens des Gehäuses (12) an der Außenseite der Tür (8), so daß der innere Teil der Drehmoment-Übertragungseinrichtung (26, 27) mit dem genannten äußeren Ende der besagten vorhandenen Welle (28) verbunden wird,

(D) des Anbringens des Gehäuses (12) durch das Einführen von in der Länge angepaßten Käfigstücken durch bereits vorhandene Durchgangslöcher (107, 206), und zwar erstens durch die Löcher des lagernenden Teils (14') für den Griff (14), zweitens durch die Löcher (106, 206) des Gehäuses (12) und letztlich durch die Löcher des verbleibenden Teils des bestehenden Schlosses (9), wo sie entsprechend mit Schrauben von der Innenseite der Tür (8), vorzugsweise den vorhandenen Schrauben des bestehenden Schlosses (9) verbunden werden.

9. Verfahren nach Anspruch 8, wobei der bestehende Schloßbausatz (9) in seiner Nachbarschaft auch einen zusätzlichen Schloßbausatz (16) besitzt, gekennzeichnet durch die folgenden Schritte:

(E) des Abbauens des zusätzlichen Schlosses (16) sowie Entfernens des äußeren Teils von diesem, bevor der Schritt (C) ausgeführt wird,

(F) des Wiederaufbaus des zusätzlichen Schlosses (16) am Oberteil der vorstehenden Platte (18) des Gehäuses (12), vorzugsweise mittels vorhandener Schrauben.

10. Eine Tür (8), dadurch gekennzeichnet, daß sie einen an ihr angebauten Schloßbausatz in Übereinstimmung mit dem Patentanspruch 1 besitzt.

Revendications

1. Ensemble serrure et boîtier, pour ouvrir des portes au moyen d'une information introduite par clavier, comprenant :
- des moyens (26, 27) de transmission du couple, destinés à transmettre une force d'une extrémité dudit boîtier (12) à l'autre ;
- des moyens d'interaction mobiles qui, dans leur position activée, permettent auxdits moyens (26, 27) de transmission du couple de tourner ;
- un électro-aimant (19, 20) destiné à déplacer lesdits moyens d'interaction (22, 24) lorsqu'il est activé ;
- une alimentation (17), destinée à alimenter l'électro-aimant (19) dans le cas d'activation de

celui-ci ;

et des moyens (1) servant à entrer l'information introduite par clavier au moyen desquels ladite activation est déclenchée, si elle est autorisée,

caractérisé en ce que lesdits moyens (26, 27) de transmission du couple sont adaptés pour être reliés à l'arbre (28) d'entraînement d'un mécanisme de la serrure existante ;

le boîtier possède un jeu de moyens de montage qui sont positionnés pour s'accoupler à des trous de fixation pré-existants de la serrure existante (9) ;

et en ce que la poignée intérieure (13) du mécanisme de la serrure existante (9) peut être tournée indépendamment de la position desdits moyens d'interaction.

2. Ensemble selon la revendication 1, caractérisé en ce que lesdits moyens de montage sont des trous traversants (206, 107).

3. Ensemble selon la revendication 1, caractérisé en ce que lesdits moyens de transmission du couple comprennent des premier et deuxième éléments (26, 27) de transmission du couple qui sont sensiblement immobilisés dans la direction axiale.

4. Ensemble selon la revendication 2, caractérisé en ce que lesdits moyens d'interaction sont un mécanisme de blocage (24) qui, dans sa position non activée, bloque directement un deuxième élément (26) de transmission du couple appartenant auxdits moyens (26, 27) de transmission du couple, de sorte que la poignée extérieure (14) ne peut pas être tournée dans cette position.

5. Ensemble selon la revendication 1, caractérisé en ce que lesdits moyens (26, 27) de transmission du couple comprennent des moyens à l'aide desquels il est possible d'utiliser le mécanisme sur des portes à charnières à droite aussi bien que sur des portes à charnières à gauche.

6. Ensemble selon les revendications 2 et 4, caractérisé en ce que les moyens (33, 35) servant à transmettre le couple entre les transmetteurs de couple (26, 27) comprennent au moins une partie qui est fixée de façon démontable à l'un des transmetteurs de couple (26, 27) et des moyens de positionnement (33, 503) qui définissent la position neutre desdits transmetteurs de couple (26, 27), lesdits moyens de positionnement (33, 503) comprenant au moins un élément fixé de façon dé-

montable.

7. Ensemble selon la revendication 1, caractérisé en ce que lesdits moyens pour l'entrée de ladite information introduite par clavier est un clavier (1) possédant des boutons (2) dont chacun est disposé mobile en rotation autour d'un axe sensiblement parallèle à ce plan, qui contient les bords interactifs de la cavité (26) dans laquelle il est logé. 5 10
8. Procédé pour compléter une serrure (9) existante avec un ensemble de serrure selon la revendication 1, caractérisé par les phases suivantes consistant à : 15
 - (A) dévisser les vis de fixation des poignées (13, 14) de la serrure existante (9),
 - (B) déplacer la poignée extérieure (14), avec son élément support (14'), de manière que l'extrémité extérieure de l'arbre existant (28) soit dégagée, 20
 - (C) monter le boîtier (12) à l'extérieur de la porte (8) de manière que la partie intérieure des moyens (26, 27) de transmission du couple soit reliée à ladite extrémité extérieure dudit arbre existant (28), 25
 - (D) fixer le boîtier (12) par l'insertion de cages de grande longueur, adaptées, à travers des trous traversants (107, 206) pré-existants, premièrement à travers les trous de l'élément support (14') de la poignée (14), deuxièmement à travers les trous (106, 206) du boîtier (12) et, finalement à travers les trous de la partie restante de la serrure existante (9), où elles sont en conséquence assemblées avec des vis partant de l'intérieur de la porte (8), de préférence les vis existantes provenant de la serrure existante (9). 30 35 40
9. Procédé selon la revendication 8, dans lequel l'ensemble de la serrure existante (9) comprend aussi, à proximité de cet ensemble, un ensemble de serrure additionnel (16), caractérisé par les phases suivantes consistant à : 45
 - (E) désassembler la serrure additionnelle (16) et enlever sa partie extérieure avant l'exécution de la phase (C),
 - (F) réassembler la serrure additionnelle (16) sur une plaque saillante (18) du boîtier (12), de préférence à l'aide de vis existantes. 50
10. Porte (8), caractérisée en ce qu'elle comporte un ensemble serrure selon la revendication 1, monté sur elle. 55

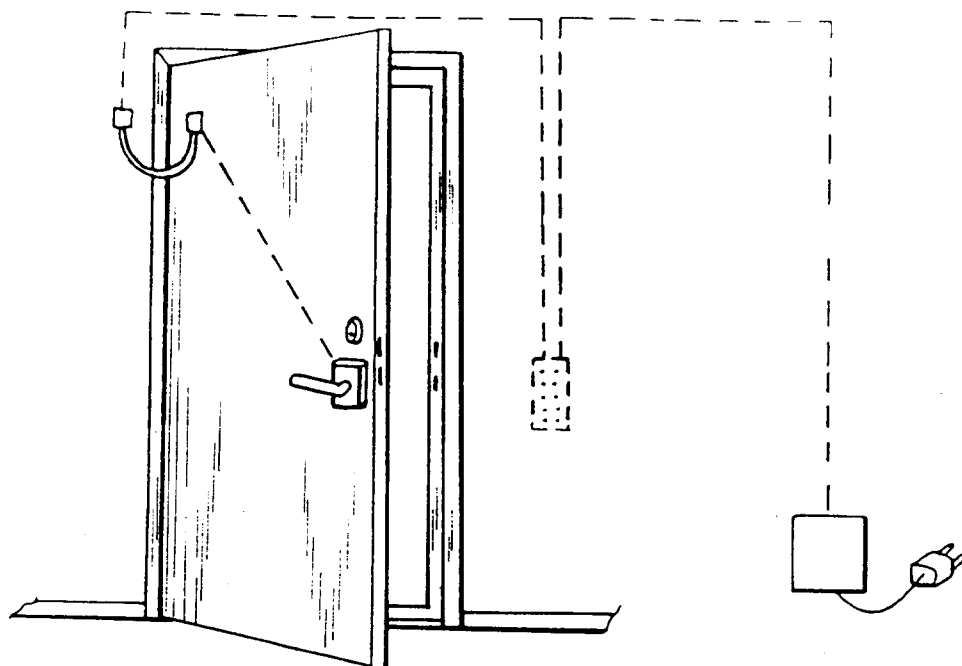


FIG. 1

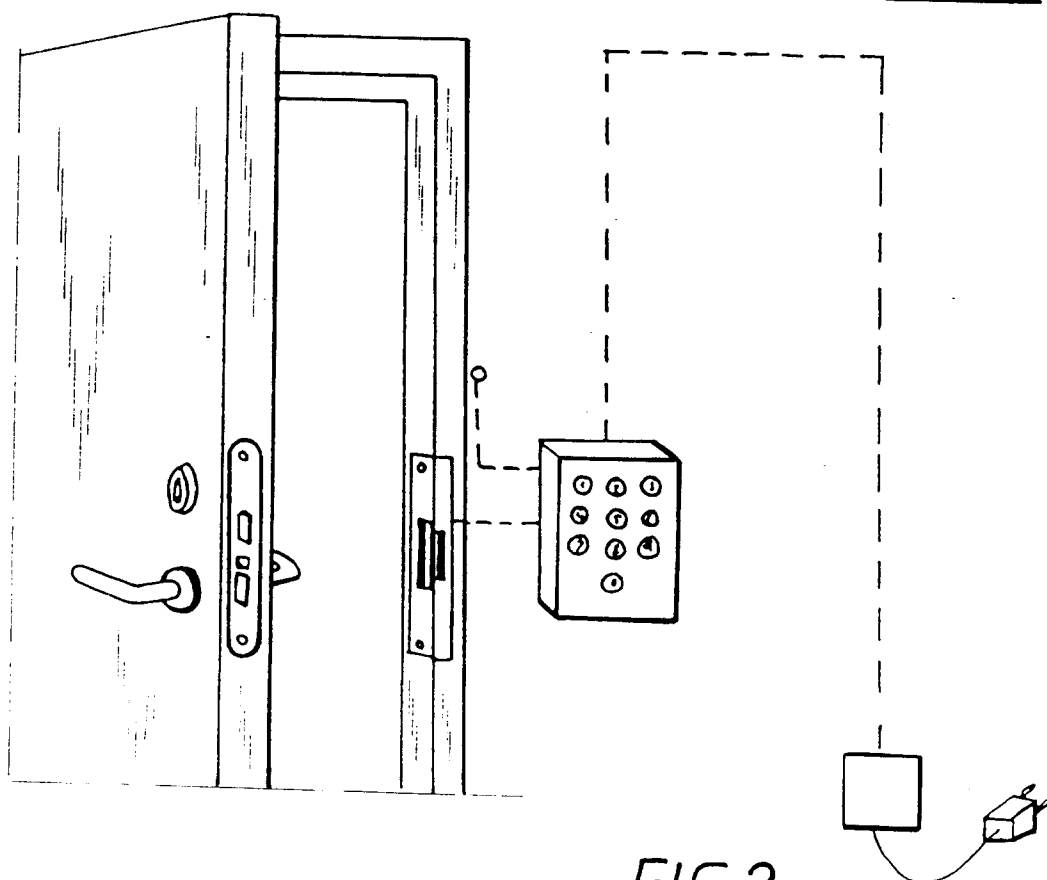


FIG. 2

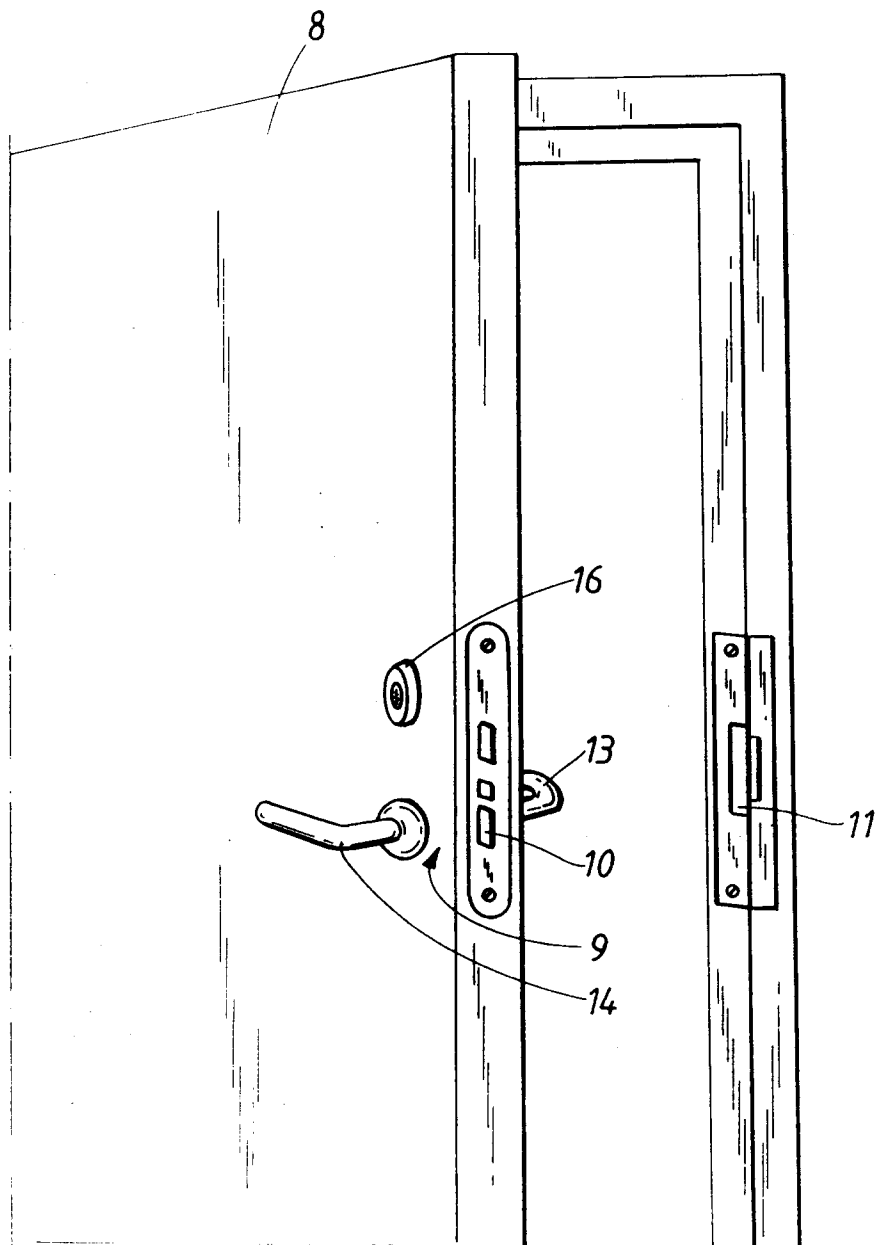


FIG. 3

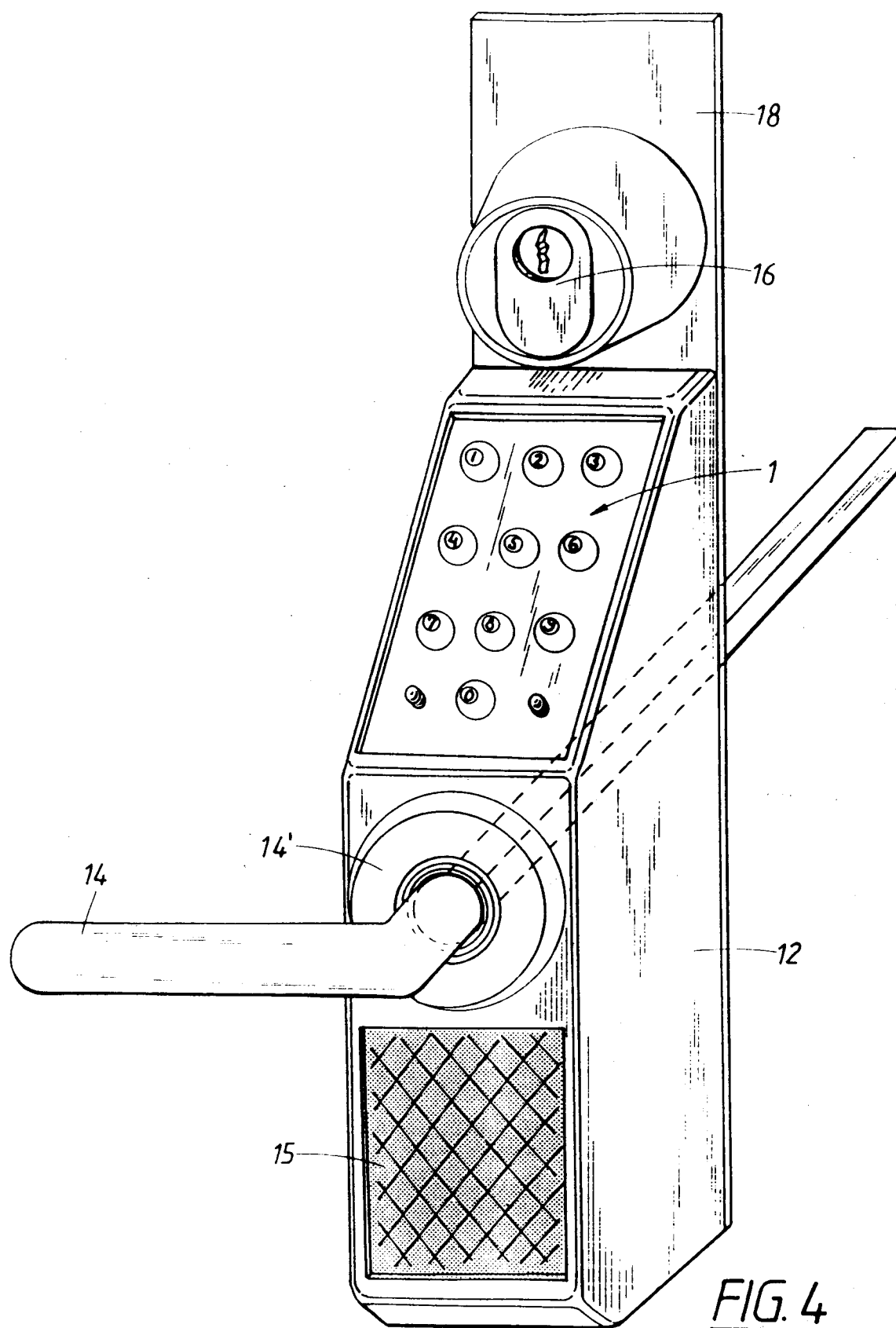
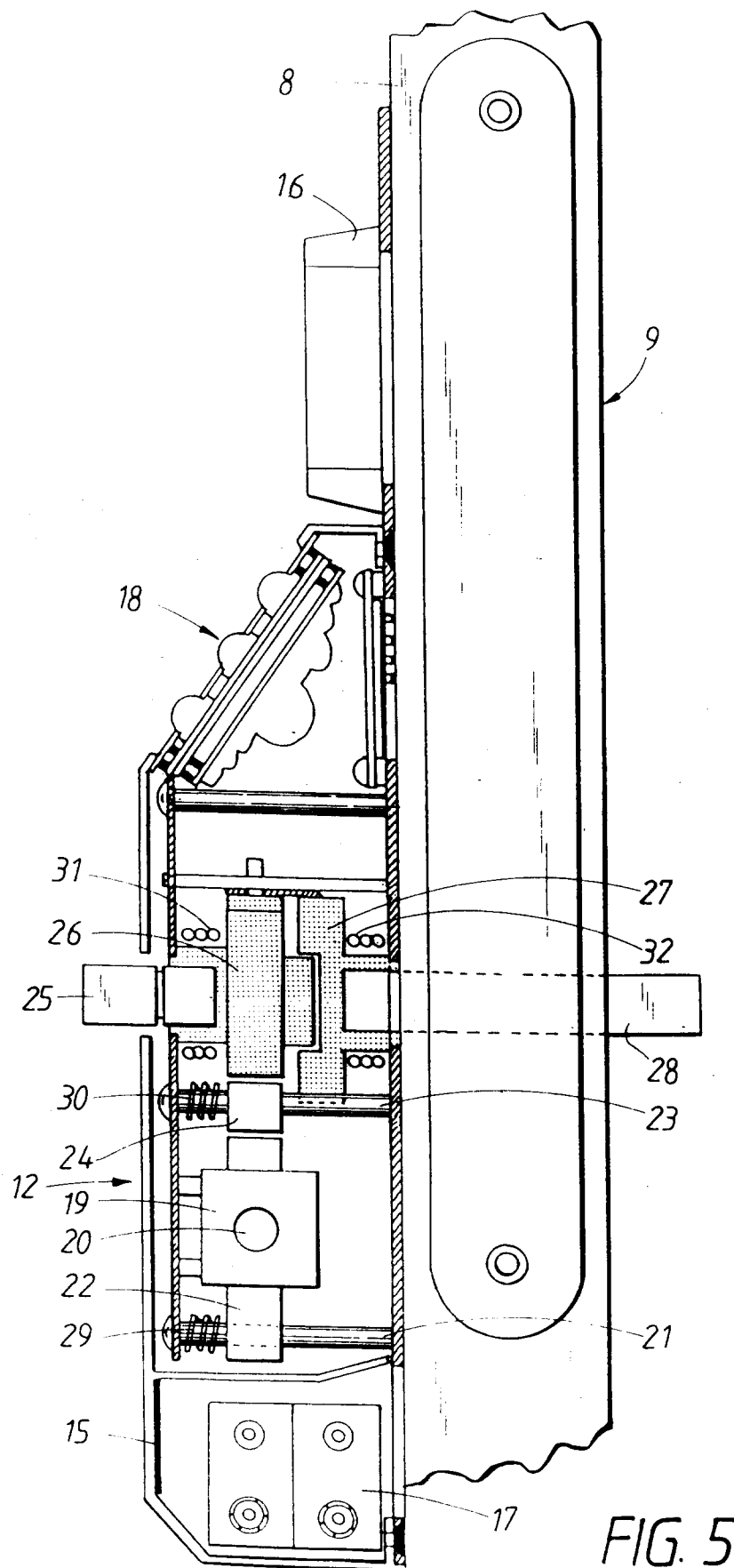


FIG. 4



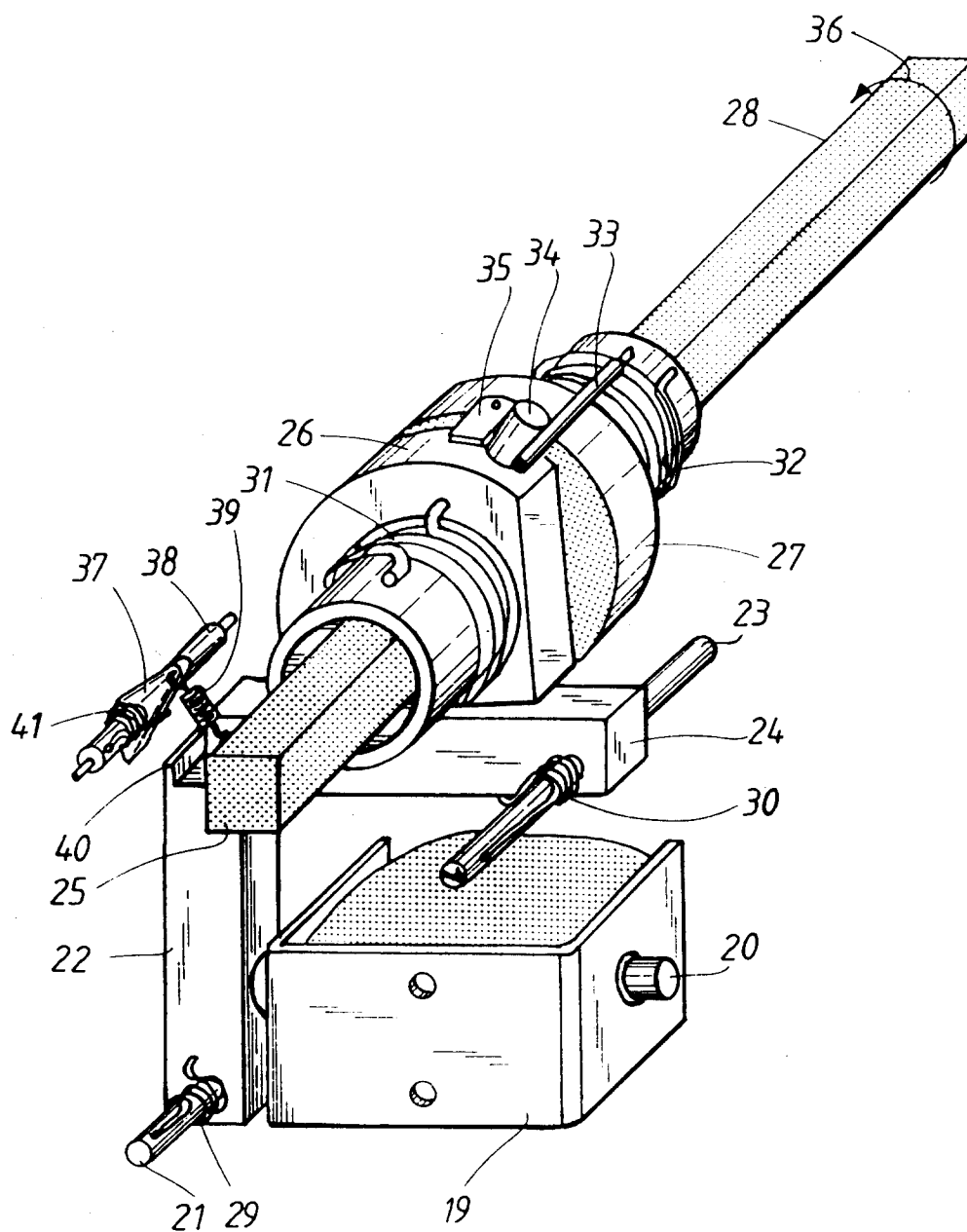


FIG. 6

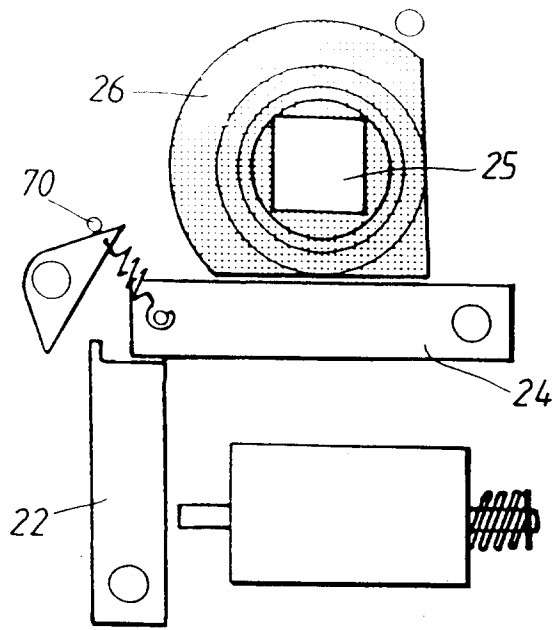


FIG. 7

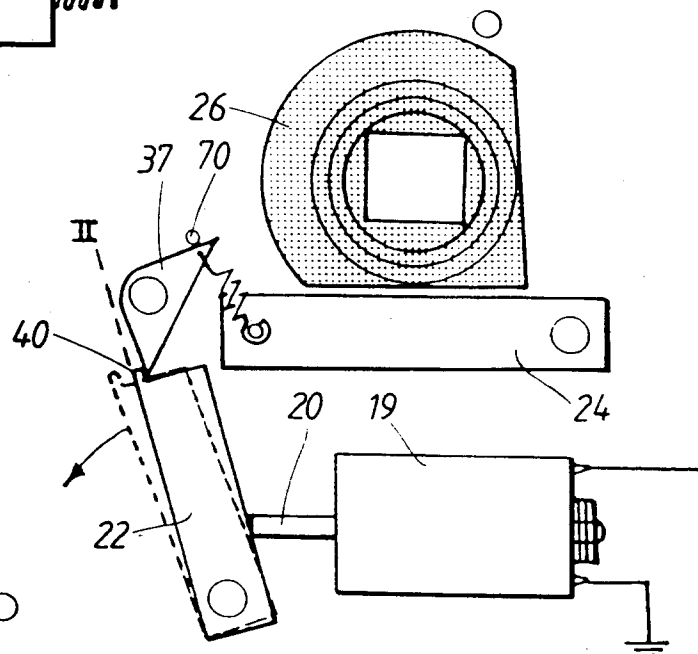


FIG. 8

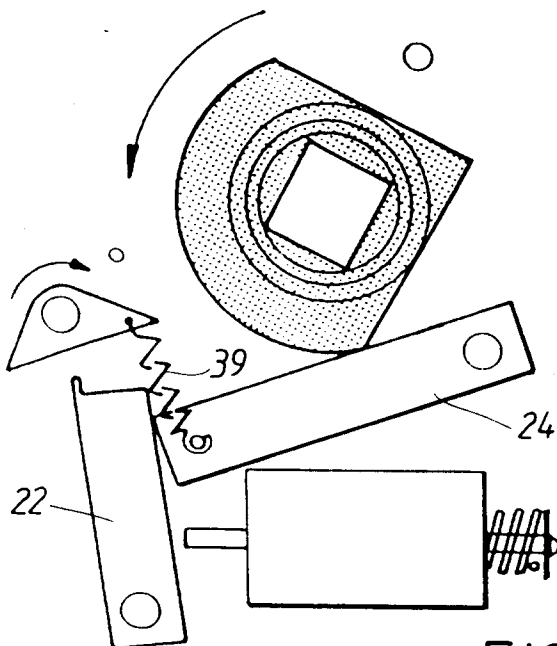
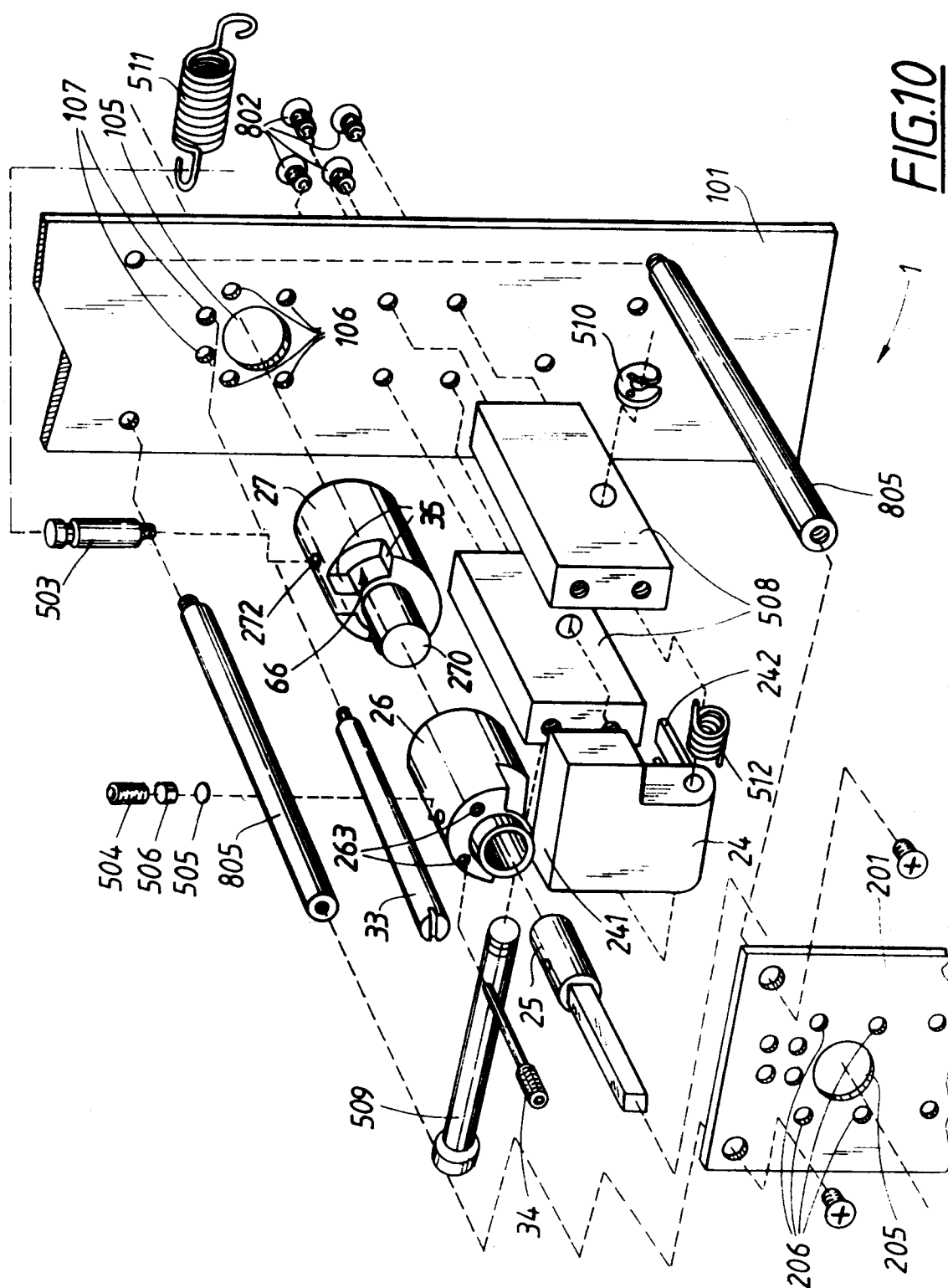


FIG. 9



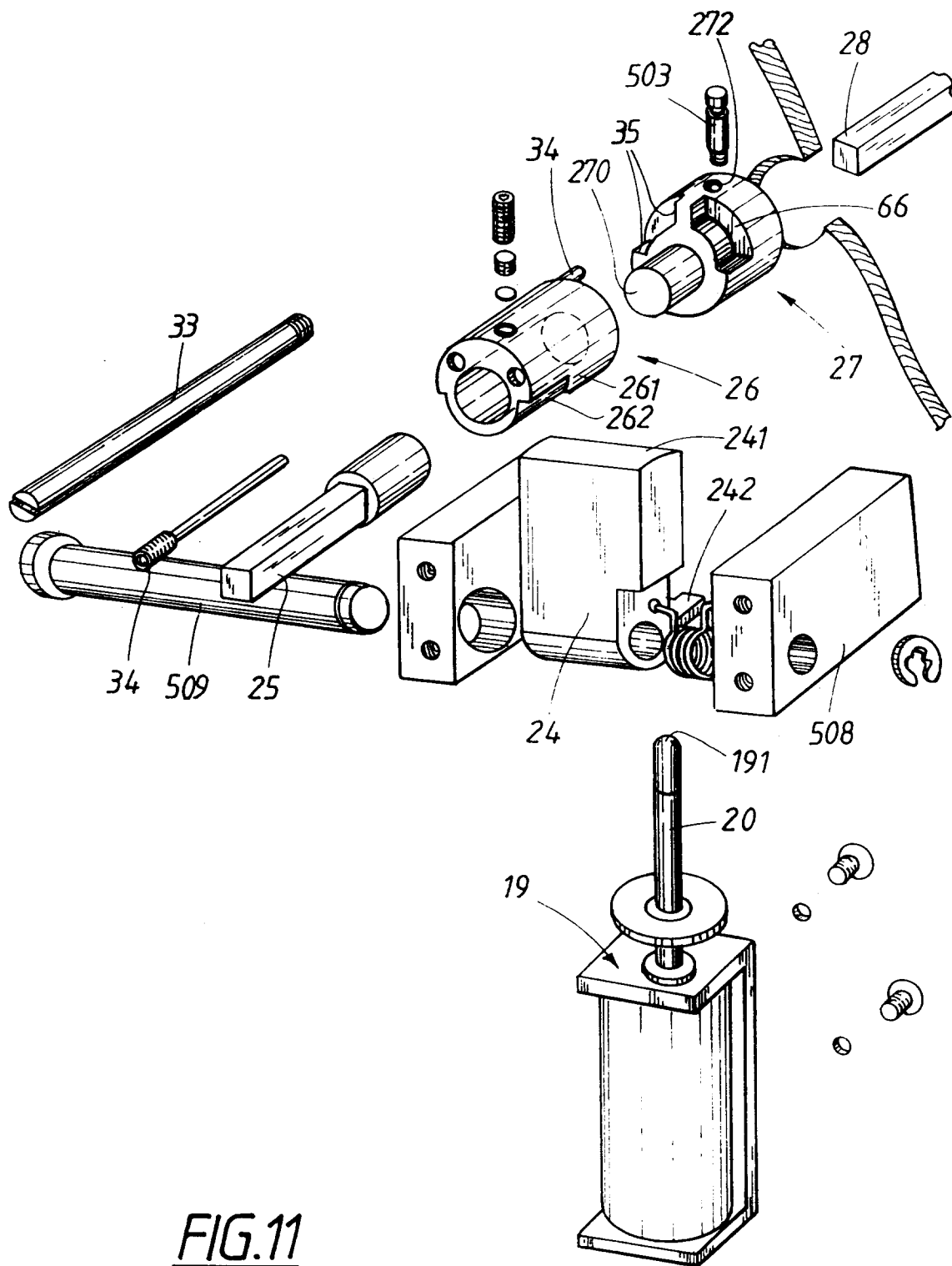


FIG.11

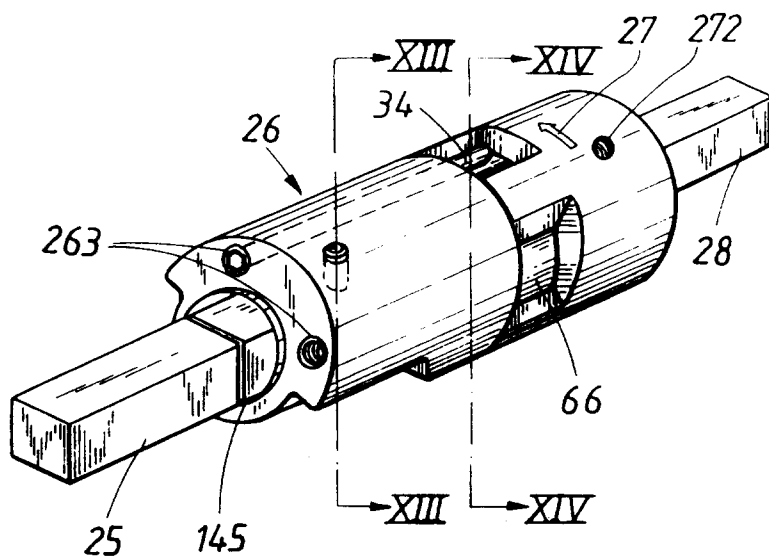


FIG.12

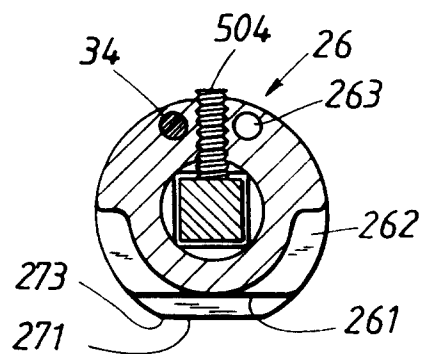


FIG.13

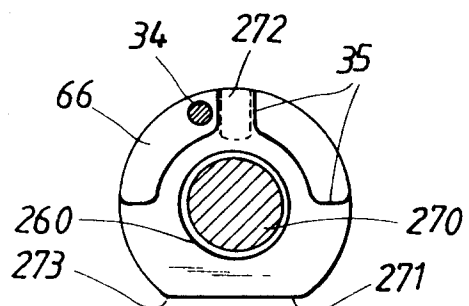


FIG.14

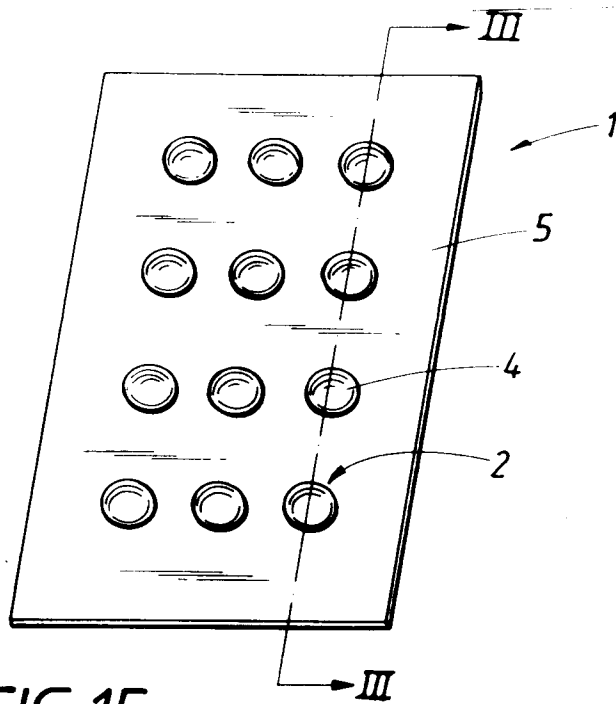


FIG. 15

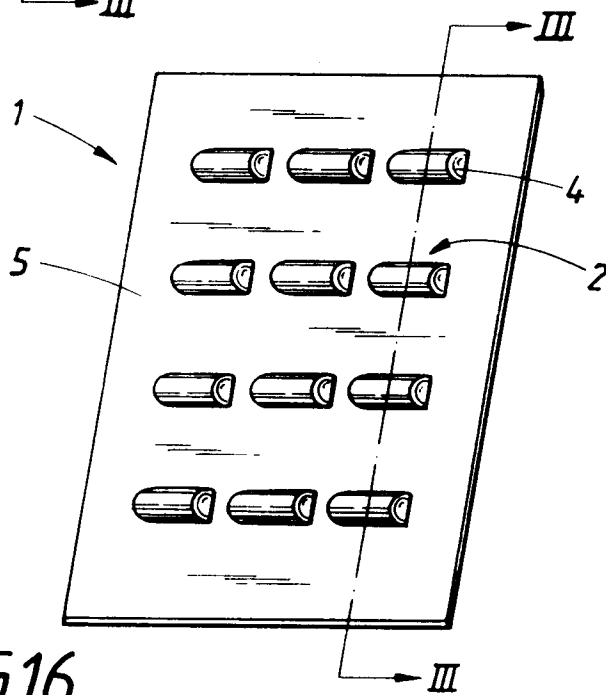


FIG. 16

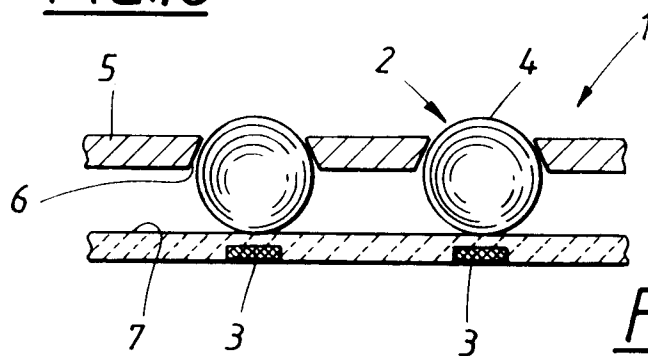


FIG. 17