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(54) **SAFETY DEVICE FOR DOORS, WINDOWS, MOBILE DOORS AND SIMILAR WINGS**

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## Description

**[0001]** The present invention relates to a safety device for doors, windows, mobile doors, or any other type of panel adapted to the opening/closing of a passage.

**[0002]** More particularly, the present invention relates to a safety device for blocking the opening movement of the respective door (or technically equivalent element) to which the device is associated.

**[0003]** As known, access doors are provided with appropriate safety systems that block the mobile part on the respective frame. Such devices can be of two types: actuatable only from one side (usually the inside of the door); or actuatable from both sides of the door.

**[0004]** The devices of the first type are generally constituted by bolts, or similar locking levers, manually actuatable to be inserted in special openings anchored to the frame. These devices thus allow to block the door by means of direct actuation of the bolt that is generally moved by axial sliding inside the opening.

**[0005]** As described above, however, these devices are limited in their use because they can only be actuated from the inside of the door, for example from inside a room.

**[0006]** The safety devices of the second type are constituted by locks operable from both sides of the door and arranged to constrain the door in a closing condition to the respective jamb or frame.

**[0007]** The locks are usually incorporated inside the door and allow the handling of a latch bolt that extends outside of the door footprint to fit into a bore made on the jamb.

**[0008]** In this way, the locking/unlocking condition of the door is defined by acting mechanically on the lock (by means of suitable keys).

**[0009]** This solution, although able to maintain the door blocked on the jamb, however, is apparently not very safe. In fact, by acting with force on the door, for example by repeated percussion, the latch bolt can be damaged and bent and consequently coming out of the respective bore.

**[0010]** To overcome this disadvantage, locks of the armoured type are provided, which confer greater stability of the door on the jamb.

**[0011]** The armoured locks provide, in addition to the spring latch, a series of sliding bars which, extending from more sides of the door, are inserted in respective bores formed on all the frame that supports the door.

**[0012]** The bars, in the closed condition of the door, therefore, ensure a certain stability of the door, preventing its breach as a result of any outside percussion.

**[0013]** Even this solution, however, presents a major drawback derived from the ease of breaking in the locks.

**[0014]** In fact, the lock can be easily tampered from the outside by suitable forcing systems, thus it can be switched in the opening condition even without the appropriate key.

**[0015]** In addition, the recent key cloning systems pro-

vide for universal elements which can be shaped according to the shape of the lock to be opened. In this situation, all types of lock are not safe and may be subject to tampering by means of the cited break-in systems.

**[0016]** Further solutions are well known in the art, as e.g shown in WO 94/21877 A1, which discloses a safety device according to the preamble of claim 1. In this context, the technical task underlying the present invention is to propose a safety device that overcomes the drawbacks of the prior art mentioned above.

**[0017]** In particular, it is an object of the present invention to provide a versatile safety device, therefore applicable to any type of door, window, mobile door or other movable element adapted to the closing/opening of an access.

**[0018]** In greater detail, it is an object of the present invention to provide a safety device that is safe, actuatable from any side of the door to which it is applied and which cannot be damaged as a result of breach of the door.

**[0019]** It is a further object of the present invention to propose a safety device that is not visible and thus cannot be tampered, and at the same time that it is structurally simple, cost-effective and easy to use.

**[0020]** The technical task mentioned and the objects stated are substantially achieved by a safety device comprising the technical features set out in one or more of the appended claims.

**[0021]** In particular, the present invention provides a safety device for doors, windows, mobile doors and the like, comprising a locking member movable between a first position, in which it obstructs the movement of a respective door or window or mobile door, and a second position, in which it does not obstruct the movement of said door, window or mobile door; the locking member being moved by a respective actuator. The device further has a containment body of said locking member and said actuator, which can be positioned in correspondence of a zone of passage of the door, window or mobile door; the actuator being controlled by control means, arranged externally to said containment body for activating and/or deactivating the actuator from a remote location.

**[0022]** Further features and advantages of the present invention will become more apparent from the description of an exemplary, but not exclusive, and therefore non-limiting preferred embodiment of a safety device for doors, windows and mobile doors or the like, as illustrated in the appended figures, in which:

- 50 - Figure 1a is a schematic front view of a safety device used for a respective door and in an operating configuration;
- Figure 1b is a top plan view of the device 1 applied to said door;
- 55 - Figure 2 is a schematic front view of the safety device applied to a door of a motor vehicle;
- Figure 3 is a partially exploded perspective view of the device according to the present invention;

- Figure 4 is an exploded perspective view of the device according to the present invention;
- Figure 5 is a longitudinal sectional view of the device illustrated in Figure 4;
- Figures 5a and 5b show longitudinal sectional views of the device according to a second embodiment.

**[0023]** With reference to the attached figures, the number 1 globally indicates a safety device 1 for doors, windows, mobile doors or the like, according to the present invention.

**[0024]** Figure 1a and 1b show, merely by way of example, thus without limitation, a device 1 applied to a door 100, such as, for example, a front door of a housing unit.

**[0025]** Figure 2 shows instead, always by way of example, the device 1 applied to a door 200 of a motor vehicle.

**[0026]** It should however be specified that the device 1 object of the present invention finds use in many areas, not only for doors or windows but also for any type of mobile door in which a stable locking of the door itself is required.

**[0027]** In particular, the device 1 comprises at least a locking member 2 movable between a first position in which it obstructs the movement of a respective door or window or mobile door, and a second position in which it does not obstruct the movement of said door.

**[0028]** It is to be noted in particular that the locking member 2 is movable along an axial direction according to a "to-and-fro" movement, adapted to define the mentioned locking/unlocking positions.

**[0029]** Advantageously, the member 2 is constituted by a cylindrical pin which, in the first position, protrudes to obstruct the movement of the respective door.

**[0030]** The locking member 2 is operatively engaged to an actuator 3 adapted to move the member 2 itself in the first and second position.

**[0031]** With reference to Figures 3 to 5, the device 1 also comprises a containment body 4 of the locking member 2 and the actuator 3, positionable at a zone of passage (A) of the door 100, window or mobile door (Figures 1a and 1b).

**[0032]** In greater detail, in the embodiment solution of Figure 1a and 1b, in which the device 1 is associated to the door 100, the containment body 4 is disposed within a housing 101 formed in a support plane close to the door 100. In this situation, it is to be noted that in the movement between the respective closed and open condition, the door moves at the housing 101. In other words, when the door is moved, the same is made to slide over the mentioned housing 101 in which the device 1 is arranged.

**[0033]** With reference to the example application of Figure 2, the containment body 4 is disposed within a housing 201 formed within the corresponding door 200 and in particular at a surface 202 which faces to the frame 203 of the motor vehicle when the door 200 is in the respective closed condition. In this situation, it is to be

noted that the locking member 2 in the first position is housed in an opening 204 formed on the aforementioned frame 203.

**[0034]** Advantageously, both for the example of Figure 1a and 1b and for the example of Figure 2, the device 1 is easily applied to the respective door 100, 200 by means of realization of an appropriate housing 101, 201 formed simply by drilling (for the motor vehicle door) and ground coring (for the door of a housing unit). It should however be considered that the device 1 can be applied to any type of door or window or mobile door, after shaping of the special housing formed on the same door or on the support plane.

**[0035]** The device 1 also comprises control means 5 of the actuator 3, arranged externally to said containment body 4 for activating and/or deactivating the actuator 3 from a remote location.

**[0036]** In this regard, it is to be noted that the remote location of the actuator 3 can be any, from both sides of the door or window or mobile door. For example, in the case of Figure 1a and 1b, the control means 5 allow to move the locking member 2 both from outside the housing unit (outside of the door 100) and from inside the housing unit.

**[0037]** With particular reference to Figures 3, 4 and 5, it is to be noted that the locking member 2 comprises a pin 6 having a substantially cylindrical shape with circular section.

**[0038]** The pin 6, in the respective first position of the member 2, protrudes from the containment body 4 to extend in correspondence to the zone of passage "A" of the door 100 (outside of the housing 101).

**[0039]** Similarly, in the case of Figure 2, the pin 6 is disposed inside the opening 204, preferably provided with a perforated containment bushing of the pin 6 itself.

**[0040]** In the respective second position of the member 2, the pin 6 is arranged inside the volumetric footprint defined by the containment body 4 and is therefore comprised within the respective housing 101, 201.

**[0041]** As is best illustrated in Figure 4 and 5, the actuator 3 comprises at least one electric motor 7 operatively connected to a power supply battery 8. Preferably, the electric motor 7 is small in size and is equipped with a respective motor reducer 7a, which is very compact and small in size as well.

**[0042]** The actuator 3 further comprises a worm screw 9 coaxially associated to the motor shaft of the electric motor 7 to rotate about a respective longitudinal extension axis "X", in the two directions of rotation as a function of the positioning of the member 2.

**[0043]** The worm screw 9 and the pin 6 are operatively connected to each other by transmission means 10 which enable to transfer the rotary motion of the screw 9 into a linear movement of the pin 6.

**[0044]** It is to be noted that the pin 6 and the worm screw 9 have respective longitudinal extension axes "X, Y" parallel and non-coincident to each other.

**[0045]** In other words, the two extension axes "X, Y"

are parallel but offset between each other.

**[0046]** In greater detail, the transmission means 10 comprise a support plate 11 having a threaded bore 12 for passage of the worm screw 9 arranged to allow the sliding of the plate 11 along the longitudinal extension "X" of the screw 9 itself. In other words, following the rotation of the screw 9, the plate 11 is made to slide along the longitudinal axis "X".

**[0047]** In this situation, it should be noted that the pin 6 is to be rotatably engaged on an upper surface of the plate 11 to be moved together with the plate 11 itself.

**[0048]** It is to be noted that the pin 6 is mounted idle (free to rotate) on the plate 11 to rotate about the respective longitudinal extension axis "Y".

**[0049]** This feature entails the important advantage of making it impossible to tamper the pin 6 by cutting with suitable break-in systems. In fact, the ability to rotate the pin 6 makes the cutting action of a blade impossible, since the blade would not find friction on the surface of the pin 6 as the same would tend to roll as a result of the action of the blade.

**[0050]** Still referring to Figures 4 and 5, the containment body 4 is constituted by a hollow cylindrical portion, preferably made in two separate bodies 4a and 4b coupled with each other by means of known mounting systems (screws or mechanical interlocks).

**[0051]** In particular, a support base 13 develops inside the containment body 4, adapted to support the mentioned actuator 3. Furthermore, the support base 13, which has a substantially disc-shaped conformation, is internally engaged to the body 4 for connecting said separate bodies 4a and 4b to each other.

**[0052]** As is best illustrated in the exploded view of Figure 4, it is to be noted that in this configuration the entire device 1 is easy to assemble and disassemble. Consequently, it is possible to intervene, during maintenance, replacement or cleaning operations, by simply separating the two bodies 4a, 4b to allow the extraction of the base 13, thus the entire unit comprising the motor 7, the screw 9, transmission means 10 and the locking member 2.

**[0053]** The containment body 4 thus assembled (Figure 5), defines internally: a first containment area 14 for the locking member 2 and the actuator 3; a second containment area 15 for the power supply battery 8 of the actuator 3; and a third containment area 16 for a command and control logic 17 of the actuator 3.

**[0054]** Still, the containment body 4 comprises a first end 18 equipped with a flange and having a through-bore 19 of the locking member 2. In addition to the through-bore 19 on the first end 18, an opening 20 is also formed for access to the second area 15 adapted to allow the removal of the battery 8 from the body 4.

**[0055]** On the first end 18 of the containment body 4, also provided are fluid-tight means 21 for preventing the ingress of water in the mentioned containment areas 14, 15 and 16.

**[0056]** Advantageously, the fluid-tight means 21 com-

prise a drilled plate 22, defining the through-bore of the locking member 2, and having a surface made of rubber 23 coupled to said first end.

**[0057]** Advantageously, the rubber material of the surface 23 is preferably neoprene, to ensure a total fluid seal and to prevent any fluid leakage through the openings 19 and 20 formed on the first end 18 of the containment body 4.

**[0058]** The containment body 4 also comprises a second end 24 opposite to the first 18 and having a connector 25 for connection to the battery 8 adapted to connect an external power source to the battery 8.

**[0059]** Advantageously, by removing it from the device 1 from the housing 101 (example of Figures 1a and 1b), it is possible to connect the battery 8 through the connector 25 to a charging source. Such an action is performed only in a condition close to the depletion of the battery 8. Alternatively, the connector 25 can be connected in a stable manner to the source, such as for example the battery of a vehicle (example of Figure 200).

**[0060]** The solution of Figures 1a and 1b also provides a support member 26 of the containment body 4, disposed in a stable manner in the housing 101 and defining a support housing 26a of the containment body 4 itself.

**[0061]** The containment body 4 is to be housed in the housing 26a in a removable manner to implement the mentioned charging operations of the battery 8 or any maintenance operation.

**[0062]** The control means 5 preferably comprise a remote control 27 (Figures 1a, 1b and 2) to send a plurality of signals "S" to the control logic unit 17 wirelessly (without electrical connections).

**[0063]** Each signal "S" is representative of an activation command of the actuator 3 to arrange the locking member 2 in the respective first or second position.

**[0064]** In other words, the radio control 27 has a button for sending a first signal "S1" to the unit 17 that drives the actuator 3 to position the locking member 2 in the first position (door locking).

**[0065]** By operating on the button of the radio control 27, a second signal "S2" is also sent to the unit 17 that drives the actuator 3 to position the locking member 2 in the second position (door unlocking).

**[0066]** Furthermore, the control logic unit 27 has a system for monitoring the electric autonomy of the battery 8, for possibly sending a signal "S3" to the radio control 27 representative of a condition close to the depletion of said battery 8. In this way, the user is warned in order to provide for the charging of the battery 8. Consequently, the operator removes the body 4 from the support member 26 (by acting on the pin 6 in the first position) to provide the electrical connection through the connector 25.

**[0067]** The radio control 27 may present acoustic/optical signalling means for generating sound or light pulses representative of the positions of the locking member 2, the presence of an obstruction for the movement of the member 2 from the second to the first position, and the condition close to depletion of the battery 8.

**[0068]** In accordance with a preferential solution, the acoustic/optical signalling means are associated to the device to emit the appropriate sound or light signals. Advantageously, the device may also have a LED 28 next to the pin 6 to indicate by means of a light pulse the condition close to depletion of the battery 8.

**[0069]** Likewise, there may also be a LED (not shown) next to the electrical connector to indicate the charging conditions of the battery 8. Advantageously, for each signal and for each command generated between the radio control 27 and the unit 17, a corresponding sound/light pulse audible and visible by the user is emitted.

**[0070]** Finally, the logic unit 17 switches the electrical connection between the battery 8 and the actuator into a stand-by condition as a result of the prolonged absence of the signals "S" from the radio control 27. In this way, a power saving condition is activated to preserve the charge of the battery 8, even in conditions of non-use.

**[0071]** Moreover, in the condition close to depletion of the battery 8 (about 10% of battery life), the unit 17 provides to switch the pin 6 in the second unlocked condition following failure to charge the battery 8. In this way, in the user's prolonged absence, the pin releases the door, preventing door block due to total battery depletion.

**[0072]** Still, in the case of an obstacle in the movement of the pin 6, such as in the case in which the door is positioned above the pin 6 itself, the logic unit 27 brings the pin 6 back in the second unlocking position to avoid that the same is forced against the obstacle. Even in this case, there is an acoustic signal to warn the user that the pin has not gone to the first position due to the presence of an obstacle.

**[0073]** Finally, note that the radio control 27 can intervene with one or more devices 1 provided with the aforementioned logic unit 17. Consequently, by using only one radio control, it is possible to control a predefined number of devices 1, each coupled to a respective door or window. Advantageously, in accordance with a further embodiment solution, better illustrated in Figures 5a and 5b, the device 1 also comprises a disabling element 300 of the locking member 2 to switch the member 2 itself in the first position in a release condition of the respective door 100, 200 or window or mobile door.

**[0074]** This element 300, generally provided in the doors of motor vehicles, allows to disable the action of the device 1 even in case of a power failure condition. Consequently, in the case in which the locking member 2 is in the respective first position (in which it locks the door), the element 300 allows for manual intervention even in the absence of electric current, removing the same member 2 from the door and releasing the same to allow its passage.

**[0075]** In particular, the disabling element 300 is operatively engaged to the containment body 4 to slide the body 4 itself relatively to the support member 26 and within it.

**[0076]** The movement of the body 4, which also implies the movement of the locking member 2 outside of the

door, is determined by a longitudinal (along the axis X, Y) sliding with respect to the support member 26. In this way, the member 2 is retracted inside the support member 26.

5 **[0077]** In greater detail, the disabling element 300 comprises a gripping member 301 extending transversely to the longitudinal extension of the containment body 4.

**[0078]** The gripping member 301 is developed through a through opening 306 obtained in said support member 26 (Figures 3 and 5).

10 **[0079]** The gripping member 301 is constituted by a screw 302 having a first end 302a screwed into a threaded hole 303 formed on a flange 304 that extends from a bottom wall of the containment body 4. The screw 302 also has a second end 302b opposite the first end 302a and extending outside the support member 26. The second end 302b has an ergonomic portion 305 adapted to be grasped manually and stably engaged to the second end 302b.

20 **[0080]** Advantageously, the ergonomic portion 305 allows the axial rotation of the screw 302 to define a constraint condition in which the containment body 4 is stably associated to the support member 26, and a release condition in which the containment body 4 is movable with respect to the member 26 and free to slide.

25 **[0081]** In other words, by acting on the portion 305, the screw 302 is screwed inside the hole 303 until the portion abuts on the outer surface of the member 26. In this situation the body 4 is bound to the support.

30 **[0082]** By acting on the portion 305 the screw 302 can be unscrewed from the hole 303 to allow the sliding of the body 4 with respect to the member 26, and then the action of the member 2 can be disabled.

35 **[0083]** In this context, the through opening 306 preferably defines a slot extending along the longitudinal extension of the support member 26. Accordingly, the screw 302 is made to slide inside the slot to switch the locking member 2 in the respective release condition.

40 **[0084]** Advantageously, the device 1 described above has important advantages and achieves the intended purposes.

**[0085]** It should first be noted that the safety device 1 is very versatile as it can be used for any type of door, window, mobile door or other element adapted to the closing/opening of an access.

45 **[0086]** Its application is simple and only involves providing the housing at the zone of passage "A" of the door.

**[0087]** In addition, the safety device 1 is safe because it is invisible from the outside and therefore not exposed to damage or break-ins.

50 **[0088]** Moreover, the device 1 is actuatable on either side of the door and remotely, with the consequent advantage of being able to control several devices 1 in a single environment (apartment or vehicle).

55 **[0089]** Furthermore, the device is totally independent, given the presence of the battery 8 that enables an autonomous operation of the device 1. In other words, the device 1 does not need to be connected to an electrical

source, but can be placed anywhere, regardless of the presence of an electrical source. When charging, the battery 8 can be recharged like a normal battery device.

**[0090]** Furthermore, the device 1 is extremely safe as it cannot be tampered or duplicated, and it has no elements that can be damaged from the outside. Even after door breach, the pin 6 remains in the constrained position. In this case, it is possible that the pin is bent with respect to its longitudinal axis "Y". In this situation, the presence of the plate 11 allows to replace the pin without possibly tampering and replacing the entire unit comprising the motor 7 and the screw 9.

**[0091]** Finally, the device 1 appears to be structurally simple and therefore cost-effective and easy to use.

### Claims

1. Safety device for doors, windows, mobile doors and the like, comprising:

- a pin (6) having a substantially cylindrical configuration with a circular section, the pin (6) being movable between a first position in which it obstructs the movement of a respective door (100, 200) or window or mobile door, and a second position in which it does not obstruct the movement of said door (100, 200), window or mobile door;
- an electric motor (7) operatively connected to a power supply battery (8) associated to said pin (6) to move the pin (6) in the first and second position;
- a worm screw (9) coaxially associated with a motor shaft of the electric motor (7) to rotate around a respective longitudinal extension axis (X);
- a containment body (4) for said pin (6) and said motor (7) which can be positioned at a zone of passage (A) of the door (100, 200), window or mobile door;
- control means (5) of said electric motor (7), arranged externally to said containment body (4) for activating and/or deactivating the electric motor (7) from a remote location,
- transmission means (10) operatively connected to said worm screw (9) and said pin (6) to transfer the rotary motion of the screw into a linear movement of the pin, said transmission means (10) comprising a support plate (11) having a bore (12) for the passage of the worm screw (9) to allow the sliding of the plate (11) along the longitudinal extension of the screw (9);

wherein said pin and said worm screw have respective longitudinal extension axes (X, Y) parallel and non-coincident to each other **characterized in that** said pin (6) is mounted idle on said plate (11) to rotate

freely around the respective longitudinal extension axis (Y).

2. Device according to the preceding claim, **characterized in that** said containment body (4) is arrangeable within a housing (101) formed in a support plane close to the door (100), window or mobile door; said door, window or mobile door moving at said housing (101) between the respective opening and closing condition.
3. Device according to claim 1, **characterized in that** said containment body (4) is arrangeable within a housing (201) formed on the door (200), window or mobile door; said pin (6) in the first position suitable to be housed in an aperture (202) formed on a fixed frame (203) of the door (200), window or mobile door.
4. Device according claim 1, **characterized in that** said pin protrudes from said containment body (4) in the respective first position and is arranged within the volumetric outline defined by the containment body (4) in the respective second position.
5. Device according to claims 2 and/or 3, **characterized in that** said containment body (4) comprises a hollow cylindrical portion defining internally:
- a first containment area (14) for said pin (6) and said electric motor (7);
  - a second containment area (15) for a power supply battery (8) of the electric motor (7); and
  - a third containment area (16) for a command and control logic (17) of the electric motor (7).
6. Device according to the preceding claim, **characterized in that** said containment body (4) comprises a first end (18) having a through-bore (19) for the pin (6); said first end (18) having fluid-tight means (22) for preventing the ingress of water in said containment areas (14, 15, 16).
7. Device according to claim 6, **characterized in that** said containment body (4) comprises a second end (24) opposite the first (18) and having a connector (25) for the connection to said battery (8) for electrically connecting the battery (8) to an external source.
8. Device according to claim 5, **characterized in that** said control means (5) comprise a radio control (27) for sending a plurality of signals (S) to said control logic unit (17); each signal being representative of a command for remotely activating the electric motor (7) to arrange the pin (6) in the respective first or second position.
9. Device according to claim 8, **characterized in that** said radio control (27) comprises acoustic signaling

means for generating sound pulses representative of the positions of the pin (6), the presence of an obstruction for the movement of the pin (6) from the second to the first position, and the condition close to battery depletion, said condition being signalled by a LED.

10. Door for motor vehicle comprising a safety device in accordance with one or more of the preceding claims; said device (1) being arranged within the door (200) for securing the door itself to the respective frame in the first position of the pin (6).
11. Device according to claim 1, **characterized in that** it further comprises a disabling element (300) of the pin (6) for switching the pin (6) itself in the first position in a release condition of the respective door (100, 200) or window or mobile door.
12. Device according to the preceding claim, **characterized in that** said disabling element (300) it is manually operable to switch the pin (6) in the release condition.
13. Device according to the preceding claim, **characterized in that** said disabling element (300) is operatively engaged to said containment body (4) to slide the body (4) relatively to the support member (26) and within it.
14. Device according to the preceding claim, **characterized in that** said disabling element (300) comprises a gripping member (301) extending transversely to the longitudinal extension of the containment body (4); said gripping member extending through a through opening (306) formed in said support member (26), said gripping member (301) comprising: a screw (302) having a first end (302a) engaged in a threaded hole (303) formed on a flange (304) extending from said containment body (4) and a second end (302b) opposite the first (302a); and an ergonomic portion (305) to be grasped manually and stably engaged to said second end (302b) of the screw (302), said ergonomic portion allowing the axial rotation of the screw (302) to define a constraint condition in which the containment body (4) is stably associated to the support member (26), and a release condition in which the containment body (4) is movable with respect to the support member (26) and free to slide axially.
15. Device according to the preceding claim, **characterized in that** said through opening (306) defines a slot extending along the longitudinal development of the support member (26); said screw (302) being slidable within said slot to switch the pin (6) in the respective release condition.

## Patentansprüche

1. Sicherheitsvorrichtung für Türen, Fenster, bewegliche Türen und dergleichen, umfassend:
- ein Stift (6) mit einer im wesentlichen zylindrischen Konfiguration mit einem kreisförmigen Querschnitt, wobei der Stift (6) zwischen einer ersten Position beweglich ist, in der er die Bewegung der jeweiligen Tür behindert (100, 200) oder das Fenster oder die mobile Tür und eine zweite Position, in der er die Bewegung der Tür (100, 200), des Fensters oder der mobilen Tür nicht behindert;
  - ein Elektromotor (7), der betriebsmäßig mit einer Batterie (8) mit dem Stift (6) verbunden ist, um den Stift (6) in die erste und zweite Position zu bewegen;
  - eine Schneckenschraube (9), die koaxial mit einer Motorwelle des Elektromotors (7) verbunden ist, um sich um eine jeweilige Längsverlängerungsachse (X) zu drehen;
  - einen Rückhaltekörper (4) für den Stift (6) und den Motor (7), der in einer Durchgangszone (A) der Tür (100, 200), des Fensters oder der mobilen Tür positioniert sein kann;
  - Steuerung (5) von diesem Elektromotor (7), außerhalb des Auffangkörpers (4) angeordnet, um den Elektromotor (7) von einem entfernten Ort aus zu aktivieren und / oder zu deaktivieren,
  - Übertragungseinrichtung (10), die betriebsmäßig mit der Schneckenschraube (9) und dem Stift (6) verbunden ist, um die Drehbewegung der Schraube zu übertragen in eine lineare Bewegung des Stifts, wobei die Übertragungseinrichtung (10) eine Stützplatte (11) aufweist, die eine Bohrung (12) für den Durchgang der Schneckenschraube (9) aufweist, um das Gleiten der Platte (11) entlang der Längsrichtung zu ermöglichen Verlängerung der Schraube (9);
- wobei der Stift und die Schneckenschraube jeweils Längsverlängerungscharakterisierte Achsen (X, Y) aufweisen, die parallel zu dem Stift (6) sind und nicht zusammenfallen ist im Leerlauf auf der Platte (11) montiert, um sich frei um die jeweilige Längsausdehnungsachse (Y) zu drehen.
2. Vorrichtung gemäß dem vorhergehenden Anspruch, die **dadurch gekennzeichnet ist, dass** der Rückhaltekörper (4) in einem Gehäuse (101) angeordnet ist, das in einer Stützfläche nahe der Tür (100), dem Fenster oder der mobilen Tür abgebildet ist; die die Tür, das Fenster oder die mobile Tür, die sich an dem Gehäuse (101) zwischen dem jeweiligen Öffnungs- und Schließzustand bewegen.

3. Gerät nach Anspruch 1, das **dadurch gekennzeichnet ist, dass** der abnehmbare Auffangkörper (4) in einem Gehäuse (201) ist, das an der Tür (200), dem Fenster oder einer mobilen Tür abgebildet ist; wobei der Stift geeignet ist, (6) in der ersten Position  
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in einer Öffnung (202) untergebracht zu sein, die auf einem festen Rahmen (203) abgebildet ist der Tür (200), des Fensters oder der mobilen Tür positioniert sein kann.
4. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Stift in der jeweiligen ersten Position aus dem Sicherheitskörper (4) herausragt und innerhalb des durch den Sicherheitskörper (4) in der jeweiligen zweiten Position definierten volumetrischen Umrisses angeordnet ist.  
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5. Vorrichtung nach den Ansprüchen 2 und/oder 3, die **dadurch gekennzeichnet sind, dass** der Auffangkörper (4) einen hohlzylindrischen Abschnitt umfasst, der intern definiert:  
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einen ersten Rückhaltebereich (14) für den Stift (6) und den elektrischen Motor (7);  
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einen zweiten Sicherheitsbereich (15) für eine Stromversorgungsbatterie (8) des Elektromotors (7); und  
einen dritten Sicherheitsbereich (16) für eine Befehls- und Steuerlogik (17) des Elektromotors (7).  
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6. Vorrichtung gemäß des vorhergehenden Anspruchs, der in diesem besagten Rückhaltekörper (4) charakterisiert ist, umfasst ein erstes Ende (18) mit einer Durchgangsbohrung (19) für den Stift (6), wobei das erste Ende (18) ein flüssigkeitsdichtes Mittel (22) zum Verhindern des Eindringens von Wasser in die Rückhaltebereiche (14, 15, 16) aufweist.  
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7. Gerät nach Anspruch 6, **gekennzeichnet dadurch, dass** der Auffangkörper (4) ein zweites Ende (24) gegenüber dem ersten (18) aufweist und einen Verbinder (25) aufweist, für den Anschluss an die Batterie (8) zum elektrischen Verbinden der Batterie (8) mit einer externen Quelle.  
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8. Vorrichtung nach Anspruch 5, **dadurch gekennzeichnet, dass** die Steuerung (5) eine Funksteuerung (27) zum Senden mehrerer Signale (S) an die Steuerlogikeinheit (17) sendet; wobei jedes Signal einen Befehl zur Fernsteuerung darstellt Anlassen des Elektromotors (7), um den Stift (6) in der jeweiligen ersten oder zweiten Position anzuordnen.  
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9. Gerät nach Anspruch 8, **dadurch gekennzeichnet, dass** die Funksteuerung (27) akustische Signalmit-  
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tel zum Erzeugen von Schallimpulsen umfasst, die für die Positionen des Stifts (6), das Vorhandensein eines Hindernisses für die Bewegung des Stifts (6) von der zweiten zur ersten Position und der Zustand nahe der Batterieentladung, wobei der Zustand durch eine LED signalisiert wird.
10. Tür für ein Fahrzeug, welche ein Sicherheitsgerät umfasst in Übereinstimmung mit einem oder mehreren der vorhergehenden Ansprüche; wobei die Vorrichtung (1) in der Tür (200) angeordnet ist, um die Tür selbst an dem jeweiligen Rahmen in der ersten Position des Stifts (6) zu befestigen.  
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11. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** sie ferner ein Deaktivierungselement (300) des Stifts (6) zum Schalten des Stifts (6) selbst in der ersten Position in einem Freigabezustand der jeweiligen Tür (100, 200) oder des Fensters oder der Mobiltür umfasst.  
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12. Vorrichtung gemäß dem vorhergehenden Anspruch, **gekennzeichnet durch** das besagte Deaktivierungselement (300), ist es manuell betätigbar, den Stift (6) in den Freigabezustand zu schalten.
13. Vorrichtung gemäß dem vorhergehenden Anspruch, die **dadurch gekennzeichnet ist, dass** das Deaktivierungselement (300) betriebsmäßig mit dem Sicherheitskörper (4) in Eingriff steht, um den Körper (4) relativ zum Stützelement (26) und innerhalb dessen zu verschieben.
14. Vorrichtung nach dem vorhergehenden Anspruch, **gekennzeichnet durch** das besagte Deaktivierungselement (300), umfasst ein Greifelement (301), das sich quer zur Längsverlängerung des Sicherheitskörpers (4) erstreckt; wobei das Greifelement sich durch eine durchgehende Öffnung (306) erstreckt, die in dem Stützelement (26) abgebildet ist, wobei das Greifelement (301) folgendes umfasst: eine Schraube (302) mit einem ersten Ende (302a), das in ein auf a gebildetes Gewindebohrungsloch (303) eingreift Flansch (304), der sich von dem Auffangkörper (4) und einem zweiten Ende (302b) gegenüber dem ersten (302a) erstreckt; und ein ergonomischer Abschnitt (305), der manuell ergriffen und stabil mit dem zweiten Ende (302b) der Schraube (302) in Eingriff gebracht werden soll, wobei der ergonomische Abschnitt die axiale Drehung der Schraube (302) ermöglicht, um eine Beschränkungsbedingung, zu definieren, in der der Rückhaltekörper (4) stabil mit dem Stützelement (26) verbunden ist, und einer Freigabebedingung, in der der Auffangkörper (4) in Bezug auf das Stützelement (26) beweglich ist und frei axial gleiten kann.  
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15. Vorrichtung gemäß dem vorhergehenden Anspruch,

die **dadurch gekennzeichnet ist, dass** die durchgehende Öffnung (306) einen Schlitz definiert, der sich entlang der Längsentwicklung des Stützelements (26) erstreckt; Die Schraube (302) kann in den Schlitz geschoben werden, um den Stift (6) in den jeweiligen Freigabezustand zu schalten.

## Revendications

1. Dispositif de sécurité pour portes, fenêtres, portes mobiles et similaires, comprenant :

- une goupille (6) ayant une configuration essentiellement cylindrique à section circulaire, la goupille (6) étant mobile entre une première position dans laquelle elle entrave le mouvement d'une porte respective (100, 200) ou fenêtre ou porte mobile, et une deuxième position dans laquelle elle n'entrave pas le mouvement de ladite porte (100, 200), fenêtre ou porte mobile ;
- un moteur électrique (7) connecté fonctionnellement à une batterie d'alimentation électrique (8) associé à ladite goupille (6) pour déplacer la goupille (6) dans les première et deuxième positions ;
- une vis sans fin (9) associée coaxialement à un arbre moteur du moteur électrique (7) pour tourner autour d'un axe d'extension longitudinal respectif (X) ;
- un corps de confinement (4) pour ladite goupille (6) et ledit moteur (7) qui peut être positionné au niveau d'une zone de passage (A) de la porte (100, 200), fenêtre ou porte mobile ;
- des moyens de commande (5) dudit moteur électrique (7), disposés à l'extérieur dudit corps de confinement (4) pour activer et/ou désactiver le moteur électrique (7) à distance,
- des moyens de transmission (10) fonctionnellement connectés à ladite vis sans fin (9) et à ladite goupille (6) pour transférer le mouvement de rotation de la vis en un mouvement linéaire de la goupille, lesdits moyens de transmission (10) comprenant une plaque de support (11) ayant un alésage (12) pour le passage de la vis sans fin (9) pour permettre le coulissement de la plaque (11) le long de l'extension longitudinale de la vis (9) ;

où

ladite goupille et ladite vis sans fin ont des axes d'extension longitudinaux respectifs (X, Y) parallèles et non coïncidents l'un par rapport à l'autre **caractérisés par le fait que** la goupille (6) est montée inactive sur ladite plaque (11) pour tourner librement autour de l'axe d'extension longitudinal respectif (Y).

2. Dispositif selon la revendication précédente, **caractérisé en ce que** ledit corps de confinement (4) peut être disposé à l'intérieur d'un boîtier (101) formé en un plan d'appui près de la porte (100), fenêtre o porte mobile; ladite porte, fenêtre ou porte mobile se déplaçant au niveau dudit boîtier (101) dans les conditions d'ouverture et de fermeture respectives.
3. Dispositif selon la revendication 1, **caractérisé en ce que** ledit corps de confinement (4) peut être disposé à l'intérieur d'un boîtier (201) formé sur la porte (200), fenêtre ou porte mobile; ladite goupille (6) dans la première position apte à être logée dans une ouverture (202) formée sur un cadre fixe (203) de la porte (200), fenêtre ou porte mobile.
4. Dispositif selon la revendication 1, **caractérisé en ce que** ladite goupille dépasse dudit corps de confinement (4) dans la première position respective et est disposée à l'intérieur du contour volumétrique défini par le corps de confinement (4) dans la deuxième position respective.
5. Dispositif selon les revendications 2 et/ou 3, **caractérisé en ce que** ledit corps de confinement (4) comprend une partie cylindrique creuse définissant intérieurement une première zone de confinement (14) pour ladite goupille (6) et ledit moteur électrique (7) ; une seconde zone de confinement (15) pour une batterie d'alimentation électrique (8) du moteur électrique (7) ; et une troisième zone de confinement (16) pour une logique de commande et de contrôle (17) du moteur électrique (7).
6. Dispositif selon la revendication précédente, **caractérisé en ce que** ledit corps de confinement (4) comprend une première extrémité (18) ayant un alésage traversant (19) pour la goupille (6) ; ladite première extrémité (18) ayant des moyens étanches aux fluides (22) pour empêcher l'entrée d'eau dans lesdites zones de confinement (14, 15, 16).
7. Dispositif selon la revendication 6, **caractérisé en ce que** ledit corps de confinement (4) comprend une seconde extrémité (24) opposée à la première (18) et comportant un connecteur (25) pour la connexion à ladite batterie (8) pour la connexion électrique de la batterie (8) à une source externe.
8. Dispositif selon la revendication 5, **caractérisé en ce que** lesdits moyens de commande (5) comprennent une radiocommande (27) pour envoyer une pluralité de signaux (S) à ladite unité logique de commande (17) ; chaque signal étant représentatif d'une

commande d'activation à distance du moteur électrique (7) pour disposer la goupille (6) dans la première ou la deuxième position respective.

9. Dispositif selon la revendication 8, **caractérisé en ce que** ladite radiocommande (27) comprend des moyens de signalisation acoustique pour générer des impulsions sonores représentatives des positions de la goupille (6), la présence d'une obstruction pour le mouvement de la goupille (6) depuis la deuxième à la première position, et la condition d'épuisement prochain de la batterie, ladite condition étant signalée par une LED. 5
10. Porte pour véhicule à moteur comprenant un dispositif de sécurité selon une ou plusieurs des revendications précédentes ; ledit dispositif (1) étant disposé à l'intérieur de la porte (200) pour fixer la porte elle-même au cadre respectif dans la première position de la goupille (6). 10 20
11. Dispositif selon la revendication 1, **caractérisé en ce qu'il** comprend en outre un élément de désactivation (300) de la goupille (6) pour commuter la goupille (6) elle-même dans la première position dans une condition de libération de la porte respective (100, 200) ou fenêtre ou porte mobile. 25
12. Dispositif selon la revendication précédente, **caractérisé en ce que** ledit élément de désactivation (300) est actionnable manuellement pour commuter la goupille (6) dans l'état de libération. 30
13. Dispositif selon la revendication précédente, **caractérisé en ce que** ledit élément de désactivation (300) est engagé en fonctionnement avec ledit corps de confinement (4) pour faire coulisser le corps (4) par rapport à l'élément de support (26) et à l'intérieur de celui-ci. 35 40
14. Dispositif selon la revendication précédente, **caractérisé en ce que** ledit élément de désactivation (300) comprend un organe de préhension (301) s'étendant transversalement à l'extension longitudinale du corps de confinement (4) ; ledit organe de préhension s'étendant à travers une ouverture traversante (306) formée dans ledit élément de support (26), ledit organe de préhension (301) comprenant : une vis (302) ayant une première extrémité (302a) engagée dans un orifice fileté (303) formé sur une bride (304) s'étendant à partir dudit corps de confinement (4) et une seconde extrémité (302b) opposée à la première (302a) ; et une partie ergonomique (305) à saisir manuellement et engagée de manière stable sur ladite seconde extrémité (302b) de la vis (302), ladite partie ergonomique permettant la rotation axiale de la vis (302) pour définir une condition de contrainte dans laquelle le corps de confinement (4) est associé de 45 50 55

manière stable à l'élément de support (26), et une condition de libération dans laquelle le corps de confinement (4) est mobile par rapport à l'élément de support (26) et libre de glisser axialement.

15. Dispositif selon la revendication précédente, **caractérisé en ce que** ladite ouverture traversante (306) définit une fente s'étendant le long du développement longitudinal de l'élément de support (26) ; ladite vis (302) pouvant coulisser à l'intérieur de ladite fente pour commuter la goupille (6) dans la condition de libération respective.

Fig.1a

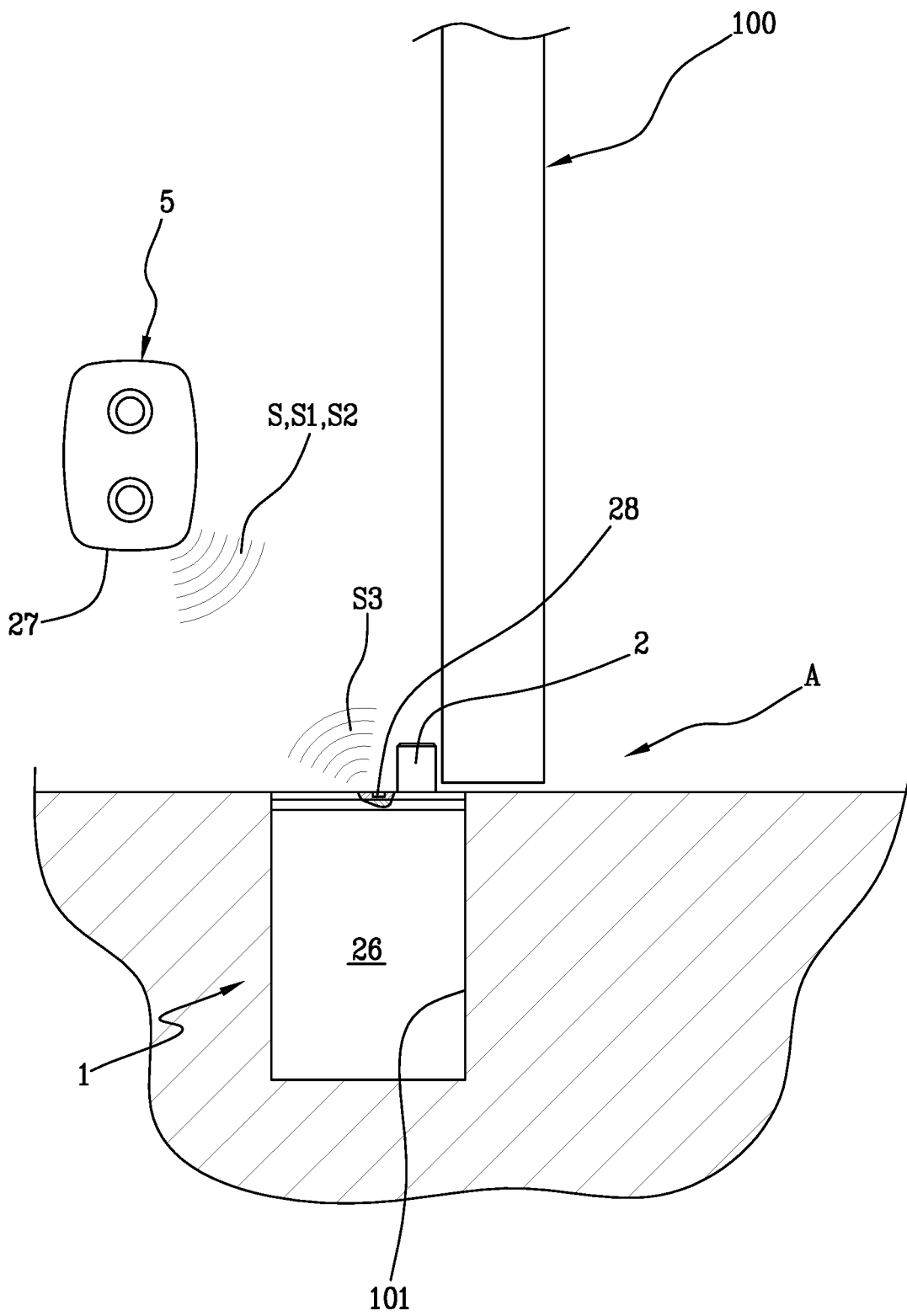
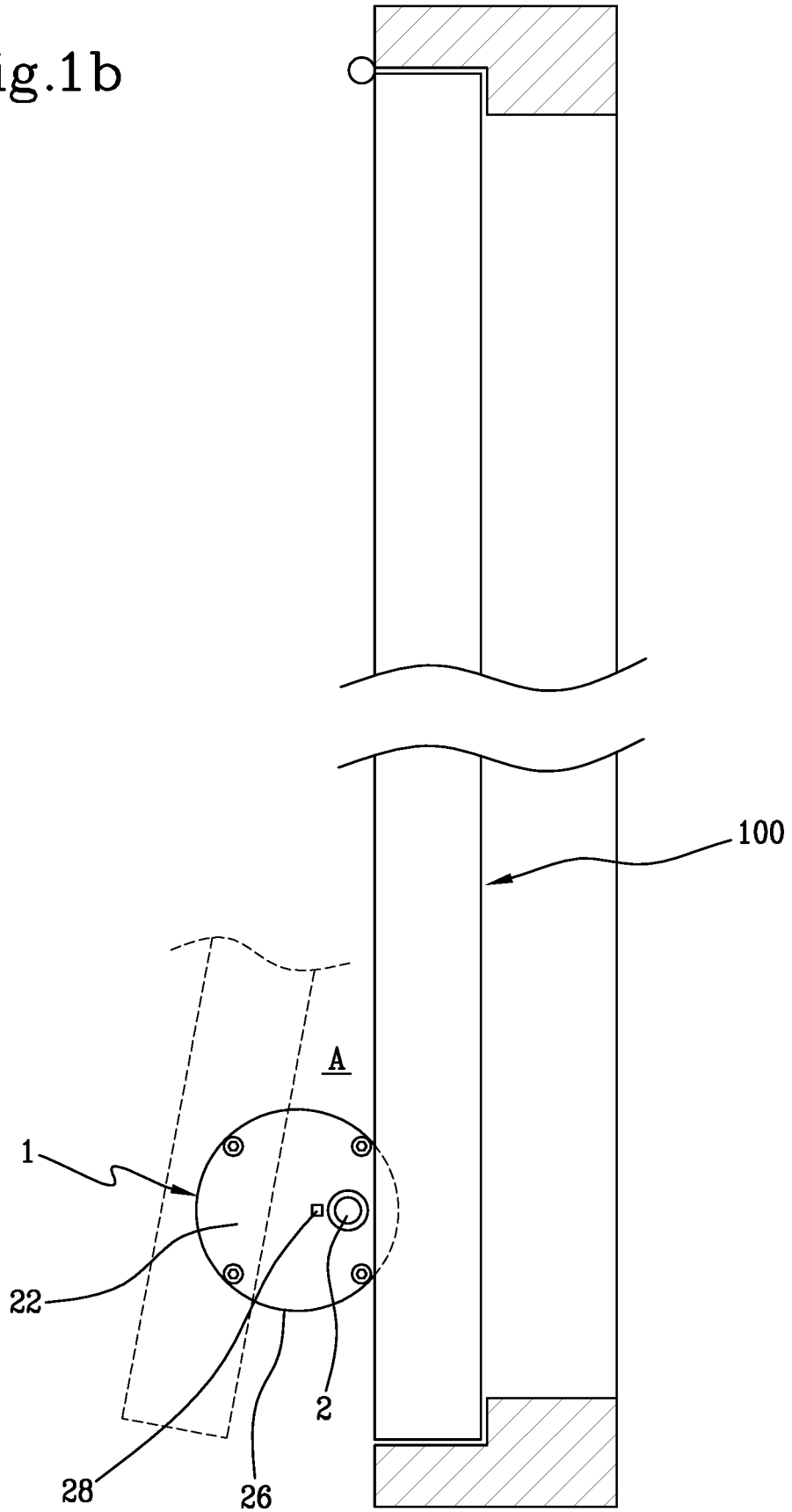


Fig.1b





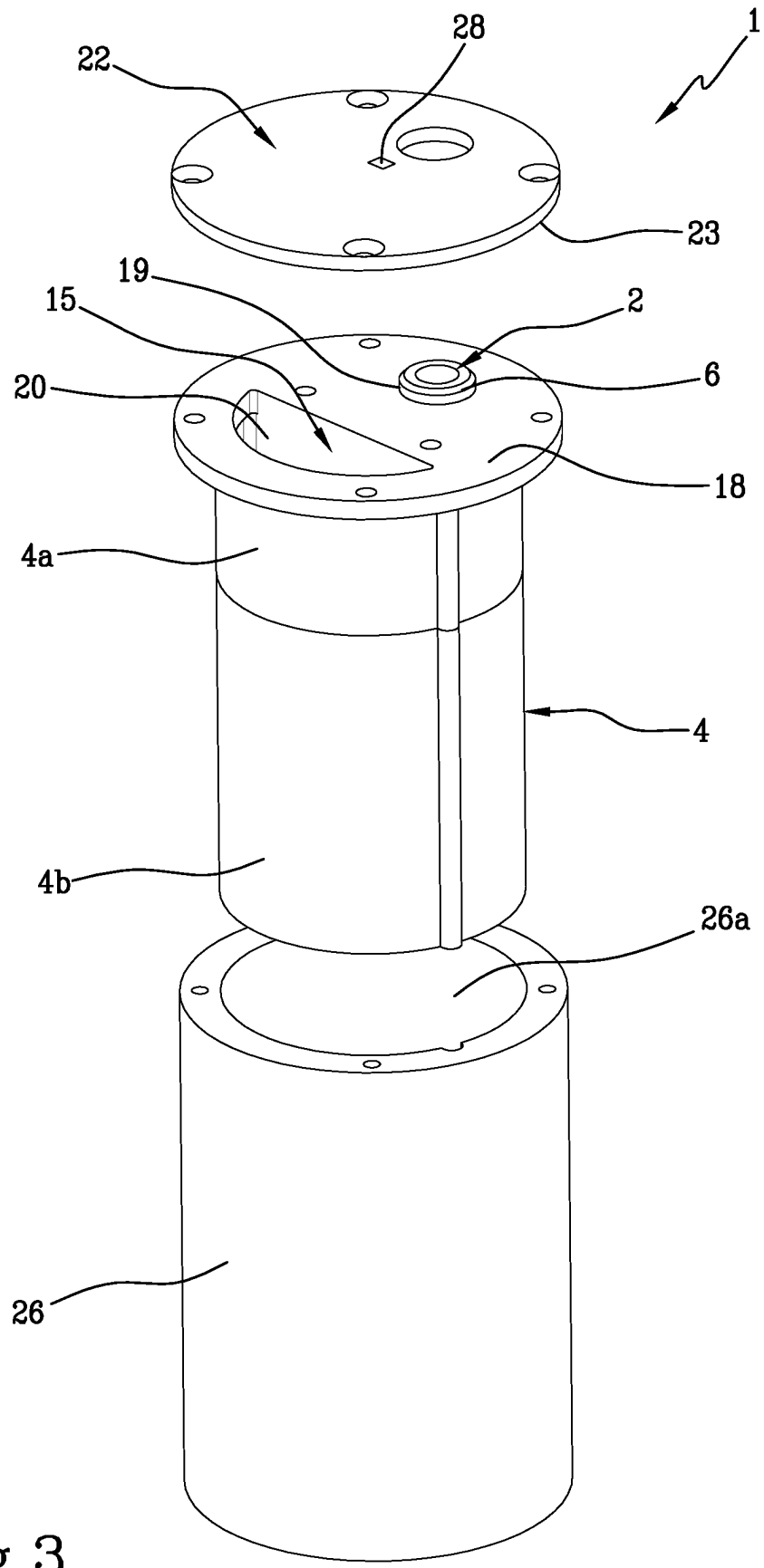


Fig.3

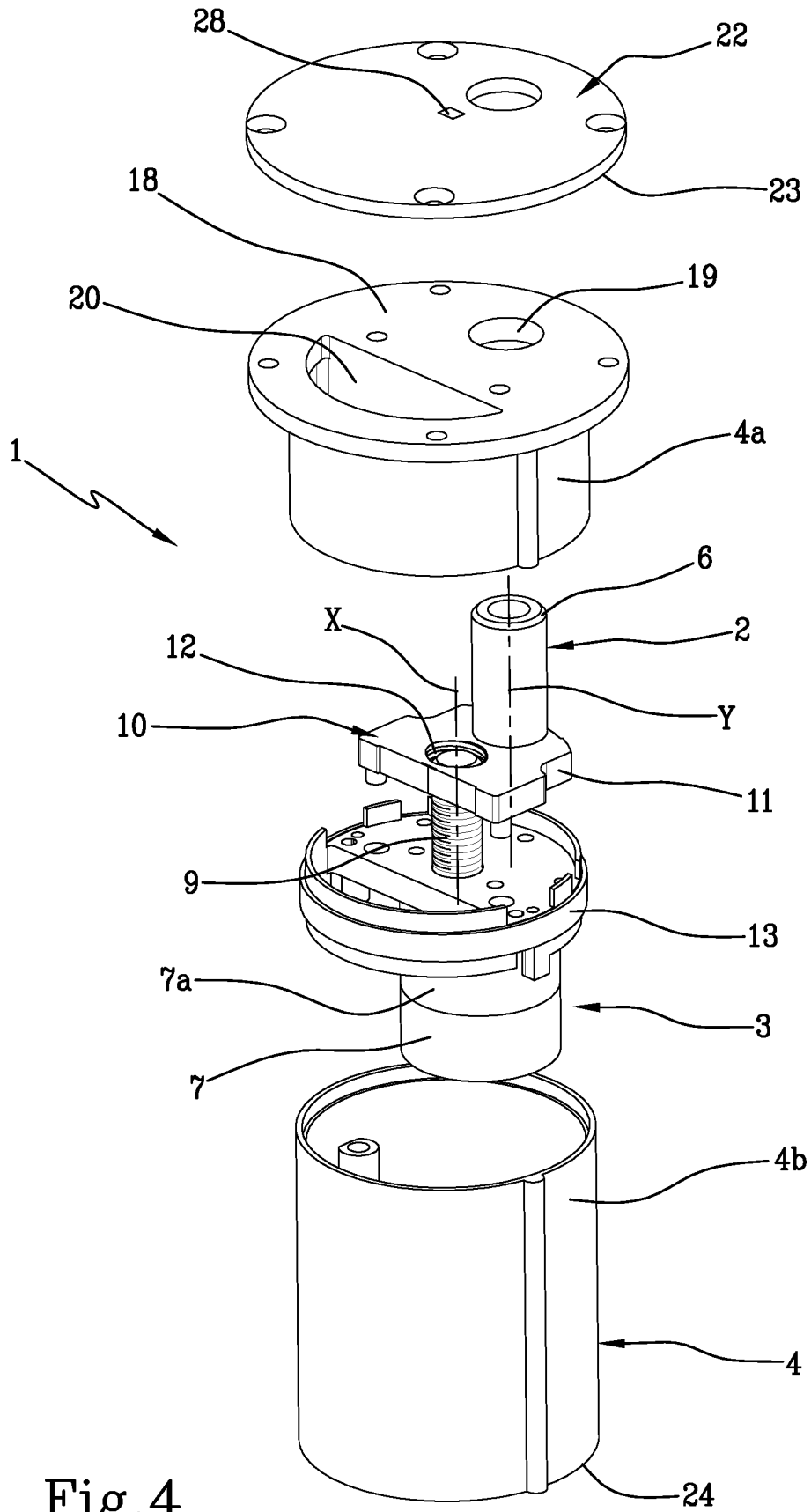


Fig.4

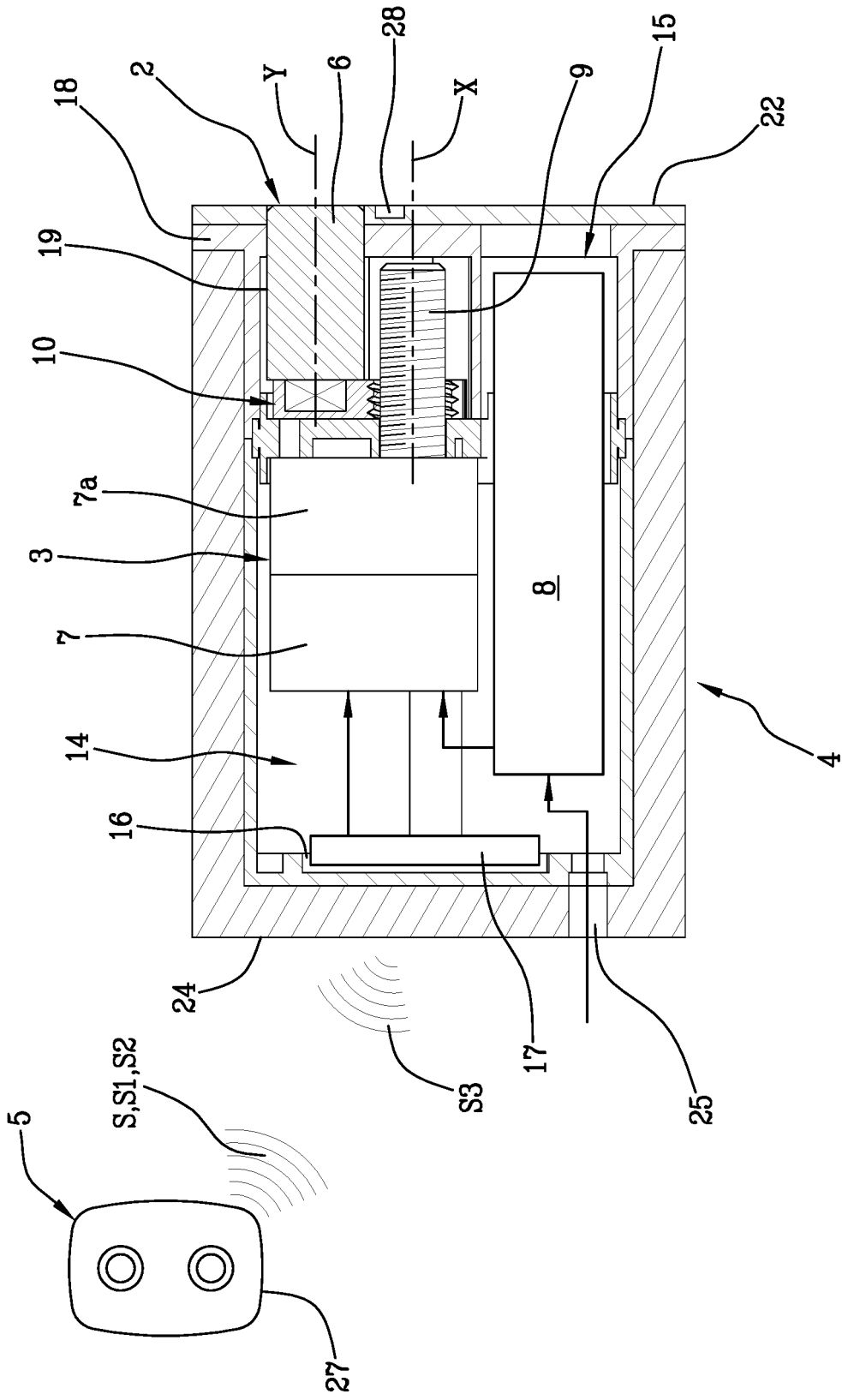


Fig.5

Fig. 5a

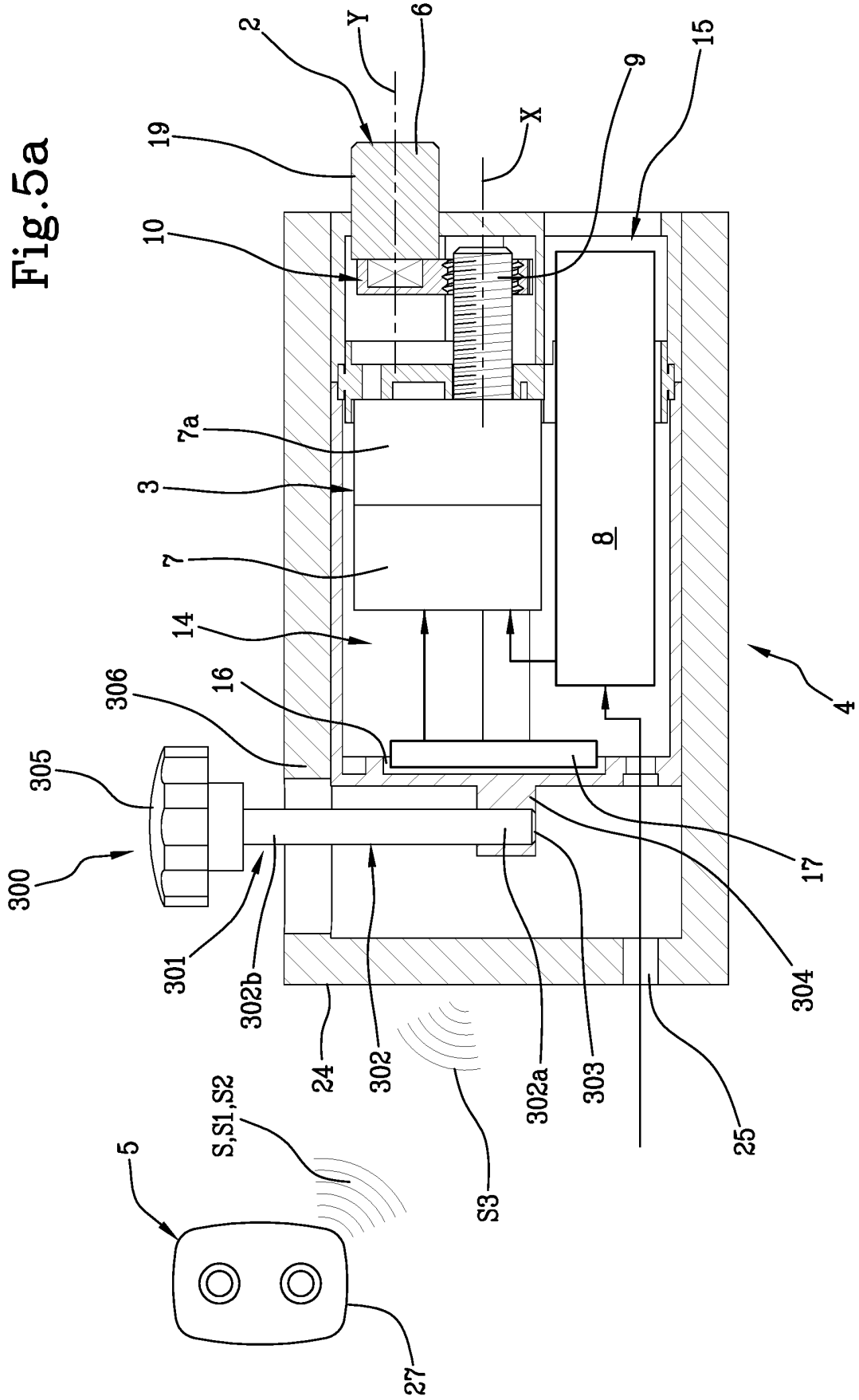
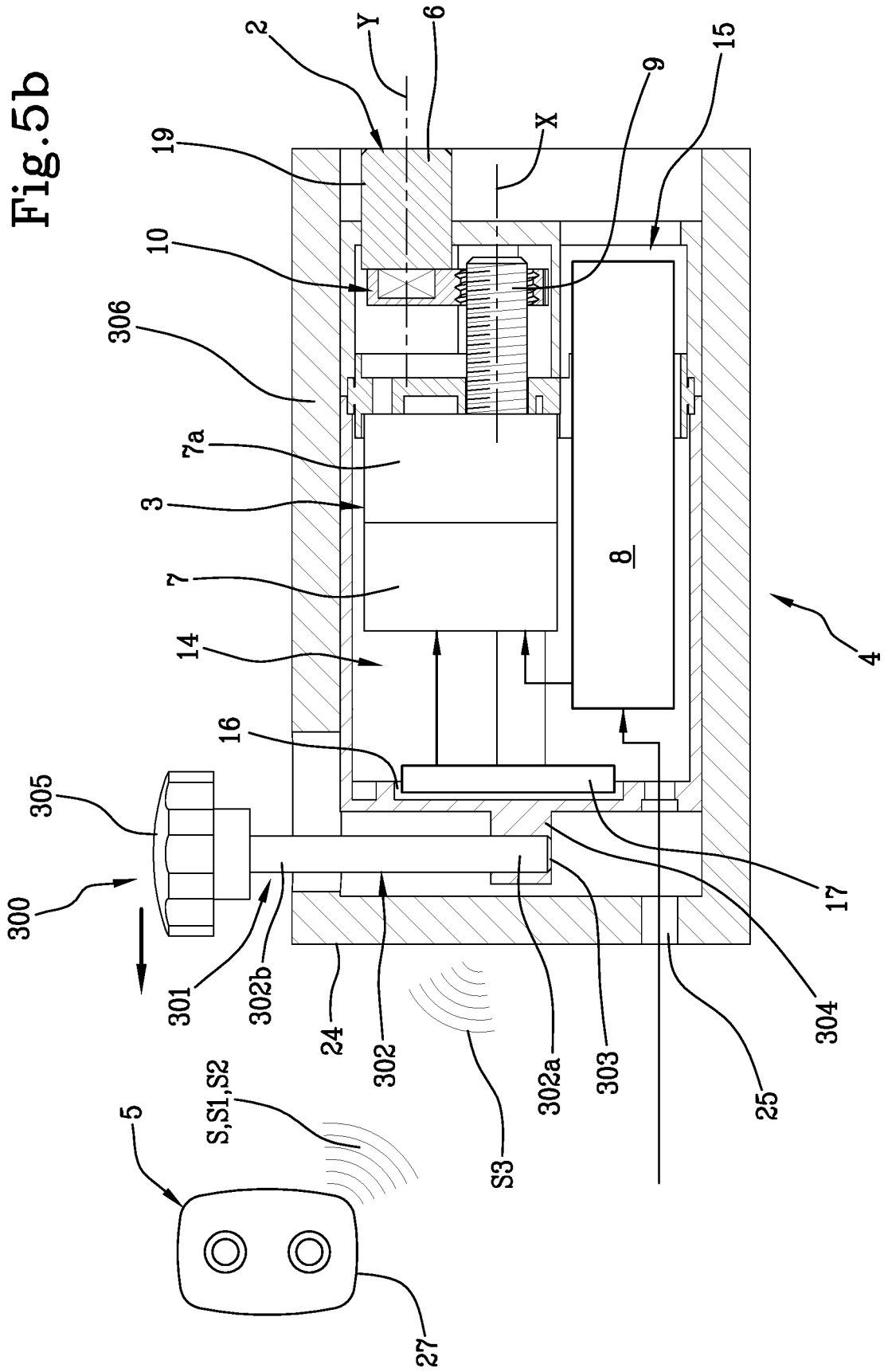


Fig. 5b



**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

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