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(71) Applicant: **KALE KILIT VE KALIP SANAYI A.S.** [TR/TR]; Atatürk cad. Basakli sok. No:24 Güngören, 34610 Istanbul (TR).

(72) Inventor: **ARZUMAN, Hirant**; KALE Kilit ve Kalip Sanayi A.S., Atatürk cad. Basakli sok. No:24 Güngören, 34610 Istanbul (TR).

(74) Agent: **SEVINC, Erkan**; Istanbul Patent A.S., Plaza-33, Buyukdere cad. 33/16 Sisli, 34381 Istanbul (TR).

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(54) Title: HIGH SAFETY HOOKED LOCK

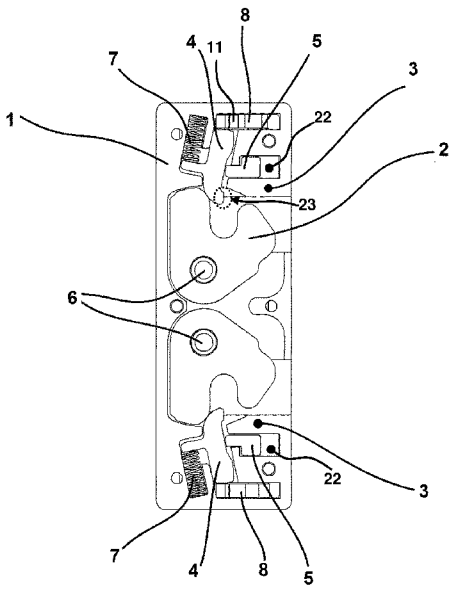

Figure 3

(57) Abstract: The present invention is a lock comprising a casing (1); at least one hook (2) which is located on the front section (9) in the casing (1) and each of which operates by rotating around the hook pin (6) assigned to itself; hook blockage part (4) as many as the hook (2) itself that can be moved reversibly when it is pushed by the hook (2) during said rotation; resistance block (3) corresponding to each hook (2), each of which has a proper form and size such that it matches with each of the hook blockage part (4) and when unauthorized people force to lock, it restricts this motion by matching with hook blockage part (4), and which is integrated with the casing (1); locking plate (11) as many as the hook (2) itself, which is embedded in one passage opening (8) comprised in the casing (1), which is suitable for restricting the motion of related hook blockage part (4) by means of reclining to each hook blockage part (4) with a reversible motion, and for releasing the motion of related hook blockage part (4) by means of moving away from the hook blockage part (4) when it reclines to a hook blockage part (4), and which has a form and size suitable for passing through the passage opening (8) between the front section (9) and a rear section; and the safety block (5) which is embedded in a safety block bearing (22) located between the resistance block (3) and the passage opening (8) having a proper form and size so as to allow embedding the locking plate (11), and which has form and size suitable for moving within said safety block bearing (22) by means of the motion of each hook blockage part (4) in the direction of the pin passage opening (21) located in the casing (1).

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DESCRIPTION

High Safety Hooked Lock

Technical Field of the Invention

The present invention relates to an electromechanical hooked lock.

State of the Art

Mechanical locks are generally made of conventional materials such as sheet metal or the like. Accordingly, material quantities are kept high in order to provide that the mechanical locks are strong; therefore size of the mechanical locks are generally large.

Additionally, mechanical keys used for the mechanical locks can be copied without permission or can be opened by means of tools such as skeleton key. Furthermore, keyhole makes position of the lock visible and leads to activity of the unauthorized people fast and easy. Accordingly, keyhole causes unauthorized persons to access mechanical locks and constitutes a security flaw.

In order that mechanical locks are to be usable by remote control, they must be equipped with additional equipment converting electronic commands into mechanical action. Such additional equipments both bring additional cost in comparison with the value of mechanical lock itself and affect external view of the lid and of the door to which the lock is attached adversely; additionally, since they have added novel variants to the mechanical lock having currently security flaws, they vary and increase the possible security flaws.

As for the locks controlled entirely electronically, in the event of electronic malfunction changing open/close state of the lock is highly difficult and brings high costs. In addition, electronically controlled electromagnetic locks always need supply of power and thus they are connected to the electric network. In case of an interruption in the network, an electromagnetic lock or e.g. a lock, in which close solenoid is used normally, switches to passive (i.e. open) state and the door or the lid equipped with such equipment carries unintended opening risk. In return, when a lock, in which close solenoid is used normally, is in question, in the event of an electric network interruption the lock remains in active (i.e. locked) state and causes related door or lid to not open even if intended, and during the network interruption passing from the door becomes impossible. Thus, electronically controlled locks equipped with electromagnetic or solenoid systems keep the door in a state open or closed for passage in case of any malfunction including network interruption and cannot be

controlled. These disadvantages reduce attraction of the locks that are controlled entirely electronically.

Objects of the Invention

The main object of the present invention is to eliminate aforementioned disadvantages.

Another object of the invention is to provide a lock which is a compact, durable and which functions for a long time without needing maintenance.

Another object of the invention is to provide a high safety lock that restricts visual and mechanical access of unauthorized people.

Another object of the invention is to provide a compact and durable lock which has low cost and which is produced in a short time.

Brief Description of the Invention

Based upon the abovementioned figures, the present invention is a lock comprising a casing (1); at least one hook (2) which is located on the front section (9) in the casing (1) and each of which operates by rotating around the hook pin (6) assigned to itself; hook blockage part (4) as many as the hook (2) itself that can be moved reversibly when it is pushed by the hook (2) during said rotation; resistance block (3) corresponding to each hook (2), each of which has a proper form and size such that it matches with each of the hook blockage part (4) and when unauthorized people force to lock, it restricts this motion by matching with hook blockage part (4), and which is integrated with the casing (1); locking plate (11) as many as the hook (2) itself, which is embedded in one passage opening (8) comprised in the casing (1), which is suitable for restricting the motion of related hook blockage part (4) by means of reclining to each hook blockage part (4) with a reversible motion, and for releasing the motion of related hook blockage part (4) by means of moving away from the hook blockage part (4) when it reclines to a hook blockage part (4), and which has a form and size suitable for passing through the passage opening (8) between the front section (9) and a rear section; and the safety block (5) which is embedded in a safety block bearing (22) located between the resistance block (3) and the passage opening (8) having a proper form and size so as to allow embedding the locking plate (11), and which has form and size suitable for moving within said safety block bearing (22) by means of the motion of each hook blockage part (4) in the direction of the pin passage opening (21) located in the casing (1).

Brief Description of the Figures

Figures, the brief descriptions of which are presented here, only aim to provide a better understanding of the invention, and do not aim to define the aimed protection scope or the context of said protection scope such that it can be understood without taking into consideration the detailed description of the invention.

Figure 1 is exploded view of an electromechanical hooked lock according to the invention.

Figure 2 is exploded view of an electromechanical hooked lock in Figure 1 from a different angle.

Figure 3 is cross-sectional view of the lock in Figure 1 when it is in active state.

Figure 4 is perspective view of the lock in Figure 1 and of the counterpart thereof from front (a) and rear (b).

Figure 5 is a block diagram showing representative view of the actuation of the lock according to the invention with the control unit, and of the backing up of the electromechanical elements each other comprising triggers and electronic circuit.

Detailed Description of the Invention

Based upon aforementioned figures, the present invention is described below in detail. Part numbers used for the figures are as follows:

1- casing
2- hook
3- resistance block
4- hook blockage part
5- resistance block
6- hook pin
7- spring
8- passage opening
9- front section
10- rear section
11- locking plate
12- electronic circuit
13- rear lid
14- mounting plate
15- counterpart
16- counterpart pins
17- trigger
18- drive excentric
19- mounting elements
20- central connection
21- pin passage opening
22- safety block bearing
23- blockage protrusion
24- control unit
25- user interface

The present invention is a lock comprising

- a casing (1);
- at least one hook (2) which is located on the front section (9) in the casing (1) and each of which operates by rotating around the hook pin (6) assigned to itself;
- hook blockage part (4) as many as the hook (2) itself that can be moved reversibly when it is pushed by the hook (2) during said rotation;
- resistance block (3) corresponding to each hook (2), each of which has a proper form and size such that it matches with each of the hook blockage part (4) and when unauthorized people force to lock, it restricts this motion by matching with hook blockage part (4), and which is integrated with the casing (1);
- locking plate (11) as many as the hook (2) itself, which is embedded in one passage opening (8) comprised in the casing (1), which is suitable for restricting the motion of related hook blockage part (4) by means of reclining to each hook blockage part (4) with a reversible motion, and for releasing the motion of related hook blockage part (4) by means of moving away from the hook blockage part (4) when it reclines to a hook blockage part (4), and which has a form and size suitable for passing through the passage opening (8) between the front section (9) and a rear section;
- and the safety block (5) which is embedded in a safety block bearing (22) located between the resistance block (3) and the passage opening (8) having a proper form and size so as to allow embedding the locking plate (11), and which has form and size suitable for moving within said safety block bearing (22) by means of the motion of each hook blockage part (4) in the direction of the pin passage opening (21) located in the casing (1).

In a preferred embodiment of the invention, the casing (1) is made of one-piece cast material.

The lock according to the invention preferably comprises two or more hooks (4).

In a preferred embodiment of the invention, the rear section (10) is located on another side of the casing (1) which is away from the front section (9); the casing (1) comprises trigger (17) at least as many as the hook (2) in the rear section (10), electronic circuit (12) at least as many as the trigger (17) so as to command to each

trigger (17) and a central connection (20) to which locking plate (11) at least as many as the hook (2) is attached.

A preferred embodiment of the lock according to the invention comprises a mounting plate (14) which is suitable for closing the front section (9) and for being a means for mounting the casing (1) to a door leaf or to door casing.

A preferred embodiment of the lock comprises a counterpart (15) with a suitable form and size such that it operates with the casing (1) which comprises counterpart pins (16) which have suitable form and size so that when they are in an active state, i.e. locked, they match with each hook (2) and are caught by the hook (2) they match, and that when they are in a closed state, i.e. unlocked, they emerge from the hook (2) they match, and which are located in such a manner that each of them corresponds to the hook (2).

In a preferred embodiment of the lock, central connection (20) defines a rotational axis in which it is connected to the locking plate (11) and rear section (10) comprises drive excentric (18) which is in contact with the trigger (17) mechanically.

A more preferred embodiment of the lock according to the invention comprises electronic circuit (12) as many as the trigger which is suitable for sending commands to each trigger (17) and for being used in place of each other; and user interface, which is suitable for data and energy connection with each of the electronic circuit (12).

In another preferred embodiment of the lock according to the invention, when the lock is in a waiting state, in the event that a counterpart pin (16) pushes a hook (2) and brings it catching position, it passes from the passage opening (8) of related locking plate (11) towards front section (9); thereby it is suitable for choking the passage opening (8) by means of locking plate (11) in such a manner that it prevents a motion of the hook blockage part (4) away from the pin (6) of related hook (2).

In a preferred embodiment of the lock according to the invention, in the event that one of the trigger (17) breaks down, another solid trigger (17) is suitable for activating automatically in the place of another trigger; furthermore, in the event that one of the electronic circuit (12) breaks down, the entry is performed by using a spare interface by the user and a solid electronic circuit (12) is suitable for using such that it commands to one, the other or both of the triggers (17).

In a preferred embodiment of the lock according to the invention, there exists electrical connection between the battery housing assigned inside the triggers (17) and casing (1).

In a preferred embodiment of the invention, the lock comprises a location sensor detecting the location of a hook blockage part (4) and related passage opening (8) to each other.

In order to provide a better understanding of the invention, preferred embodiment of the invention according to the invention is exemplified in terms of the context and process below.

Hooked lock according to the present invention comprises a one-piece main casing (1) made by casting; thus although it occupies lesser space, it has higher strength compared to lock cases made of sheet metal.

Casing (1) further comprises at least two hooks (2) which operate by rotating separately around the hook pins (6) simultaneously, preferably in the opposite direction to each other.

When in active state, the lock has a structure that distributes the forces, which can be applied on the hook (2), to the casing (1). The lock comprises hook blockage parts (4) corresponding to each hook (2). The lock comprises resistance block (3), which has a form and size suitable for matching with the hook blockage part (4) and when unauthorized people force the lock, it prevents continuation of this motion by matching with hook blockage part (4), and which is integrated with the casing (1). Resistance blocks (3) meet the straining forces applied on the hook blockage parts (4) and transmit them to the casing (1).

The casing (1) comprises a front section (9) on one side and a rear section (10) on another side away from this side. In the front section (9) there are at least two hooks (2), resistance blocks (3), hook blockage parts (4) and hook pins (6). In the rear section (10) there are at least two triggers (17), at least two electronic circuits (12) and a locking plate central connection, briefly central connection (20) so as to detect whether the lock is in active or passive state. Said trigger (17) may be a drive element preferably consuming very low amount of energy and operating with very low voltage and current such as a motor or solenoid element.

Front section (9) is covered by means of a mounting plate (14), which has an opening thereon that is suitable for mounting screw to be attached and which is also proper to

be a means so as to casing (1) to mount to a surface, and then it is mounted to the means to be applied such as door, window through the same.

For instance the lock according to the invention can be mounted to a casing or a leaf of a door or lid. A counterpart (15) having a form and size suitable for being operated with the casing (1) is mounted to the leaf when the lock is mounted to the casing; when the lock is mounted to the leaf it is mounted to the casing. The counterpart (15) comprises counterpart pins (16) that are located such that each of them corresponds to the hook (2) and has a suitable form and size so that when the lock is in active state, it matches with the hooks (2) and is caught by the hooks (2), and that when the lock is in closed state, it is released from the hooks (2).

The lock according to the invention is managed over a user interface. Said user interface is configured in such a manner that it is suitable for sending command one or more electronic circuit (12) comprised in the casing (1). Said electronic circuit (12) is suitable for commanding a trigger (17). Upon receiving command, the trigger (17) rotates the drive excentric with which it has mechanical communication. Said rotation is preferably a half-round rotation. The casing (1) comprises two or more locking plates (11) having a form and size for mechanical interaction by means of drive excentric (18) and a locking plate central connection (20) which defines a rotational axis to which said locking plates are attached, and which locates in the rear section (10). With this rotation, drive excentric (18) pushes and moves the locking plates (11) and thus rotates locking plate central connection (20) around said rotational axis. In the front section (9) there are hook blockage parts (4) having form and size in such a manner that they restrict rotation of each hook (2). When the central connection (20) is rotated, each locking plate (11) passes through a passage opening (8) which has form and size such that said locking plate can passes between the rear section (10) and the front section (9). When the lock is in active state, locking plates (11) extending to front section from the passage opening (8) settle to the back of each hook blockage parts (4) at the section away from the related hooks. In order for the lock to switch to the passive state, central connection (20) moves around the rotational axis and moves the locking plates (11) from the passage opening (8) to the rear section (10). When the lock is in passive state, the locking plates (11) completely leave the front section (9) such that they allow hook blockage parts (4) to move towards passage opening (8). Hook blockage parts (4) are supported by the casing (1) by means of the flexible elements (e.g. by means of springs) that provide the same to

be pushed by the hooks (2) reversibly. Thus, when the lock is in passive state, hook blockage parts (4) are pushed towards passage opening (8) by the hook (2) and allow the hooks (2) to rotate and the counterpart pins (16) to move without being caught by the hooks.

When the hooks (2) on the door or lid to which the lock is attached rotate around the hook pins (6), the springs (7) pushing the hook blockage parts (4) by getting support from the casing (1) allow said rotation. Thus, in the event that a force that overcomes the spring (7) force in order for the door or lid to open is applied when the lock is in passive state, the counterpart pins (16) rotate the hooks (2) and leave the casing (1) by transferring said force onto the hooks (2). In this case, the hooks (2) remain in a state that the counterpart pins (16) can again enter into the casing (1). When the door or the lid is closed, counterpart pins (16) push the hooks (2) in order to get into a catching position. In the event that said pushing forces are big enough to overcome the spring (7) forces, the hook blockage parts (4) move towards the passage opening (8) reversibly and allow the hooks (2) to conduct turning motion towards the catching position.

When the lock is in active state, the locking plates (11) extend to the front section (9) from the passage opening (8) in such a manner that the same prevent hook blockage parts (4) from moving towards the passage opening (8); thus hooks (2) fail to move the hook blockage parts (4) towards the passage opening (8) and thereby they are attached to the hook blockage parts (4), cannot rotate and maintain the catching position.

In a preferred embodiment of the invention, for the purpose of switching the lock into active state, circuit boards (12) command to the triggers (17) without needing any command by the user at the end of the determined time and rotate the locking plate central connection (20). And consequently, locking plate (11) waits for extending to the back of the hook blockage parts (4) in a manner that it prevents the hook blockage parts (4) from moving against the spring (7) force towards the passage opening (8). When the door or the lid (not illustrated) is closed, counterpart pins (16) engage with the hooks (2) and thus interlocking is provided. Meanwhile, the hooks (2) rotate around the axis of the hook pins (6) by being pushed by the counterpart pins (16) in a manner to get into catching position. During said rotation the hooks (2) push the hook blockage parts (4) against the spring (7) force and move the same towards the passage opening (8) reversibly. While the rotation of the hooks (2) is completed

hook blockage parts (4) quit the passage opening (8) by virtue of the effect of the spring (7) forces.

Preferably, this state is detected by means of a location sensor, e.g. by means of a magnetic sensor, detecting the location of a hook blockage part (4) with regard to the related passage opening (8). Consequently, central connection (20) performs a rotation and thus locking plate (11) extends to the front section (9) from the passage opening (8) and thereby the lock switch into the active (i.e. locked) position.

Preferably, in the end of the hook blockage parts (4) close to the hooks (2) there are blockage protrusions (23) extending towards the opening in which counterpart pins (16) enter into the casing. In the event that counterpart pins (16) are pulled in an unauthorized manner to exit from the hooks (2), the hook blockage parts (4) are forced to move by means of the spring (7) forces in the direction of the resultant force to be applied on the counterpart pins. When the locking plates (11) are extended to the front section (9) from the passage opening (8), i.e. when the lock is in active state, as the passage opening (8) is blocked, hook blockage parts (4) cannot move towards the passage opening (8). In this case, hook blockage parts (4) are pushed towards the pin passage opening (21) which is the opening from which counterpart pins (16) enter into-exit from the casing. Inside the casing (1) there is a volume that bears the hook blockage parts (4) and the hook blockage parts (4) move on said bearing. Said bearing has a form and size which allows hook blockage parts (4) to move limitedly in the direction parallel to the plate, where the rotation of the hooks (2) is performed under the influence of said pushing force. The limit of said motion is determined by means of a resistance block (3) comprised in the casing (1). Said lock comprises a safety block (5) which is embedded in a safety block bearing (22) located between the resistance block (3) and the passage opening (8), and which has a form and size suitable for moving inside said safety block bearing (22) by means of a motion of each hook blockage part (4) in the direction of the pin passage opening (21).

Preferably, safety block bearing (22) comprises a spring placed in a manner that it applies an opposite force against a repulsive force resulting from the motion of the hook blockage part (4) towards the pin passage opening (21); said spring pushes the safety block (5) towards the hook blockage part (4) by getting support from the casing (1). Thus, the motion of the safety block (5) conducted by pushing of the hook blockage part (4) is a reversible motion. Due to the structure of the springs, the force

applied on the safety block (5) by the hook blockage part (4) and the resistance of the spring inside the safety block bearing (22) are proportionate.

When the lock is in active state, the forces resulting from forcing of the door, in which the lock is located, in the opening direction are transferred to the hooks (2) by means of the counterpart (15) and counterpart pins (16). The hooks (2) transfer related force components to the blockage parts (4) and hook blockage parts (4) transmit the same to the safety blocks (5). When exposed to a repulsive force which overcomes spring force supporting itself or which overcomes friction force between the safety block (5) and the safety block bearing (22) when said spring does not exist, the safety blocks (5) are pushed inside the safety block bearing (22) by means of the hook blockage part (4) and, thus hook blockage parts (4) recline on the resistance blocks (3). While in this position, the blockage protrusions (23) match with the resistance blocks (3) in such a manner that they prevent hook blockage parts (4) from advancing further and thus, the lock gets into blocking position entirely and does not permit the door to open by force.

The rear section (10) is in the form that it can be covered by means of a lid (13) having at least one connection hole that the wiring can pass thereon, and preferably the lock comprises a lid (13) that is proper for this description.

Electronic circuit (12) is suitable for being connected to the user interface by means of the wirings which extend from the connection holes in the lid (13) to the outside of the lock and which is proper for transferring energy and numerical commands to the lock.

In a preferred embodiment of the invention, the casing (1) comprises more than one, preferably two electronic circuits (12) which are equivalent with each other and which back up one another; and more than one, preferably two triggers (17) which are also equivalent with each other and which back up one another.

The lock according to the invention comprises preferably more than one, more preferably two triggers (17) which are suitable for switching the lock into active or passive state. Triggers are suitable for switching the lock into active or passive state by operating independent of each other or by operating together. Each trigger (17) is used in contact with at least one electronic circuit (12), and as mentioned before, since the triggers (17) and the electronic circuits (12) are suitable for backing up each other, commands can be sent to the triggers (17) from separate electronic circuits (12). Accordingly, the lock can be used in the event that one of the triggers (17) or

electronic circuits (12) breaks down.

Each of the electronic circuit (12) in said lock is suitable for being managed by means of a user interface corresponding to itself. Thus, the lock can be used by the other user interface even if one of the interfaces is lost. User interfaces are including but not limited to biometric systems such as fingerprint, vein map, retina of eye, face sensor, or control unit which analyzes information/password specific for the users and commands electronic circuit in the lock by means of the numeric code such as cards having unique identity features (e.g. digital encoded cards like MIFARE), electronic key (e.g. smart button, i.e. iButton or RFID elements like smart ticket), and code panel.

Figure 5 illustrates a block diagram symbolizing the actuation of the lock according to the invention with the control unit, and the backing up each other of the electromechanical elements comprising triggers and electronic circuit. Referring to Fig. 5, the information/password entered by a user by means of a user interface located in a control unit interacting with the lock according to the invention is analyzed, and numeric codes are transmitted to a related electronic circuit (12) in the lock according to the invention; thereby the lock is commanded to switch into a passive state. The electronic circuit (12) activates one, another or, if required, both of the triggers (17), to which said electronic circuit is attached, by means of the special numeric code obtained from the user interface and provides the lock to switch into a passive state, and thus to allow passage.

When in a wait state, the lock is permanently in an active state and when the door is closed, i.e. when the counterpart pins (16) bring the hooks (2) in catching position by pushing the same, the locking plates (11) pass towards the front section (9) through the passage opening (8), thus the passage opening (8) is chocked such that it blocks the motion of the hook blockage parts (4) to the reverse direction of the spring force, and thereby the mechanical lock is performed.

In a preferred embodiment, in the event that one of the triggers breaks down, the electronic circuit (12) normally corresponding to said trigger (17) detects the situation and henceforth it sends the following commands to be sent to another trigger (17). In this case, preferably by generating an audio warning, the information regarding that one of the triggers is nonfunctional in the lock is notified to the user.

In a preferred embodiment, in the event that one of the triggers (17) breaks down, solid trigger (17) activates automatically replacing the malfunctioned trigger and the

user is notified of the breakdown by means of audio warning. By this way, the need for the external mechanical interference is eliminated when one of the triggers in the lock breaks down. Similarly, in another preferred embodiment in the event that one of the electronic circuits (12) breaks down, the user can enter by using a spare interface and other electronic circuit (12) is suitable for being used such that it commands to one, another or, if required, both of the triggers. Thus, a solid lock, which functions for a long time without requiring maintenance, is provided.

Thanks to the massive, one-piece casting structure of the lock according to the invention, a compact and solid configuration has been achieved. The cast casing (1), and thus such a luck having such a casing, can be produced with low cost and in a short time.

When the lock according to the invention is mounted, it cannot be accessed mechanically by unauthorized people, i.e. it is impossible that said lock is switched into the passive state by means of a mechanic element such as key, crowbar, or mechanic code. Thus, a safe lock is provided. Additionally, due to the compact physical structure of the lock according to the invention and due to the fact that unauthorized people are not in the optic sensor area, it is not required to be mounted to a remotely noticed point of the door, window, lid etc.; alternatively, it can be mounted to a single point or multiple points as needed. For this reason, the area on the door etc., which the unauthorized people will target to interfere, cannot be designated visually (i.e. by eye). Thus, a safer lock is provided.

The lock according to the invention consumes energy only when it switches between active and passive state, while it does not consume energy in active and passive states. In the lock according to the invention, the electronic circuits and the triggering drive elements, which provide mechanical actions, can be operated by very low current and voltage. Accordingly, the lock according to the invention can receive its energy from one or more batteries. Each one of said one or more batteries is located in the battery housing (not shown) assigned thereto in the casing (1). The battery state is preferably warned audibly and in the event that the chemical energy in the battery/batteries decrease/s such that it is not enough to feed the lock, switching between the active and passive states of the mechanical elements of the lock can be provided by means of the power supply through the user interfaces.

Claims

1) A lock comprising

a casing (1);

at least one hook (2) which is located on a front section (9) in the casing (1) and each of which operates by rotating around a hook pin (6) assigned to itself;

hook blockage part (4) as many as the hook (2) itself that can be moved reversibly when pushed by the hook (2) during said rotation;

resistance block (3) corresponding to each hook (2) and integrated with the casing (1), each of which is shaped and sized such that it matches with a corresponding hook blockage part (4) and such that when the lock is forced by an unauthorized person, it restricts motion of said hook blockage part (4) by matching therewith;

locking plate (11) as many as the hook (2) itself, which is embedded in each one passage opening (8) that is located in the casing (1), which is suitable for restricting the motion of related hook blockage part (4) by means of reclining to each hook blockage part (4) with a reversible motion, or for releasing the motion of related hook blockage part (4) by means of moving away from the hook blockage part (4) when it reclines to a hook blockage part (4), and which has a form and size suitable for passing through the passage opening (8) between the front section (9) and a rear section; and

the safety block (5) which is embedded in a safety block bearing (22) located between the resistance block (3) and the passage opening (8) having a proper form and size as to allow embedding the locking plate (11), which has form and size suitable for moving within said safety block bearing (22) by means of the motion of each hook blockage part (4) in the direction of the pin passage opening (21) located in the casing (1).

2) A lock according to Claim 1, wherein the casting (1) is made of one-piece cast material.

3) A lock according to any one of Claim 1 or 2, wherein it comprising two or more hooks (2).

4) A lock according to any one of the previous claims, wherein the rear section (10) is located on another side of the casing (1) away from the front section (9);

and that the casing (1) comprises triggers (17) as many as the hook (2) itself in the rear section (10), electronic circuits (12) as many as the trigger (17) itself so as to send command to each trigger (17) and a central connection (20) to which locking plates (11) as many as the hook (2) itself are attached.

5) A lock according to any one of the previous claims, wherein it comprises a mounting plate (14) which is suitable for being a means for closing the front section (9) and mounting the casing (1) to a door leaf or to a door casing.

6) A lock according to any one of the previous claims, wherein it comprises a counterpart (15) having a suitable form and size for being mutually operated with the casing (1), said counterpart (15) comprising counterpart pins (16) having suitable form and size such that in a locked active state they match with each respective hook (2) and get caught by the hook (2) which they match; and such that in a passive unlocked state they get released from the hook (2) which they match; and wherein the counterpart pins (16) are positioned such that each of them corresponds to a respective hook (2).

7) A lock according to Claim 4, wherein said central connection (20) defines a rotational axis which is connected to the locking plate (11); and the rear section (10) comprises a drive excentric (18) which interacts mechanically with the trigger (17).

8) A lock according to Claim 7, wherein it comprises electronic circuit (12) as many as the trigger that is suitable for sending command to each trigger (17) and to be used as substitutes of each other; user interface (25) which is suitable for data and energy connection with each of the electronic circuit (12).

9) A lock according to any one of the Claims 6 to 8, wherein the related locking plate (11) passes through the passage opening (8) towards the front section (9) in the event that a counterpart pin (16) pushes a hook (2) and brings it into a catching position when the lock is in a standby state; thereby passage opening (8) is suitable for being blocked by means of the locking plate (11) in such a manner that it prevents a motion of the hook blockage part (4) away from the pin (6) of the related hook (2).

10) A lock according to any one of the Claims 4 to 9, wherein in the event that one of the triggers (17) is out of order, another trigger (17) which is functional is suitable for being automatically activated for replacing the trigger which is out of

order; and that, in the event that one of the electronic circuits (12) is out of order, entry can be performed by a user through a spare interface and, an electronic circuit (12) which is functional is suitable for being used for sending commands to any or both of the triggers (17).

11) A lock according to any one of the previous claims, wherein it comprises electrical connection between the triggers (17) and a battery housing provided inside the casing (1).

12) A lock according to any one of the Claims 2 to 4, wherein it comprises a position sensor detecting the position of a hook blockage part (4) and the passage opening (8) with respect to each other.

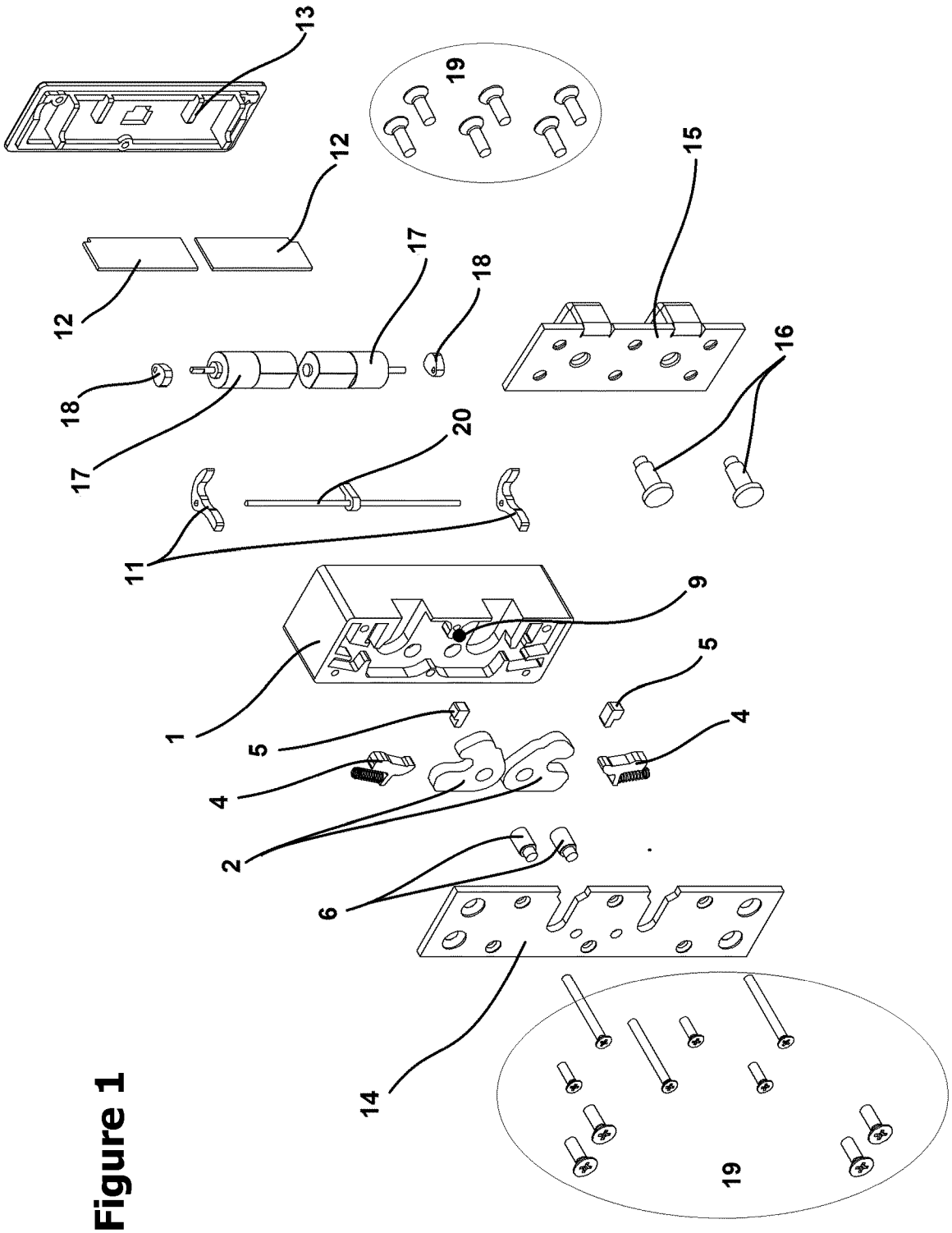


Figure 1

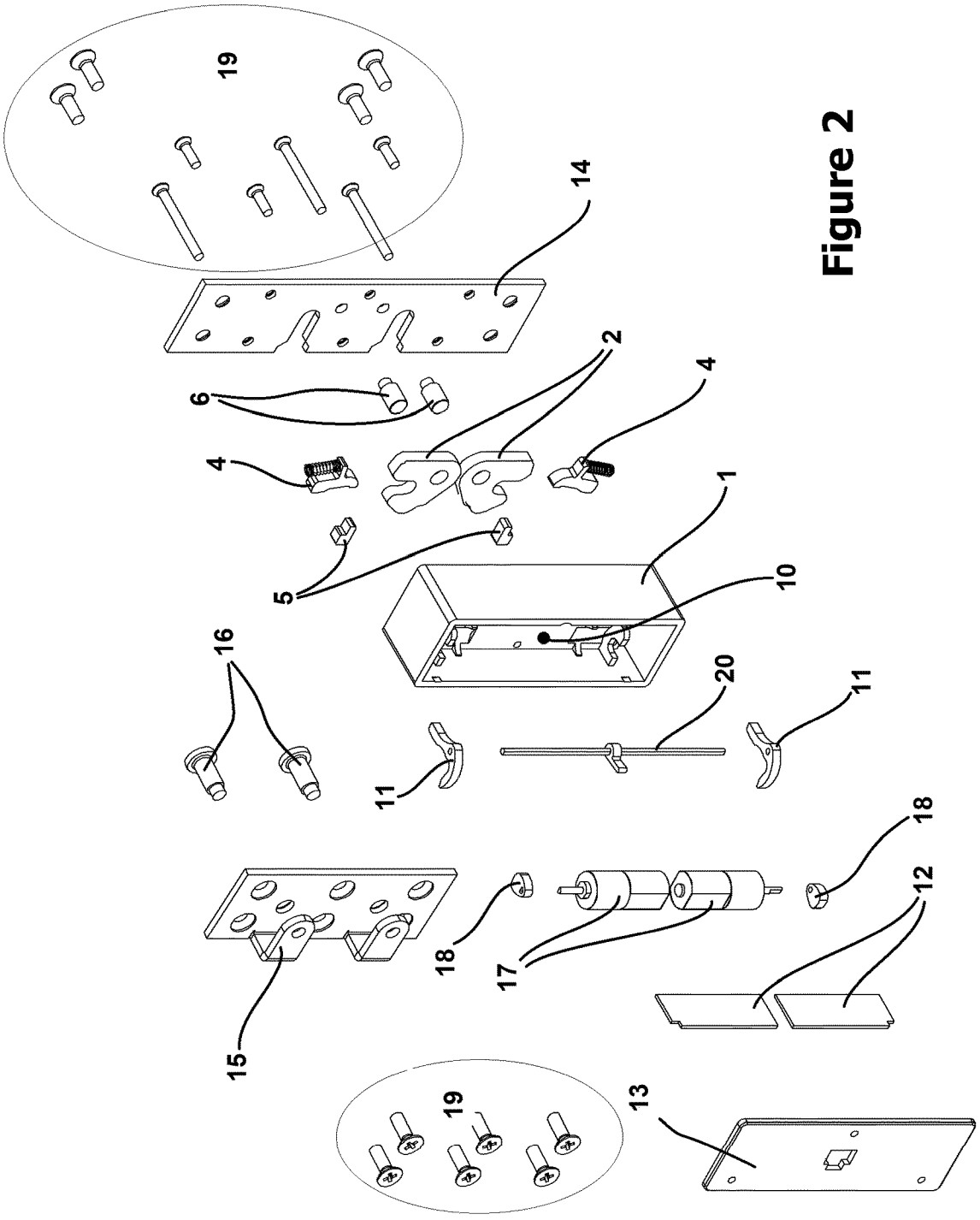


Figure 2

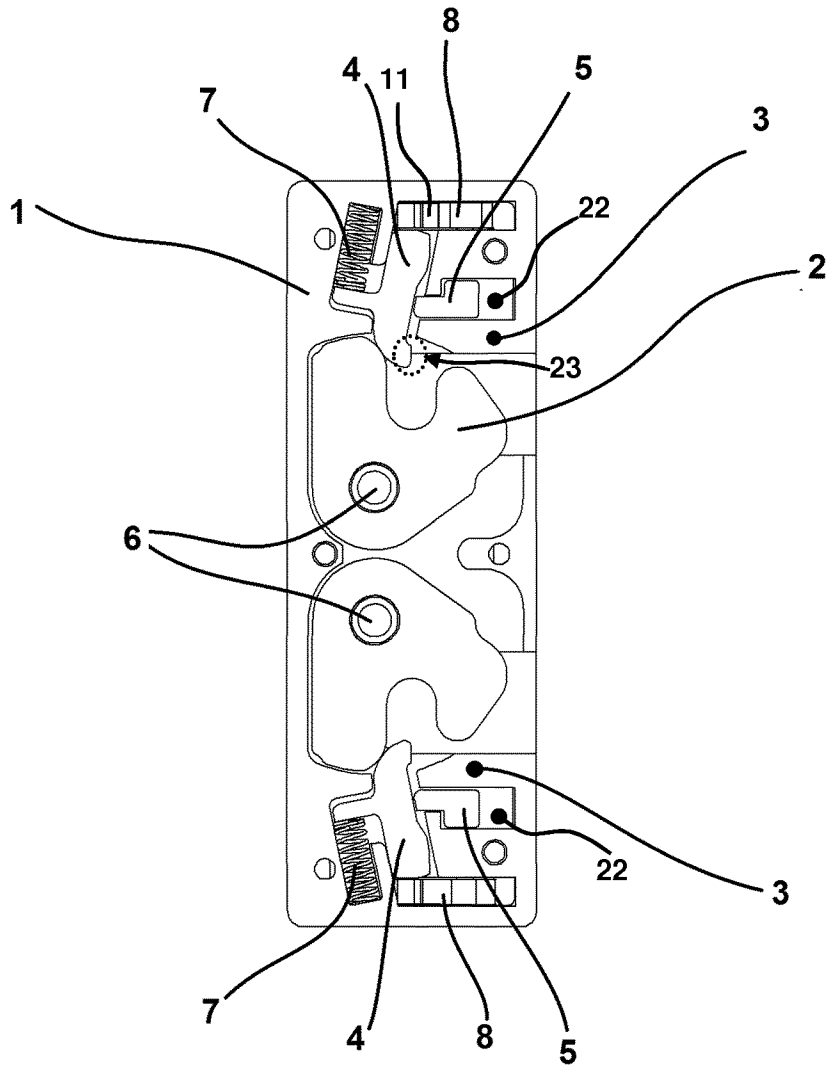
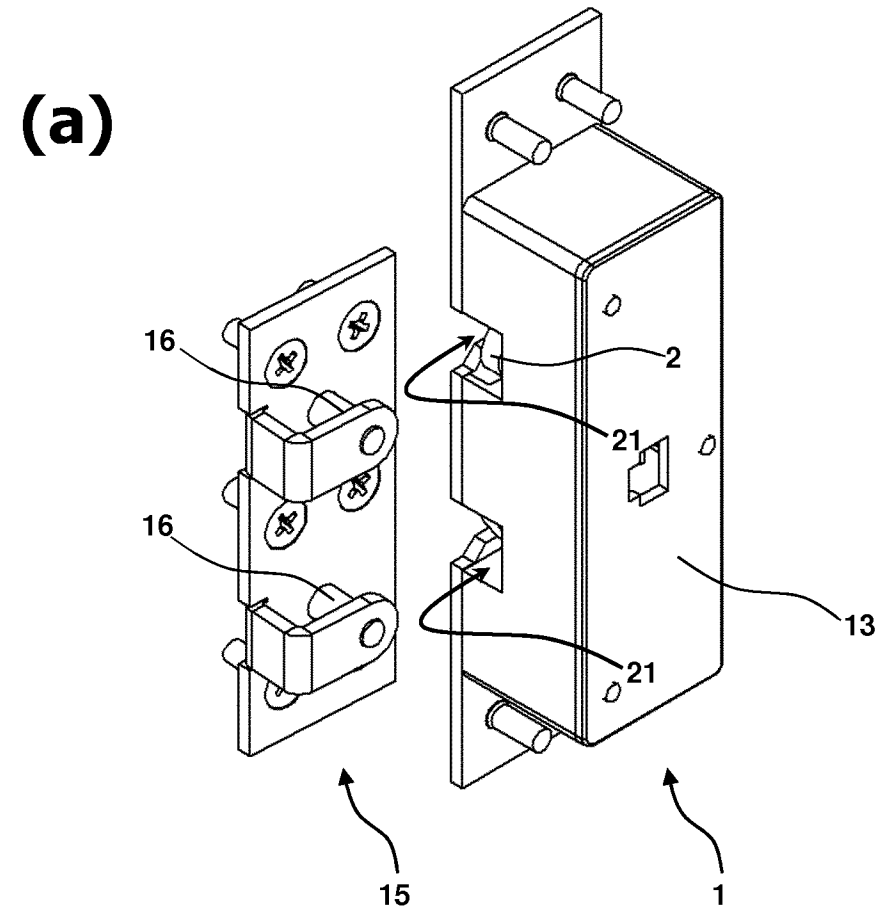


Figure 3



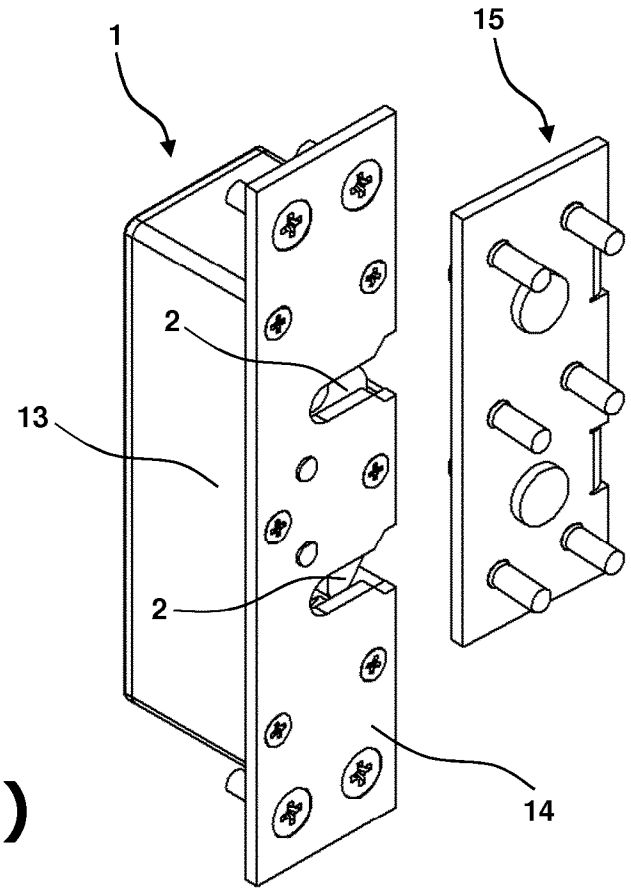


Figure 4

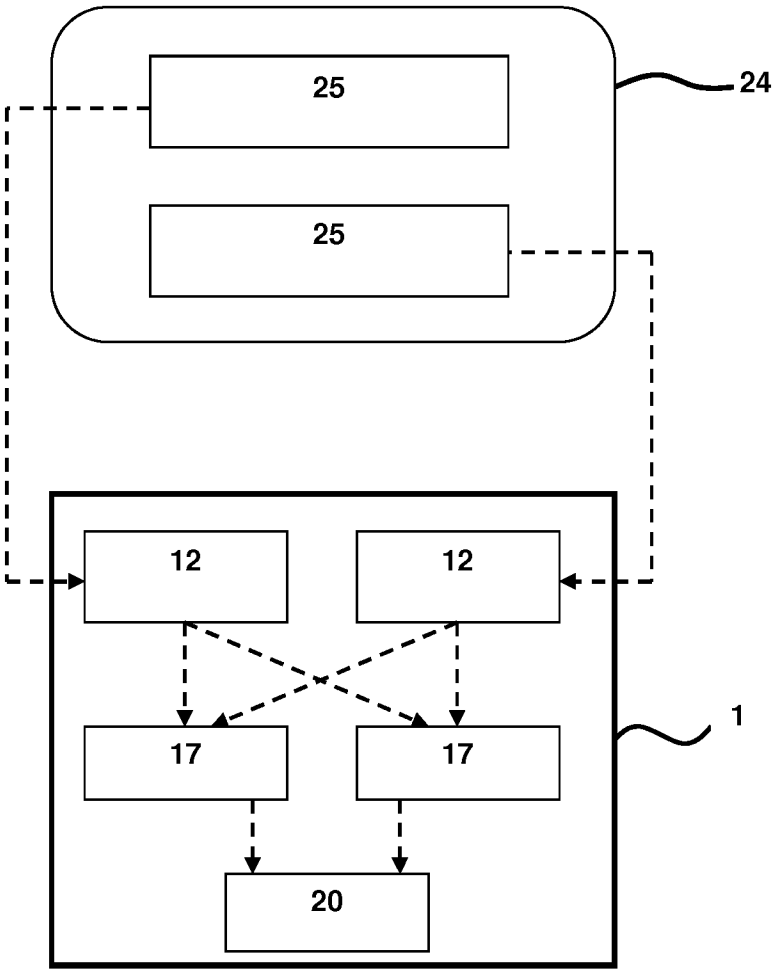


Figure 5