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(54) Lock for vehicle doors and hatches

(57) The invention relates to a lock for vehicle doors or hatches, comprising a casing (4) which has assembled a microswitch (13) responsible for activating an opening mechanism (3) of the door or hatch (1). The casing delimits a frontally open case (5) which is closed by means of a lid (6) pivoting on a horizontal pin (8). The case forms at the upper part a handgrip (11) through which the microswitch (13) can be actuated after driving the lid towards an inner position (6').

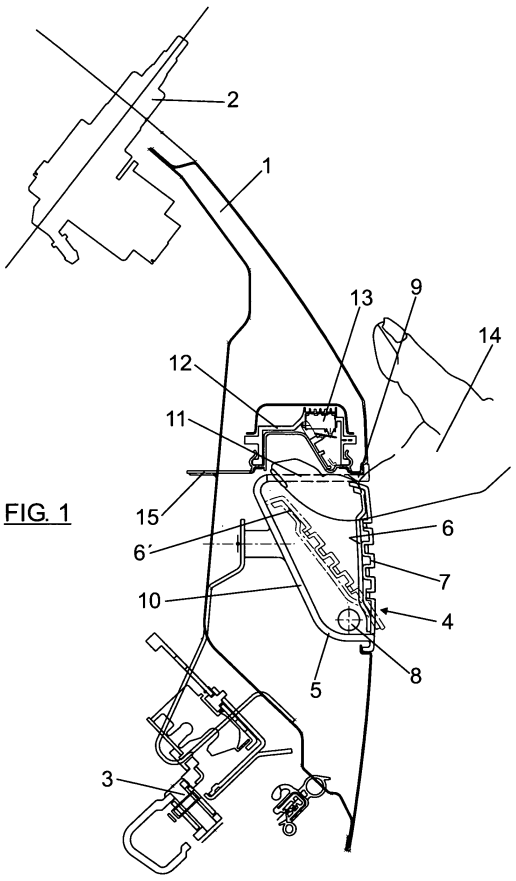

FIG. 1

EP 1 932 984 A2

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a lock for vehicle doors and hatches, comprising a casing delimiting a frontally open case and which is closed by means of a lid pivoting on a horizontal pin, with the opening of which the activation means of the opening mechanism of the door or hatch are accessed.

BACKGROUND OF THE INVENTION

[0002] A lock of the type set forth is described in Spanish utility model no. 200101057 of the same applicants. According to this utility model, the casing of the lock is formed by a front chamber defining the receptacle and is closed by means of the pivoting lid, by an intermediate shield which is externally coupled on the rear surface of the chamber and carries a screw, and by a rear frame which is laterally coupled on the chamber and shield assembly.

[0003] In this lock, the lid is articulated to the receptacle by means of an intermediate pin such that when the lid pivots towards the open position, it partially projects from the surface of the door or hatch.

[0004] In addition, with the mentioned constitution, assembling the lock has space and location problems, because it must be assembled through the inside of the vehicle, between the space of the opening mechanism and the motor of the rear windshield wiper. In this lock, the stress for braking the opening mechanism is carried out on the pivoting lid, which gives rise to tightness and operation problems of the lid itself.

DESCRIPTION OF THE INVENTION

[0005] The object of the present invention is to eliminate the considered problems by means of a lock of the type set forth, in which the lid closing the case only has the function of closing said case and is not useful as a direct actuation means of the opening mechanism of the door or hatch, whereby the aforementioned tightness problems are eliminated.

[0006] Another object of the invention is to reduce the stress which from the lock is necessary to actuate the opening mechanism and also to reduce the volume of the actuation means, such that operation and assembling problems are reduced.

[0007] An additional object of the invention is to simplify assembling the lock, since it is formed by an assembly which is assembled from the outside of the hatch and by an actuation means of the opening mechanism, with a small volume, which is assembled from the inside.

[0008] According to the invention, the lock comprises a casing which is assembled from the outside of the door or hatch, and a microswitch with actuation means thereof, which are assembled from the inside and are responsible for activating the opening mechanism of the lock.

[0009] In the lock of the invention, the case defined by the casing internally forms, at its front wall, a handgrip which is accessed by means of pivoting the lid. This lid is articulated at the lower part to the case, with the pivot pin close to the lower edge of said lid. The lid thus pivots between an open position, in which it is tilted towards the inside of the case, being supported against the rear wall thereof, and a front closed position, in which the upper edge of the lid is supported against the upper wall of the case, this support acting as a stop preventing the exit of the lid towards the outside of the case. The lid is constantly driven towards lid the closed position by means of a spring.

[0010] With this constitution, the lid never projects from the surface of the lock and therefore from the surface of the hatch or door, in any of the open or closed positions.

[0011] The upper handgrip internally forming the case of the lock consists of an intermediate opening that the upper wall of the case has, parallel to the front edge of said wall. When the lock is to be opened, the lid is driven towards the inside of the case and the hand is introduced, such that the fingers partially penetrate through the upper opening forming the mentioned handgrip.

[0012] A lever for actuating a microswitch can be arranged above the opening described previously, which level will be responsible for activating the opening mechanism. In this case, the microswitch will be located above the case of the casing and it can be actuated through an inner handle which will be accessed through the opening forming the described handgrip. For this arrangement, the microswitch will logically be located above the case of the lock.

[0013] The arrangement and activation of the microswitch could be different from that described, for example, the microswitch could be assembled behind the rear wall of the case, being actuated by means of a cam assembled on the pin of the lid.

[0014] With the described constitution, the assembly and the arrangement of the lock are simplified, because the case formed by the casing will be assembled from the outside of the door or hatch, whereas the opening mechanism, together with the microswitch and the actuation means thereof, will be assembled from the inside of the hatch. Furthermore, given the reduced dimensions of the microswitch responsible for activating the opening mechanism, the volume of the assembly is reduced, without there being assembling problems due to the proximity of the motor of the windshield wiper.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The attached drawings show a non-limiting embodiment, with the aid of which the constitution and operation of the lock of the invention can be better understood.

[0016] In the drawings:

Figure 1 is a partial vertical section of the rear hatch or door of a vehicle, in which the lock of the invention has been assembled.

Figure 2 is a view similar to Figure 1, showing an implementation variant.

Figure 3 is a horizontal section of the lock, taken according to section line III-III of Figure 2.

Figure 4 is a cross-section of the lock, taken according to line IV-IV of Figure 3.

DETAILED DESCRIPTION OF AN EMBODIMENT

[0017] Figure 1 shows a partial vertical sectional view of the rear hatch 1 of a vehicle in which the motor 2 of the rear windshield wiper, the opening mechanism 3 of the lock and the casing 4 for accessing and actuating said lock are assembled, which casing delimits a case 5 which is open at its front wall and is closed by means of a lid 6 which can carry at its outer surface a trimming element 7 and which can be formed by the initials of the vehicle brand.

[0018] The lid 7 is assembled in the case 5 by means of a lower fulcrum pin 8 located close to the lower edge of the lid 6. The lid 6 can pivot on this pin between an outer closed position, in which the upper edge of such lid is supported against the upper wall 9 of the case, acting as a stop to prevent the exit of said lid from the position shown in Figure 5, and an inner access position, with reference number 6', in which the lid is supported against the rear wall 10 of the case.

[0019] The case 5 internally forms at the upper wall 9 a handgrip which can consist of an opening 11 through which, once the lid 6 has been moved towards position 6', a handle 12 for actuating a microswitch 13 responsible for activating the mechanism 3 of the lock can be accessed.

[0020] When the lock is in the inoperative position, the lid closing the case 5 is in the closed position with reference number 6. To actuate the lock, this lid is pushed towards the inside, to position 6', then introducing the fingers of hand 14 through the upper opening 11, so as to be able to act on the handle 12 and thus actuate the microswitch 13 whereby the mechanism 3 of the lock is activated.

[0021] With the described constitution, the assembly is divided into two parts that are not connected to one another: on one hand the lid 6 which is assembled from the outside and the concealed handle 12 actuating the microswitch 13, which is assembled through the inside.

[0022] The handle 12 can be assembled by means of a support 15, whereby the structure of the hatch 1 can be reinforced, to withstand the opening stress. The microswitch 13 is assembled from the inside, above this support 15.

[0023] Figures 2 to 5 show an implementation variant, in which the microswitch 13 is assembled behind the rear wall 10 of the case 5, at the lower part, and is actuated by means of a pushing element 16 against which an eccentric cam 17 integral with the pin 8 of the lid 6 acts.

[0024] In this embodiment, the upper wall 9 of the case 6 forms the same opening 11, above which a fixed lid 12' substituting the handle 12 of Figure 1 is arranged.

[0025] With this embodiment, the movement of lid 6 towards position 6', pivoting on pin 8, causes the rotation of the eccentric cam 17, Figures 3 and 4, acting on the pushing element 16 to activate the microswitch 13, which emits an electric signal activating the opening mechanism 3 of the lock, shown in Figure 1. After this process, only a small force applied in an upward direction on lid 12', by means of the introduced fingers of hand 14, will be necessary.

[0026] The lid closing the case 5 is constantly driven towards the closed position with reference number 6 by means of a spring 18, Figure 3, which can be assembled on the pivot pin 8 itself of the lid.

Claims

1. A lock for vehicle doors and hatches, comprising a casing (4) which has assembled a microswitch (13) responsible for activating the opening mechanism (3) of the door or hatch (1), the casing of which delimits a frontally open case (5) which is closed by means of a lid (6) pivoting on a horizontal pin (8), **characterized in that** the mentioned case (5) internally forms at its upper wall a handgrip (11) and the lid (6) is articulated at the lower part to the case, with the pivot pin (8) close to the lower edge of said lid, the lid pivoting between an inner open position (6'), in which it is supported against the rear wall (10) of the case, and a closed position (6), in which the upper edge of the lid is supported against the upper wall (9) of the case, preventing its exit; said lid being driven towards the closed position by means of a spring (18).

2. A lock according to claim 1, **characterized in that** the mentioned upper handgrip consists of an intermediate opening (11) that the upper wall of the case has, parallel to the front edge of said wall.

3. A lock according to claims 1 and 2, **characterized in that** a handle (12) for actuating the microswitch (13) for activating the opening mechanism (3) is arranged above the mentioned opening.

4. A lock according to claim 1, **characterized in that** the microswitch (13) for activating the opening mechanism is assembled behind the rear wall (10) of the case and is actuated by means of a cam (17) assembled in the pivot pin (18) of the lid (6).

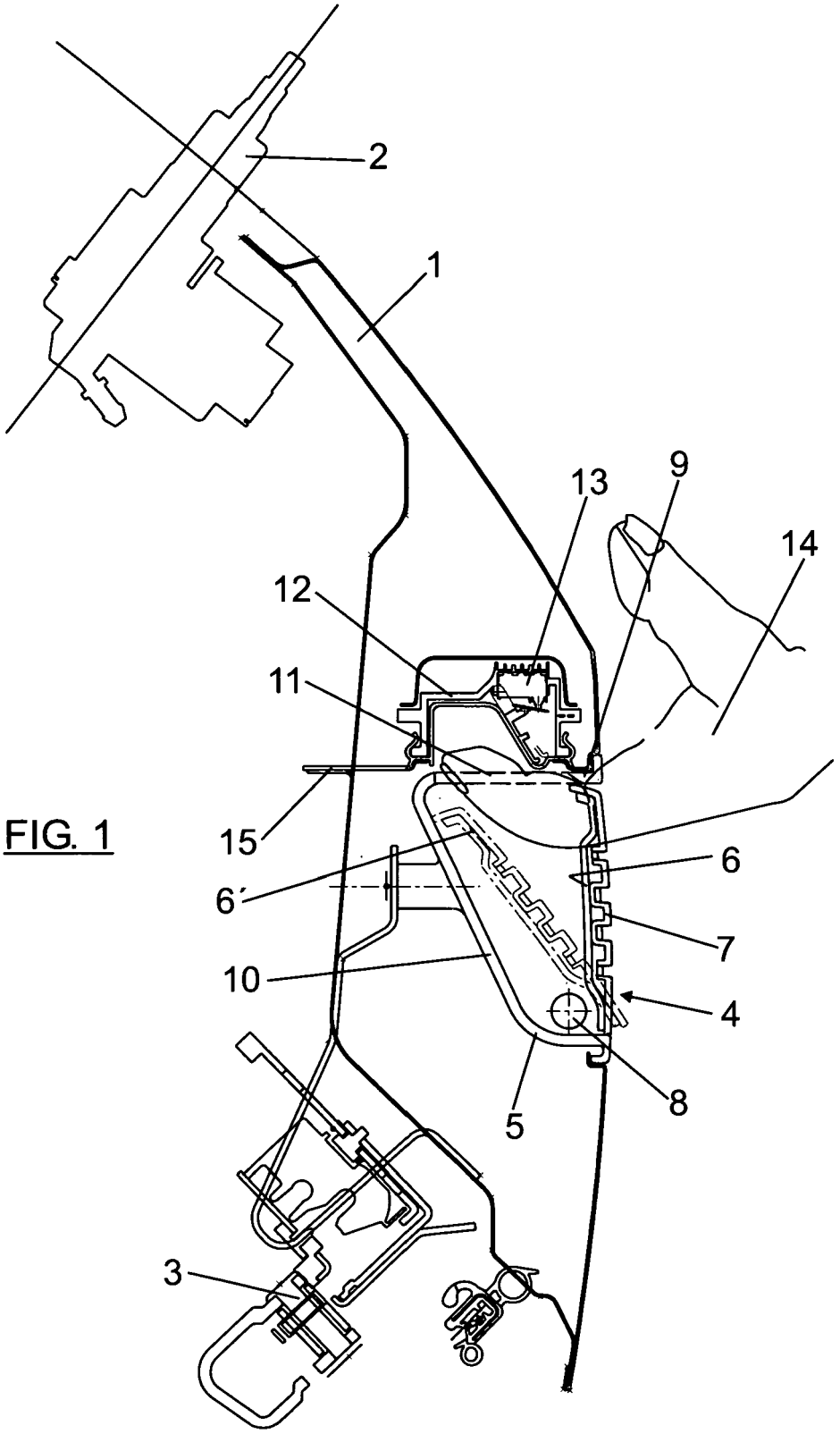

FIG. 1

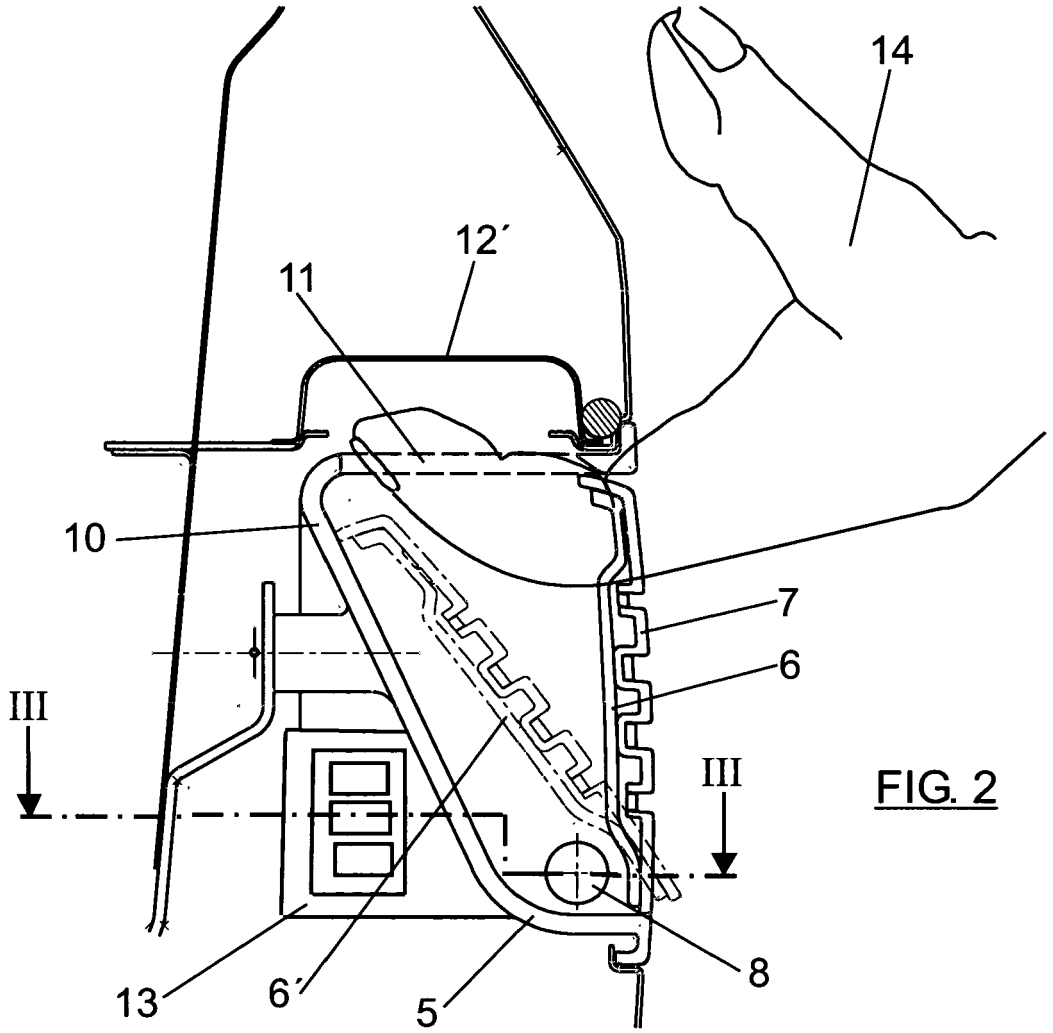

FIG. 2

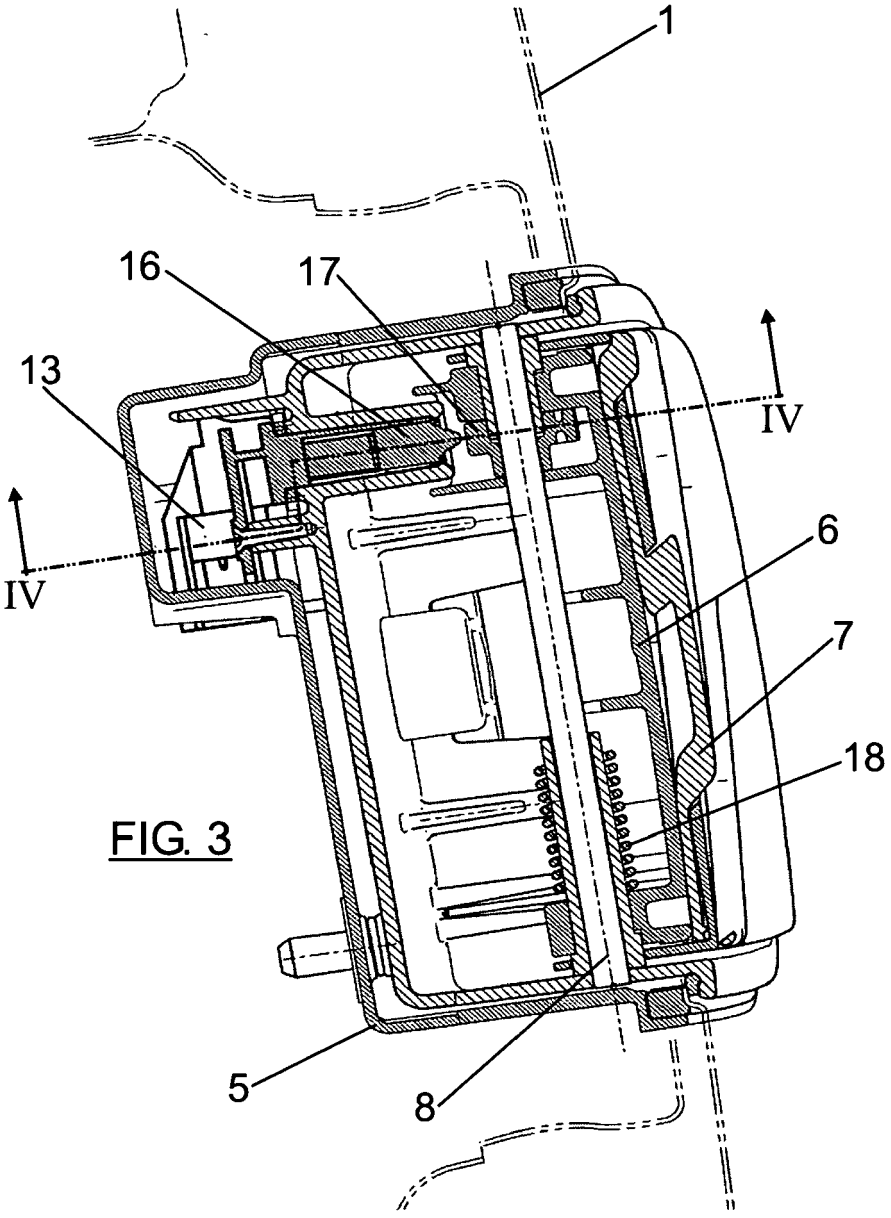

FIG. 3

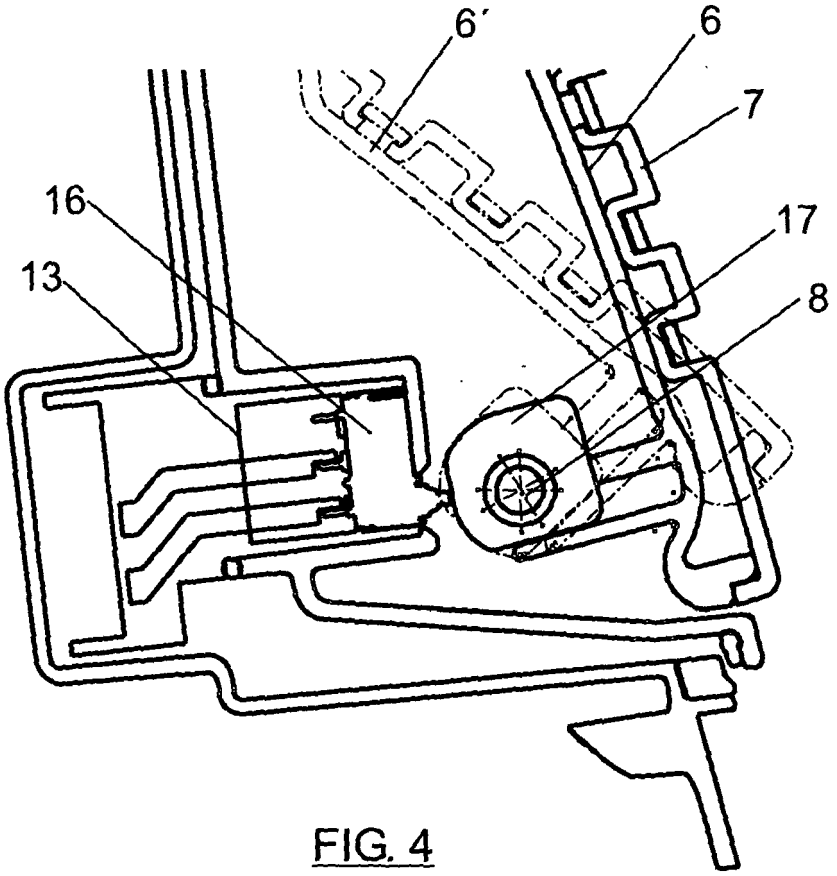

FIG. 4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- ES 200101057 **[0002]**