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(54) **WALL-MOUNTED ELECTRICAL SWITCH**

(57) The invention relates to a wall-mounted electrical switch, comprising a pivoting mechanism (1), in relation to which there is arranged an actuation button (4) by means of which said pivoting mechanism (1) can be forced to pivot so as to change position between respective functional positions for the activation and deactivation of an electrical function controlled with the switch, wherein between the actuation button (4) and the pivoting mechanism (1) there are incorporated lever parts (5), which are secured at one end to a coupling panel (6) being rotatably assembled thereon, to which panel there is secured the actuation button (4) being assembled in a pivoting manner thereon, with the lever parts (5) being secured with respect to the coupling panel (6) by means of a rotary attachment (7), whereas said lever parts are supported on the other end above the pivoting mechanism (1), wherein the actuation button (4), when pressed, contacts a middle area of said lever parts (5).

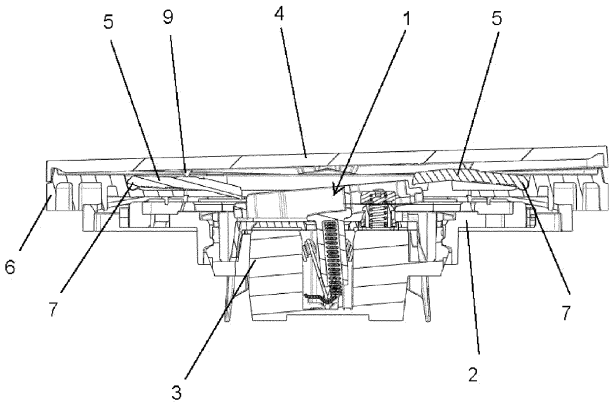

FIG. 1

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Description

Technical Field

[0001] The present invention relates to electrical switches which are arranged on walls for activating and deactivating functions, such as for switching light sources on and off, said switches comprising an actuation button and a pivoting mechanism which is actuated by means of the button to change the positions between the electrical activation and deactivation of the function controlled with the switch, with the present invention proposing an embodiment of the mentioned switches which allows improving the operation aesthetics thereof, since it reduces the angle of movement of the actuation button to perform the functional changes of the switch between the positions of electrical activation and deactivation.

State of the Art

[0002] Wall-mounted switches which are arranged to activate and deactivate electrical functions usually consist of a lever element, by means of which a pivoting mechanism is actuated to change the functional position of the switch between respective arrangements for the electrical activation and deactivation of the function to be controlled.

[0003] Currently one of the most common embodiments of the mentioned wall-mounted electrical switches uses, as a lever element to change the position of the pivoting mechanism between the arrangements for electrical activation and deactivation, a button which, when pressed on one end or another, acts on the pivoting mechanism, causing it to adopt the desired position.

[0004] However, market demands increasingly require an improvement in the functional aesthetics of switches, for which it is important to reduce the angle of movement of the actuation button to change the positions of the pivoting mechanism, such that said movement of the button of the switch appears to be barely perceptible aesthetically.

[0005] In that sense, solutions such as the one proposed by document GB2578674B which, by incorporating lever parts in combination with the actuation button to operate the pivoting mechanism, successfully reduces the angle of movement of the button, are known. However, the embodiment proposed by said document GB2578674B is based on an arrangement of the lever parts that still requires a rather considerable degree of movement of the actuation button to change the functional positions of the pivoting mechanism of the switch, and furthermore the pivoting mechanism needs to be disassembled in order to change the button and/or the lever parts, if necessary, making the operation complicated.

[0006] Therefore, it is clearly important to provide a constructive solution for switches which allows minimizing the movement of the actuation button to change the functional positions of the pivoting mechanism, for the purpose of achieving the best functional aesthetics of the switch, but furthermore allowing the button and/or the additional lever parts to be changed without having to disassemble the pivoting mechanism to facilitate the change when necessary, for the purpose of being able to keep the switch in the best conditions in terms of aesthetic appearance and operation.

Object of the Invention

[0007] The present invention proposes a wall-mounted electrical switch in which a pivoting mechanism is actuated by means of a button to change the functional positions of electrical activation and deactivation, the assembly of this switch being developed with embodiment features which improve the functional and aesthetic conditions with respect to solutions already existing on the market.

[0008] This electrical switch object of the invention incorporates lever parts such that they are located between the actuation button and the pivoting mechanism that changes the functional positions of the switch, each of the lever parts being attached on one of its ends to a coupling panel being rotatably assembled thereon with respect to a frame for mounting the switch in the installation, whereas the other end of the parts is supported on one side of the pivoting mechanism, wherein the actuation button, when pressed, contacts a middle area of said lever parts.

[0009] In this way, the pivoting angle of the actuation button is reduced, reducing the actuation angle without reducing the effective angle, which results, aesthetically speaking, in an effect where the ends of the actuation button barely move, even though it is of large overall size. In turn, the lever parts remain above the pivoting mechanism of the switch, allowing the actuation button and the lever parts themselves to be disassembled for replacement, if necessary, without having to disassemble the pivoting mechanism.

[0010] Particularly, the lever parts have an arched transverse configuration between the end for attachment to the coupling panel and the end for support on the pivoting mechanism, with the actuation button being supported on the middle area of the arch, thereby obtaining an arrangement with which the pressing of the actuation button is transmitted to the pivoting mechanism with very little angular movement of the actuation button. Therefore, the degree of inclination of the button can be determined based on said arch.

[0011] In addition, at the end for support on the pivoting mechanism, the lever parts have a protrusion with which they are supported on the pivoting mechanism, while in the area of contact with the lever parts, the actuation button has in turn protrusions with which it is supported on said lever parts, thus also improving the transmission of the pressing of the actuation button to the pivoting mechanism, making the angular movement required of the actuation button to change the functional positions

of the switch even smaller.

[0012] At the end for attachment to the coupling panel, the lever parts have flexible pins by means of which the connection of the assembly of said lever parts with respect to the coupling panel is made, thus furthermore obtaining a flexible assembly that makes the attachment of said lever parts with respect to the coupling panel elastic, achieving a better functional behavior of the assembly, preventing rigid attachments and possible breakages when changing the functional positions of the switch.

[0013] According to another aspect of the invention, the coupling panel comprises coupling housings for the rotary attachments of the levers, and structures for the button to be assembled in a pivoting manner on said levers, the coupling panel, the levers, and the button forming a removable sub-assembly of the frame fixed to the wall. In this way, said sub-assembly replaces the usual aesthetic frame together with the button, with the complete replacement of the sub-assembly in a simple manner being possible for aesthetic or maintenance purposes. Additionally, in this case the entire sub-assembly can be replaced without also having to disassemble the pivoting mechanism of the switch as in the state of the art.

[0014] Preferably, the coupling panel will have the same fixing projections for fixing to the frame as a normal button, providing the versatility of replacing a normal button with the operating sub-assembly of the invention.

[0015] Based on the foregoing, the switch object of the invention has very advantageous structural characteristics, with the embodiment thereof acquiring its own identity and preferred character with respect to conventional solutions of the same purpose existing on the market.

Description of the Figures

[0016] To better understand the invention, drawings depicting a non-limiting embodiment are attached.

Figure 1 shows a cross-section of a wall-mounted electrical switch corresponding to the embodiment object of the invention.

Figure 2 is an exploded perspective view of the actuation assembly for changing the functional position of the switch of the preceding figure.

Figure 3 is a perspective view of the actuation assembly assembled, observed through the rear portion.

Figure 4 shows a perspective view of the lever parts incorporated in the switch according to the invention.

Detailed Description of the Invention

[0017] The object of the invention relates to a wall-mounted electrical switch of the type provided for changing the state of electrical functions between respective positions for activation and deactivation, comprising a pivoting mechanism (1) incorporated in a frame (2) for mounting on a box (3) in the installation of application, being arranged so that said pivoting mechanism (1) can be operated by means of an actuation button (4) to change the functional positions.

[0018] According to the invention, between the actuation button (4) and the pivoting mechanism (1) of the switch, there are incorporated lever parts (5), which are secured to a coupling panel (6) being rotatably assembled thereon, to which panel there is secured the actuation button (4) being assembled in a pivoting manner thereon by means of structures (11), the lever parts (5) being secured at one of the ends thereof by means of a rotary attachment (7) with respect to the coupling panel (6), whereas said lever parts are supported on the other end above the pivoting mechanism (1), the support of each of said lever parts (5) on one side of the pivoting mechanism (1) being established, as seen in Figure 1. By pressing one of the ends of the actuation button (4), the lever part (5) on that side forces the pivoting mechanism (1) towards one of the functional positions and when pressing the other end of the actuation button (4) the other lever part (5) forces the pivoting mechanism (1) towards the other functional position.

[0019] At the end for support on the pivoting mechanism (1), the lever parts (5) has a protrusion (8), by means of which they are supported on the pivoting mechanism (1), whereas there is envisaged in the configuration of said lever parts (5) a transverse arch between the end of the rotary attachment (7) with respect to the coupling panel (6) and the end for support on the pivoting mechanism (1), with the actuation button (4) being supported on the middle area of the convex portion of each of these lever parts (5), and particularly by means of protrusions (9) provided on the rear face of the actuation button (4), whereby achieving a relationship where the angular movement of the actuation button (4) is transmitted to the pivoting mechanism (1) through the lever parts (5), which requires very little angular movement of the actuation button (4) for changing the functional positions of said pivoting mechanism (1), thereby achieving a highly effective functional aesthetics of the switch when changing between the functional positions.

[0020] On the other hand, for assembling the attachment with respect to the coupling panel (6) by means of the rotary attachments (7), the lever parts (5) have flexible pins (10), by means of which the rotary attachments (7) are elastically established, which pins are inserted into housings (12), thereby preventing a rigid assembly which may hinder the operation or cause breakage upon changing between the functional positions of the switch.

[0021] It should be pointed out that the levers (5) are fixed to the coupling panel (6) in the housings (12), and the actuation button (4) is fixed on said levers (5) in structures (11) of the coupling panel (6) itself, a sub-assembly formed by said elements (4, 5, and 6) replacing the aesthetics frame plus the common button of a conventional

switch is thereby constituted. Additionally, the coupling panel (6) preferably comprises fixing projections (13) which are identical to the interlocking system of a conventional aesthetic frame, providing usage versatility for replacement in already existing switches by changing the aesthetic frame plus the button for the functional sub-assembly of the invention.

Claims

1. A wall-mounted electrical switch, comprising a pivoting mechanism (1), in relation to which there is arranged an actuation button (4) by means of which said pivoting mechanism (1) can be forced to pivot so as to change position between respective functional positions for the activation and deactivation of an electrical function controlled with the switch, **characterized in that** between the actuation button (4) and the pivoting mechanism (1) there are incorporated lever parts (5), which are secured at one end to a coupling panel (6) being rotatably assembled thereon, to which panel there is secured the actuation button (4) being assembled in a pivoting manner thereon, with the lever parts (5) being secured with respect to the coupling panel (6) by means of a rotary attachment (7), whereas said lever parts are supported on the other end above the pivoting mechanism (1), wherein the actuation button (4), when pressed, contacts a middle area of said lever parts (5).

2. The wall-mounted electrical switch according to claim 1, wherein the lever parts (4) have an arched transverse configuration between the end of the rotary attachment (7) with respect to the coupling panel (6) and the end for support on the pivoting mechanism (1), with the actuation button (4) contacting the middle area of the convex portion of said arched configuration.

3. The wall-mounted electrical switch according to claims 1 and 2, wherein the actuation button (4) has on the rear face protrusions (9) by means of which it contacts the lever parts (5).

4. The wall-mounted electrical switch according to claim 1, wherein at the end for support on the pivoting mechanism (1), the lever part (5) has a protrusion (8) by means of which they are supported on the pivoting mechanism (1).

5. The wall-mounted electrical switch according to claim 1, wherein at the end for securing the lever parts (5) to the coupling panel (6), the lever parts (5) have flexible pins (10) by means of which the rotary attachments (7) are established.

6. The wall-mounted electrical switch according to any one of the preceding claims, wherein the coupling panel (6) comprises coupling housings (12) for the rotary attachments (7) of the lever parts (5), and structures (11) for the button (4) to be assembled in a pivoting manner on said lever parts (5), with the coupling panel (6), the lever parts (5), and the button (4) a forming removable sub-assembly.

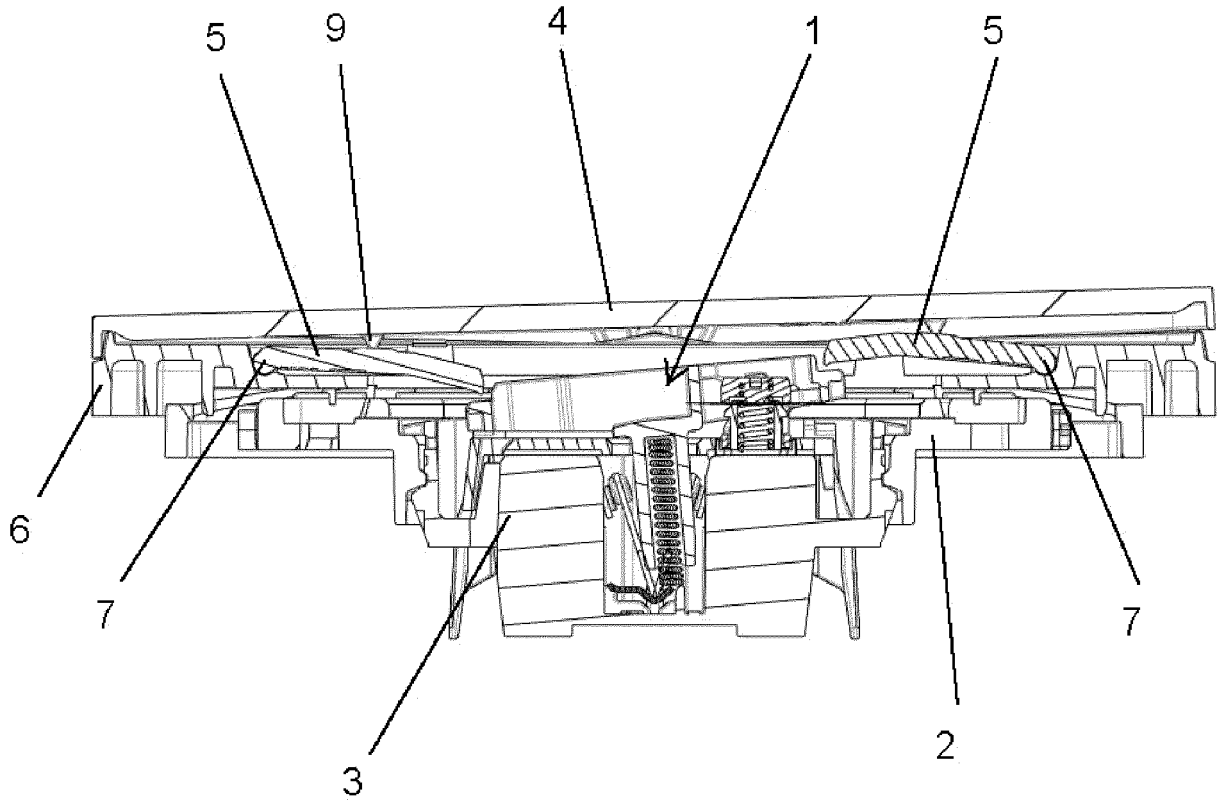

FIG. 1

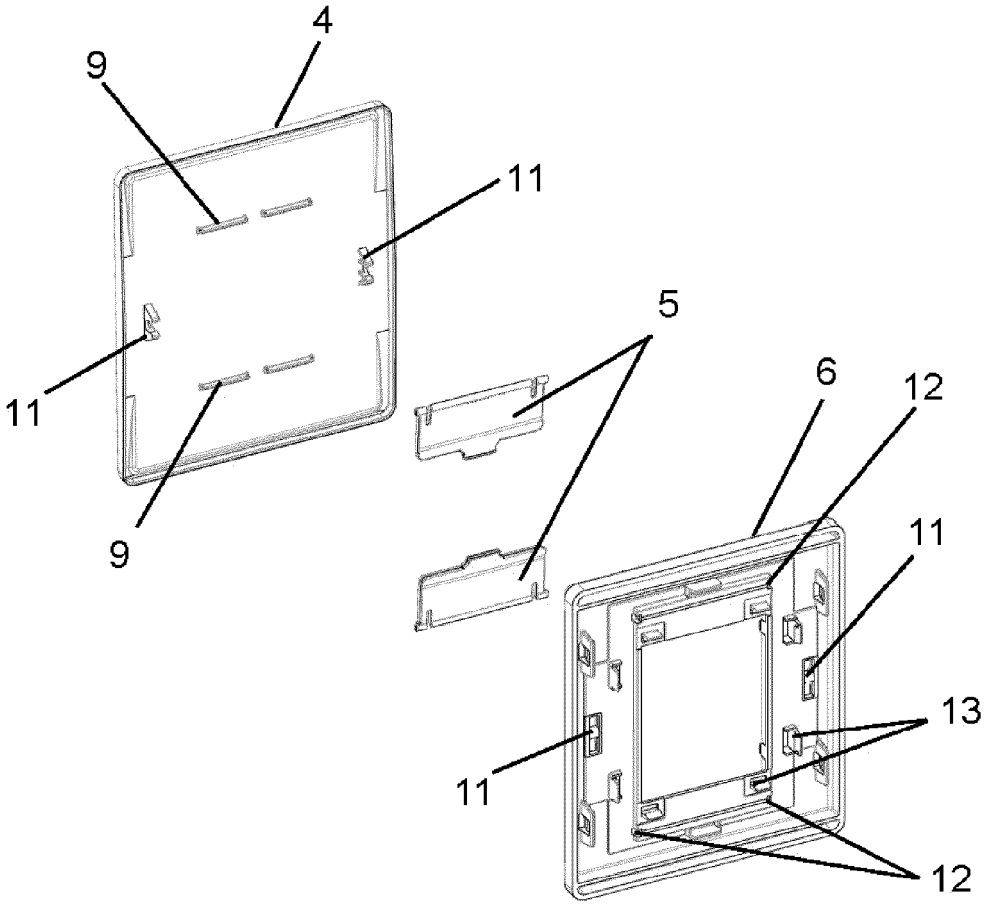

FIG. 2

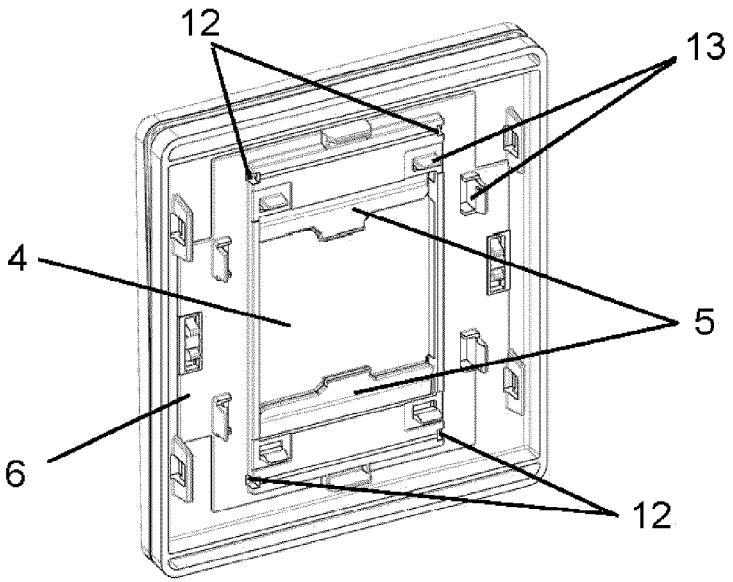

FIG. 3

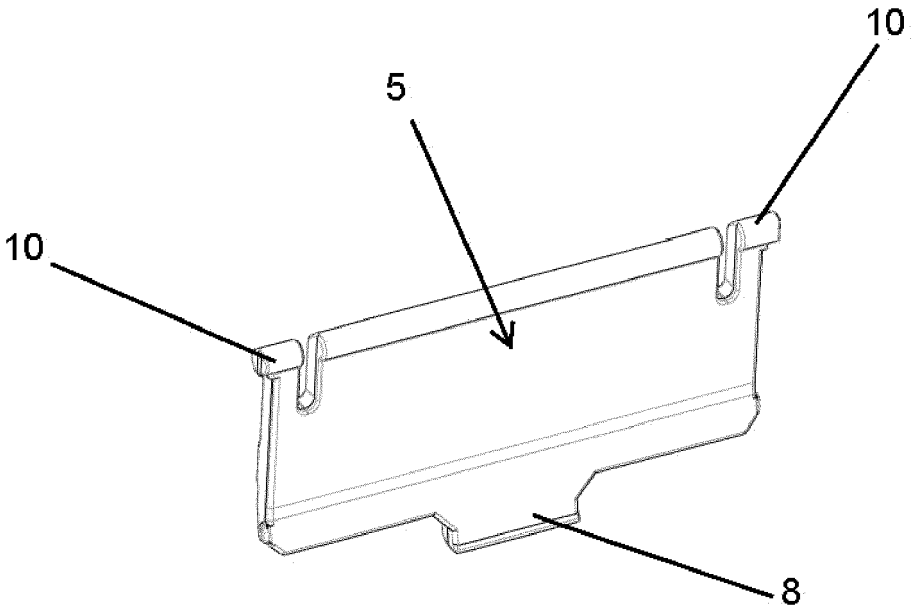

FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 23 38 2566

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 11 73 962 B (BUSCH JAEGER DUERENER METALL) 16 July 1964 (1964-07-16) * column 3, line 32 - column 4, line 11; figures 1-7 *	1-6	INV. H01H9/18 ADD. H01H23/14
X,D	GB 2 578 674 B (SCHNEIDER ELECTRIC AUSTRALIA PTY LTD [AU]) 24 February 2021 (2021-02-24)	1,4-6	H01H23/16
A	* the whole document *	2,3	
A	EP 3 879 547 A1 (SCHNEIDER ELECTRIC IND SAS [FR]) 15 September 2021 (2021-09-15) * the whole document *	1-6	

TECHNICAL FIELDS SEARCHED (IPC)

H01H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	6 December 2023	Nieto, José Miguel

CATEGORY OF CITED DOCUMENTS

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06-12-2023

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- GB 2578674 B **[0005]**