Feb. 27, 1923. 1,446,636

C. H. BISSELL

OPERATING MECHANISM FOR INCLOSED PUSH BUTTON SWITCHES

Filed May 3, 1919

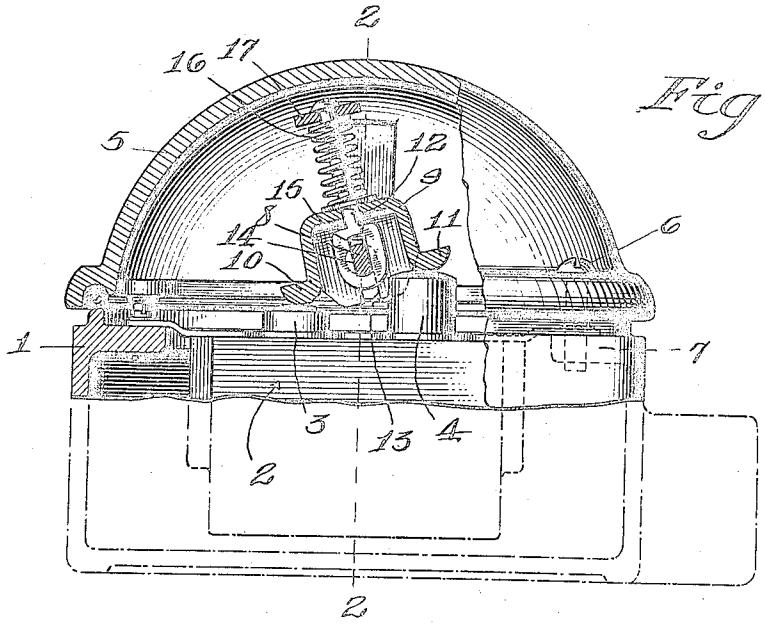


Fig. 1.

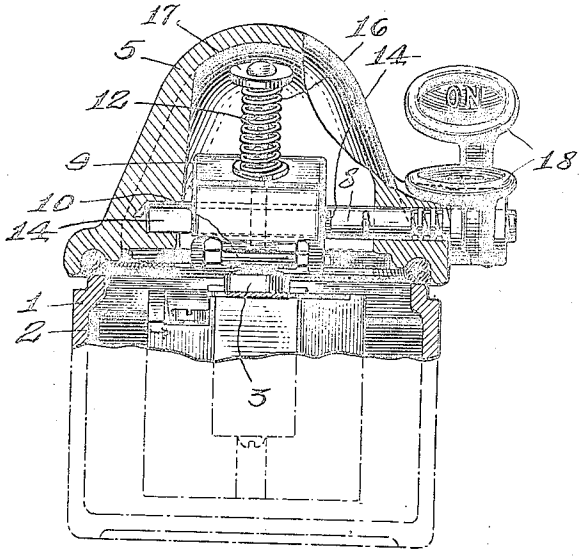
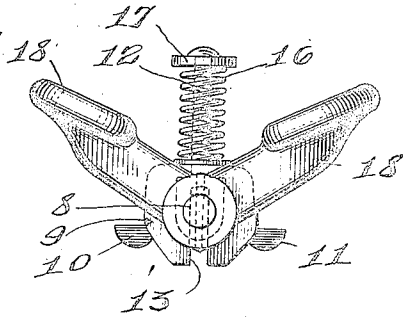


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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OPERATING MECHANISM FOR INCLOSED PUSH-BUTTON SWITCHES.

Application filed May 3, 1919. Serial No. 294,582.

To all whom it may concern:

Be it known that I, CARL H. BISSELL, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Operating Mechanism for Inclosed Push-Button Switches, of which the following is a specification.

This invention has for its object a particularly simple and efficient switch operating mechanism for operating standard switches, as push button switches which are located in an electrical conduit outlet box having a cover for rendering the box steam and weather tight, which mechanism is operable from the outside of the box. The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a sectional view, partly in elevation, of a conduit outlet box with the snap switch therein and cover for the box provided with my switch operating mechanism.

Figure 2 is a fragmentary sectional view taken approximately on the plane of line 2—2, Fig. 1.

Figure 3 is an elevation of the detached switch operating mechanism.

This switch operating mechanism comprises generally, a rocker member for engaging the switch actuating element and said member being yieldingly movable relatively to its axis, a spring for resisting the relative movement of the rocker member, and means for rocking the member.

In the illustrated embodiment of my switch operating mechanism, said mechanism is constructed to operate a two button snap switch located within an electrical conduit box and said mechanism is carried by the steam and weather tight cover of said box.

1 designates the conduit outlet box, 2 the base of a snap switch suitably mounted in the box, this base having a snap switch mechanism therein comprising actuating elements as push buttons 3, 4, one of which when pushed moves the switch to "off" position and the other to "in" position.

5 is the cover for the box, said cover being secured in position in any suitable manner as by screws 6 extending through a marginal flange on the cover and threading into internal flanges 7 on the box.

The switch operating mechanism, as here shown, comprises a rock shaft 8 journaled in bearings in the cover 5 and extending to the outside of the cover, a rocker member 9 movable with the rock shaft 8 and also having a yielding movement relatively thereto, the rocker member 9 having means as bearings 10, 11 on opposite sides of its axis for pressing on the push buttons 3 and 4 respectively. As here shown, the rocker member is mounted upon an arm 12 carried by the rock shaft 8 and rockable therewith, and the rocker member also has guides as slots 13 slidable on the shaft 8, the shaft being formed with diametrically opposite flat sides 14 engaging the walls of the slots 13. The arm 12 is also formed with a similar slot 15 for engaging said flat sides 14.

The movement of the rocker member radially relatively to the shaft is resisted by a spring 16 encircling the arm 12 and pressing at its upper end against a shoulder 17 on the upper end of the arm and at its lower end against the top of the rocker member. The rock shaft is operated by suitable handles 18 extending in opposite directions therefrom, and mounted on the end of the rock shaft located outside of the casing.

In operation, when the cover is placed on the box, housing the snap switch, the bearings 10 and 11 engage respectively with the tops of the buttons 3, 4 and the shaft is rocked by means of the handles 18 so that as to position the rocker member in accordance with the positions or elevations of the push buttons 3, 4.

Assuming that the switch is "off" and it is desired to shift the switch to "on" position, the operating member 18 bearing the word "On" is depressed, thus rocking the shaft 8 to the right from its position shown in Fig. 1, causing the bearing member to press downwardly on the push button 4 and during the movement of the rock shaft the spring 16 permits the rocker member 9 to yield outwardly until the tension of the spring of the switch mechanism within the base 2 is overcome so that the push button 4 is yieldingly depressed by the rocker 9.

When the push button 4 depresses the rocker member follows and assumes the position opposite to that shown in Fig. 1. At the same time the push button 3 is elevated.

To throw the switch "off," the reverse of this operation takes place upon depressing the arm 18 bearing the word "Off."

What I claim is:

1. The combination with a snap switch having a push button, of a switch operating mechanism comprising a rock shaft, a rocker arm on said shaft for coacting with the push button, the rocker arm being movable radially relatively to its axis in a direction at an angle to the radial line of said arm, a spring for resisting such radial movement, and means for rocking said shaft, substantially as and for the purpose described.

2. A switch operating mechanism comprising a rocker member having means located on opposite sides of its axis for engaging switch actuating elements, said rocker member being movable radially relatively to its axis, and a spring acting radially on the rocker member between said means to resist radial movement, and means for rocking said member, substantially as and for the purpose specified.

3. A switch operating mechanism comprising a rock shaft, a member mounted on the shaft and rockable therewith and also connected thereto to move substantially radially relatively thereto and a spring acting on said member to resist the radial movement thereof, substantially as and for the purpose set forth.

4. A switch operating mechanism comprising a rock shaft, an arm extending radially from the rock shaft, a rocker mounted on the arm, and movable radially relatively to the axis of the shaft, and a spring acting on said member to resist radial movement thereof, and means for rocking the shaft, substantially as and for the purpose described.

5. A switch operating mechanism comprising a rock shaft, an arm extending radially from the rock shaft, a rocker slidably mounted on the arm and having means located on opposite sides of the shaft for engaging the switch actuating elements, said rocker being movable radially on the arm, said arm having a shoulder spaced apart from the rocker, and a spring encircling the arm and interposed between the shoulder on the arm and the rocker member, substantially as and for the purpose specified.

6. A switch operating mechanism comprising a rocker member, said rocker member being also yieldingly movable relatively to its axis, a spring acting on the rocker member to resist such movement, and means for rocking said member, substantially as and for the purpose set forth.

7. The combination with a snap switch having a pair of push buttons, for operating the switch to "on" and "off" positions, of an operating mechanism comprising means yieldingly coacting with the push buttons alternately to operate the same, substantially as and for the purpose described.

8. The combination with a snap switch having a pair of push buttons for shifting the switch mechanism to "on" and "off" positions; of an operating mechanism comprising a rocker having means on opposite sides of its axis for engaging the push buttons, the rocker being yieldingly movable radially relatively to its axis, springs for resisting radial movement of the rocker, and means for operating the rocker, substantially as and for the purpose set forth.

9. The combination with a snap switch having a pair of push buttons for shifting the switch mechanism thereof to "on" and "off" positions; of an operating mechanism for the push buttons comprising a rock shaft, a rocker mounted on the arm to rock therewith and move relatively thereto, and a spring acting on the rocker to resist relative movement of the rocker and said shaft, and means for operating the shaft, substantially as and for the purpose described.

10. The combination of a box, a switch mounted in the box and including a movable operating element, a cover for the box, and means carried by the cover to actuate the operating element, said means including a yieldable member coacting directly with said element, substantially as and for the purpose specified.

11. The combination of a box, a two-button snap switch mounted in the box, a cover for the box and mechanism carried by the cover to operate the switch, said mechanism comprising a yieldingly mounted rocker coacting on opposite sides of its axis with the push buttons, substantially as and for the purpose described.

12. The combination with a snap switch having push buttons arranged side by side, of switch operating mechanism comprising a support mountable on the switch, a rock shaft journalled in the support, a rocker arm on said shaft and having means on opposite sides of the shaft for coacting with the heads of the push buttons and means for rocking the shaft, substantially as and for the purpose described.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and State of New York, this 8th day of April, 1919.

CARL H. BISSELL.