July 20, 1948. T. POLIAKOFF 2,445,635

LOCK SWITCH

Filed July 6, 1946

Fig. 1.

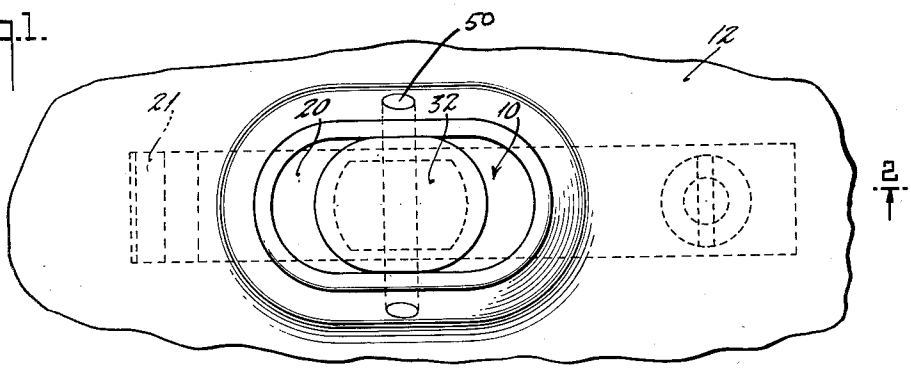


Fig. 2.

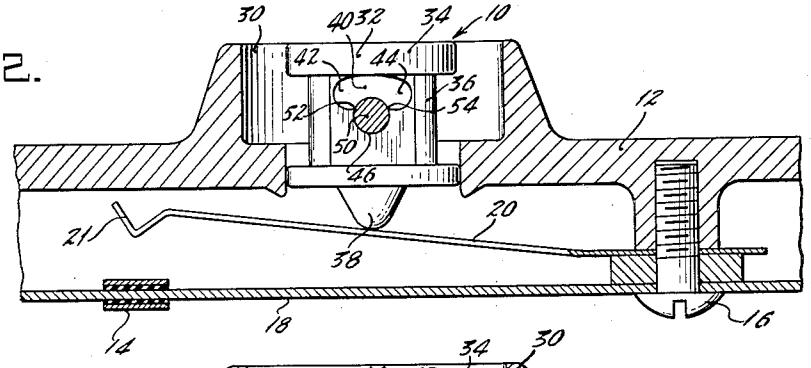


Fig. 3.

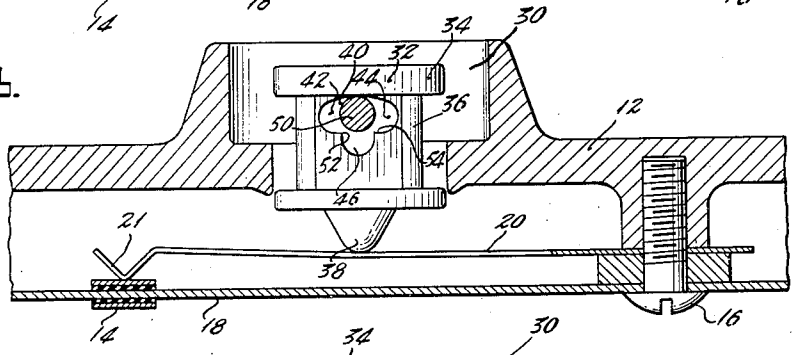
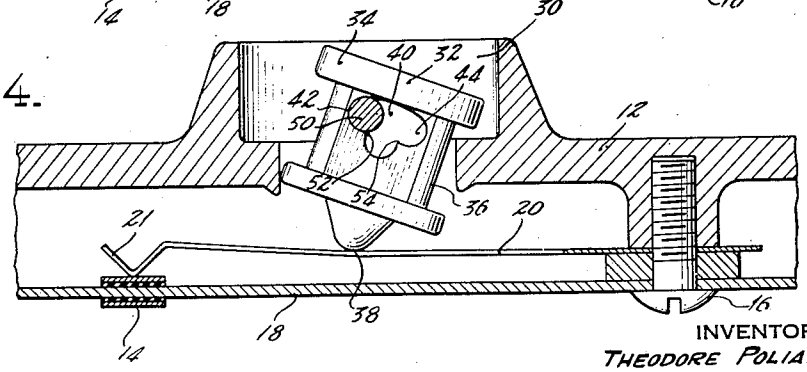


Fig. 4.



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LOCK SWITCH

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3 Claims. (Cl. 200—169)

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My invention relates generally to contact makers and breakers, commonly referred to as "switches."

The main object of my invention is the provision of a circuit maker or breaker which is normally spring-urged into open circuit position, and which may be locked in circuit closing position by the action of a rockable member.

Another object of my invention is the provision of a circuit maker and breaker which comprises a rockable button pin-secured to a housing, in combination with spring means to normally keep the circuit "broken," against the tension of which spring means the rockable member may be shifted to close the circuit and further shifted to lock the circuit in closed position.

Another object of my invention is the provision, in a device of the character described, of an apertured button held captive in a housing, the aperture being generally T-shaped in cross section, the button being vertically shiftable along the leg of the T-aperture, and rockable from side to side along the arms of the T-aperture.

Other and further objects of my invention will in part be obvious and in part be pointed out specifically in connection with the following description of an illustrative embodiment thereof.

In the drawing annexed hereto and forming a part hereof,

Figure 1 is a front elevational view of one form of device constructed according to and embodying my invention, the figure showing my device attached to a portion of a housing member;

Figure 2 is a section on the line 2—2 of Fig. 1, showing the parts in "open" circuit relation;

Figure 3 is a view similar to Fig. 2, showing the parts in circuit closing position; and

Figure 4 is a view similar to Fig. 2 with the parts locked in circuit closing position.

My device comprises, in essence, a rockable button member having a generally T-shaped aperture therethrough, disposed within a recess in the housing, the rocking member being held captive within the housing by a cross bar which passes through the T-aperture. Spring means are provided which form part of the electrical circuit and which normally urge the rocking member upwardly in one position when the circuit is open, against the tension of which spring means the rocking member must be moved to urge the spring means into contact with the circuit bearing member and the rocking member thereafter shifted so that the cross bar is received within one of the arms of the T to lock the same into circuit closing position.

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My switch unit, indicated generally by reference numeral 10, may be disposed in any suitably prepared casing, panel or the like 12, into which the circuit ends or contacts are secured. As illustrated in Figs. 2, 3 and 4, one contact point, which is fixed on the casing or base member 18, is indicated by reference numeral 14. One end of the other contact 16 is fixed to the casing or base 18 at a point spaced from contact 14. A spring leaf member 20 is provided, of conductive material, and secured to contact 16 and extends therefrom towards contact 14. It should be understood that this securement of spring 20 may be varied as desired, the desiderata being the tensioning and locating of spring leaf 20 so that the contact end 21 thereof is normally aligned with but spaced away from contact 14 (as illustrated in Fig. 2).

A well or recess 30 is provided on the housing 12 in which is located a button 32 of non-conductive material, having a cap portion 34, a body portion 36, and a tip 38 projecting downwardly therefrom. An aperture 40 is formed through body 36, extending transversely thereof, the aperture 40 being generally T-shaped in cross-section and having transverse arm openings 42, 44 and a vertical leg opening 46, the extremities of all of which openings are curved. Also, the top line of aperture 40 is curved slightly, as illustrated. Button 32 is locked within well 30 as by a pin member 50 passing through aperture 40, the ends of pin 50 being countersunk or otherwise disposed within the walls of well 30. Pin 50 is circular in cross-section, and of diameter to fit snugly and be received within the curved end of openings 42, 44, 46.

With the parts assembled in the position of Fig. 2, it is seen that spring contact leaf 20 bears against tip 38, normally urging same upwardly, the cross-pin 50 being received within the vertically extending leg opening 46. In this relative positioning of the parts, the contact end 21 of spring 20 is aligned with but spaced away from contact 14, and so the electrical circuit is open.

When it is desired to close or "make" the electrical circuit, manual pressure is exerted downwardly against cap 34 of button 32, shifting tip 38 downwardly and bearing spring leaf 20 downwardly also and urging spring contact end 21 against contact 14, button 32 riding on shaft 50 until shaft 50 bears against the top line of the T-opening 40.

When it is desired to lock the parts in closed circuit position, button 32 may be rocked either

to the left or to the right, so as to bring shaft 50 into either of the T-arm openings 42 or 44. As illustrated in Fig. 4, when button 32 is shifted or rocked to the right, bringing shaft 50 into opening 42, the spring tensioning of leaf 20 will urge button 32 upwardly against fixed shaft 50, holding it there against shoulder 52. Similarly, if button 32 is rocked to the left, so as to cause shaft 50 to be received within T-arm opening 44, it will be held there against shoulder 54 by the urging of spring leaf 20. To unlock the device, button 32 must be shifted to center position (as shown in Fig. 3) and pressure on the button released, whereupon the tensioning of spring 20 will urge button 32 upwardly and the electrical circuit opened.

My device is simple to construct and operate. The parts are relatively few and easy to assemble, and positive in operation.

Having described my invention, what I claim and desire to secure by Letters Patent is:

1. A device of the character described for making and breaking an electrical circuit, comprising a base member, a pair of spaced contacts secured thereon, one of the contacts being fixed, the other comprising a conductive spring leaf member normally biased away from the first contact, a vertically and laterally shiftable button normally engaging the spring leaf member, vertical downward movement of the button bearing the spring leaf contact into engagement with the fixed contact to close the electrical circuit, lateral movement of the button in its down position thereafter locking the parts in the circuit closing position under the influence of the spring contact, the button being vertically and horizontally apertured and having a cross bar passing through the aperture the ends of which cross bar are secured within the sides of the base, holding the button captive thereon.

2. A device of the character described for making and breaking an electrical circuit, comprising a base member, a pair of spaced contacts secured thereon, one of the contacts being fixed, the other comprising a conductive spring leaf member normally biased away from the first

contact, a vertically and laterally shiftable button normally engaging the spring leaf member, vertical downward movement of the button bearing the spring leaf contact into engagement with the fixed contact to close the electrical circuit, lateral movement of the button in its down position thereafter locking the parts in the circuit-closing position under the influence of the spring contact, the button having an aperture extending horizontally therethrough, which aperture is generally T-shaped in cross-section, the ends of the T-arm openings being circular to receive therewithin a circular cross bar passing through the aperture holding the button captive.

3. A device of the character described for making and breaking an electrical circuit comprising a base member, a pair of spaced contacts secured thereon, one of the contacts being fixed, the other comprising a conductive spring leaf member normally biased away from the first contact, a captive button normally engaging the spring leaf member, the button being vertically and horizontally apertured, the apertures being in communication, a shaft extending transversely through the aperture on which the button rides, vertical downward movement of the button against the normal tensioning of the spring leaf bearing the spring leaf contact into engagement with the fixed contact to close the electrical circuit, horizontal movement of the button in its down position thereafter in either direction locking the parts in the closed circuit position, the spring contact maintaining the locked relation of the parts.

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