March 25, 1930. C. B. JOHNSON 1,752,091

DELAYED CIRCUIT BREAKING LIGHT SWITCH

Filed Nov. 25, 1929

Fig. 1.

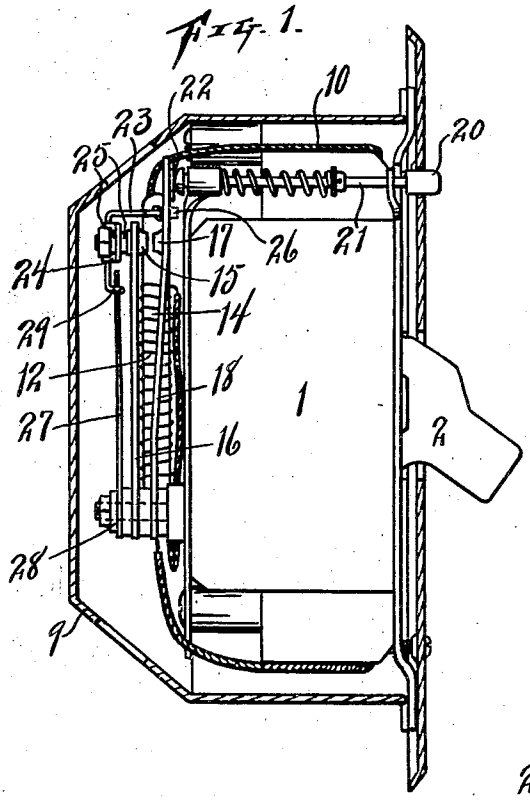


Fig. 3.

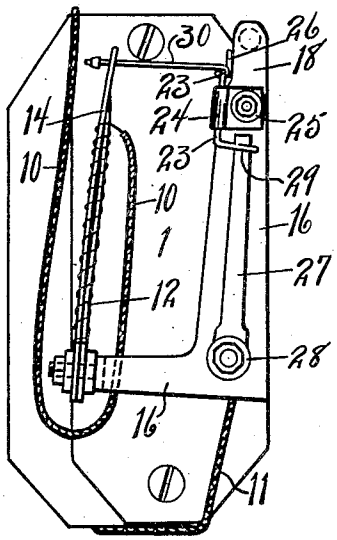


Fig. 2.

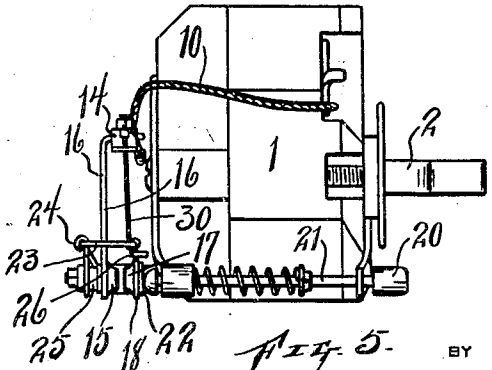


Fig. 4.

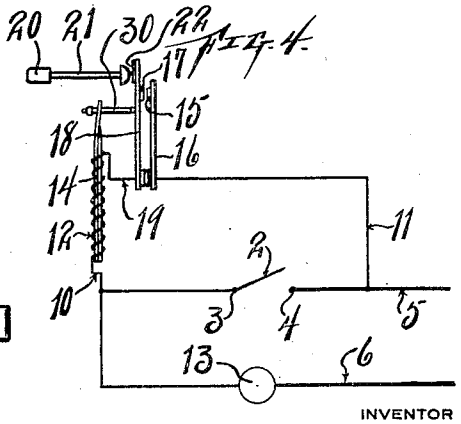
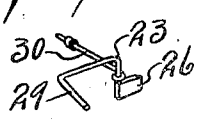


Fig. 5.



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UNITED STATES PATENT OFFICE

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DELAYED CIRCUIT-BREAKING LIGHT SWITCH

Application filed November 25, 1929. Serial No. 409,710.

My invention relates to light switches and more particularly to delayed circuit breaking light switches; and the object is to provide a supplemental switch mechanism for prolonging the burning of a light after the main switch has been turned "off", and to provide means for automatically breaking the circuit of the supplemental switch mechanism a short time after the main switch has been turned to "off" position. Such delayed switch is particularly desirable in bed-rooms and in many other rooms and offices. Other objects and advantages will be fully explained in the following description and the invention will be more particularly pointed out in the claims.

Reference is had to the accompanying drawings which form a part of this application.

Fig. 1 is a side elevation of the improved switch.

Fig. 2 is a plan view of the same.

Fig. 3 is a rear elevation.

Fig. 4 is a diagrammatic view of the wiring of both the standard and the improved switch.

Fig. 5 is a detail view of the detent for holding the contacts locked for delaying the breaking of the circuit.

Similar characters of reference are used to indicate the same parts throughout the several views.

This invention makes use of a block 1 of insulation and also a standard light switching mechanism including a switch lever 2 and contact points 3 and 4 and current wires 5 and 6, all of which may be inclosed in the regulation wall switch box 9. The improvement mechanism may also be inclosed in the box 9. The improvement includes wires 10 and 11. The wire 10 is connected to a winding 12, of a thermostat 14 having the usual bi-metallic bars of different co-efficients of expansion and connected to the wire 6 which extends through the light globe 13. The wire 11 is connected to a light circuit on the opposite side of the master switch 2 from the wire connection 10. The wire 11 is connected electrically to a fixed contact 15 through a bar 16. The wire 10 is electrically connected to a movable contact 17 through a bar 18 of spring metal and through a wire 19 leading from the winding 12. The contact points 15 and 17 are normally held apart by the spring metal bars 16 and 18. To make contact the bar 18 is actuated by a push-button 20 on a rod 21 which is adapted to bear on insulation 22 which is attached to the arm 18. When the contacts 15 and 17 are brought together or contact made, they are temporarily locked in contact as follows: When the bar 18 is pressed to contact making position, a catch or detent 23 will automatically lock the same. The detent 23 is a two-pronged lever fulcrumed in a bearing 24 which is mounted on and insulated from a base point of arm 16 by insulation 25. The engaging point 26 of the lever 23 normally rests against the contact bar 18. When the bar 18 is moved by the push button 20, the point or detent 26 will snap behind the bar 18 and thus hold the point 17 (carried by bar 18) in contact with point 15. The parts will thus remain in contact until they are separated by the thermostatic control 14. A spring 27 mounted on bar 16 and insulated therefrom by insulation 28 bears against the other arm 29 which causes the point 26 to snap behind the bar 18. The contact points 15 and 17 are separated by the thermostat 14 which carries and actuates a pull rod 30 which is mechanically connected to the detent 23, which releases the bar 18 when actuated by the rod 30. The catch 26 is normally held against the edge of the bar 18 by the spring 27.

The improvement may be put in operating position, but will not operate until the main switch is off. When the main switch is turned off the light will remain on until the thermostat operates the improvement mechanism automatically to turn the light off in a short period of time which period of time can be approximately predetermined. The resistance of the thermostat winding 12 prolongs the time for operating the improvement, as may be determined.

The improvement will operate without turning on the main switch, by pushing the button 20. The light will be turned on, but will last only until the thermostat causes the light to go out, as above described.

The main switch can be used as usual without being affected by the improvement because the improvement will not operate at all unless push button 20 is actuated.

With a given wattage line load, the time consumed in the delaying of the breaking of the circuit can be varied by varying the resistance of the winding of the thermostat.

With a given resistance of the windings on the thermostat, the greater the wattage load, or pull on the line from the socket represented with globe 13, in Fig. 4, the shorter the time consumed by the thermostat in effecting the final breaking of the circuit, and putting out of the light and vice versa. The delayed circuit breaking light switch will make it possible for a person to place the light switch on off position and retire safely in bed, or go out of the room, or leave a porch before the light goes out.

What I claim, is,—

1. In an electrical lighting apparatus provided with a circuit and a switch; wires connected to said circuit on opposite sides of said switch, a fixed contact point connected to said circuit on one side of said switch, a movable contact point and a spring bar carrying the same, a push-rod and a button carried thereby for actuating said spring bar for making contact with said contact points, a detent for automatically locking said points in contact and maintaining said contact, a thermostatic control electrically connected to said circuit on the other side of said switch, and electrically connected to said movable contact, and a pull-rod connected to said control and to said spring bar for breaking the contact.

2. In an electric lighting apparatus provided with a circuit and a switch; wires connected to said circuit on opposite sides of said switch, a fixed contact point connected to one arm of said circuit, a movable contact and a spring-bar carrying the same, a push-rod and a button carried thereby for making contact of said points, a detent and a bearing therefor, a spring-arm carried by said detent adapted to engage said springbar automatically to maintain said points in contact, a thermostatic control electrically connected to the other arm of said circuit and to said movable contact, and a pull-rod operatively connected to said control and said spring-bar for automatically breaking said circuit.

In testimony whereof, I set my hand, this 17th day of November, 1929.

CHARLES B. JOHNSON.