Aug. 17, 1926. 1,596,018

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THERMOSTATIC CUT OUT SWITCH AND PLUG

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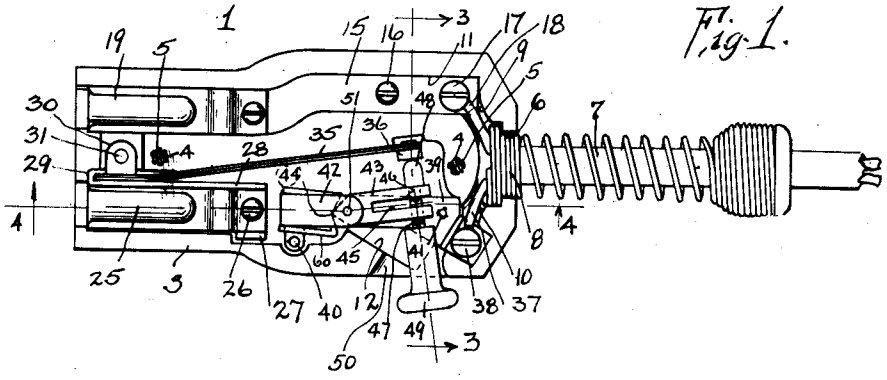


Fig. 1.

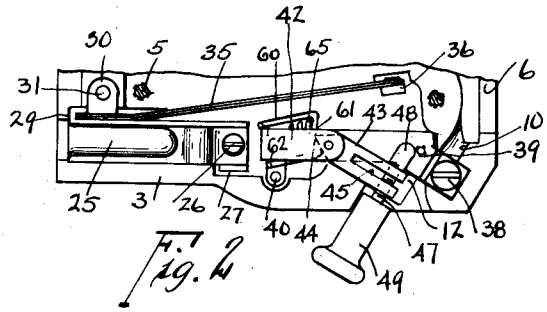


Fig. 2

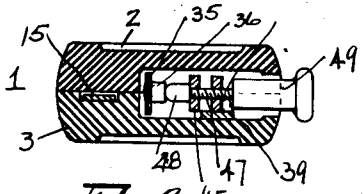


Fig. 3

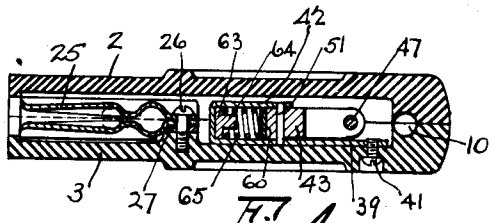


Fig. 4

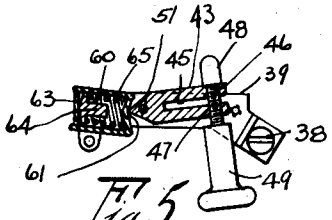


Fig. 5

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UNITED STATES PATENT OFFICE.

GUSTAVE MUELLER, OF CLEVELAND, OHIO.

THERMOSTATIC CUT-OUT SWITCH AND PLUG.

Application filed December 19, 1923. Serial No. 681,546.

The present invention relates to a thermostatic cut out switch for electrically heated sadirons and like devices where it is desirable to open the circuit upon a predetermined rise in temperature, and more particularly relates to a plug connection for such electrical device in which such switch may conveniently be housed so as to make it adaptable for use with sadirons now in use. The switch mechanism is mounted within the usual type of split connecting plug which is provided with an operating knob or the like extending outwardly of the plug so that the switch may be reset to close the circuit without disturbing the plug itself.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Fig. 1 is a plan view of the plug and switch mechanism with the cover of the plug removed; Fig. 2 is a fragmentary plan view of the switch in off position; Fig. 3 is a section on the line 3—3 of Fig. 1; Fig. 4 is a section on the line 4—4 of Fig. 1, and, Fig. 5 is a sectional view of a detail of the throw out mechanism taken at right angles to Fig. 3.

The present device comprises a split connecting plug 1, the cover 2 of which is removed but is similar to the body portion 3 and is provided with the necessary recesses, corresponding to those in the portion 3 to form the required interior chambers. The two plug portions are provided with two aligned apertures 4 to receive the screws 5 or the like used to secure the portions together. At one end the plug is provided with an aperture 6 to receive the extension cord 7 and the wire gripping spring 8 and the body portion has two recesses 9 and 10 extending into longitudinal recesses 11 and 12. In the recess 11 is mounted a conducting strip 15 held in place by a screw 16 and provided with a contact screw 17 at the top receiving one wire 18 of the cord 7. At the bottom the strip terminates in a split connecting spring 19 adapted to receive one of the usual conducting pins of the iron.

The other recess 12 is larger and is provided at the bottom with a split spring 25 which is secured at its top to the plug body by means of a screw 26, the screw passing through an apertured ear 27 of a connecting bar 28 which is looped at its lower end as at 29 and provided with a second ear 30 which is secured to the plug body by a screw 31 or the like.

In the loop 29 is mounted one end of a thermostatic bar 35 of composite construction which angles upwardly in the recess and is provided at its upper end with a contact lug 36. The other wire 37 of the extension cord is connected to a screw 38 of a second contact strip 39 secured to the plug body by screws 40 and 41. This strip is provided with a U-shaped lower end 42. The movable switch member comprises a bar 43 having a V-shaped lower end 44 and a split upper portion 45 having aligned tapped apertures 46 receiving an adjustable contact screw 47 provided with a contact knob 48 at its inner end and an operating knob 49 at the other end, the knob extending outwardly of the plug body through suitable slots 50 in the body and cover respectively. This bar 43 is pivotally mounted on a pin 51 extending through apertures in the U-shaped end 42.

The bar 43 is spring actuated so as to positively throw both to the on and off position. In the U-shaped end 42 of the contact strip is mounted an inverted rocking member 60 having a depression 61 at the top in which the V end 44 of the bar 43 rocks. The lower ends 62 of the member 60 pass below the bottom of the end 42 of the contact strip. In the chamber formed by the inverted member and the end 42 is mounted a rock piece 63 having a rounded or V-shaped bottom and an upwardly extending pin 64. A coil spring 65 is mounted on the pin between the rock piece and the depression 61 in the top of the rocking member, thus normally pressing this member upwardly against the pivotal bar and holding it in either its on or off position and causing it to break or make contact with a snap action to prevent arcing.

The device may be adjusted to throw out for different temperatures by moving the adjustment screw 47 in or out and thus varying the in position of the screw and pivotal bar 43. The split bar end holds the adjusting screw tight enough to prevent accidental rotation and corresponding change in adjustment.

The entire device is compactly mounted in a connecting plug of convenient size and is

a self contained unit which may be used with any electrical heating device, such as a sadiron, electric toaster or the like and it protects the entire device against overheating as well as to allow a predetermined maximum temperature to be used. Furthermore, the operating knob makes a convenient cut out switch for the operator so that no extra switch is necessary. The operating mechanism is simple and sturdy and easy to manufacture and assemble.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a thermostatic cut-out switch and plug the combination with a hollow plug member having contacts, of a movable thermostatic member connected to one contact, a switch member pivotally mounted in the plug body and provided with a contact extending exteriorly of said body, said switch member being resiliently held in both its closed and open positions and being adapted to snap open upon a predetermined movement of said thermostatic member, said contact member being provided exteriorly of the body with a handle to operate the switch independently of the thermostatic member.

2. In a thermostatic cut-out switch and plug the combination with a hollow plug member having contacts of a movable thermostatic member connected to one contact, a switch member pivotally mounted in the plug body and provided with an adjustable contact extending exteriorly of said body, said switch member being resiliently held in both its closed and open positions and being adapted to snap open upon a predetermined movement of said thermostatic member, said adjustable contact member being provided exteriorly of the body with a handle to operate the switch independently of the thermostatic member.

3. In a cut-out switch construction, the combination of a movable thermostatic element connected in the circuit, a pivotally mounted switch member connected in the circuit, resilient means adapted to throw said switch member into its off position after predetermined movement, and a contact member mounted in said switch member and adapted to contact said thermostatic element to close the circuit, said contact member also forming a handle for independent manual operation of said switch.

4. In a connecting plug for sadirons and the like, the combination with a plug member having a hollowed-out body portion and connecting contacts therein, a movable switch member mounted in said body, a thermostatic element in said body adapted upon movement to move said switch member to its off position, and an adjustable contact carried by said switch member for setting the throw-out position of the latter for varying predetermined temperatures, said adjustable contact extending exteriorly of the plug body and serving as a manually operated handle for operating said switch independently of said thermostatic element.

5. In a cut out switch construction, the combination of a movable thermostatic element connected in the circuit, a pivotally mounted switch member connected in the circuit, resilient means adapted to throw said switch member into its off position after predetermined movement, and a contact member adjustably mounted in said switch member and adapted to contact said thermostatic element to close the circuit, said contact member also forming a handle for independent manual operation of said switch.

6. In a cut out switch construction, the combination of a movable thermostatic element connected in the circuit, a pivotally mounted switch member connected in the circuit, a resilient means adapted to throw said switch member into its off position after predetermined movement, and an adjustable contact member having screw threaded connection with said switch member for setting said switch to cut out at varying predetermined temperatures, said contact member being provided at one end with a contact adapted to close the circuit through said thermostatic element and having an operating knob at the other end adapted to allow said switch to be operated independently.

Signed by me, this 15th day of December, 1923.

GUSTAVE MUELLER.