AUTOMATIC CONTROL FOR ELECTRIC IRONS.

1,378,082.

To all whom it may concern:

Be it known that I, CHARLES B. YODER, a citizen of the United States, residing at Webster Groves, in the county of Saint Louis and State of Missouri, have invented a new and useful Automatic Control for Electric Irons, of which the following is a specification.

My invention relates to improvements in automatic control for electric irons, and my object is to provide an electric iron, having a switch for control of electric energy, with means, of simple and inexpensive construction for automatically operating the switch, comprising an element susceptible to expansion by heat, and arranged to “cut off” the switch upon reaching a predetermined heat maximum.

My improvements consist in the novel construction, arrangement and combination of the elements as hereinafter fully, clearly and concisely set forth, definitely pointed out in my claims and illustrated by the accompanying drawing, in which—

Figure 1 shows in plan an iron constructed in accordance with my invention.

Fig. 2 is a longitudinal sectional elevation of the iron, and

Fig. 3 is a fragmental, sectional plan view, taken approximately on the line designated 3—3 of the Fig. 2.

Referring by numerals to the drawings 4 designates the iron, proper, which, as is common, is constructed with a smooth-finished surface 5, and provided with a head 6, secured to the iron proper 4 by screws 7.

Between the iron proper and its head 6 there is placed a heating element 8. Surrounding the head is a finish hood 9, which is secured to the head by a screw 10 and secured to the hood is a bow 11 to which the operating handle 12 is secured.

13 designates an electric switch comprising a push button 14 and a leaf contact or circuit making and breaking device 15, binding screws 16 for service wires and conductors (not shown) leading to the heating element 8, through the insulating tubes 17.

50 Formed longitudinally through the iron proper there is a bore 18 having a thread 19 within its length arranged to receive a rod 20 of greater coexspansive efficiency than iron proper, such for example as an aluminium rod. This rod is provided with an enlarged and externally threaded head 21 having rotating means such as the “driver” slot 22.

Formed vertically through the iron near its heel there is a cavity 23, intersecting the bore 18 and arranged to receive a bearing 24 in which there is pivotally mounted a bell crank lever 25 whose short arm is arranged to engage the end of the rod 20 and whose upper end extends upwardly through a hole 26 formed in the hood 9. A spacer, or distance block is secured to the handle and its bow and extended transversely therethrough is a pin 27 on which there is carried a cam 28 which operates the circuit maker and breaker 15. This cam is provided with a notch 29 into which the upper end of the long arm of the bell-crank 25 is fitted, so that upon an expansion of the rod 20, upon a predetermined temperature, the bell-crank effects a rotation of the cam 28 to an extent to free or “break” the circuit maker and breaker 15, and hold it in broken circuit until restored by a manipulation of the push button, which latter can only be effected after the iron has been sufficiently cooled.

The cam is actuated in one direction by a coil spring 30 (Fig. 3) and so long as the bell-crank is not moved by the expansion rod 20 the cam serves to hold the circuit maker and breaker in closed position.

Assuming the iron to be properly connected with a source of electrical energy, the iron cool and the circuit broken by the switch, the operator depresses the push button 14 to establish circuit with the heating element 8. In this condition the spring 30 is holding the cam 28 in a position to maintain the circuit. Assuming now that the iron reaches a temperature above what is necessary or desired, it will be apparent that there will be linear expansion of the rod 20, which being held against longitudinal movement by its threaded head 21 its rear end will be extended to engage and operate the bell-crank 25. Upon a rocking of the crank 25 the cam 28 is rotated and its face freed or moved to allow the “leaf” circuit maker to “break”, thus cutting off the supply of energy to the heating element.

I claim:

1. In combination with an electric iron having a circuit controlling switch, a switch operating means comprising a cam for engagement with the circuit making and breaking device, a bell crank for engage-
ment with the cam and a rod, susceptible of linear expansion by heat, acting upon said bell-crank.

2. An iron of the class described having a bore formed therethrough, a rod, of greater coexpansive efficiency than said iron, extended through said bore, means for holding one end of the rod against movement, a bell-crank acted upon by said rod, a cam movable by said bell crank, a switch, operable by said cam, and a heating element in circuit with the switch.

CHARLES B. YODER.