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1,459,451

J. M. SECHE

ELECTRIC IRON

Filed Feb. 6, 1923

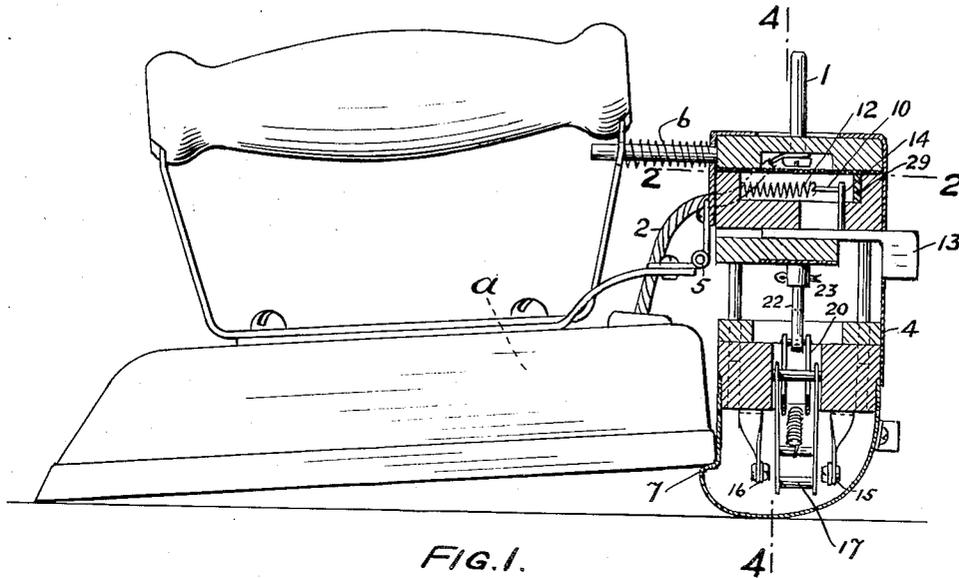


FIG. 1.

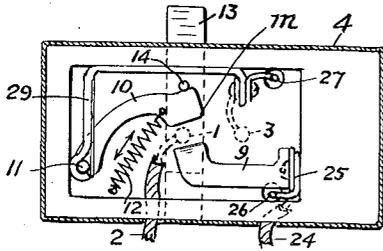


FIG. 2.

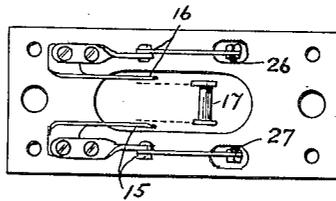


FIG. 3.

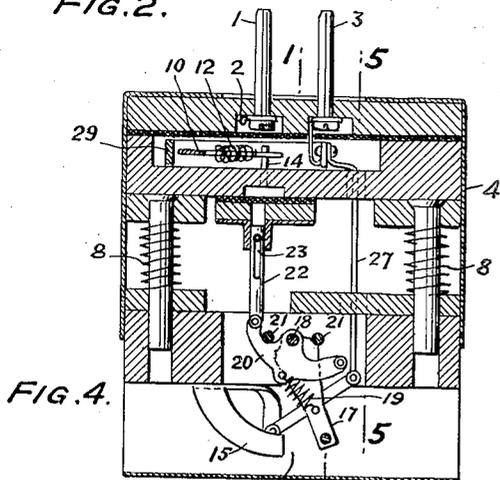


FIG. 4.

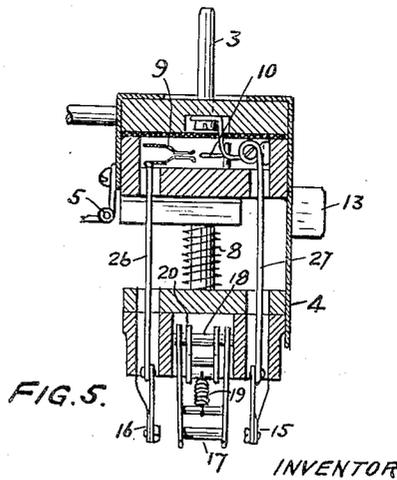


FIG. 5.

WITNESS:

Prof. Kitchel.

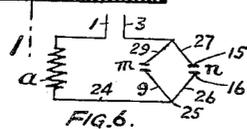


FIG. 6.

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ELECTRIC IRON.

Application filed February 6, 1923. Serial No. 617,252.

To all whom it may concern:

Be it known that I, JOSEPH M. SECHE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Electric Irons, of which the following is a specification.

The principal object of the present invention is to simplify and improve and make more certain the operation of automatically breaking the circuit to prevent the heat of the iron from accidentally starting fires when the iron is in any position in which it could start such fires. Another object of the invention is to provide for satisfactorily opening and closing the heating circuit when the iron is used in connection with a source of direct current supply. Another object of the invention is to guard against defeat of the automatic circuit control if its spring actuating means should become ineffective by over-heating or other causes. Other objects of the invention will appear from the following description at the end of which the invention will be claimed and in connection with which reference will be made to the accompanying drawings forming part hereof.

In the drawings—

Figure 1 is a side view, partly in section, on the line 1—1 of Fig. 4 of an electric iron embodying features of the invention.

Fig. 2 is a sectional view taken on the line 2—2 of Figure 1.

Fig. 3 is a partial plan looking upward, of the mechanism shown at the lower right-hand portion of Figure 1.

Figure 4 is a sectional view taken on the line 4—4 of Figure 1.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4, and

Fig. 6 is a diagrammatic view of circuit connections.

In the drawings one terminal 1 is connected by a wire or conductor 2 to one terminal of the heating element *a* of the iron, not shown in detail because too well understood. The other terminal 3 is connected through two switches in parallel relation and of which one, generally indicated at *m*, is shown in Fig. 2, and the other, generally indicated at *n*, is shown in Fig. 3, and then to the other terminal of the heating element *a*. The switches *m* and *n* operate to

make and break only one side of the circuit through iron and this simplifies the insulation. The switch *m* is arranged at a higher level than the switch *n* in the embodiment shown in the drawing. Referring to Fig. 1, the switches *m* and *n* and their conductors are arranged in a housing 4 disposed at the heel of the iron and pivoted thereto as at 5, and spring pressed as at 6 to cause the lip 7 on the housing to normally engage under the face of the iron and hold it in elevated position, as shown in Fig. 1, yet when the iron is pressed down and moved forward the spring 6 yields and permits the lip to clear the iron by the turning of the housing on the pivot 5, it being understood that the housing consists of two elements in sliding relation and pressed apart by springs 8, Fig. 4, which are the means for elevating the heel of the iron and permitting of its descent under pressure as in ironing. The switch *m* consists of a fixed pair of spring elements 9, Figs. 2 and 5, and of a movable bridge contact 10, pivoted at 11 and acted upon by a spring 12, which is normally in compression as indicated by the double-headed arrow in Fig. 2, and which tends to turn the contact arm 10 counter clockwise in that figure. A button or the like 13 is adapted to be projected by the spring 12, in its effort to expand, through the intervention of a pin 14 connected with the shank of the button and in range of the movable contact element 10. The spring 12 therefore tends to interrupt the path at the switch *m* and this path is only closed when the iron is up-ended thereby pushing the button 13 in. The button 13 being quickly freed when the iron is picked up or falls over the spring 12 acts quickly and the circuit is broken quickly, which, in the case of direct current, is advantageous and in the case of alternating current is not undesirable. The switch *n* consists of two fixed contact elements 15 and 16, Fig. 3, and of a movable element 17 adapted to bridge them. The movable element 17 consists of a ladder-like structure or frame pivoted as at 18 and having two rounds one of which is the bridge proper and to the other of which is connected one end of a tension spring 19. The other end of the spring 19 is connected with a yoke 20 pivoted at 18 and having a range of motion between the stops 21. The yoke 20 is connected with a rod 22 having slot and

pin connection 23 with the relatively fixed upper section of the housing so that when the heel of the iron is pushed down it carries the upper section of the housing 4 toward the lower section of the housing and at an appropriate stage in this motion the pin of the connection 23 pushes down the rod 22 which turns the yoke 20 counter clockwise in Fig. 4 throwing the point of attachment of the spring 19 of the yoke to the right of the center line thereby quickly moving the frame 17 in clockwise direction to bridge the contacts 15 and 16. When the iron is released the springs 8 separate the two elements of the housing 4 and the described movement of the frame 17 and parts connected therewith is reversed with the result that the circuit path is quickly interrupted at the contacts 15 and 16. The advantage of this quick or snap action has been above referred to in connection with the switch *m*. The path for the circuit may be described as follows: From 1, by 2, through *a* by 24 and thence by branch at 25, by 26, to contact 16 of switch *n*, and then by contact 15 of switch *n*, by conductor 27 to terminal 3. The other branch is by conductor 9 to contact of switch *m* and then by 29 to terminal 3. Thus it will be understood that when the path is interrupted at both *m* and *n*, no current can reach the iron and that is the condition of affairs in all positions of the iron except two. When the iron is up-ended the switch *m* is closed and the iron is heated by the passage of current but in up-ended position the iron, though heated, cannot set fire to anything. When the iron is in use and pressed down to its work the switch *n* is closed and the iron is heated only so long as it is pressed down.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of construction and arrangement without departing from the spirit of the invention which is not limited as to those matters or otherwise than

as the prior art and the appended claims may require.

I claim:

1. For an electric iron having a circuit and terminals and a heating element in said circuit, the combination of a pair of switches disposed in parallel relation in one side of said circuit between one terminal and the element, and means for closing said switches which are operative in up-ended and in ironing positions of the iron.

2. For an electric iron having a heating element the combination of two switches in parallel relation to each other and in series relation to the heating element of the iron, springs for actuating the contacts of said switches, and means for making said springs effective in two positions of the iron, substantially as described.

3. For an electric iron having terminals, and a heating element, the combination of a circuit from the terminals to the heating element and of which one side includes two branches, a switch in one branch, means for working said switch by up-ending the iron, two housing elements at the heel of the iron and of which one is spring pressed beyond the face of the iron, a pivotal yoke and a pivotal frame carried by one of said housing elements and a spring connecting the yoke and frame, means connected with the other housing element and the yoke, and contacts interposed in the second branch and co-operating with the frame, substantially as described.

4. For an electric iron the combination of a housing consisting of two elements of which one is pivotally connected with the iron and of which the other is movable in respect to the first and is provided with a lip for engaging the heel of the iron, a spring interposed between the iron and pivotal element, a spring interposed between the two elements, and switches and electrical connections carried by said elements.

JOSEPH M. SECHE.