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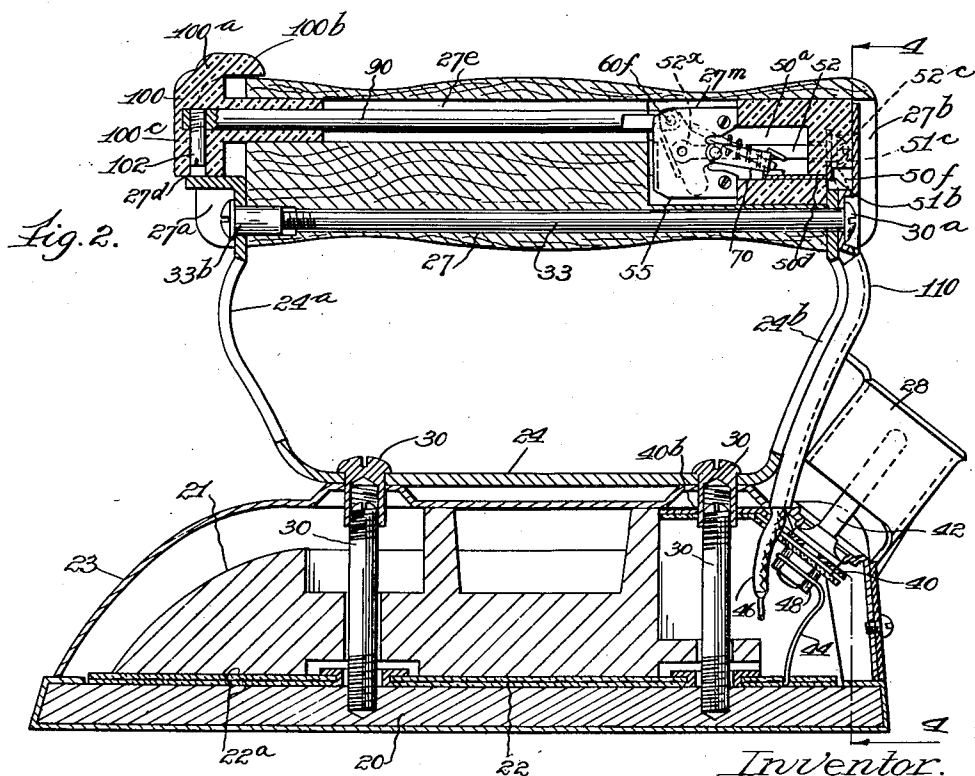
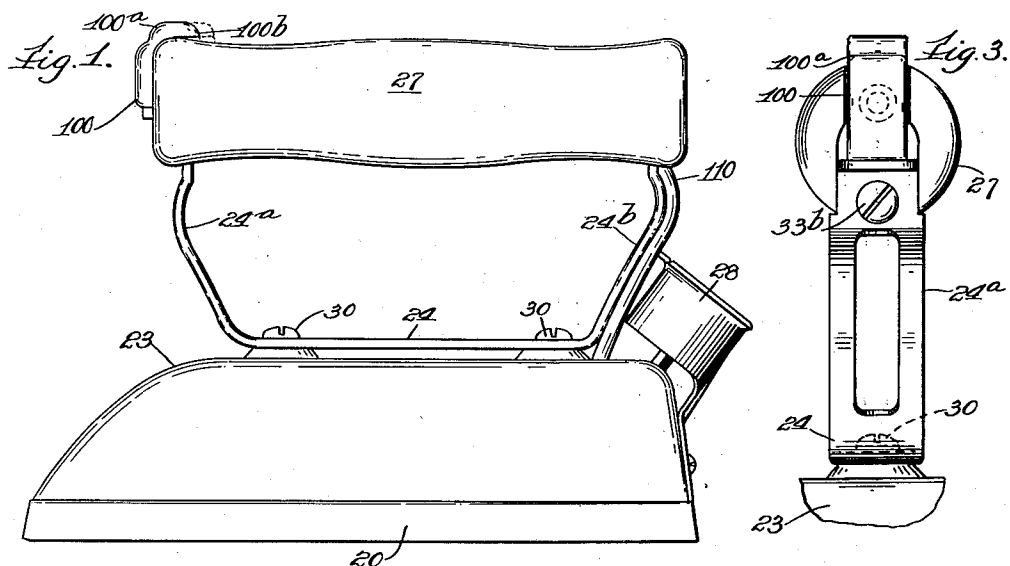
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1,765,401

ELECTRIC LAUNDRY IRON SWITCH

Filed Dec. 14, 1927

2 Sheets-Sheet 1



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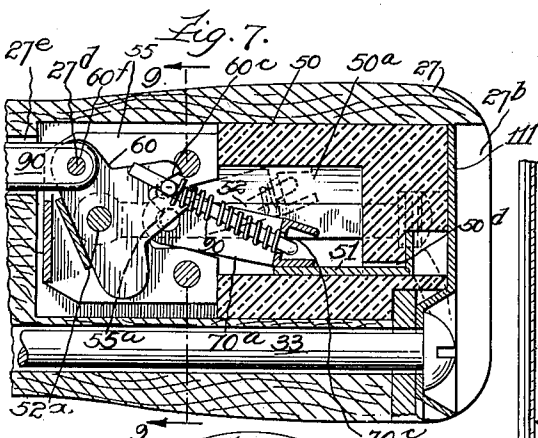
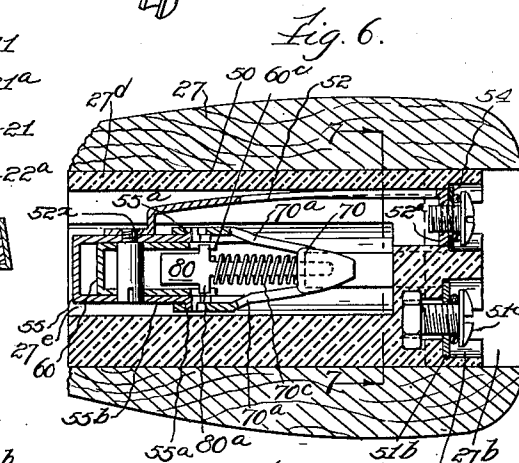
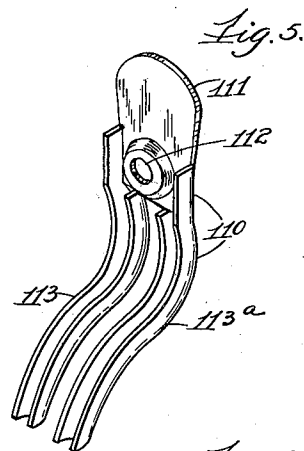
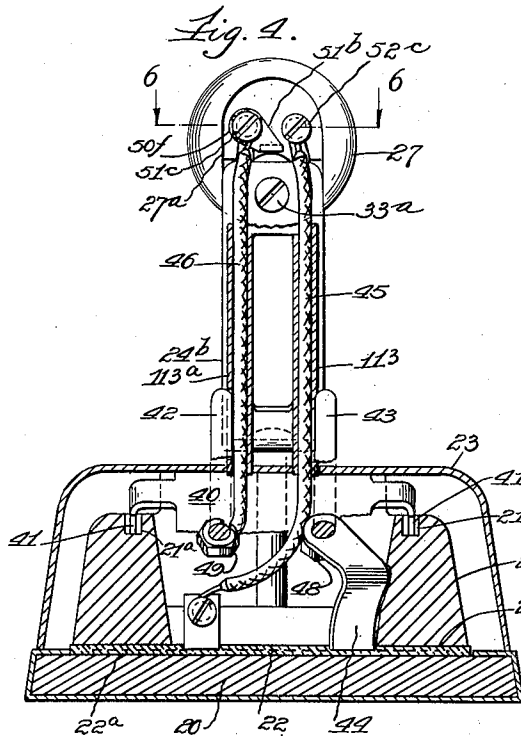
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ELECTRIC LAUNDRY IRON SWITCH

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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

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ELECTRIC LAUNDRY-IRON SWITCH

Application filed December 14, 1927. Serial No. 239,832.

The purpose of this invention is to provide an improved construction of an electric iron and the like having the switch for controlling the circuit by which the heating element is energized located in a hand-piece of the handle of the iron with the operating member of the switch exposed in convenient position for actuation by the hand of the user of the iron without releasing the grasp upon the hand-piece; and specifically to provide mountings and connections for the inleading circuit and branches to the switch, and to the heating element which may be readily connected and insulated and accessible for renewals and replacements with minimum liability of short-circuiting and other inconveniences. It consists in the elements and features of construction shown and described as indicated in the claims.

In the drawings:

Figure 1 is a side elevation of a laundry iron equipped according to this invention.

Figure 2 is a longitudinal vertical section of the same.

Figure 3 is a rear end elevation of the handle member.

Figure 4 is a section at the line 4—4 on Figure 2.

Figure 5 is a perspective view of a cover for protecting the circuit wires extending between the heating element and the hand piece.

Figure 6 is a section at the line 6—6 on Figure 4.

Figure 7 is a section at the line 7—7 on Figure 6.

Figure 8 is a section at the line 8—8 on Figure 4.

Figure 9 is a section at the line 9—9 on Figure 7.

The structure shown in the drawings comprises a body consisting of a sole plate, 20, a cast iron body member, 21, constituting a reservoir and equalizer for the heat generated in the heating coil indicated in dotted line at 22 on Figure 8, between mica insulating plates, 22^a, 22^b, seen in Figure 2, according to customary construction. The body may be construed as comprising also the cover shell, 23, which encloses the body

member, 21, and the circuit wires and connections leading to and from the heating coil at the rear end of the iron, said shell being secured in position for covering said parts by the handle connections as hereinafter described. The handle comprises a U-shaped handle support, 24, with front and rear uprights, 24^a and 24^b, to whose upper ends there is secured a hand-piece, 27, hereinafter more particularly described. 28 is the guide socket for the plug terminal of the customary cable for connecting the iron with a source of current.

The handle is attached to the body by means of bolts, 30, 30, which serve also for securing the cast iron body, 21, to the cover shell, 23, said bolts extending through all said parts and being screwed onto the sole plate, 20, as seen in Figure 2.

The hand-piece, 27, is recessed at its front and rear ends, as seen at 27^a and 27^b, said recesses being cut through at the lower side so that the hand-piece may be entered vertically between the upstanding standards, 24^a and 24^b, for securement by a tie rod, 33, having at the rear end a head, 33^a, by which it is stopped against the rear supporting standard, 24^b, and having a headed nut, 33^b, for securing and stopping it against the forward upright support, 24^a, and clamping the hand-piece between said upright supports, said hand-piece being bored from end to end quite near the lower side to admit said tie rod, as seen in Figure 2.

For mounting the contact pins, 42 and 43, of the usual form for engagement of the plug terminals of the cable for connection with a source of current, a plate, 40, is lodged upon the upper side of the cast iron body member, 21, positioned with respect thereto by downwardly bent lugs, 41, 41, which engage holes, 21^a, 21^a, provided for that purpose in the upper surface of the body member, 21, said plate being further positioned and held in place by the rear bolt, 30, which extends through an aperture, 40^b, in the plate, 40. The contact pin, 42, is connected with one end of the heating coil by a conducting strip, 44, and a conducting wire having insulated covering extended

from the other end of the coil up through the plate, 40, behind the handle upright, 24^b, for connection with the switch, hereinafter described, from which a conducting wire, 46, having insulated covering extends down parallel with the wire, 45, and through the plate, 40, below which it is connected to the contact post, 43, the switch hereinafter described completing the circuit through the heating coil from contact pin to contact pin. The conductor wires, 45 and 46, are protected by their insulating covering where they pass through the plate, 40, and the connection of the strip, 44, and wire, 45, to the contact pins is made in the usual manner by clamping nuts, 48 and 49 screwed onto the lower ends of the pins below the plate, 40.

The switch comprises an insulating mounting and housing of porcelain, bakelite and the like, which, with the parts mounted thereon, as about to be described, is dimensioned for fitting snugly in a chamber, 27^m, formed in the rear end of the hand-piece, 27, from the upper forward corner of which a bore, 27^e, constituting an extension of said chamber, leads to the forward end of the hand-piece for accommodating a switch-actuating rod, as hereinafter described. The mount, 50, is itself chambered, as seen at 50^a, to accommodate the switch and circuit connections thereto and therefrom. One of said connections consists of a metal clip, 51, right angular in form having its longer horizontal limb, 51^a, inserted through an aperture, 50^d, leading from the rear end of the mount into its chamber, 50^a, and its shorter upright limb, 51^b, being accommodated in a recess, 50^f, in the rear end of the mount in which recess the upper end of the conducting wire, 46, is clamped to the outer side of said upright limb, 51, by a binding screw, 51^c. The other circuit connection is a metal strip, 52, secured at one end, as seen at 52^x, to the support, 55, of switch levers, 60 and 70, hereinafter described, and extending rearward in the chamber, 50^a, of the mount, and at its rear end bent at right angle to form a rearwardly facing lug, 52^a, provided with a threaded aperture which receives a binding screw, 52^c, which binds against said lug, 50^a, a washer, 54, between which and the head of the screw, 52^c, the end of the circuit wire, 45, is clamped. For carrying switch levers, a U-shaped metal support, 55, is embedded in the mount, 50, at the forward end thereof, and a U-shaped lever, 60, of which the two limbs are pivoted at a point near the yoke of its U-form between the limbs of the U-shaped support, 55, to which a second U-shaped switch lever, 70, is pivoted by the extremities of the two limbs, 70^a, 70^b, of its U-form having apertures, 70^b, 70^b,

engaging short segments, 55^a, 55^a, struck in from the corresponding limbs, 55^b, 55^b, of the support, 55. The ends of the limbs, 60^a, 60^a, of the lever, 60, are notched at 60^c, 60^c, and the yoke of the lever, 70, has an aperture, 70^c, and a T-rod, 80, has the ends, 80^a, of its cross member engaged in the notches, 60^c, while the T-stem is engaged loosely in the hole, 70^c, and a coil spring, 90, on the T-stem under compression reacts between the free ends of the levers, 60 and 70, tending to prevent the points of pivotal engagement of the T-rod with the levers coming into line with the fulcrums of the two levers, 60 and 70, and thereby producing snap action of the levers when by any means the lever, 60, is rocked about its fulcrum to carry the pivot of the T-rod to said levers, 60, past the fulcrum of the lever, 70. The lever, 60, is dimensioned forwardly of the plane of its fulcrum and the notches 60^c, so as to have a pivotal connection with a thrust rod, 90, at 60^f, distant from the fulcrum as far as the pivotal connection of the T-rod at the notches, 60^c, 60^c, is from said fulcrum, thus giving the lever, 60, the operative form of a right-angled-bell-crank lever of which one arm is connected with said thrust rod and the other by the T-rod with the remote end of the lever, 70. And when the thrust rod is operated as hereinafter described for swinging the bell crank lever, 60, from the dotted line position to the full line position shown in Figure 7, the lever, 70, is snapped over from the dotted line position of said figure to the full line position; and at the latter position the end of the lever, 70, is lodged and pressed by the reaction of the spring, 90, against the conductor, 51, closing the circuit through the switch and heating coil. And upon the rod, 90, being thrust rearward to rock the bell crank lever, 60, to dotted line position in Figure 7, the lever, 70, is snapped over to the dotted line position where it is held by the spring, 90, against the upper side wall of the chamber of the insulating mount, 50, breaking the circuit and de-energizing the heating coil.

The operating rod, 90, is accommodated, as mentioned above, in the bore, 27^e, which extends through the hand-piece toward the upper side thereof, said bore constituting a continuation of the chamber in the hand-piece in which the mount, 50, is lodged at the rear end of the hand-piece. At the forward end of the hand-piece the thrust rod, 90, is provided with an insulating thumb-piece, 100, which is extended forwardly of the hand piece and preferably furnished with an upwardly extending projection, 100^a, which at the rear side is furnished with a lip, 100^b, projecting over the end of the hand-piece and thereby engaging with it

to prevent accidental turning of the rod in the manipulation for operating the switch. The thumb piece, 100, is secured to the rod, 90, by a pin, 102, set in through the lower side of the thumb piece and screwed into the end of the rod, 90, as seen in Figure 2. For additionally guarding against the accidental turning of the rod, 90, the thumb piece, 100, has a downwardly extending projection, 100^c, through which the pin, 102, is set, as mentioned, the lower end of said downward projection being flat-faced for lodging and sliding upon the upper end of the forward metal support, 24^a, which is formed at its upper end, as seen in Figure 2, to afford a flat horizontal slideway, as seen at 27^a, co-operating with the flat end of the downward projection, 100^c, of the thumb piece, and serving the further purpose of receiving the down thrust of the thumb piece in the hand piece.

From the above description it will be understood that the operator grasping the hand-piece, 27, in ironing, can readily manipulate the thrust rod, 90, for operating the switch to connect or disconnect the heating coil with the energizing circuit, pressing the thumb piece forwardly to close the circuit, putting the switch levers in the position shown in full line in Figure 7, and pressing it rearwardly to set the switch levers shown in dotted line in Figure 7, de-energizing the heating coil.

For protecting the circuit wires, 45 and 46, there is provided a cover member which, as shown, is a metal stamping, 110, comprising two concave parallel fork arms, 113, 113^a, extending from a flat web, 111, for covering the wires, 45 and 46, respectively, said cover being secured by the tie bolt, 33, which enters through an aperture, 112, in the flat web, 111, which web serves to close the rear end recess, 27^b, in the hand-piece, 27.

I claim:

1. In combination with a handle of a manually operable electrically energized implement, a switch for controlling the energizing circuit mounted in the hand piece of the handle at the rear end thereof; a switch-operating rod extending in the upper part of the hand piece longitudinally thereof having a manually engageable terminal positioned forward of the front end of the hand piece and projecting transversely past said end for exposure to manipulation by the fingers of the operator's hand to actuate the switch rod longitudinally for operating the switch while grasping the hand piece.

2. In combination with the hand piece of a handle of a manually operable electrically energized implement, a switch for controlling the energizing circuit located in the hand piece at the rear end thereof; hand piece supports at the rear and forward ends of the hand piece lapped on said ends re-

spectively; a tie rod extending longitudinally through the hand piece at the lower part thereof for tying the supports together against the opposite ends of the hand piece, a switch-operating rod slidably mounted in the hand piece above the tie rod and extending from the switch at the rear end to the forward end of the hand piece, and a terminal member carried by said rod exposed forwardly of said forward end of the hand piece for actuation by the operator's hand for sliding the rod to open and close the switch while grasping the hand piece.

3. In combination with a chambered hand piece of the handle of a manually operable electrically energized implement, an insulating mount for the energizing circuit connections and switch, fixed in the chamber of the hand piece; uprights for supporting the hand piece lapped at their upper ends on the opposite ends of the hand piece, and a tie rod for connecting the lapped ends of the supports extending longitudinally of the hand piece having its entire length lower than said insulating mount.

4. In combination with the chambered hand piece of the handle of a manually operable electrically energized implement, a switch for controlling the energizing circuit mounted in the chamber of the hand piece at the rear end of said hand piece; a switch-operating rod extending from said chamber, the handle comprising a standard having uprights at whose upper ends the hand piece is mounted, a tie rod extending longitudinally through the hand piece, a channeled cover for inleaving circuit wires arranged to be mounted at the rear side of the rear upright for housing said wires in its channels, said cover having an aperture at the upper part for engagement by the tie rod and terminating above said aperture in a web closing the rear end of the hand piece chamber.

5. In a manually operable electrically energized implement, a handle having an axially chambered hand piece and a supporting standard comprising front and rear uprights formed at their upper ends for lapping the open ends of the hand piece; a tie rod extending longitudinally through said chamber and secured at its ends to said upper ends of the uprights; a metal stamping formed to fit on the rear side of the rear upright and having channels for housing circuit wires between it and said upright, and at the upper end apertured for engagement by said tie rod, and terminating above said aperture in a web closing the rear end of the hand piece chamber.

6. In a manually operable electrically energized implement, an operating handle having a chambered hand piece, an insulating mount for circuit connections and switch parts, fixed in the hand piece chamber; a

circuit-controlling switch device consisting of a support carried by the insulating mount and two lever arms fulcrumed on said support for alignment longitudinally of the handle and extending from their fulcrums, the first toward the fulcrum of the second, and the second in the same direction farther than the first; a spring re-acting between the ends of the two levers yieldingly resisting their approach to cause snap swing of the second lever when the first lever is rocked to carry the two springs in alignment with each other, the first lever having an arm extending transversely of the position of alignment of the two levers, and an operating member connected to said arm for rocking the first lever about its fulcrum to carry the spring connection of said lever past the fulcrum of the second lever, and thereby to cause snap swing of the second lever past the alignment of the two lever fulcrums; and circuit members of which one is extended into connection with the lever support and the other to a position for encounter with the free end of the second lever at one limit of its snap swing.

In testimony whereof I have hereunto set my hand at Chicago, Illinois, this 10th day of December, 1927.

GEORGE BROWNING.