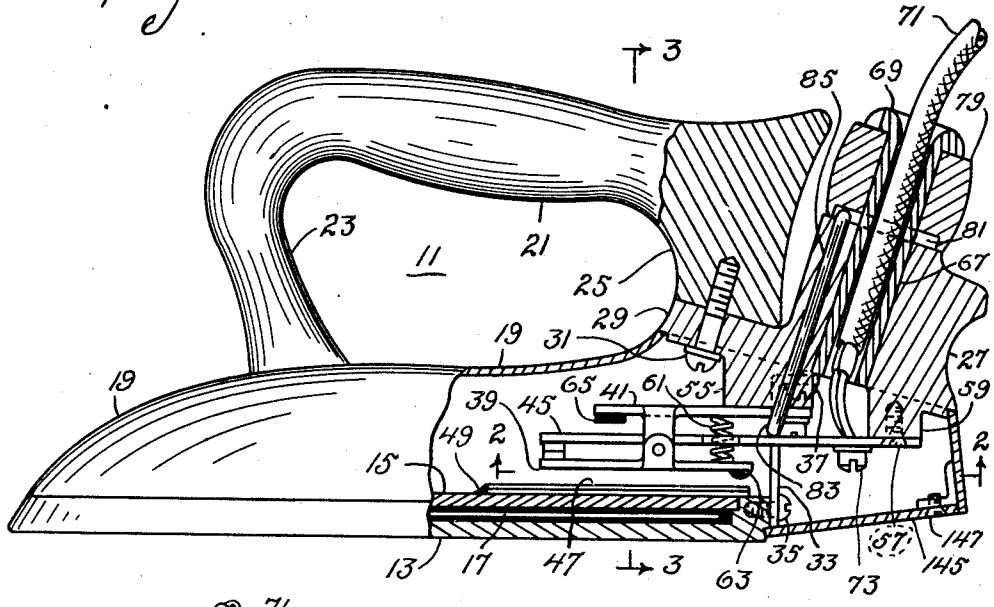
May 6, 1947. B. M. RIKER 2,420,195

ELECTRIC SADIRON

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Fig-1



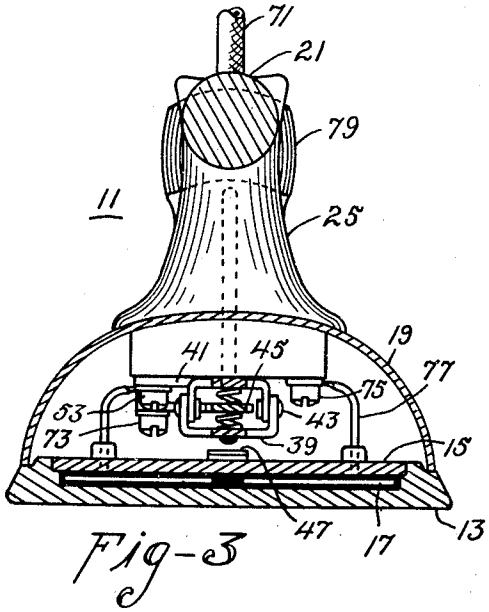


Fig-3

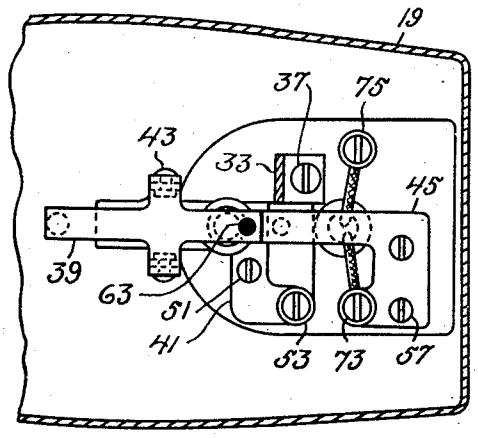


Fig-2

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ELECTRIC SADIRON

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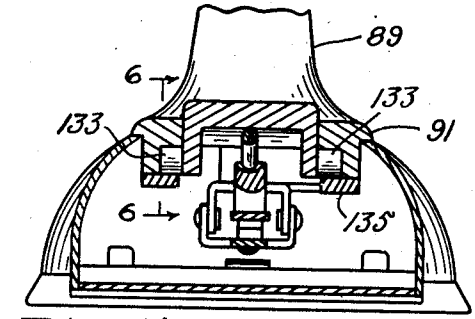


Fig-5

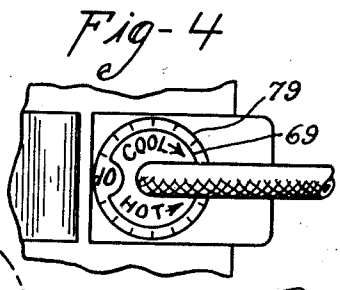


Fig-4

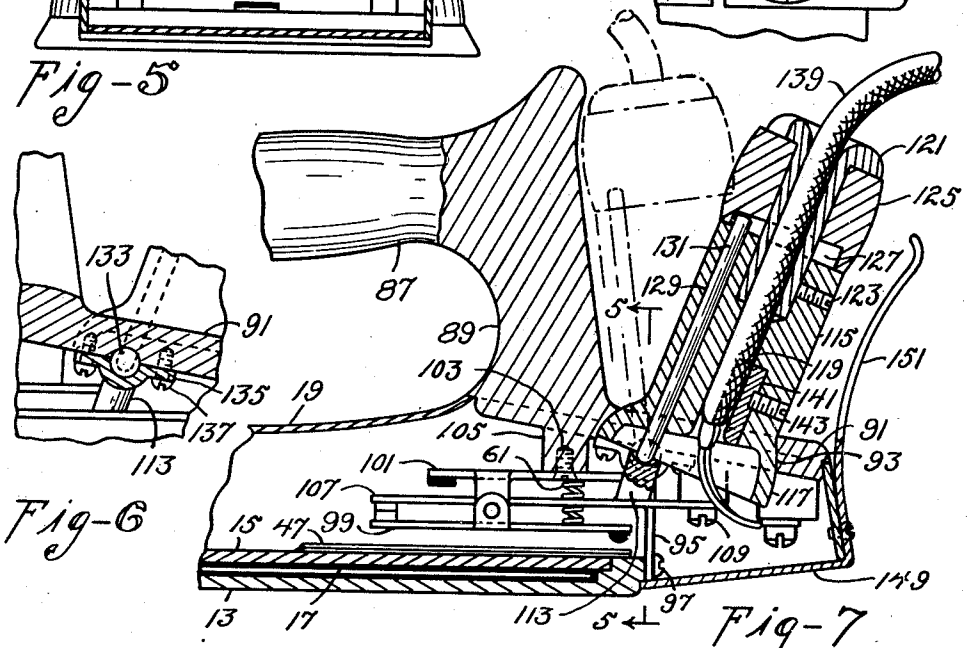


Fig-6

Fig-7

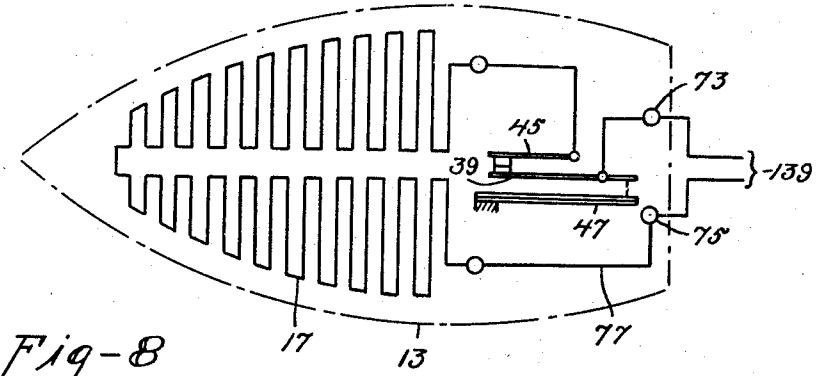


Fig-8

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UNITED STATES PATENT OFFICE

2,420,195

ELECTRIC SADIRON

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Application February 26, 1944, Serial No. 524,119

4 Claims. (Cl. 219—25)

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My invention relates to electric irons and particularly to thermal control means for electric irons.

An object of my invention is to provide a novel form of thermal control for electric irons.

Another object of my invention is to provide a novel position for the manual control knob of a thermally-actuable switch for electric irons that shall be out of close heat-receiving relation with the heated body of an iron.

Another object of my invention is to provide a location for the manual control knob for adjustment of the thermally-actuable switch for electric irons that shall ensure that the temperature of the knob shall remain substantially low during operation of the iron.

Other objects of my invention will either be apparent from a description of several modifications embodying my invention or will be pointed out in the course of such description and set forth in the appended claims.

In the drawings,

Figure 1 is a side elevational view, partly in section, showing the elements of my invention applied to an electrically heated sad iron,

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

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1,

Fig. 4 is a top plan view of the adjusting knob of Figs. 1 and 7,

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 7,

Fig. 6 is a fragmentary sectional view taken on the line 6—6 of Fig. 5,

Fig. 7 is a fragmentary sectional view, similar to Fig. 1, except showing a different method of mounting the adjusting knob, and,

Fig. 8 is a diagram of the electric circuits for the iron.

Most of the electric irons heretofore made and sold have an adjusting knob for the thermal control switch for the heater mounted just over the mid-portion of the casing or housing of the iron and positioned relatively closely thereabove. The result of this is that the temperature of the adjusting knob becomes relatively high during continued operation of the iron so that it is somewhat difficult for the operator of the iron to grasp the knob to change the adjustment of the thermal control switch. I provide a novel position for such control knob so that it is out of close heat-receiving relation relatively to the heated body, so that the temperature thereof will remain relatively low even after long continued operation and use of the iron.

Referring first to Figs. 1 to 4 inclusive, I have there shown an electric iron designated generally by the numeral 11 as comprising a sole plate 13 having a top or clamping plate 15 secured thereto,

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adapted to tightly clamp an electric heating means 17 against the upper recessed surface of sole plate 13. The design and construction of the electric heating element 17 may be of any desired kind and forms no part of my present invention.

I provide a casing or housing 19 which may be made of relatively thin sheet metal and which may be held in proper operative position against the peripheral outer edge portions of the sole plate 13 by any suitable or desired means now well known in the art.

I provide further a handle structure 21 which is preferably made of a heat-resisting material now well known in the art and which includes, in addition to a handle portion, a front support 23 as well as a rear support 25. The front support 23 may be secured against the front portion of the casing 19 in any suitable or desired manner.

I provide a cord supporting member 27 which is of substantially L-shape in section having a forwardly extending portion 29 which is adapted to be secured to the bottom surface of the rear support 25 as by one or more machine screws 31. The cord supporting member 27 is adapted to be fitted against the upper edge rear end portion of casing 19, which rear end portion has an opening therein to receive the member 27. The member 27 is held in proper operative position against the casing 19 as by a vertically-extending supporting bracket 33 having its lower end secured against sole plate 13 by a machine screw 35, while its upper end is secured by a short machine screw 37 against a substantially horizontally-extending seat on the bottom surface of member 27.

A thermally-actuable heater control switch for the heater 17 includes a first contact arm 39 pivoted on a support bracket 41, each member 39 and 41 being provided intermediate their ends with a pair of spaced vertical lugs, which lugs have pivot pins 43 extending therethrough to permit of the first contact arm 39 moving relatively to a second contact arm 45. The first contact arm 39 is adapted to be moved in a counterclockwise direction by a bimetal bar 47, one end of which is mounted in good heat-receiving relation on the top or clamping plate 15, as by a welding seam 49. The member 41 is of substantially L-shape and is held in proper operative position by a pair of short machine screws 51 and 53 against a lower surface of a depending lug 55 constituting a part of member 27. The second contact arm 45 is also of substantially L-shape and is held in proper operative position by two short machine screws 57 which have screw-threaded engagement with the lower surface of a lug 59 constituting a part of member 27. A coil spring 61 engages with its upper end the lower surface of support 41, while its lower end engages the first contact arm 39 which is provided with a lug 63 of electric-insulating material, which lug 63 is adapted to

be engaged by the upwardly flexing end of bimetal bar 27 when the same is heated. The first contact arm 39 and the second contact arm 45 are respectively provided with cooperating contact members in a manner well known in the art. The supporting bracket 41 is provided with a small lug or block 65 of electric-insulating material to act as a stop for the upper contact arm 45.

The cord supporting member 27 has a substantially vertically-extending opening 67 therethrough, which opening 67 is adapted to receive a protecting sleeve 69 extending therethrough and upwardly thereof, this sleeve being tubular and of such external diameter in that part thereof fitting into opening 67 so as to be prevented from movement thereof either longitudinally relatively to member 27 or a rotative movement relative thereto.

A twin conductor cord 71 extends outwardly through the protecting sleeve 69, one of the conductors being connected to contact arm 45 as by a short machine screw 73, while the other conductor is connected to a terminal member 75 which is secured against a portion of the lower surface of member 27 and has connected thereto, by a conductor 77, one terminal of the heating element 17.

I provide a manually-actuable adjusting knob 79 which is of substantially annular shape and position the same around the upper outer end of sleeve 69 with its lower surface in engagement with the upper and outer surface of member 27. The inner surface of knob 79 is provided with an annular groove 81 therein, the depth of this groove varying from one end to another and preferably this groove is less than 360° in periphery. A rod 83 extends through an opening 85 in member 27 between the inner face of groove 81 and the upper surface of contact arm 45 between the ends of this contact arm. It is evident that turning movement of knob 79 will cause longitudinal movement of rod 85, with the result that the contact end of contact arm 45 will move relatively to its support on the lower face of lug 59, the result being that the operating temperature of the ironing surface of sole plate 13 will vary in accordance with the peripheral position of the adjusting knob 79 relative to the sleeve 65. Reference to Fig. 4 will show a suggested means for indicating generally the temperature of the sole plate or the variation of such temperature between cool and hot. While I have shown a specific form of temperature indicating indicia, I do not desire to be limited thereto but may provide other means effective for the same purpose.

Referring now to Figs. 5, 6, and 7, I have there shown a modification of device embodying my invention. The construction of the sad iron body is substantially the same in this modification as was hereinbefore described for the modification shown particularly in Figs. 1 to 4 inclusive. The handle structure 87 is, however, slightly different comprising a rear handle support 89 having a rearwardly-extending integral extension 91 which is relatively thin and is provided with an opening 93 therein, the walls of which are of substantially arcuate shape for a purpose which will hereinafter appear. A supporting bracket 95 of substantially L-shape for the handle structure has its lower end secured by a short machine screw 97 to the sole plate 13, while its upper portion is secured by a machine screw against the lower surface of extension 91. A lower contact arm 99 is pivotally supported from an upper

supporting bar 101 in substantially the same manner as was hereinbefore set forth for the first modification, this supporting bar being held by machine screw 103 against the lower surface of a depending lug 105 which may be integral with the rear handle support 89. A second contact arm 107 positioned between contact arms 99 and 101 is secured as by a machine screw 109 against the lower surface of a lug 111 integral with extension 91 of the handle structure 87. The second contact arm 107 has an upwardly extending lug 113 thereon which has an upper arcuate surface thereon for a purpose which will hereinafter appear.

I provide a cord supporting member 115 of generally tubular shape but having a lower end portion 117, the outer walls of which are of arcuate shape adapted to fit into the opening 93 in extension 91 of the handle structure 87. The cord supporting member 115 has an opening 119 extending longitudinally therethrough, this opening having a larger diameter at its upper end to receive a protecting sleeve 121, this sleeve being substantially the same as member 69 hereinbefore described. I provide a headless set screw 123 for holding member 121 in proper operative and fixed position in member 115. I provide an adjusting knob 125, which knob is of annular shape having its outer surface engaging the inner surface of an enlarged outer head portion of member 121, while its inner surface engages the outer surface of member 115. I provide further an annular groove 127 in the inner surface of member 125, the depth of this groove being variable from one end to another and preferably the peripheral extent of groove 127 is less than one complete turn.

I provide member 115 with a longitudinal opening 129 therein and position within said opening a longitudinally movable rod 131, the outer end of which fits into groove 127, while the inner end thereof fits into the outer arcuate surface of member 113, it being understood that the inner end of rod 131 is properly rounded. Member 115 is held in proper operative position and permitted to swing in opening 93 in extension 91 by the provision of trunnions 133 constituting a part of member 115. Trunnions 133 are held in bearing recesses in extension 91 by bearing covers 135 secured in proper operative position against the lower surface of extension 91 by short machine screws 137. A twin conductor cord 139 is adapted to extend through member 121 and also through member 115, a holding block 141 being provided in the lower end portion of member 115 and held by a headless machine screw 143. The ends of the respective conductors are secured to contact terminals 73 and 75 as hereinbefore set forth.

Referring to Fig. 1 of the drawings the rear end portion of casing 19 is closed by a bottom closure member or plate 145 which is held by one or more short machine screws 147. I provide also a combination bottom closure plate 149, as shown in Fig. 7, which closure plate is provided with an upwardly-extending part 151 acting not only as a protection for the pivotally mountable member 115 and members 121 and 125 supported thereby, but also as a heel rest for the iron.

It is evident that the manually-actuable adjusting knobs 79 and 125 are supported by the cords 71 and 139 respectively and that they are positioned out of close thermal engagement with the heated body of the iron. It is further evident that the control switch mechanism for

the heating element is supported in the first modification by a part of the handle structure, and in the second modification is also supported by the handle structure, thereby permitting assembly of the control switch mechanism on the handle structure before the same is finally mounted in its proper operative position on the rion. The position of the cord supporting member 115 when swung forwardly or in a counterclockwise direction, toward the rear surface of the handle support 89 is shown in broken lines in Fig. 7 of the drawings. It is evident that the manual adjusting knob in both forms of devices shown are well out of close thermal relation with the heated body, that they are supported by the cord structure and that their maximum operating temperature will be relatively low even after long continued use of the iron.

Various modifications may be made in the device embodying my invention, and all such modifications clearly covered by the appended claims shall be considered a part of my invention.

I claim as my invention:

1. In an electric sad iron, the combination with a heated body, a casing thereover, a cord supporting member held against said casing, a handle secured to said casing and said member, a thermally-actuable switch mechanism supported by said cord supporting member, of a manually-adjustable annular member around the cord beyond said cord supporting member, a rod extending through said cord supporting member, movable longitudinally therein and having its ends engaging said switch mechanism and said manually-adjustable annular member to vary the temperature of the heated body in accordance with turning movement of the annular member.

2. An electric sad iron comprising a heated body, a casing thereover, a handle structure on said casing, a thermally-actuable switch mechanism supported by said handle structure, a cord supporting member pivotally supported by said handle structure, a manually-adjustable annulus around the cord beyond the cord supporting member and a rod extending through said cord supporting member with its ends engaging the switch

mechanism and the annulus to vary the temperature of said heated body in accordance with turning movement of said annulus.

3. An electric sad iron comprising a heated body, a casing thereover, a handle structure on said casing, a thermally-actuable switch mechanism supported by said handle structure, a cord supporting member extending through said handle structure, a manually-adjustable annulus around the cord beyond the cord supporting member having an annular groove of varying depth in its inner face and a rod extending through said cord supporting member, longitudinally movable therein, with its ends engaging the switch mechanism and the groove in the annulus to vary the operating temperature of the heated body in accordance with turning movement of the annulus.

4. An electric sad iron comprising a heated body, a casing thereon, a handle structure on said casing including a cord supporting member, a thermally-actuable switch mechanism supported by said cord supporting member, a manually-adjustable annulus around said cord beyond the cord supporting member having an annular groove of varying depth in its inner face and a rod extending through said cord supporting member, longitudinally movable therein, with its end engaging the switch mechanism and the groove to vary the operating temperature of the heated body in accordance with turning movement of the annulus.

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