March 24, 1942. W. F. BISLEY 2,277,034

SADIRON

Filed March 30, 1939 4 Sheets-Sheet 1

Fig. 1

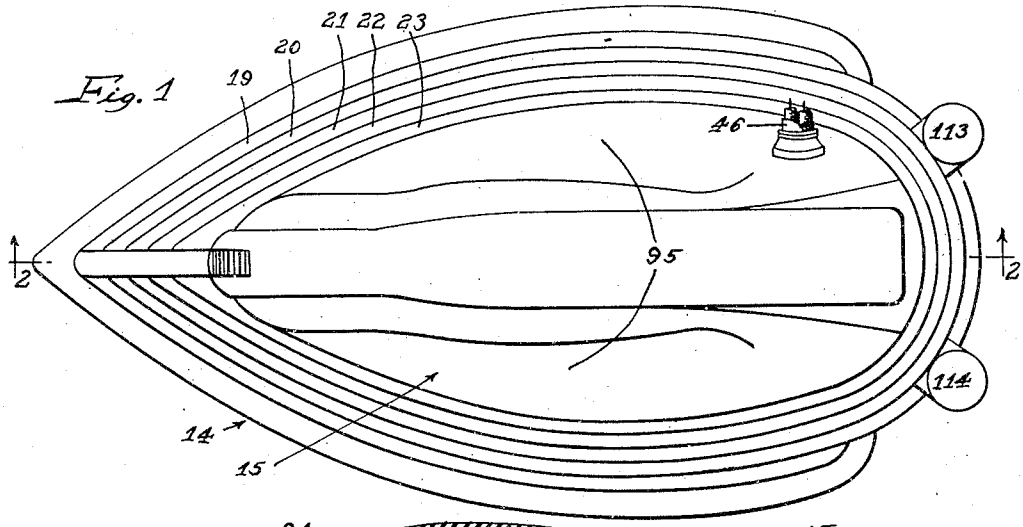


Fig. 2

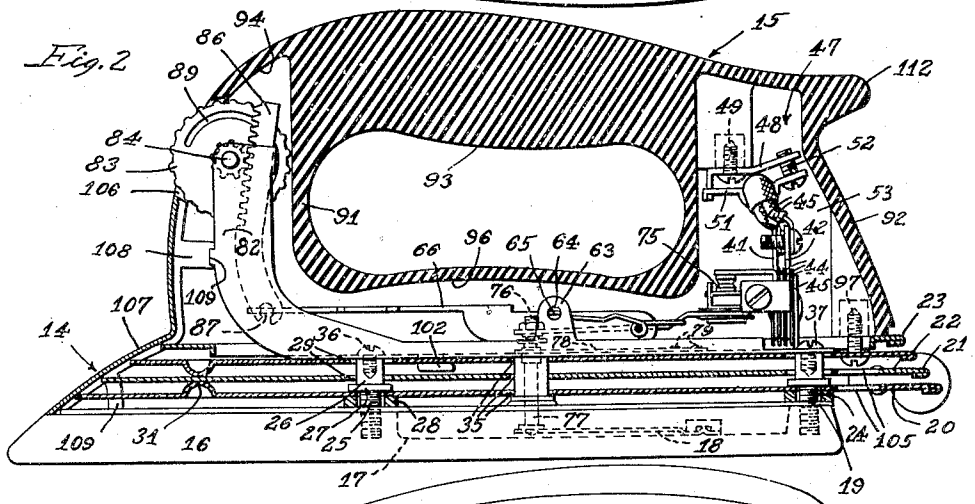
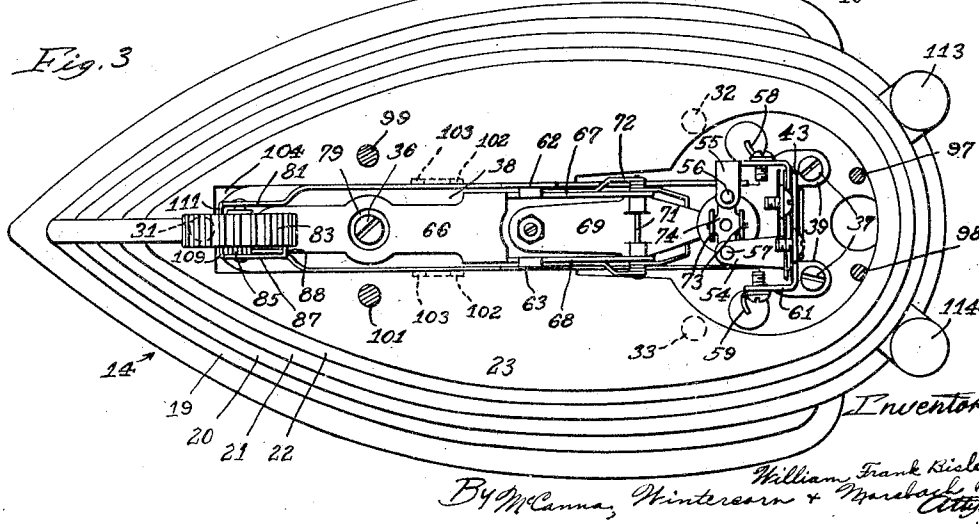


Fig. 3



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SADIRON

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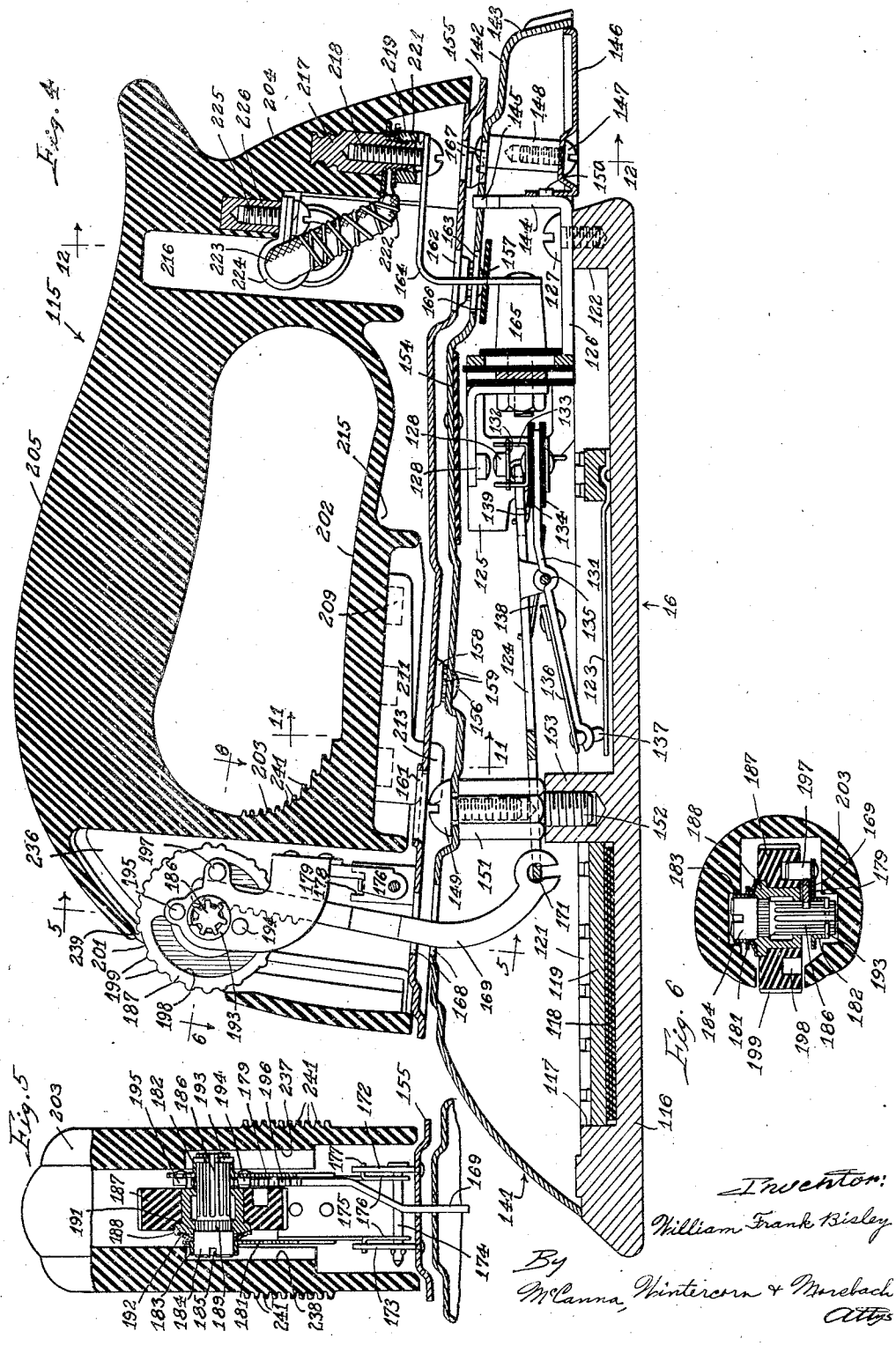


Fig. 4

Fig. 5

Fig. 6

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SADIRON

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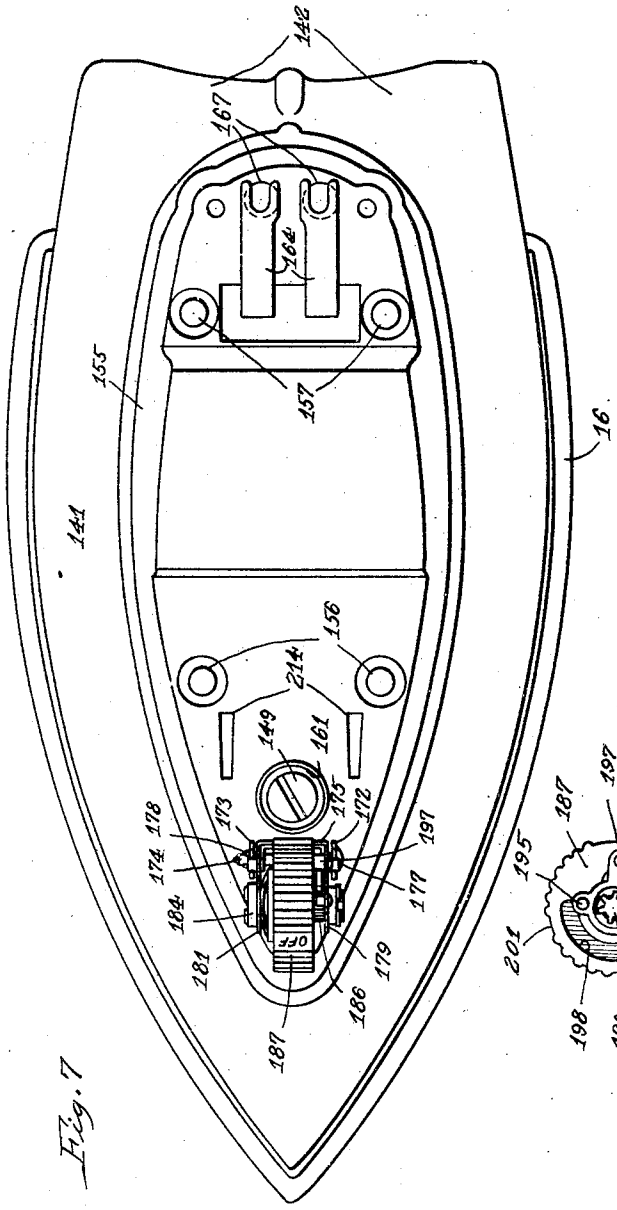


Fig. 7

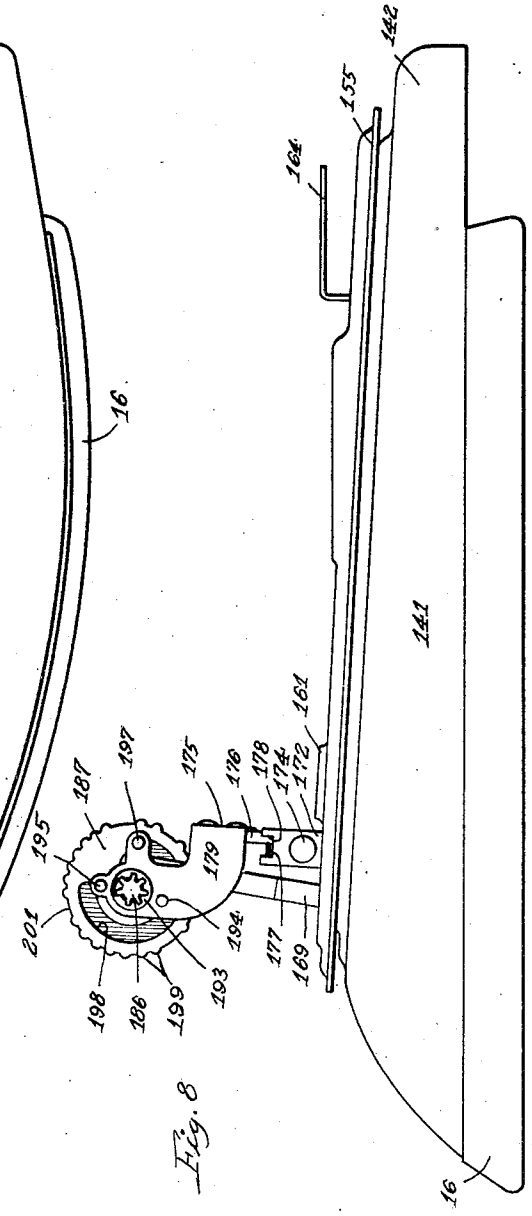


Fig. 8

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SADIRON

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Fig. 9

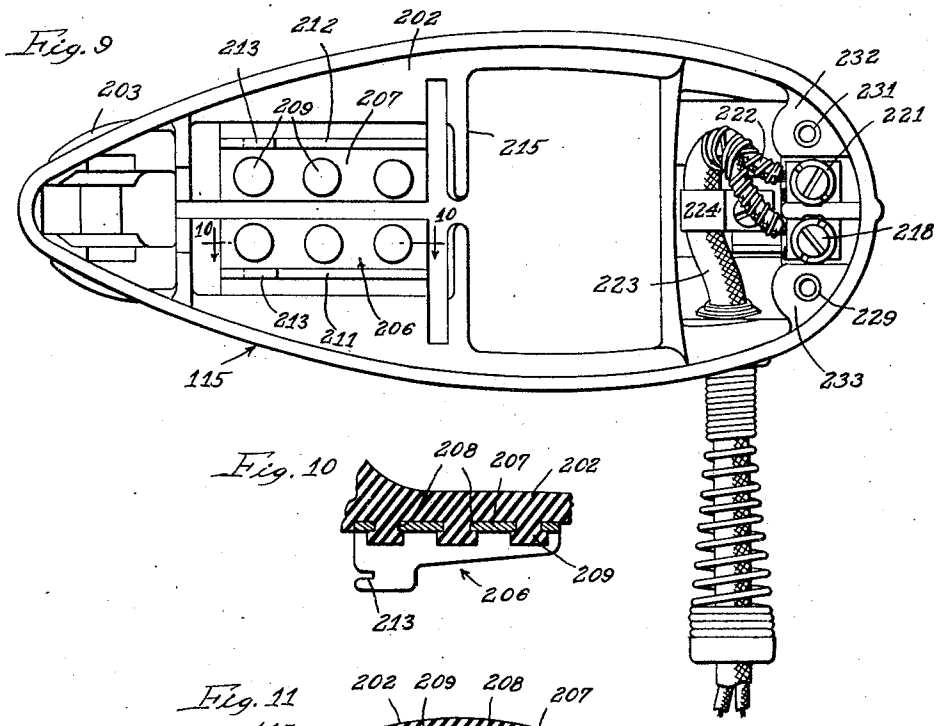


Fig. 10

Fig. 11

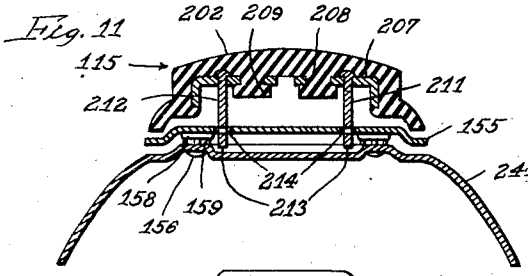
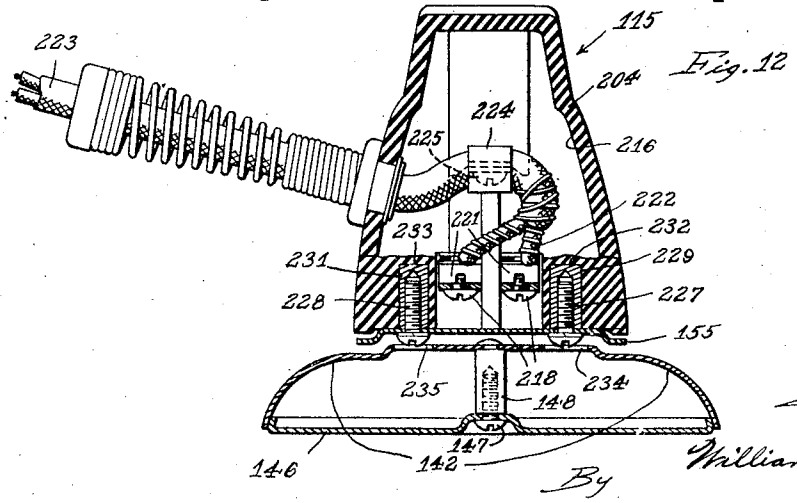


Fig. 12



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Patented Mar. 24, 1942 2,277,034

UNITED STATES PATENT OFFICE

2,277,034

SADIRON

William Frank Bisley, Chicago, Ill., assignor to Chicago Flexible Shaft Company, Chicago, Ill., a corporation of Illinois

Application March 30, 1939, Serial No. 264,925

32 Claims. (Cl. 219—25)

This invention relates to electric sadirons and has for its primary object the provision of a generally improved iron including a novel organization of sole plate cover and handle, a handle of improved structure, improved means for securing the handle to the body of the iron, improved means for adjusting the thermostat mechanism thereof from outside the iron, and improved means for preventing the heat from the sole plate being transmitted to the handle, and to provide an iron characterized by the lack of the conventional enclosing cover.

Other objects and advantages will appear from the following description and the accompanying drawings, in which—

Figure 1 is a top view of an electric sadiron embodying my invention;

Fig. 2 is a section on the line 2—2 of Figure 1 showing the sole plate in elevation;

Fig. 3 is a top view of the iron with the handle removed;

Fig. 4 is a vertical section taken longitudinally through a further embodiment of the invention;

Fig. 5 is a section on the line 5—5 of Fig. 4;

Fig. 6 is a section on the line 6—6 of Fig. 4;

Figs. 7 and 8 are top and side views respectively of the embodiment shown in Fig. 4 with the handle removed;

Fig. 9 is a bottom view of the handle of Fig. 4;

Fig. 10 is a section on the line 10—10 of Fig. 9, and

Figs. 11 and 12 are sections on the lines 11—11 and 12—12 respectively of Fig. 4.

Referring first to the form shown in Figures 1 to 3, the iron comprises a body portion designated generally by the numeral 14 and a handle portion 15. The body portion includes a sole plate 16 of substantially the same structure as that shown in copending application of Ivar Jepson, Serial No. 38,533, filed August 30, 1935, entitled "Sadiron," and includes a metal plate having a top cavity in which an electric heating element (not shown) is secured. A thermostat well 17 is also formed therein in which is seated in close proximity to the ironing surface a bimetal blade 18 or similar thermally responsive element. Positioned on the sole plate are a plurality of sheet metal heat dissipating plates designated generally by the numerals 19, 20, 21, 22 and 23 having peripheral shapes, as shown in Figs. 1 and 3, the plates being progressively smaller from bottom to top.

The plates 19 to 22 inclusive are secured to the sole plate in superimposed, spaced relation by means of spaced screws 24 at the rear of the iron and a screw 25 toward the center thereof, each of said screws having a squared head 26 and a flange 27 bearing against the plate 20, spacers 28 serving to space the plate 20 from the plate 19 and to secure the plate 19 to the sole plate. The plates 21 and 22 have holes as shown at 29 for the passage of the screws. The plates 20, 21 and 22 are spaced apart by formed projections as indicated at 31, 32 and 33, and are spot welded together at these points. The plate 19 carries a sleeve 34 projecting upwardly therefrom through openings 35 in the plates 20, 21 and 22 for a purpose which will presently appear.

Secured against the heads of the screws 24 and 25 by means of screws 36 and 37 is a thermostat and thermostat control mechanism having a frame member 38 provided with ears 39 for the reception of the screws 37. Conductors 41 and 42 are supported on a rear plate 43 of the frame member and are insulated from the plate and from each other by mica strips 44, the conductors being electrically connected to the wires 45 of the conventional electric cord 46 for supplying electrical energy to the heating element. A clamp 47 having a fixed member 48 secured to the handle 15 by means of a screw 49 and having a movable member 51 supported on the stationary member and secured thereto by a screw 52 clamps the cord in position within a chamber 53 of the handle 15. Connected to the conductor 41 is a bracket 54 and supported on the plate 43 is a second bracket 55 carrying spaced stationary contacts 56 and 57. The bracket 55 is connected to the heating element through a lead 58 and the conductor 42 is connected to the heating element through a conductor 59 attached to an ear 61 on the conductor 42.

The frame 38 has upturned side edges which are provided at a point spaced from the ends thereof, upstanding ears 62 and 63 having openings as shown at 64 for the reception of the trunnions 65 of a thermostat adjusting lever 66, the trunnion supporting this lever for rotation about the trunnions. The lever 66 has spaced side members 67 and 68 between which is supported a contact lever 69 carried on a pin 71 having its ends journaled adjacent the end of the side members 67 and 68. A spring 72 acts between the lever 66 and the contact lever 69 normally urging the outer end of the contact lever in a counterclockwise direction facing Fig. 2. The outer end of the lever 69 has a U-shaped bracket 73 secured thereto and insulated therefrom, this bracket carrying a strip of bimetal 74 to which are

attached spaced contacts 75 spaced to engage the stationary contacts 56 and 57, the bimetal strip 74 having a certain amount of freedom in its support to provide for adjustment of the positions of the contacts during opening and closing movements. The opposite end of the contact lever 69 has an adjusting screw 76 adapted to be engaged by the end of a pin 77 carried on a thin strip spring 78 attached to the frame member 38 beneath the contact lever 69 as shown at 79, the lower end of the pin 77 resting in predetermined relation with the free end of the bimetal blade 18 and extending through the sleeve 34 whereby warpage of the outer end of the blade 18 upward with increasing temperature causes rotation of the contact lever 69 to open the contacts 75 and 56, 57 at a temperature dependent upon the rotative position of the adjusting lever 66 and thereby to control the flow of current through the iron.

The lever 66 extends forwardly and has an opening 79 to facilitate insertion of the screw 36. The frame 38 has a pair of upstanding fingers 81 and 82 at the forward end thereof and arranged for the reception therebetween of a thermostat adjusting wheel 83, the wheel being positioned adjacent the upper ends of the fingers and being journaled for rotation therein on a pin 84. Carried on the wheel 83 is a spur gear 85 arranged for rotation therewith and adapted to engage a rack 86 attached at its lower end to the forward end of the adjusting lever 66 as shown at 87 and projecting upwardly into engagement with the sprocket, the rack being retained by confinement between the wheel, the finger 82, and a shoulder 88 formed on the finger 82, the shoulder extending inwardly and into a slot 89 in the side of the wheel 83 whereby to limit the rotation of the wheel to define the operating range thereof. It will be seen that when the wheel 83 is rotated the pinion and rack cause simultaneous rotation of the lever 66 and thereby adjust the position of the contact lever 69 to predetermine the temperature at which the contacts will open.

The handle 15 is preferably formed of a molded insulation material such as one of the many synthetic resins and capable of withstanding a relatively high temperature, preferably in the neighborhood of 275 to 300° F. The handle is provided with a front support 91 and rear support 92 for attaching the handle to the iron and providing the central opening for the handle grip, as indicated at 93. Each of these handle supports are cored to provide chambers, that in the rear support being the chamber 53, and that in the front support being the chamber 94, for the reception of the upstanding fingers 82 and the wheel 83, as will presently more fully appear. The handle also includes a base portion as shown at 95 which extends over a substantial part of the iron as best shown in Figure 1. This base is hollowed out as shown at 96, and near its periphery is attached to the plate 23 by means of screws 97, 98, 99 and 101. The plate 23 is provided with a pair of spaced bayonet fingers 102 adjacent its mid portion receivable in slots 103 of the plate 22 for attachment of the handle and the plate 23 to the lower portions of the iron, the plate 23 having a slot 104 for the reception of the thermostat mechanism and of the conductors 41 and 42, as will be apparent from Figs. 2 and 3. Thus, the handle is placed upon the remainder of the iron by seating the same over the plate 22 with the fingers 81 and 82 and the hand wheel 83 passing into the chamber 94. Thereupon the handle is moved backward slightly until the bayonet fingers 102 engage under the plate 22 as shown in Fig. 2. Thereupon the screws 97 and 98 are inserted into the handle through openings 105 in the plates 20 and 21. The forward end of the chamber 84 has a slot as shown at 106 through which the forward edge of the wheel 83 projects so as to be capable of rotation by means of the thumb of the operator.

A rib 107 projects upwardly from the plate 16 covering the front ends of the plates 20, 21, 22 and 23 and extending to a point adjacent the lower edge of the wheel 83, thereby closing the lower portion of the opening 106, the rib having fingers 108 adapted to engage and clamp against fingers 109 and 111 on the upright fingers 81 and 82 to retain the upper end of the rib in place. The lower end is retained in place by spaced fingers 109 received in slots in the plates 19, 20 and 21. This rib serves not only a decorative function but serves to close the space between the plates at the very tips thereof so as to prevent the work from becoming fouled therein.

The handle 15 has a rearwardly extending rib 112 adapted in combination with balls 113 and 114 attached to the plate 21, to serve as a heel rest for the iron.

The advantages of the invention will in the main be apparent from Fig. 2. It will be seen that the heat required for the ironing operation is generated within the plate 16, and this heat to reach the handle portion of the iron must be transmitted by conduction, radiation or convection. It will be seen that the construction is such that only a minimum conductive path is provided between the sole plate proper and the handle, and consequently the transmission of heat by conductivity is reduced to a minimum. This is further reduced by employing the succession of spaced plates for supporting the handle on the sole plate which functions to reduce the conductive path but also operates to provide a plurality of air spaces which extend completely across the iron between the sole plate and the handle so that a current of air is induced in these spaces which serves to reduce the temperature of the heat conducting elements disposed between the handle and the sole plate. In order to reduce to a minimum the transmission of heat upward by radiation, the plates 19, 20, 21, 22 and 23 are formed of highly reflective material, in this particular instance highly polished metal so that the heat is, in so far as possible, reflected downward and away from the handle. In order to further protect the hand of the operator, the handle is formed of insulation material such, for instance, as phenolic resin, and is provided with a wide base as indicated at 95 which serves as a shield for the hand of the operator protecting the hands against heat by conductivity, radiation and convection currents. It will be seen that because of the relatively wide plates and the wide base on the handle, the convection currents are in the main directed outwardly away from the hand of the operator. Thus, in the iron shown in Figs. 1 to 3, the sole plate 16 is designed to operate at a temperature as high or slightly higher than 550° F. the temperature of the plates 20, 21 and 22 progressively decreases upward and at the plate 23 is reduced to a point below about 275° F. The temperature of the top of the handle is very materially below this temperature and sufficiently low to be handled at the handle portion without any discomfiture.

Referring now to the form of the invention shown in Figs. 4 to 12 inclusive, which is the preferred form of the invention, the numeral 115 designates the handle which is similar in many respects to the handle 15 but differs therefrom in material particulars, as will presently be pointed out. The sole plate 16 is substantially identical with that shown in Fig. 2 and includes a metal plate 116 having a central recess 117 within which is positioned the heating element 118 secured therein by a plate 119 attached to the upstanding annular walls 121 of the plate, the sole plate being made substantially in accordance with copending application of Ivar Jepson, Serial No. 38,533, filed August 30, 1935. The plate has a central recess 122 forming a thermostat well within which is secured a bimetal blade 123. The thermostat mechanism which is likewise made substantially in accordance with the above-mentioned application, includes a thermostat adjusting lever 124 pivoted on spaced brackets 125 carried on a plate 126 secured to the rear of the sole plate by means of screws 127. Spaced fixed contacts 128 are supported on the plate 126 and cooperate with movable contacts 129 supported on a contact lever 131 by means of a bimetal strip 132, a yoke 133 and insulation strips 134. The contact lever 131 is pivotally supported through a pin 135 on the adjusting lever 124 and at its opposite end carries a bimetal strip 136 which in turn carries a pin 137 adapted in certain operating temperatures of the iron to engage against the free end of the bimetal strip 123 as taught in said patent. A spring 138 normally urges the contact lever 131 in a counterclockwise direction to close the contacts 128 and 129, whereas a spring 139 acts on the adjusting lever 124 to normally rotate the same in a clockwise direction.

A shell 141 is seated upon the sole plate 16 enclosing the upper surface thereof and housing the thermostat mechanism, the shell having a portion 142 overhanging the rear of the iron and having a depending edge 143 forming a part of the heel rest for the iron, as will presently more fully appear. The plate 126 has an upstanding flange 144 closing the rear end of the chamber formed by the shell and having a projection 145 received in an opening in the shell to locate and support the same. The space between the upstanding flange 144 and the depending edge 143 is spanned by a closure member 146 secured in position by a screw 147 threaded into a pin 148 depending from the top of the shell, and by pins 150 projecting from the rear side of the flange 144 and received in openings in the side of the closure member 146, as best shown in Fig. 4. The shell is held in position on the sole plate by the projection 145 and by a screw 149 threaded into a spacer nut 151 on a screw 152 threaded into a boss 153 on the sole plate so that when the screw 149 is tightened down, the shell is drawn against the upper end of the nut 151, drawing the shell firmly against the sole plate at its periphery, the projection 145 preventing lateral movement of the shell. Attached to the inner side of the shell above the contacts 128 is a sheet of mica 154 or other insulation material.

A spacer plate 155 is secured to the top of the shell by means of rivets 156 and 157, the plate being spaced from the top of the shell by downwardly formed flanges 158 which terminate in a plurality of annularly spaced fingers 159 which bear against the upper surface of the shell so as to provide a plurality of substantially point contacts between the shell and the plate so as to reduce to a minimum the heat conductive path between the two members, and to decrease the area of contact for cooling purposes. The plate has an opening 161 for passage of the screw 149 and has an opening 162 registering with an opening 163 in the shell for the passage of electrical conductors 164, which conductors are connected at one end to supporting members 165, the latter in turn being connected to the heating element 118 through the contacts 128 and 129 in substantially the manner heretofore described in connection with Figs. 1 to 3 for the purpose of supplying current to the heating elements. A sheet of mica or similar insulation material 166 is positioned on the conductors 164 within the shell to provide electrical and heat insulation and to prevent free movement of air through the openings 162 and 163. The plate and the shell also have registering openings 167 for a purpose presently to be described, and have registering openings 168 for the passage of an upstanding thermostat operating rack 169 pivoted to the lever 124 at 171 for actuation of the lever.

Positioned on the upper side of the plate 155 adjacent the front end thereof are upstanding ears 172 and 173 which are spanned by a pin 174 upon which is rotatably carried an upstanding adjusting wheel support 175 which has spaced flanges 176 through which the pin passes. The flanges 176 each have outwardly flared projections 177 seated in a slot 178 in the ears 172 and 173, the slot being of somewhat greater width than the projection so as to permit limited rotative movement of the support 175 about the pin 174. The support 175 has upwardly extending side arms 179 and 181 provided adjacent their upper ends with openings defined by flanges 182 and 183 within which is received a pin 184 having a slotted end 185 and a plurality of splines 186 forming in effect a pinion gear. Positioned on the pin 184 is a wheel 187, in this instance of insulation material such as a molded phenolic plastic, the wheel having a metal hub 188 for the reception of the pin, said hub and pin having interengaging broached splines 189 to prevent relative rotation therebetween and cooperating shoulders 191 to limit the degree of entry of the pin into the hub. A spring washer 192 acts between the hub and the side arm 181 to produce frictional engagement therebetween and prevent free rotation of the wheel with respect to the arm. A spring ring 193 engages a peripheral slot in the pin 184 and bears against the hub 182 to retain the pin in position. The side arm 179 has a plurality of spacing pins 194 and 195 adapted to space the side of the wheel 187 from the side arm for the reception of the rack 169 freely therebetween, the rack having a plurality of teeth 196 for engagement with the splines of the pinion 186. The side arm 179 also has an inwardly extending pin 197 receivable in an arcuate slot 198 in the side of the wheel 187, the slot extending only a part of the distance around the wheel and serving as a limit for the rotation of the wheel. As will be seen from Fig. 6, the pin 197 also serves to retain the rack 169 in engagement with the pinion 186, the rack extending upwardly between the pinion and the pin 197. It will be seen that upon rotation of the wheel 187 the pin 184 will be rotated causing the rack 169 to move up or down and thereby adjusting the position of the thermostat lever 124 to predetermine the temperature openings. The wheel 187 is provided with knurled ribs 199 to facilitate the rotation

thereof, and has intermediate spaces 201 upon which is inscribed the names of the materials to be ironed at the various settings of the wheel, the wheel cooperating with an arrow or other marking device arranged on the handle proper.

The handle 115 best shown in Figs. 4 to 6 and 9 to 12 is, in this instance, formed of a molded phenolic resin and has a base portion designated generally by the numeral 202, front and rear supporting portions 203 and 204, and a handle proper 205. The base portion 202 is superimposed above the plate 155 and covers the major portion thereof, the outer contour of the base portion being substantially that of the plate 155. The handle is secured to the plate 155 near the forward end thereof by means of a bayonet securing member 206 having a base portion 207 molded into the bottom of the handle, the base portion having openings 208 through which the material of the handle is molded as shown at 209 to secure the plate in position. The fastening member has depending flanges 211 and 212 each provided with bayonet slots as shown at 213 adapted for reception in slots 214 in the plate 155 whereby the flanges may be seated in the slots 214 and the handle moved forward so that the metal of the plate 155 at the forward ends of the slots 214 is received in the bayonet slots 213 to secure the forward end of the handle to the plate. The lower surface of the base portion 202 is hollowed out to provide a chamber 215 in which the securing member 206 rests. The bayonet slots 213 are so arranged that when engaged with the plate 155 the forward end of the handle is spaced somewhat from the plate 155 to allow the circulation of air through the chamber. A chamber 216 is provided in the rear support 204 for the reception of the conductors 164, inserts 217 being molded into the handle for the purpose of receiving screws 218 for attaching the conductors, the inserts 217 having externally threaded projecting portions 219 adapted to receive a nut 221 by means of which the leads 222 of a standard appliance cord 223 are attached to the inserts. The head of the screws 218 serve to draw the ends of the conductors 164 against the outer surface of the nuts 219. The shell and the plate 155 have the openings 167 through which a screw driver is inserted from the bottom of the iron for the purpose of driving the screws 218. The appliance cord 223 is clamped to the handle within the iron by means of a clamp 224 secured around the cord and to the handle by means of a screw 225 engaging an insert 226 in the handle. The rear end of the handle is secured to the plate 155 by means of spaced screws 227 and 228 threaded into inserts 229 and 231 molded into the handle, the handle having vertically disposed ribs 232 and 233 adapted to seat on the upper face of the plate 155 and to carry the inserts 229 and 231. The shell has openings 234 and 235 in the overhanging portion 142 thereof for insertion of the screws 227 and 228. Through the provision of the ribs 232 and 233 the area of contact between the handle and the plate 155 is reduced and the handle is throughout the greater portion of its periphery spaced from the plate to permit the circulation of air therebetween.

A further chamber 236 is formed in the front support 203 for the reception of the wheel 187, this chamber having vertically disposed channels 237 and 238 of such width and depth as to receive the flanges 182 and 183 and thereby confine the adjusting wheel support 175. It will be seen that the support 175 is pivotally carried on the ears 172 and 173 so as to permit of tilting movement of the support as the flanges 182 and 183 move up the channels during the assembly of the handle against the plate 155, the support being held against lateral movement in the assembled position by contact of the flanges 182 and 183 against the sides of the channels 237 and 238. A slot 239 is provided in the front end of the chamber 236 opening through the front edge of the handle as best shown in Figs. 4 and 6, the proportions being such that the periphery of the wheel 187 extends through the slot a short distance sufficient to permit the wheel to be rotated from the exterior of the handle.

Formed on the support 203 are a plurality of ribs 241 which extend along the sides of the support and around the rear thereof, which ribs serve a number of functions. In the first place they constitute heat dissipating ribs by increasing the surface area of the handle at the base of the support; secondly, they serve as a guard to warn the operator in case the fingers tend to creep down along the support 203 during the ironing operations; thirdly, they serve to partially space the fingers of the operator from the surface of the support 203; in other words, they tend to hold the fingers away from complete surface contact with the support such as might cause burns or discomforture, and fourth, they serve a decorative function, enhancing the appearance of the iron.

Attention is directed to the novel structural features of the invention. It will be observed that in the form shown in Fig. 4 the presence of the plate 155 and the manner of supporting the handle thereon produces two air spaces disposed above the shell for the purpose of dissipating the heat, this being further facilitated by the presence of the plate 155 which materially increases the heat dissipating area. This is accomplished to such an extent that the resin handle can be caused to overlie a substantial portion of the iron and be secured thereto by inserts molded into the handle. For example, in irons of this character the sole plate reaches a temperature of 550° F. and frequently somewhat in excess thereof. In our construction the shell is reduced to a temperature in the region of 375° to 400° F. Through the present construction the temperature above the plate 155 is reduced to a point such that a resin handle capable of retaining the inserts at a temperature of 275° to 300° F. may be used without substantial deterioration.

Another feature of the invention is the structure by which the handle is secured to the iron including the use of the bayonet slots 213 and associated parts and the provision of the screws and inserts 227 to 231 so arranged that the screws are inserted from the bottom of the overhanging portion 142 of the shell whereby the closure member 146 may be secured in place beneath the bottom of the overhanging portion thereby effectively concealing the attaching means. A further advantage of the structure lies in the manner of supporting the thermostat adjusting wheel 187 whereby its support is movable to accommodate itself to the assembling movements of the handle and yet is rigidly secured in position as a result of the assembling movements. Another advantage is the facility with which the iron may be disassembled, that is, the handle removed from the shell and the shell removed from the sole plate.

A further advantage lies in the form of the handle whereby a considerable portion of the top

of the iron is covered by insulation material such that in normal use the hands and fingers of the operator are protected against accidental contact with portions of the iron so highly heated as to cause injury. It will be seen that the entire base portion **202** of the handle serves this purpose so that should the operator occasionally allow the fingers to drop down into contact with the parts of the iron directly below the fingers, injury to the fingers will not occur.

A further feature of the invention is the novel thermostat adjusting wheel and the novel structure for supporting the wheel and driving the rack **169**.

I claim:

1. The combination in a sad-iron of an electrically heated sole plate, a handle member of insulation material for manipulation of the sole plate in ironing operations having integral therewith a wide, comparatively flat base overlying a substantial portion of the sole plate in spaced relation thereto providing an air space extending completely across the iron and open to the atmosphere substantially throughout the peripheral edge, and means of relatively small contact area for securing the handle base to the sole plate.

2. The combination in a sad-iron of an electrically heated sole plate, thermostat switch mechanism on the sole plate for controlling the temperature thereof, a shell superimposed on the sole plate and enclosing said thermostat mechanism, means for locally securing the shell to the sole plate, a heat dissipating plate spaced above said shell and secured thereto by means of relatively small contact area remote from the first mentioned means, and a handle having a wide base of insulation material spaced above said plate and secured thereto, by means of relatively small contact area said plate providing air spaces between the shell and the handle extending completely across the iron and open to the atmosphere substantially throughout the peripheral edges for the circulation of cooling air therebetween.

3. The combination in a sad-iron of an electrically heated sole plate, spaced heat dissipating members positioned over said sole plate to provide a plurality of air spaces extending completely across the sole plate, a handle secured to said sole plate positioned above said members, and a body of insulation material disposed between the handle and the outermost of said heat dissipating members to retard the flow of heat to the handle and protect the hand of the operator.

4. The combination in a sad-iron of an electrically heated sole plate, thermostat switch mechanism on the sole plate for controlling the temperature thereof, a shell superimposed on the sole plate and enclosing said thermostat mechanism, a heat dissipating plate spaced above said shell and secured thereto by means of relatively small contact area, said plate covering a major portion of said shell, and a handle member of insulation material having a wide base portion substantially covering said plate, spaced therefrom and secured thereto, said plate providing a plurality of air spaces between the shell and the base extending completely across the iron open to the atmosphere substantially throughout the peripheral edges for the passage of air therebetween to dissipate the heat at the top of the shell and prevent overheating of said base portion.

5. The combination in a sad-iron of an electrically heated sole plate, a handle member of insulation material for manipulation of the sole plate, and a plurality of spaced heat dissipating plates disposed between the handle and the sole plate providing a plurality of air spaces extending completely across the sole plate open to the atmosphere substantially throughout the peripheral edges.

6. The combination in a sad-iron of an electrically heated sole plate, having a thermostat mechanism disposed thereon, a handle member for manipulation of the sole plate positioned thereabove and having a bottom chamber, a heat dissipating member disposed between and in spaced relation to the sole plate and the handle providing cooling air spaces between the handle and the sole plate, and a switch mechanism located in said bottom chamber and having motion transmitting means extending through said air spaces and into operative relation with said thermostat mechanism.

7. The combination in a sad-iron of an electrically heated sole plate having a thermostat mechanism disposed thereon, a handle member of insulation material for manipulation of the sole plate positioned thereabove comprising a base portion, a handle portion, and front and rear supports for securing the handle portion to the base portion, said base and said supports each having a chamber open at the bottom, a heat dissipating member disposed between and in spaced relation to the sole plate and the handle providing cooling air spaces therebetween, switch mechanism located in said base chamber actuated by said thermostat member, means for adjusting said switch mechanism located in the chamber of said front support, and means within the chamber of the rear support for connecting said switch mechanism to an appliance cord.

8. The combination in a sad-iron of an electrically heated sole plate, a thermostat switch mechanism on the sole plate for controlling the temperature thereof, a handle member of molded plastic thereabove for manipulation of the sole plate, said handle member comprising a handle portion and front and rear supports, each of said supports having a bottom chamber, an appliance cord passing through the side of the rear support and secured within the chamber, means within the chamber of said rear support for connecting the cord to said switch mechanism to supply current thereto, means for controlling said switch mechanism positioned in the chamber of the front support and projecting therefrom for manual manipulation, and means projecting from the bottom of the support for connecting said control means to the switch mechanism.

9. The combination in a sad-iron of an electrically heated sole plate member, a handle member disposed above the sole plate for manipulation of the same comprising a handle portion and a support portion having a bottom chamber provided with guide channels, means for securing said handle to said sole plate comprising interengaging portions on said members shaped to be brought into engagement by relative lateral assembling movement of said members, a thermostat switch mechanism positioned on the sole plate, adjusting means in said chamber projecting from said support for manual adjustment of said switch mechanism, said adjusting means interfitting in said guide channels to prevent lateral movement of said means, and means for supporting said adjusting means on said sole

plate for pivotal movement during said assembling movement of said members.

10. The combination in a sad-iron of an electrically heated sole plate member, a handle member disposed above the sole plate for manipulation of the same, and means for securing said handle to the sole plate comprising a plurality of bayonet fingers secured to one of said members, means on the other of said members for the reception of said fingers to interlock said members upon relative sliding movement, and a screw spaced from said fingers for preventing relative return movement of the handle and sole plate.

11. The combination in a sad-iron of an electrically heated sole plate member, thermostat switch member on the sole plate for controlling the temperature thereof, a handle member disposed above the sole plate for manipulation of the same comprising a handle portion and a front handle support, said handle support having a bottom opening, means within said opening connected to said switch for manually adjusting the same, means for securing the handle to the sole plate comprising a plurality of bayonet fingers secured to one of said members, means on the other of said members for the reception of said fingers to interlock said members upon relative sliding movement in one direction, and a screw acting between said members for preventing relative return movement of said members, and means for pivotally supporting said switch adjusting means on the sole plate to rotate with said relative movement.

12. The combination in a sad-iron of an electrically heated sole plate member, a handle member disposed above the sole plate for manipulation of the same, a shell on said sole plate below said handle having a portion overhanging the rear of the sole plate, and means for securing said handle to said sole plate comprising interengaging portions on said handle and said sole plate shaped to be brought into engagement by relative movement of the handle and sole plate, and screws for securing the members against disengaging movement positioned to be inserted through the bottom of said overhanging portion to conceal the connecting means.

13. The combination in a sad-iron of an electrically heated sole plate, a shell seated on said sole plate and secured thereto in its central area, said shell overhanging the rear of said sole plate to form a heel rest and provide a bottom chamber, a handle member positioned over said shell comprising a base portion covering a substantial portion of the central area thereof and extending over said overhanging portion, spaced supporting portions and a handle portion, interfitting means on the bottom of said base portion and on said shell for securing said handle member and sole plate together, means brought into engagement through said chamber for securing said members together, and a closure for said chamber to conceal said fastening means.

14. The combination in a sad-iron of a sole plate, means for heating said sole plate to a temperature in the region of 550° F., a shell covering said sole plate supported to assume a temperature in the region of 400° F., a temperature reducing plate spaced from the top of said shell and extending substantially from front to rear of said shell, and a handle of molded phenolic resin capable of withstanding a temperature of about 300° F. without material loss of strength mounted on said temperature reducing plate having inserts for attachment thereto, said temperature reducing plate serving to reduce the temperature of said inserts to a point not more than about 300° F.

15. The combination in a sad-iron of an electrically heated sole plate, spaced heat dissipating members positioned over said sole plate to provide a plurality of air spaces extending completely across the sole plate, open to the atmosphere substantially throughout the peripheral edges a handle secured to said sole plate positioned above said members, and a body of insulation material to retard the flow of heat to the handle and protect the hand of the operator.

16. The combination in a sad-iron of a sole plate having electrical heating means, thermostat mechanism responsive to temperature of the sole plate for controlling the heating temperature, a shell superimposed on the sole plate and enclosing the thermostat mechanism, means securing the shell to the sole plate, a heat dissipating plate positioned over the shell and spaced therefrom to provide an air space extending completely across the shell and open to the atmosphere substantially throughout the periphery, means of relatively small contact area for securing the plate to the shell remote from the first mentioned securing means, a handle of insulation material having integral therewith a wide base substantially covering said plate and spaced therefrom to provide an air space extending completely across the plate and open to the atmosphere substantially throughout the periphery, and means of relatively small contact area securing the handle to the plate remote from the second mentioned securing means.

17. The combination in a sad-iron of a sole plate structure having electrical heating means, thermostat mechanism responsive to temperature of the sole plate for controlling the heating temperature, a handle of insulation material having integral therewith a front and a rear supporting portion joined by a wide base portion, the handle being positioned on the sole plate structure with the base portion spaced therefrom providing a narrow air space extending completely across the top of the sole plate structure and open to the atmosphere at the periphery, and means of relatively small contact area securing the handle to the sole plate structure.

18. The combination in a sad-iron of an electrically heated sole plate, a heat dissipating plate positioned over the sole plate to provide an air space extending completely across the sole plate and open to the atmosphere at the periphery, a handle of insulation material having integral therewith a wide base portion substantially covering said plate and spaced therefrom to retard the flow of heat to the handle and to protect the hand of the operator, and means holding said parts in the relationship defined.

19. The combination in a sad-iron of an electrically heated sole plate, thermostat switch mechanism on the sole plate for controlling the temperature thereof, a handle of insulation material having integral therewith a wide base portion arranged to retard the flow of heat to the handle and protect the hand of the operator, and manually operable control means for the thermostat switch mechanism housed within the insulation handle.

20. The combination in a sad-iron of a sole plate having electrical heating means, thermostat mechanism responsive to temperature of the sole plate for controlling the heating means, a shell structure superimposed on the sole plate

and enclosing the thermostat mechanism, manually operable means for adjusting said thermostat mechanism including a manually operable member located above the shell structure adjacent to the forward end thereof, means for transmitting motion from said member to the thermostat mechanism, said adjusting means being assembled in operative relation with the sole plate and shell structure, and a handle unit having a chamber adjacent to its forward end adapted to receive the manually adjustable means and shaped so that when located on the shell structure it will enclose said adjusting means except for the manually adjustable member which is accessible from the exterior for making temperature adjustments.

21. The combination in a sad-iron of an electrically heated sole plate, thermostat switch mechanism on the sole plate for controlling the temperature thereof, a handle of insulation material having integral therewith a hollow front portion and a hollow rear portion joined by a wide base portion, means supporting the handle on the sole plate with the base portion in a position to retard the flow of heat to the handle and protect the hand of the operator, manually operable means disposed within the front supporting portion of the handle and connected with the thermostat switch mechanism for adjusting the latter, and current supply conductors disposed within the hollow rear portion of the handle and connected with the thermostat switch mechanism for supplying current thereto.

22. The combination in a sad-iron of an electrically heated sole plate structure, a handle of insulation material having integral therewith a wide base portion substantially covering said structure to retard the flow of heat to the handle and to protect the hand of the operator, and means operative between the sole plate structure and the base portion of the handle for detachably connecting the handle to the sole plate structure, including a bayonet finger secured to one thereof for interlocking with the other upon relative sliding movement, and means for clamping the handle to the sole plate structure to hold them interlocked.

23. The combination in a sad-iron of a sole plate having electrical heating means, thermostat mechanism responsive to the temperature of the sole plate for controlling the heating means, a shell structure superimposed on the sole plate and enclosing the thermostat mechanism, manually operable means for adjusting said thermostat mechanism including a manually operable member located above the shell structure, said parts being assembled as an operative unit, and a handle unit having a chamber adjacent to its rear end, an appliance cord passing through the handle unit into said chamber, current conductors fixed within said chamber and connected to the appliance cord, the first mentioned unit having current conductors for the electrical heating means projecting therefrom, the current conductors in the handle unit and on the sole plate unit being arranged so that upon location of the handle unit in working position on the sole plate unit the conductors of one unit will be brought into cooperative relation with the conductors of the other unit, and means for holding said units in said operative relation, one with respect to the other.

24. The combination in a sad-iron, a sole plate having electrical heating means, thermostat mechanism responsive to temperature of the sole plate for controlling the heating means, a shell structure superimposed on the sole plate and enclosing the thermostat mechanism, manually operable means for adjusting said thermostat mechanism including a manually operable member and a movable supporting frame for said member mounted on the shell structure adjacent to the forward end thereof and carrying the manually operable member spaced substantially above the shell structure, said adjusting means being assembled in operative relation with the sole plate and shell structure so as to constitute an operative unit, a handle unit having a confined chamber adjacent to its forward end adapted to receive the adjusting means, said handle unit adapted to be shifted relatively to the shell structure to an operative position with respect thereto, said supporting frame being movable on the shell structure to accommodate the shifting movement of the handle unit, inter-engaging means between the handle and the shell structure adapted to be engaged by said shifting movement of the handle to connect the latter to the shell structure, and means for locking the handle to the shell structure in said position.

25. The combination in a sad-iron of an electrically heated sole plate assembly constituting a completely operative unit having a thermostat switch mechanism for controlling the temperature, said unit including a heat generating assembly substantially closed at the top, a heat insulating plate conforming substantially in shape and size with the top of said heat generating assembly and spaced therefrom to provide a narrow air circulating passage extending completely across said top, and a handle of low heat conducting material having integral therewith a base portion conforming substantially in shape and size with said heat insulating plate and spaced therefrom to provide a narrow air circulating passage extending completely across said plate.

26. The combination in a sad-iron of an electrically heated sole plate structure constituting a completely operative unit having a thermostat switch mechanism for controlling the temperature, a manually operable member located above the sole plate proper adjacent to the front end thereof and operatively connected with the switch mechanism for making temperature adjustments; a handle unit of molded insulation material shaped to receive and house the projecting temperature adjusting means when located in operative position on the sole plate unit and providing access to the manually operable member for making temperature adjustments; and means for detachably securing the handle unit to the sole plate unit in said operative position.

27. The combination in a sad-iron of an electrically heated sole plate structure constituting a completely operative unit having a thermostat switch mechanism for controlling the temperature, a manually operable member located above the sole plate proper adjacent to the front end thereof and operatively connected with the switch mechanism for making temperature adjustments; a handle unit having a handle proper and a hollow front support for the handle, the hollow support adapted to receive and house the projecting temperature adjusting means when located in operative position on the sole plate unit and providing access to the manually operable member for making temperature adjustments; and means for detachably securing the handle unit to the sole plate unit in said operative position.

28. The combination in a sad-iron of an electrically heated sole plate unit, a handle unit having a handle proper and a base joined by a supporting portion, said handle parts being molded of insulation material, and an attachment insert molded into the underside of the base, said insert and the sole plate unit being shaped to provide inter-engaging parts for attachment of the one unit to the other.

29. The combination in a sad-iron of an electrically heated sole plate unit, a handle unit having a handle proper and a base joined by a supporting portion, said handle parts being molded of insulation material, and an attachment insert molded into the underside of the base, said insert having laterally spaced depending bayonet fingers, the sole plate unit having means for the reception of said fingers upon relative sliding movement, and means operative between the units to prevent relative displacement of the bayonet fingers from their engagement with the sole plate unit.

30. The combination in a sad-iron of an electrically heated sole plate structure constituting a completely operative unit having terminal conductors for the heater projecting from the unit and shaped for attachment to a current supply; a handle unit having a handle proper and a hollow rear support for the handle, a current supply cord extending into the hollow support and fixedly clamped thereto, terminal connectors mounted in a fixed location within the hollow support, the terminal ends of the cord having fixed connection with said terminal connectors, said terminal connectors arranged to be brought into cooperative current conducting relation with the terminal conductors on the sole plate unit when the handle unit is located in operative position thereon; and means for detachably securing the handle unit to the sole plate unit in said operative position.

31. The combination in a sad-iron of an electrically heated sole plate structure constituting a completely operative unit having terminal conductors for the heater projecting from the unit and shaped for attachment to a current supply; a handle unit having a handle proper and a hollow rear support for the handle of insulation material, a current supply cord extending into the hollow support and fixedly clamped thereto, terminal connectors having inserts molded in the hollow support at the interior thereof, the terminal ends of the cord having fixed connection with said inserts, said terminal connectors arranged to be brought into cooperative current conducting relation with the terminal conductors on the sole plate unit when the handle unit is located in operative position thereon; and means for detachably securing the handle unit to the sole plate unit in said operative position.

32. The combination in a sad-iron of an electrically heated sole plate structure constituting a completely operative unit having a thermostat switch mechanism for controlling the temperature, a manually operable member located above the sole plate proper adjacent to the front end thereof and operatively connected with the switch mechanism for making temperature adjustments, and having terminal conductors for the heater projecting from the unit and shaped for attachment to a current supply; a handle unit having a handle proper, a hollow front support and a hollow rear support for the handle, the hollow front support adapted to receive and house the projecting temperature adjusting means when located in operative position on the sole plate unit and providing access to the manually operable member for making temperature adjustments, a current supply cord extending into the hollow rear support and fixedly clamped thereto, terminal connectors mounted in a fixed location within the rear support, the terminal ends of the cord having fixed connection with said terminal connectors, said terminal connectors arranged to be brought into cooperative current conducting relation with the terminal conductors on the sole plate unit when the handle unit is located in operative position thereon; and means for detachably securing the handle unit to the sole plate unit in said operative position.

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