April 17, 1962 | I. JEPSON ET AL | 3,030,485

ELECTRIC PRESSING IRON

Filed Nov. 14, 1957 | 2 Sheets-Sheet 1

Fig. 1.

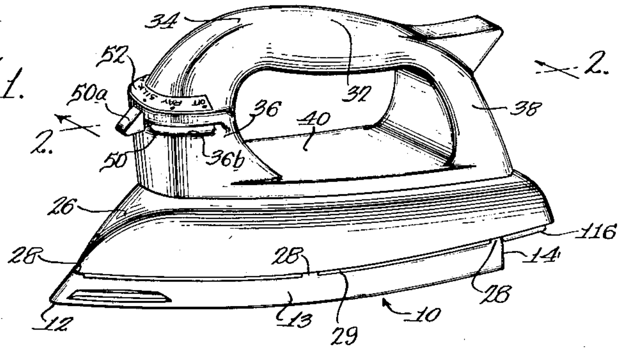


Fig. 2.

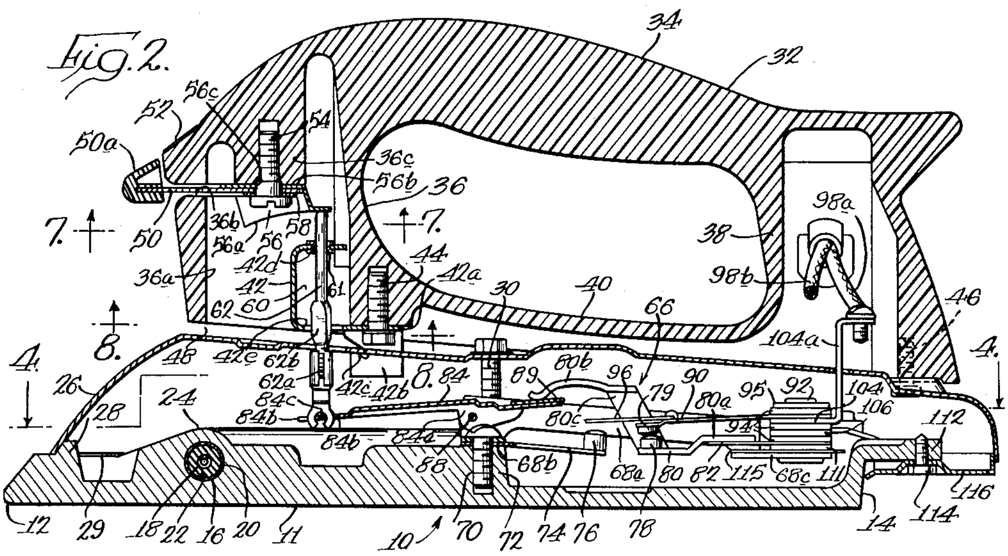
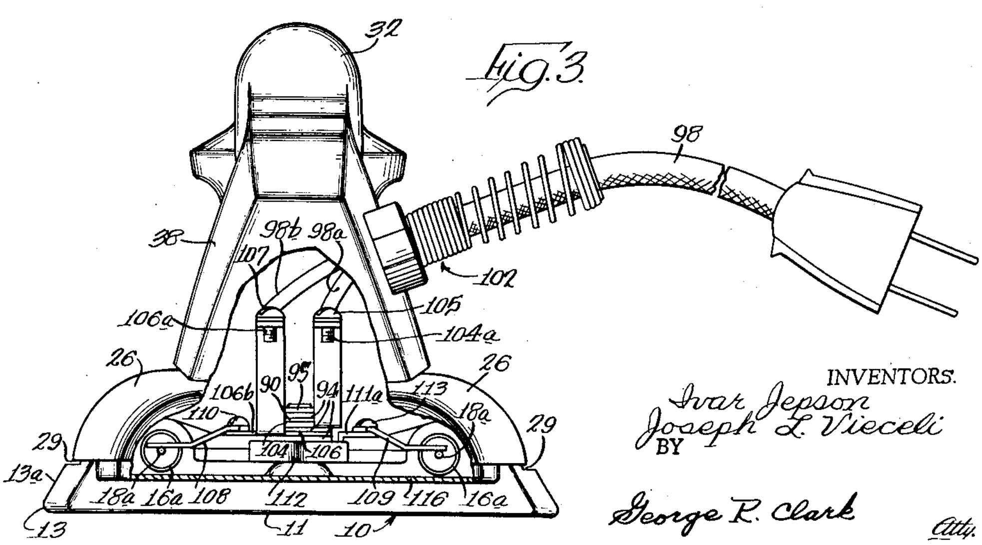


Fig. 3.



INVENTORS.
Ivar Jepson
Joseph L. Vieceli
BY
George R. Clark
Atty.

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Fig. 4.

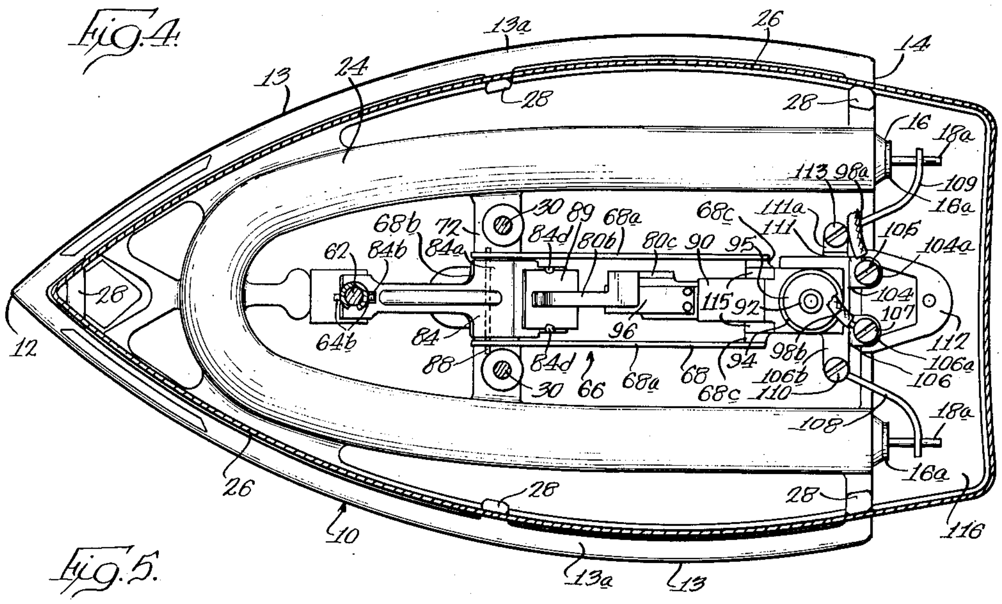


Fig. 5.

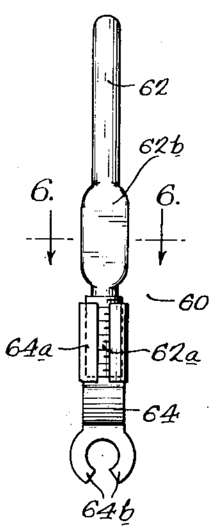


Fig. 7.

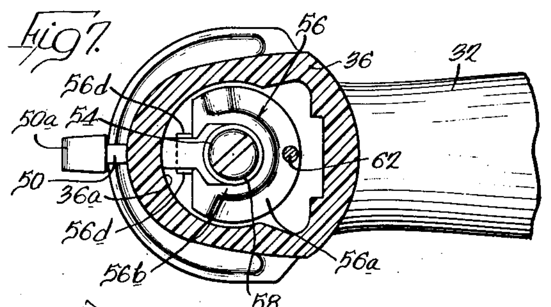


Fig. 8.

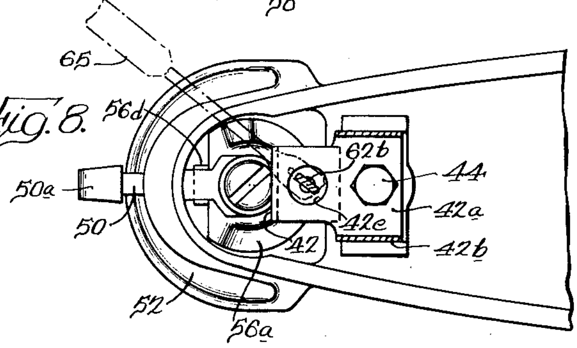
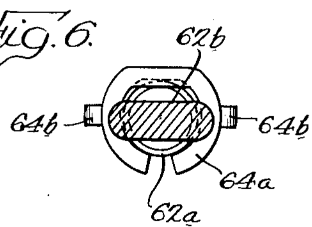


Fig. 6.



INVENTORS.
Ivar Jepson
Joseph L. Vieceli
BY
George R. Clark
Att'y.

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ELECTRIC PRESSING IRON

Ivar Jepson, Oak Park, and Joseph L. Vieceli, Cicero, Ill., assignors to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois

Filed Nov. 14, 1957, Ser. No. 696,371
8 Claims. (Cl. 219—25)

This invention relates generally to pressing irons and more particularly to hand operated electric pressing irons having thermostatic controls for regulating the sole plate temperature.

Thermostatically controlled electric pressing irons have been in widespread commercial use for many years. The desirability of having an electric iron which may be set for different operating conditions is well recognized. Since various fabrics require different sole plate temperatures for most efficient ironing, accurate control of the sole plate temperature has simplified the task of ironing considerably.

Most of the design activity in the electric iron field has centered around the temperature control mechanism for maintaining the sole plate at the temperature best suited to the material being pressed. The temperature should be regulated accurately since the possibility of scorching and otherwise damaging the material being pressed is increased substantially if the temperature is above the optimum range. If the sole plate of the iron is regulated to temperatures below the optimum range, the effectiveness of the ironing will be decreased and the time required to perform a given ironing operation will be increased. Because of the desirability of accurate temperature regulation, calibration means are often provided so that the control thermostat may be adjusted to give the proper range of sole plate temperatures for which it is set. To be most effective, the calibration adjustment should be made when the iron is completely assembled so that further assembly of the iron will not disturb the calibration.

In providing a calibration means accessible on the assembled iron, structural complications arise which increase the cost of the iron considerably. Some of the prior art devices employ calibration means which may be operated in the later stages of the assembly of the iron but prior to its complete assembly. In addition to introducing errors in the calibration, this last mentioned type of calibration means presents problems in the subsequent recalibration of the iron if the thermostat does not continue to regulate to the proper temperature. It would be desirable, therefore, to provide calibration means which would be easily accessible when the iron is completely assembled. Among other desirable characteristics which should be common to the temperature control mechanism are accuracy of temperature control over a substantial range, simplicity of construction and long life expectancy.

Although the basic component parts of the electric iron have become fairly standardized and include a sole plate, a shell, a handle and a heel rest, the mode of assembling these components has been the subject of much study and experimentation through the years. The ease with which these parts of the iron may be assembled is a significant factor in determining the initial cost of the iron as well as the cost of repairs to be made during the useful life of the device. If the basic parts of the iron are structurally simple and easy to assemble, the iron may be sold at an advantageous price and may be kept in satisfactory working order at a reasonable cost.

Accordingly, it is an object of this invention to provide an improved thermostat for an electric iron.

It is a further object of this invention to provide a thermostat having a simplified factory calibration mechanism associated therewith.

It is an additional object of this invention to provide an electric flat iron having a thermostat control linkage including a temperature calibration means which may be adjusted without disassembling the flat iron.

It is an additional object of this invention to provide a simplified control linkage for the thermostat of an electric flat iron.

It is a further object of this invention to provide an electric flat iron having a sole plate which includes a simplified means for assembling the other components of the iron thereto.

Further objects and advantages of the present invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

For a better understanding of the present invention, reference may be had to the accompanying drawings, in which:

FIG. 1 is a perspective view of an electrically heated flat iron embodying the subject invention;

FIG. 2 is a sectional view taken along line **2—2** of FIG. 1;

FIG. 3 is a rear elevational view of the flat iron of FIG. 1 having a portion of the handle and shell cut away;

FIG. 4 is a sectional view taken along line **4—4** of FIG. 2 showing a plan view of the sole plate;

FIG. 5 is an enlarged side elevational view of a portion of the control linkage;

FIG. 6 is a sectional view taken along line **6—6** of FIG. 5;

FIG. 7 is a sectional view taken along line **7—7** of FIG. 2; and

FIG. 8 is a sectional view taken along line **8—8** of FIG. 2.

Referring to the drawings, this invention has been shown in one form as applied to an electrically heated flat iron comprising a sole plate **10** having at its bottom the usual pressing surface **11**. The sole plate has the conventional shape provided with a point **12** at the forward end and curving sides **13** extending rearwardly from the point **12** to a flat heel edge **14**. The curving sides **13** slope upwardly and inwardly as indicated at **13**_a_ so that the iron may be easily used among folds, pleats and the like which are being ironed. The sole plate **10** may be made of any suitable metal such as aluminum, stainless steel bonded to aluminum or other good heat conducting material.

The sole plate **10** is provided with a sheathed heating element **16** which is cast integrally with the aluminum sole plate in the conventional manner. As in the usual construction, the heating element **16** takes the form of a U-shaped sheathed heating element which is positioned in the sole plate with its ends **16**_a_ protruding rearwardly past the end of the cast aluminum sole plate. The heating element **16** may be of conventional form having a helical electrical resistance conductor **18** mounted within a tubular sheath **20**. The resistance element **18** is held in spaced relation to the sheath by a compacted mass **22** of electrically insulating and heat conducting material such as granular magnesium oxide. The ends of the resistance element **18** are provided with terminals **18**_a_ which protrude rearwardly from the ends **16**_a_ of the sheathed heating element. As can be seen in FIGS. 2 and 4, the U-shaped heating element **16** is enclosed within an upwardly protruding U-shaped rib **24** formed integrally with the aluminum sole plate **10**.

It can be seen that the sole plate **10** has additional ribs and bosses which are provided to support the shell and the thermostat of the electric iron. The sole plate is covered by means of a shell 26 which is a substantially inverted cup-shaped member having downwardly extending sides which are supported on the sole plate 10. To reduce heat transfer between the sole plate 10 and the shell 26 the contacting area between the shell and the sole plate is reduced to a minimum. To accomplish this function and to fix the shell against lateral movement with respect to the sole plate, a number of upwardly extending notched protuberances 28 are provided to engage the shell at intervals along the edge of the downwardly extending walls. As can be seen in the sectional drawing of FIG. 2, the notched protuberances 28 position the shell 26 with respect to the sole plate 10 so that spaces 29 are left between the sole plate 10 and the shell 26.

In order to secure the shell 26 to the sole plate 10, a pair of vertically extending bolts 30 are provided which extend through holes in the upper portion of the shell 26 and are received in threaded openings in the sole plate 10.

The shell 26 serves as a support means for the handle 32 which may be made of any suitable electrical and heat insulating material such as a phenol condensation product. The handle 32 is formed with a horizontally extending gripping portion 34 by means of which the operator manipulates the iron. The gripping portion 34 is supported by a pair of vertically extending column portions 36 and 38 which extend downwardly from the front and rear portions respectively. The bottom ends of supporting columns 36 and 38 are joined by the horizontally extending plate portion 40 which serves as a heat insulating shield to protect the operator's hand from the heat radiating upwardly from the sole plate. The general construction of the handle 32 and the means of securing it to the shell 26 are disclosed in the United States patent to Bisley No. 2,277,034 issued March 24, 1942, to the same assignee as the subject application.

The subject Bisley patent discloses the use of downwardly extending hooks on the handle portion which engage the shell to retain the handle thereon. In the Bisley patent the handle assembly hooks were shown to be molded integrally with the plastic handle. In order to reduce the cost of the handle, the instant invention deals with a method of including the handle assembly hooks with another part of the mechanism so that they may be easily assembled to the handle without the additional expense of molding them integrally therewith.

In accordance with this object an upwardly extending control linkage guide bracket 42 is formed with a support portion 42*a* toward the rear thereof which includes at its outer edges a pair of downwardly extending assembly hooks 42*b*. The support portion 42*a* of the control linkage guide bracket 42 is assembled to the handle by means of a self-tapping bolt 44 which is received in a hole in the handle 32. To assemble the handle 32 to the shell 26, the assembly hooks 42*b* are inserted through slots in the upper portion of the shell 26 in the manner disclosed in the above cited Bisley patent. The handle is then slid forward so that the openings 42*c* formed by each of the hooks 42*b* engage the shell 26 to restrain the handle from vertical or lateral movement. In order to retain the handle in its forward position with the handle assembly hooks 42*b* in engagement with the shell 26, the rear portion of the shell is provided with several holes through which assembly bolts 46 pass to enter into threaded engagement with cooperating holes in the column 38 of the handle 32. Thus, in accordance with the teaching of the subject Bisley patent, the hooks 42*b* prevent vertical and lateral movement of the handle after assembly to the shell 26 and the bolts 46 prevent rearward movement of the handle 32 such as might cause disengagement of the hooks 42*b*. It should be noted that in the assembled position of handle 32 and shell 26 there remains a substantial spacing 48 between the forward portion of the handle and the top of the shell. This spacing not only reduces heat transfer between the shell and the handle but also permits the easy calibration of the control thermostat without disassembling the iron as will be explained in greater detail below.

To set the control thermostat so as to obtain the desired sole plate temperature, there is provided in the forward portion of the handle 32 a temperature control lever 50 which may be selectively positioned in regard to indicia appearing on the handle. To provide means on the handle for mounting the temperature indicia thereon, an adhesive backed metal foil member 52 is secured to a conically shaped surface on the top of support column 36. The foil member 52 may be suitably marked with the temperatures for which the control thermostat should be set to regulate the sole plate temperature or it may bear notations as to the type of material for which each temperature setting is most suitable. In either event it provides an index means to aid in setting the temperature control lever 50 to the desired sole plate temperature.

The control lever 50 is provided on its outer end with a plastic knob 50*a* to enable easy manipulation of the lever 50 by the fingers of the operator. The forward support column of the handle 32 is molded to provide a hollow portion 36*a* within which the temperature control linkage may extend for operation by the temperature control lever 50. Communicating with the hollow portion 36*a* is a horizontal slot 36*b* which extends around half of the support column 36. The slot 36*b* provides clearance for the control lever 50 so that it may be selectively positioned relative to indicia bearing member 52. To mount the temperature control lever 50 for rotation about a vertical axis, a shoulder screw 54 is threadedly received in the handle 32. As can be seen in FIG. 2 the shoulder screw 54 is adapted to be received in a downwardly extending boss 36*c*. Also received on the shoulder portion of screw 54 is a temperature control cam 56 which is mounted to rotate in unison with the temperature control lever 50 about the axis of shoulder screw 54.

To provide selective control of the thermostat, the temperature control cam 56 is provided with a downwardly facing, sloping cam surface 56*a* as can be seen in FIGS. 2 and 7. The central portion 56*b* of the cam 56 is flat and serves as a bearing surface for the cam 56. In the center of the bearing surface 56*b*, there is formed a hole 56*c* to receive the shoulder portion of screw 54. The shoulder screw 54 retains the cam in bearing engagement with the downwardly extending boss 36*c* of the handle. To prevent relative rotation of the temperature control lever 50 and the temperature control cam 56, a pair of downwardly extending ears 56*d* are formed on the control cam 56. The ears 56*d* serve to prevent relative rotation between the temperature cam 56 and the control lever 50. Upon assembly of the shoulder screw 54 to the handle 32 to retain the lever 50 and the cam 56 in assembled relationship, a tension washer 58 is placed between the head of shoulder screw 54 and the control lever 50. The tension washer 58 assures a proper pressure between the handle boss 36*c* and the temperature cam 56 so that they may be rotated relative to each other but so that they will not turn too freely.

To relate the position of the temperature cam 56 to the control thermostat which is mounted on the sole plate 10 there is provided an axially movable cam follower 60. The cam follower 60 is supported for vertical movement by the bracket 42. The bracket 42 is provided with a pair of bearing apertures 42*d* and 42*e* through which the cam follower 60 extends. The upper bearing aperture 42*d* has a grommet 61 mounted therein to provide a suitable bearing for the cam follower. The lower bearing aperture 42*e* is actually little more than a clearance hole through which the cam follower 60 extends, the lower end of the cam follower being restrained from horizontal movement by its connection to the control thermostat. This method of support is particularly advantageous since it restrains the cam follower **60** from horizontal movement relative to the cam **56** while at the same time permitting limited movement of the bottom portion to eliminate any likelihood of jamming and to reduce friction.

As can be best seen in FIGS. 5 and 6, the cam follower **60** is made up of two portions so that its length may be adjusted to vary the calibration of the control thermostat. The cam follower **60** has an upper or adjustable portion **62** positioned in engagement with the sloping cam surface **56a**. The lower end of the adjustable portion **62** is threaded at **62a** for assembly to a lower connecting portion **64** of the cam follower **60**. The middle of the adjustable portion **62** of the cam follower is flattened at **62b** to enable it to be engaged by a suitably constructed wrench for rotation thereof for calibration of the control thermostat. The flatted portion **62b** is positioned so that a portion of it is always located in the opening **48** between the handle **32** and the shell **26**. The portion **62b** is sufficiently elongated so that, within the range of axial movement permitted the cam follower **60**, the flatted portion will always be located partially within space **48**. Thus, regardless of the axial position of cam follower **60**, the flatted portion **62b** is readily accessible through space **48** to permit calibration of the thermostat. In FIG. 8 a suitable wrench **65** is shown in dotted lines in engagement with the flatted portion **62b** of the adjustable section of the cam follower. The end of wrench **65** is formed with a slot in which the flatted portion **62b** fits snugly as the wrench is inserted into the space **48** between the handle and the shell.

The connecting portion **64** of the cam follower **60** is formed at its upper end with a threaded portion **64a** which is adapted to receive the threaded end **62a** of the adjustable portion **62** of the cam follower. It can be readily understood that by rotation of the portion **62** of the cam follower **60** the overall length of the cam follower **60** is changed by the change in the amount of threaded engagement between the part **62a** and **64a** on the two-piece cam follower. Since the lower end of the cam follower is in operative engagement with the control thermostat the change in length of the cam follower provides a simple means of calibrating the control thermostat and the temperature control cam.

A thermostatic switch for the electric iron is designated generally by reference numeral **66** and is mounted in intimate heat exchange relationship with the central portion of the sole plate **10**. The thermostatic switch **66** is of a single unit construction having all the parts assembled to an elongated frame member **68**. The frame **68** comprises a pair of longitudinally extending side members **68a** which are connected together by front and rear transversely extending plates **68b** and **68c** respectively. The front transverse plate **68b** serves not only to connect the spaced frame members **68a** but also serves as a mounting plate for the entire thermostatic switch **66**. In accordance with this function the plate **68b** is secured by screw **70** to an upwardly extending boss or rib **72** on the sole plate **10**.

In order to have good response to the sole plate temperature, a primary temperature responsive bimetal **74** is mounted between the boss **72** and the mounting plate **68b**. The mounting of the bimetal **74** between the frame plate **68b** and the boss **72** assures good heat transfer between the sole plate and the bimetal **74**. The outer or free end of the bimetal **74** is provided with a ceramic insulating button **76** which is adapted to actuate electrical contacts in a manner to be explained below. The high expansion side of bimetal **74** is lowermost so that it deflects upwardly when heated.

Supported on the plate **68c** of the frame **68** are the switch arms carrying a pair of electrical contacts **78** and **79**. The lowermost contact **78** is mounted on a rigid switch arm **80** which extends upwardly and forwardly as well as rearwardly from the contact **78**. The rearwardly extending portion **80a** of the switch arm is joined to a resilient supporting arm **82**. The supporting arm **82** is adapted to mount switch arm **80** so that the lower contact **78** may be moved relative to the thermostat frame member **68**. Movement of the switch arm **80** is accomplished by means of force applied to a forwardly extending portion **80b** of the switch arm **80**. To permit the forward extension of portion **80b** while not interfering with bimetal **74** or the upper switch arm, an intermediate connecting portion **80c** is formed integrally with the switch arm **80**. The connecting portion **80c** extends upwardly from the portion of the switch arm adjacent the contact **78** and connects with the forwardly extending portion **80b** at a position above the switch contacts.

The switch arm **80** and its associated contact **78** are supported by the resilient arm **82** so that they may be positioned in accordance with the setting of the control lever **50** and the temperature control cam **56** mounted in the handle portion. As was explained above, the cam follower **60** is mounted for vertical axial movement in accordance with the positioning of the cam **56**. In order to transmit movement of the cam follower **60** to the switch arm **80**, a switch lever **84** is pivotally mounted between the forward portions of the thermostat frame **68**. The switch lever **84** consists of an elongated member having a pair of parallel spaced mounting plates **84a** extending downwardly from opposite sides of the center portion of the lever **84**. The mounting plates **84a** are formed with aligned holes to receive a mounting pin **88** which pivotally mounts the switch lever with respect to the thermostat frame **68**. Since the switch lever **84** is positioned above the assembly screws **70**, the switch lever **84** and pivot pin **88** are not assembled to thermostat frame **68** until after the thermostat assembly **66** is screwed to the sole plate.

To accomplish the pivotal connection between the cam follower **60** and the switch lever **84**, the connecting portion **64** of the cam follower is formed with a bifurcated end **64b**. To provide a bearing on switch arm **84** for the bifurcated portion **64b** of the cam follower, longitudinally extending cutout portions **84b** are formed in the forwardmost end of switch lever **84**. Separating the cutout portions **84b** is a transversely extending bearing portion **84c** which is received between the bifurcated ends of the connecting portion **64** of the cam follower.

The rearwardly extending end of the switch lever **84** has an insulating plate **89** secured thereto for bearing engagement with the cooperating end of switch arm **80b**. The insulating plate **89** is formed of silicone impregnated Fiberglas, mica or other suitable insulating material. To retain the insulating plate **89** on the switch lever **84**, a pair of ears **84d** formed integrally with switch lever **84** are crimped over the insulating plate **89**. The plate **89** serves to electrically insulate the control linkage from the contact member **78**.

The upper electrical contact **79** is supported adjacent the lower contact **78** by means of an upper resilient switch arm **90**. The switch arm **90** is joined to the thermostat frame **68** by means of rivet **92** which secures all the contact elements and connectors in stacked, insulated relationship in a well known manner. A series of ceramic washers **94** are employed between the conducting elements in the stack to insulate them from one another. To distribute the force of the rivet head against the ceramic washer **94** on the top of the stack, a metal washer **95** is assembled between the rivet head and the ceramic washer. The ceramic washers are provided with integral bosses which are received in holes in the conducting members for maintaining the conducting members spaced from the assembly rivet **92**. The assembly of stacked conducting members utilizing such ceramic washers or spacers is well known in the thermostat art and is therefore not disclosed in detail.

The resilient support arms **82** and **90** are formed and positioned so that in their undeflected position, the contacts **78, 79** are spaced from each other. Upon assembly of the cam follower **60** and handle **32** including the cam **56** to the iron, the downward force exerted by the cam follower **60** on the switch lever **84** tends to flex or bias the resilient support arm **82** upwardly. The counteracting force exerted by arm **82** tends to maintain the cam follower **60** in engagement with cam **56**. This relationship between the thermostatic switch **66** and the cam **56** and cam follower **60** creates an excellent fail safe whereby the contacts **78, 79** will open the heating circuit when the handle or control cam is removed or broken.

Extending forwardly from the upper switch arm **90** is a compensating bimetal **96**. The bimetal **96** is secured to the switch arm **90** by any suitable means such as welding, riveting or the like. The high expansion side is positioned downwardly so that bimetal **96** curves upwardly as it is heated as does the primary bimetal **74**. This upward deflection of bimetal **96** tends to compensate the thermostatic switch for the error which would otherwise result from the change in ambient temperature to which the primary bimetal **74** is subjected.

Even though the sole plate of an electric sadiron is constructed of heavy cast material and has the heating element cast integrally therewith, there is often some tendency for the sole plate to warp as it is heated. Because of this tendency, a fluttering of the electrical contacts is often noted when the temperature control linkage or the thermostat is supported at more than one point so as to be affected by such warping. This contact fluttering has been found to be present only when an increase in the hole plate warpage tends to open the contacts. The sole plate warpage in such instance operates against the desired control characteristics of the iron. Thus, when the thermostat senses the temperature is low and closes the contacts, the heat delivered to the sole plate tends to immediately open the contacts before the desired sole plate temperature rise has taken place. It would be desirable therefore to arrange the thermostat and the control linkage in such a way that any sole plate warpage would tend to close the contacts as the iron is heated rather than to open them.

As the iron is heated, the location of the heating element closer to the upper surface of the sole plate tends to deform the sole plate so that it becomes slightly concave downward. Because of the mounting of the control linkage relative to the mounting of the thermostatic switch **66**, this distortion of the sole plate tends to lower the forward end of the switch lever **84** with respect to the thermostat switch **66**. Because of the inverted arrangement of the contact arm **80**, this lowering of the forward end of switch lever **84** tends to close the contacts **78, 79** eliminating the possibility of any contact fluttering and eliminating the associated contact wear. By having the temperature control linkage, the switch lever **84** and the bimetals **74** and **96** operating as shown to eliminate contact fluttering, longer switch life results.

The iron of the instant invention is provided with a conventional two conductor power cord **98** which enters through an opening in the rear handle column **38**. A suitable cord guide and strain relief **102** is utilized to prevent wear at the point of entry in the iron and to reduce the possibility of disturbing the electrical connections to the iron by the application of force to the power cord **98**. Two conductors **98***a* and **98***b* of the power cord **98** are joined to suitable bus connections **104** and **106** respectively. The bus connectors **104** and **106** are assembled to the thermostat switch **66** by means of the rivet **92** described above which retains the conducting members and ceramic washers **94** in stacked relation. The connector **104** is secured to the switch arm **90** by welding to assure good electrical conduction therebetween. The connector **106** is similarly assembled to the thermostatic switch **66** by inclusion in the riveted stack by rivet **92**. The bus connectors **104** and **106** are formed with upwardly extending legs **104***a* and **106***a* which have screws **105** and **107** threadedly received in their upper ends to secure the ends of conductors **98***a* and **98***b* thereto.

To effect the connection between the thermostat switch **66** and the heating element **16**, a pair of wire connectors **108** and **109** are welded to the terminals **18***a* of the sheathed heating element. The other ends of the wire connectors are secured to thermostatic switch **66** by rigid conducting plates which are assembled to the thermostat frame **68** by means of the rivet **92**. One of the conducting plates is made up of a portion of bus connector **106** which is formed with an outwardly projecting tab **106***b* to which the wire connector **108** is secured. The end of the wire connector **108** is bent in a circular form around assembly screw **110** which is threadedly received in tab **106***b*. When the screw **110** is tightened down against the connector **108**, good electrical conduction is established between the end of heating element **16** and the conductor **98***b* through the bus connector **106**.

The other wire connector **109** is joined to thermostat **66** through rigid conducting plate **111** which is assembled to the stack by rivet **92** as described above. The plate **111** is welded to the resilient support arm **82** to assure good electrical conduction between wire connector **109** and switch arm **80**. The plate **111** has an integrally formed tab **111***a* which is drilled and tapped to receive assembly screw **113**. The end of the wire connector **109** is bent in a circular form around assembly screw **113**. Immediately below plate **111**, there is provided a mica insulating plate **115** which is designed to space the plate from the thermostat frame **68**. The mica member **115** also serves to prevent the resilient supporting arm **82** from contacting the thermostat frame **68** when contact **78** is biased downwardly. It can be readily understood that the above described construction of the thermostatic switch **66** and its associated electrical connecting members provides a simple and easily manufactured switch for controlling the temperature of an electric pressing iron.

As was explained above, the handle **32** is assembled to the shell by means of the hooks **42***b* which engage slots in the shell **26** and bolts **46** which secure the rear end of the handle to the shell. This provides an efficient and attractive arrangement whereby all the assembly means are hidden from view. In order to provide access to the handle assembly bolts **46** which extend from the inside of the shell into the handle, there is provided a removable heel plate **116** at the most rearward portion of the iron. The heel plate **116** is formed of sheet metal and assembled to the iron by means of a single screw **114**. To support the heel plate in position, the sole plate **10** is formed with a rearwardly projecting assembly lug **112**. The assembly lug **112** is cast integrally with the sole plate and extends rearwardly in a plane spaced above the pressing surface **11** of the sole plate **10**. The upwardly extending bolt **114** is threadedly received in the assembly lug **112** to secure the heel plate **116** in position as can be best seen in FIG. 2. This arrangement provides a simple and inexpensive means for uniting the heel plate to the iron. Heretofore it was conventional to assemble the heel plate from above or to utilize separate brackets or elongated screws extending upwardly into the handle portion.

The thermostatic switch **66** and its associated control linkage embodies an important safety feature heretofore unknown in this field. The thermostatic switch **66** includes a fail-safe feature so that if the handle is broken or otherwise removed from the iron when it is connected to its power supply, no overheating will result since the contacts **78, 79** will be immediately opened. It can be seen that if the pressure exerted by cam **56** on the cam follower **60** is removed, the resilience of support arm **82** of thermostatic switch **66** will cause contact **78** to move downwardly and thereby open the power circuit.

As is obvious from the detailed description appearing above, the instant invention provides a simplified sadiron construction which may be easily assembled in manufacturing and may be readily calibrated at the completion of the assembly operation. In addition, the iron may be readily recalibrated any time during its life without disassembly. The thermostat construction is designed for ease of manufacture and to eliminate contact fluttering for longer iron life. The assembly means for the heel plate and the support means for the cam and cam follower linkage are so arranged to reduce the parts required and facilitate their assembly to the pressing iron.

While we have shown and described a particular embodiment of our invention, it will be obvious to those skilled in the art that various changes and modifications may be made without departing from our invention in its broader aspects and we therefore aim in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of our invention.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. An electric iron comprising a sole plate having electric heating means, a shell mounted thereon enclosing said heating means, a thermostatic switch within the shell for controlling the heating means in response to the sole plate temperature, a handle having a gripping portion and a support portion secured to said shell, said support portion of said handle being mounted in closely spaced relation to said shell, the space between said shell and said support portion providing a thermal barrier against heat transfer from said shell to said handle, manually operable temperature control means mounted on said handle for setting the temperature of the sole plate, a connecting linkage extending through said support portion between said control means and said thermostatic switch across the spaced portions of said handle and said shell, and said linkage including temperature calibration means accessible through and being positioned partially within the space between said handle and said shell for changing the relationship between said control means and said thermostatic switch when said iron is completely assembled.

2. An electric iron comprising a sole plate having electric heating means, a shell mounted on said sole plate enclosing said heating means, a handle having a gripping portion, front and rear supporting columns connected to said gripping portion and secured to said shell, a thermostatic switch for controlling the heating means in response to the sole plate temperature, a manually adjustable cam for controlling the setting of said thermostatic switch, said cam being mounted for rotation about a vertical axis in the front supporting column a cam follower extending through said front supporting column and said shell between said cam and said thermostatic switch, said cam follower being mounted for axial movement in response to adjustment of said cam, and a portion of said cam follower accessible between said shell and the bottom of said front supporting column when said iron is completely assembled for varying the length of said cam follower.

3. An electric iron comprising a sole plate having electric heating means, a shell mounted on said sole plate enclosing said heating means, a handle having a gripping portion, front and rear supporting columns on said handle connected to said gripping portion and secured to said shell, a thermostatic switch for controlling the heating means in response to the sole plate temperature, a manually adjustable cam positioned on said handle for controlling the setting of said thermostatic switch, said cam being mounted for rotation about a vertical axis in said front supporting column, a two-piece vertically extending cam follower extending through said front supporting column and said shell between said cam and said thermostatic switch and mounted for axial movement in response to adjustment of said cam, the two parts of said cam follower being threadedly engaged so that rotation of one part relative to the other changes the over-all length of the cam follower, one of said parts being restrained against rotation by its engagement with said thermostatic switch, and the other of said cam follower parts being accessible between said shell and the bottom of said front supporting column when said iron is completely assembled.

4. An electric iron comprising a sole plate having electric heating means, a handle mounted on said sole plate for manipulation of said iron, a thermostatic switch for controlling the heating means in response to the sole plate temperature, a manually adjustable cam positioned on said handle for controlling the setting of said thermostatic switch, a two-piece vertically extending cam follower positioned between said cam and said thermostatic switch and mounted for vertical movement in response to adjustment of said cam, the two parts of said cam follower being threadedly engaged so that rotation of one part relative to the other changes the over-all length of the cam follower, one of said parts being restrained against rotation by its engagement with said thermostatic switch, a portion of said handle being mounted in spaced relation to the remainder of said iron, and said rotatable portion of said cam follower being positioned in part within said space.

5. An electric iron of the type described in claim 4 in which the rotatable cam follower portion positioned in said space has a flattened cross section so it may be readily rotated.

6. The electric iron of claim 1 wherein said temperature calibration means comprises an elongated two-piece member mounted for longitudinal movement, the two pieces of said member being threadedly engaged whereby said switch is calibrated by varying the amount of threaded engagement between said pieces.

7. The electric iron of claim 2 wherein said cam follower includes a connecting portion in threaded engagement with said first-mentioned portion, the length of said cam follower being varied by rotating said first-mentioned portion to change the amount of threaded engagement between said portions.

8. The electric iron of claim 7 wherein said connecting portion is restrained from rotation by its engagement with said thermostatic switch.

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