Jan. 9, 1940. F. W. SCHARF 2,186,930

ELECTRICALLY HEATED PRESSING IRON

Original Filed Jan. 21, 1935 2 Sheets-Sheet 1

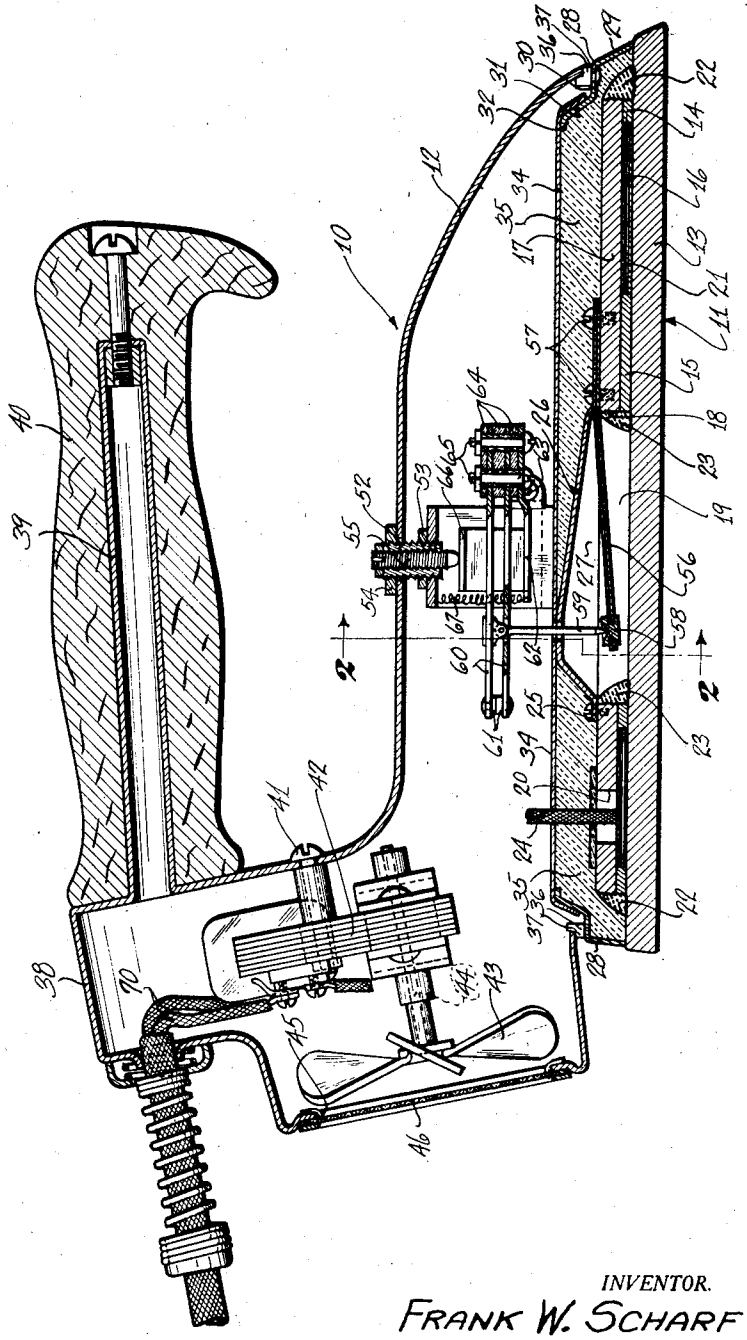


Fig. 1.

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Fig. 2.

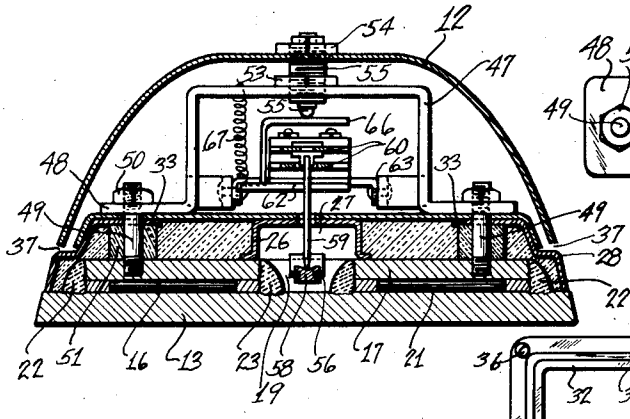
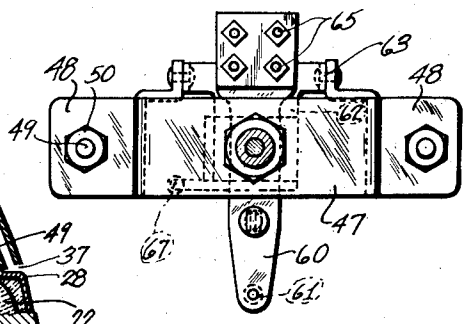


Fig. 5.



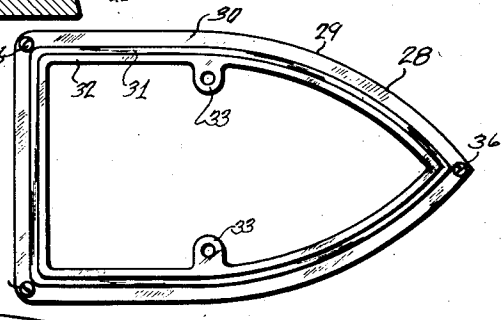
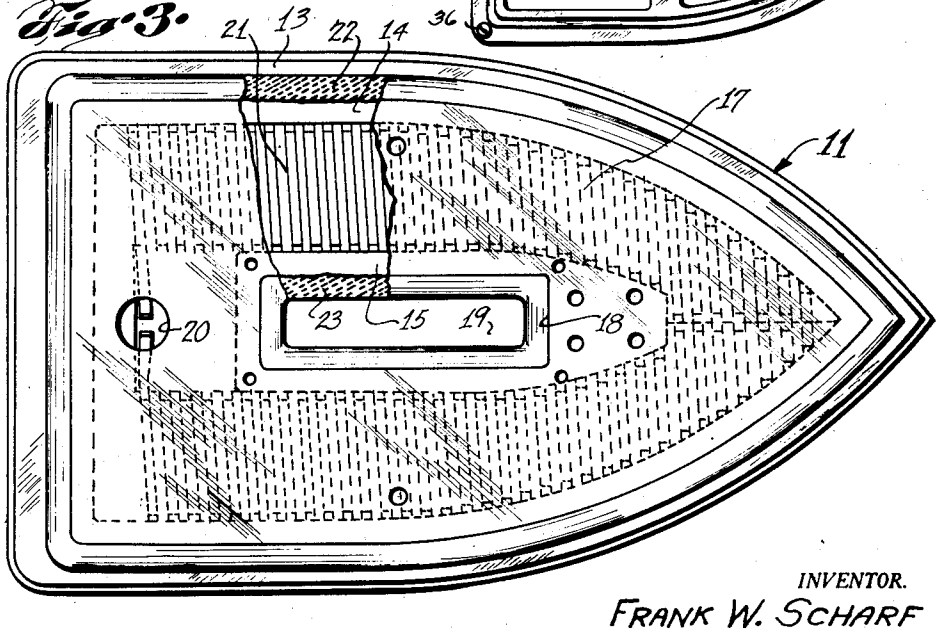


Fig. 4.

Fig. 3.



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ELECTRICALLY HEATED PRESSING IRON

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29 Claims. (Cl. 219—25)

This invention relates generally to electrically heated pressing irons, and more specifically to pressing irons of this type which are adapted to be operated by hand.

The predominant object of the invention is to provide an electrically heated pressing iron which is so constructed and arranged that in the operation thereof, heat is concentrated at the lower portion of the iron where much heat is desired for efficient operation of the iron, and at other parts of the iron where heat is not desired, heat transfer is retarded and dissipated to provide for comfortable handling of the iron by a user thereof.

Another object of the invention is attained in a base plate for a pressing iron, which comprises an electrical heating unit surrounded by a plurality of metallic elements welded together to form an integral structure. The integral arrangement of the base plate assembly results in a greater heat conductivity between the elements thereof than a similar base plate assembly constructed according to heretofore prevailing practice in which the elements are secured together by bolts, rivets, or other fastening devices.

Yet another object of the invention is to provide a means for removing undesired heat from certain parts of the pressing iron, for example, the upper housing portion and the handle therefor. The improved iron disclosed herein includes a suitable air moving device, such as a small electrically operated fan, which causes movement of air within and adjacent to certain parts of the iron in a manner to carry away undesired heat from the said upper parts of the iron.

A further object of the invention is attained in the provision of suitable heat insulation to retard the passage of heat from the base plate to the upper housing portion in order to maintain a high thermal efficiency and reduce the amount of moving air required to cool the upper housing.

These and other objects and advantages will appear from the following detailed description and accompanying drawings, in which:

Fig. 1 is a sectional view taken longitudinally through the improved pressing iron; Fig. 2 is a cross-section of the pressing iron as viewed along line 2—2 of Fig. 1; Fig. 3 is a plan view of the base plate assembly, certain portions thereof being broken away to illustrate its construction; Fig. 4 is a plan view of a frame piece, and Fig. 5 is a plan view of a heat controlling mechanism.

In the drawing, wherein is shown for the purpose of illustration, merely one embodiment of the invention, the pressing iron, indicated generally at 10, includes a base plate assembly 11 and an upper housing 12. The base plate assembly 11 comprises a base plate 13 of the usual shape and form of the bottom faces of pressing irons, said base plate being of constant thickness throughout and having smooth top and bottom faces. Arranged in contact with the top face of the base plate 13 is a marginal frame element 14 having the approximate shape of the base plate 13 but slightly smaller in size so that when disposed thereon it will be evenly spaced from the marginal edge of the plate. The frame element 14 is in the form of a relatively narrow marginal bar or strip as shown most clearly in Fig. 3, the center portion of the frame element being entirely open. Located centrally within the frame element 14 and in contact with the top face of the base plate 13, is a smaller rectangular frame element 15, and as in the case of the frame element 14 the element 15 is in the form of a marginal bar or strip. The rectangular frame element 15 is arranged approximately on the longitudinal medial line of the base plate 13 and is spaced from the forward and rearward portions of the marginal frame element 14, as a result of this arrangement a continuous space 16 is provided between the inner marginal edge of the marginal frame element 14 and the outer marginal edge of the rectangular frame element 15.

Superimposed upon the marginal frame element 14 and the rectangular frame element 15 is an inner plate 17, this plate being substantially the same shape and size as the outer margin of frame element 14 as shown in Fig. 4. The inner plate 17 is provided with an elongate opening 18 which is of approximately the same shape and dimensions of the center opening of the rectangular frame element 15. When the base plate 13, the frame elements 14 and 15, and the inner plate 17 of the base plate assembly are in their assembled condition, the elongated opening 18 of the inner plate is arranged in registration with the center opening of the rectangular frame element 15 to form a well 19. The inner plate 17 is also provided with an opening 20 which is located rearwardly of the elongated opening 18 and communicates with the rear portion of the space 16 within the marginal frame element 14.

When the plates and frame elements of the base plate assembly are in their assembled condition, the space 16 is entirely enclosed, at its bottom by the base plate 13, at its top by the inner plate 17, at its outer margin by the marginal frame element 14, and at its inner margin by the rectangular frame element 15. The marginal frame element 14 protects the outer edge of the heating

element and the rectangular frame element 15 protects the inner edges of the heating element. The elongated well 19 is formed by the inner edge of the rectangular frame 15 and the wall of the elongated opening 18 in the inner plate 17, the well extending from the top face of the base plate 13 to the top of inner plate 17 for a purpose hereinafter appearing.

In assembling the base plate assembly 11, the frame elements 14 and 15 are arranged in place upon the plate 13 in the arrangement already described herein and a suitably insulated electrical heating element 21 is disposed in the space 16. The inner plate 17 is then superimposed upon the frame elements 14 and 15 and the assembled plates and frame elements are welded together, the welded junction shown at 22 extending completely around the outer margin of the plate 17 and frame element 14, and the welded junction indicated at 23 extending along the periphery of the opening 18 in plate 17 and the inner margin of element 15.

In irons of former constructions the plate overlying the heating element is undesirably maintained at a higher temperature than that of the underlying, or sole plate, since the heat in the sole plate is being constantly dissipated in the pressing operation. In such irons, where mere surface contact exists between the plates, heat transference is relatively poor and a substantial portion of the available heat in the upper plate is lost instead of passing into the lower plate where it is used in the pressing operation. In applicant's improved device the welded junctions 22 and 23 provide paths of relatively high heat conductivity which enables a larger portion of the heat in the upper plate to be utilized by the sole plate, minimizing the amount of wasted heat.

Extending through the opening 20 formed through the upper plate 17 adjacent to the rearmost end thereof are electrical conductors 24, the conductors serving to conduct electrical energy to the resistance means of the electrical heating element 21. The heating element 21 is constructed in a manner well known in the art and need not be described in detail herein, but for completeness it can be said that the element comprises a mica core about which is wound a thin metal band, the ends of the band being connected to the conductors 24.

Secured to the upper plate 17 as by screws 25 is a closure element 26 which serves to close the well 19 formed in the base plate assembly so as to provide an enclosed chamber 27 for a purpose hereinafter appearing.

Supported by the marginal edge portion of the top face of the base plate 13 is a marginal casing element or shell 28 having a cross-sectional shape as illustrated in Figs. 1 and 2. The casing element includes a continuous substantially vertical portion 29 whose lower edge rests upon the top face of the base plate 13, a continuous inturned horizontal ledge portion 30, an inwardly positioned, continuous portion 31 arranged substantially vertical, and an upper inturned horizontal portion 32. The marginal casing element 28 is of substantially the same shape and size (Fig. 4) as the outer margin of the base plate 13 of the base assembly. The upper horizontal portion 32 of the marginal casing element is provided with apertured inturned ears 33 for a purpose to be hereinafter set forth.

Associated with the marginal casing element 28 is a plate 34 which is supported by the upper horizontal portion 32 of the marginal casing element and is provided with a downturned flange which contacts with the portion 31 of the casing element. The marginal casing element 28 and the plate 34 are arranged to provide a housing for the parts of the base plate assembly which are arranged above the top face of the base plate 13 and within this housing between the inner faces thereof and the top and side faces of the various upper parts of the base plate assembly, a body of suitable heat insulating material 35 is positioned.

Supported by the horizontal portion 30 of the casing element 28 is the upper housing or casing 12 of the improved pressing iron. The upper housing is hollow as shown in Figs. 1 and 2, its lower edge resting upon a plurality of feet 36 which are fixed to the horizontal portion 30 of the marginal casing element 28. Preferably there are three of the feet 36, one at the front of the iron and two at the opposite rear corners thereof, each of said feet is provided with angularly arranged shoulders with which the lower edge portion of the upper casing 12 contacts. The angular supporting shoulders of the feet 36 are located at points above the top face of the horizontal portion 30 and as a result the lower edge of the housing 12 is spaced vertically from the portion 30 of the element 28. Thus a marginal space 37 is present which extends continuously throughout the front, side and rear portions of the pressing iron, except at the locations of the feet 36.

At the rear of the pressing iron 10 the upper casing 12 is provided with an upwardly extended hollow portion 38, and extended forwardly from this portion 38 is a tubular extension 39. The casing 12, the upwardly extended portion 38 thereof, and the tubular extension 39 are all in communication with each other as shown in Fig. 1, a suitable grip 40 is mounted upon the hollow extension 39 so as to provide a handle for the manipulation of the iron.

Supported within the portion 38 of the cover casing 12 as by screws 41 is an electric motor 42 which serves to drive a fan 43 through a shaft 44, for a purpose hereinafter appearing. At the rear of the upper casing portion 12 an opening 45 is provided which is covered by suitable screening 46, the blades of the fan 43 being arranged adjacent to this opening as shown in Fig. 1 so that when the motor 42 is in operation, air will be drawn into the interior of the casing portion 12 by the fan blades. The screening 46 is provided to prevent fingers of a user of the iron, or other persons, from coming in contact with the rotating fan 43 when the air moving device is in operation. The screening also prevents passage of dirt and foreign matter into the interior of the iron.

In order to secure the upper casing portion 12 to the base plate assembly, a yoke 47 is provided. The yoke 47 is of inverted U-shape formation as shown most clearly in Fig. 2, and is provided with outwardly extended attaching portions or ears 48 which are provided with apertures formed therethrough, the apertures are arranged in vertical alinement with the openings formed through the inturned ears 33 of the marginal casing element 28, and with corresponding openings formed through the plate 34.

Secured in screw threaded openings formed in the upper plate 17 of the base plate assembly is a pair of upwardly extending, oppositely disposed rods 49 (Fig. 2) which are threaded at their upper ends. The rods 49 pass through the alined openings of the inturned ears 33, plate 34, and

the extending portions 48 to receive nuts 50. The rods 49 are provided with spacer sleeves 51 which are interposed between the top face of the upper plate 17 of the base plate assembly, and the lower face of the inturned ears 33, the spacer sleeves being preferably formed of a material which is a poor conductor of heat. It will be seen from the foregoing and from Fig. 2 that when the nuts 50 are tightly threaded on the rods 49, the yoke 47, plate 34, marginal casing element 28, and base plate assembly 11 will be held in a rigidly assembled relation.

At the approximate center of the top bar of the yoke 47 is formed a screw threaded opening to receive an internally and externally threaded sleeve 52, a lock nut 53 being provided to lock the sleeve securely in the yoke 47. The sleeve 52 extends upwardly from the yoke 47 through an aperture in the cover casing 12 to receive a nut 54 which, when threaded down on the sleeve, will hold the cover 12 in assembled relation with the base assembly. The internal threads of sleeve 52 are adapted to receive a regulating screw 55 which forms an element of the heat control mechanism to be presently described.

To provide for automatic control of the electric energy passing to the electric heating unit 21 of the iron, a bi-metallic strip 56 is arranged within the chamber 27, the strip being secured at one end by means of screws 57 to the inner base plate 17. In accordance with well known characteristics of bi-metallic strips, due to the relative unequal expansion of its component parts, the strip is adapted to bend or warp longitudinally, responsive to changes in the temperature of the base plate. The free end of the strip 56 is provided with a socket element 58 which receives in contact therewith the lower end of a link 59, the opposite, or upper end of the link 59 being pivotally attached to the upper one of a pair of resilient switch members 60, suitable holes or openings are provided in the closure element 26, plate 34, and the lower switch member through which the link 59 passes. The switch members are provided at their free ends with contacts 61 and are carried by a cradle member 62 which is pivotally mounted as at 63 to the side portions of the yoke 47, the switch members being insulated from each other and from the cradle member 61 by insulating pieces 64 and secured together by bolts 65. A portion of the cradle member 62 is bent to form a portion 66 which overlies the switch contacts and bears against the adjusting screw 55, a tension spring 67, secured at its ends to the yoke and cradle member, is adapted to maintain the cradle in contact with the adjusting screw. The switch members 60 are suitably connected to one of the electrical conductors 24 so that when the switch contacts 61 are open, the electrical circuit to the heating element in the base plate structure is broken, as will appear more fully hereinafter.

The normal operative position of the electrical contact elements 61 is in contact with each other as shown in Fig. 1, this condition will permit electrical energy to pass to the electrical heating element 21 for heating the base plate 11. However, when the heat of the base plate 11 becomes excessive, the strip 56 will bend or flex upwardly, causing a corresponding upward movement of the link 59 and the upper switch member 60 to which the link is attached, whereby the contact elements 61 will be separated to break the electrical circuit leading to the electrical heating unit 21 of the iron. With the electrical circuit to the heating element broken, the base plate will slowly cool until the strip 56 returns toward its normal position allowing the switch contacts to close and complete the electrical circuit to the heating element 21 to again heat the iron. When it is desired to change the temperature at which the iron is operating, for example to a lower temperature, the adjusting screw 55 is screwed downwardly so as to move the cradle member 62 about its pivot point 63 to lower the position of the switch members 60. In this position of the parts the switch contacts 61 will be opened and the electrical circuit broken to maintain the iron at a relatively low operating temperature. If the parts are adjusted so as to raise the switch members 60, the iron will reach a relatively high temperature before the contacts are opened and the electrical circuit broken.

In the use of the improved pressing iron disclosed herein, the base plate assembly 11 is heated by the heating element 21 in a well known manner, and because of the integral structure of the base plate assembly, the heat conductivity between the parts thereof is substantially increased so as to maintain the lower plate 13 at a desired high temperature at all times. The blades of the fan 43 will draw relatively cool air through the screening 46 into the interior of the upper casing or cover 12, the air being forced through the casing and discharged therefrom through the marginal space 37 located around and between the lower edge of the upper casing 12 and the marginal casing element or shell 28. The circulation of air through the upper casing 12 removes the heat leaking through the insulation 35 and rising from the base plate, to thereby maintain the air within the casing and the casing at a relatively low temperature, thus eliminating the possibility of burning the hand if the operator should accidentally touch the casing.. Since the outwardly moving layer of air is discharged from the iron at a point immediately above the hot base plate assembly, heat arising from the base plate and from the article being pressed will be blown laterally away from the iron and away from the operator's hand which grasps the handle of the iron, thus preventing discomfort to a user thereof. Due to the fact that the handle of the iron includes the hollow extension 39, air will be blown into the interior of the handle by the fan to maintain said handle in a cool condition.

The conductors 70 serve to connect the conductors 24 to a suitable source of electrical power for energizing the heating element 21, and the electrically operated air moving device is by preference also electrically connected to the conductors 70 so that it is placed in operation when the pressing iron is connected to the line. However, if desired, the windings of the motor of the air moving device may be arranged in series with the heating element 21 and the thermostatic switch.

The relatively low temperature of the casing 12 will prolong the life of the contacts, terminals and the insulation of the conductors, thus minimizing the danger due to short circuits and the expense of the replacement of parts. Also, if the usual detachable type of cord is desired, smaller terminals and plug will be required than those now used on the present types of irons.

While the foregoing description has covered in detail certain presently preferred embodiments of the invention, it is to be understood that the device may be varied substantially as to parts

shown and their arrangements and combinations without departing from the spirit and full intended scope of the invention, as defined by the appended claims.

I claim:

1. In an electric iron, the combination with a base plate, of an outer marginal frame, an inner marginal frame substantially coaxial with the outer marginal frame and radially spaced therefrom, both of said frames being located against the top surface of the base plate, an electric heating element in the space between the marginal frames, an inner plate overlying the two frames and having its edges registering respectively with certain edges of the frames and means for securing the inner plate and the marginal frames to the base plate and for providing a good heat path from the top surface of the heating element to the base late, said means comprising relatively heavy seams of welding metal connecting the edges of the inner plate and of the frames to the top of the sole plate.

2. An electrically heated pressing iron comprising in combination, a base plate, an inner plate, an outer marginal frame element located between the base plate and the inner plate, an inner frame element located within said outer marginal frame element and between the base plate and the inner plate, said inner frame element being so positioned relative to said outer marginal frame element as to provide an enclosed space between the inner edge of the outer marginal frame element and the outer marginal edge of the inner frame element and between the base plate and the inner plate, and an electrical heating element disposed within said enclosed space, said inner plate, outer marginal frame element and inner frame element being welded together at their edges and to the base plate to provide a good heat path from both sides of the heating element to the base plate.

3. An electrically heated pressing iron comprising in combination a base plate assembly including a base plate, a heating element thereon, a marginal frame coplanar with the heating element and positioned around the outside thereof, an inner plate overlying the frame and the heating element and a welding seam of metal connecting the edge of the frame and the inner plate to the base plate to hold these members in proper tightly-assembled positions relatively to each other and to provide a good heat-flow path from the inner plate to the base plate, and a layer of heat-insulating material overlying the inner plate.

4. An electrically heated pressing iron comprising in combination a metal base plate, an electric heating element thereon, a plurality of associated metallic members cooperating with the base plate to enclose the heating element on all sides, seams of welding metal securing the associated metallic members together and to the base plate, a marginal casing supported on the base plate, a cover plate having its edges resting upon and supported by the marginal casing in upwardly spaced relation relatively to the base plate and heat insulating material located in the space between the cover plate and certain of said associated metallic members.

5. An electrically heated iron comprising in combination, a base plate, an electric heating element thereon, a hollow housing located above the base plate and the heating element and means to reduce the amount of heat flow upwardly from the heating element, said means including a plurality of engaging metallic members cooperating with the base plate to substantially completely enclose the heating element, heavy, substantially continuous seams of welding metal integrally connecting said metallic members with the base plate to hold them and the heating element in proper operative positions and to provide a good heat flow path from all sides of the heating element to the base plate, heat insulating material above the engaging metallic members, and metal casing and cover members over the heat insulation and engaging the base plate to cause heat flowing through the heat insulating material to be transmitted to the base plate.

6. An electrically heated iron comprising in combination, a base plate, an electric heating element thereon, a plurality of associated metallic members cooperating with the base plate to substantially completely enclose the heating element, a hollow housing over the base plate and heating element and means for reducing the temperature rise of the housing, said means including heavy, substantially continuous welding seams integrally connecting the associated metallic members to the base plate to conduct heat from the top of the heating element to the base plate, a layer of heat insulating material located above the heating element and an air moving device in the hollow housing for causing air to flow into and then out of the hollow housing.

7. An electrically heated iron comprising in combination, a base plate, an electric heating element thereon, an inner plate, an outer marginal frame located between the base plate and inner plate, an inner frame within said outer marginal frame and between the base plate and inner plate, welding seams connecting the base plate, inner plate and frames together to substantially completely enclose the heating element and to provide good heat flow paths from the heating element to the base plate, alined openings in the inner plate and inner frame providing a recess above the base plate, a closure member for the recess, a plate located above the inner plate, heat insulating material between the plate and the inner plate, a hollow upper housing, a control switch for the heating element located in the housing above the heat insulating material, a thermally-actuable element disposed in the recess and means for transmitting movement of the thermally-actuable element to the control switch.

8. In an electrically heated iron, the combination with a base plate and an electric heating element clamped against the upper surface of the base plate, of a hollow upper housing located above the base plate and heating element, a fan located within the hollow housing at one end of the iron and adapted to move air substantially longitudinally of the hollow upper housing to cool the same, air inlet means in the hollow housing through which air is drawn into the hollow housing by the fan and an air outlet for the exhaust of air from the hollow housing.

9. In an electrically heated iron, the combination with a base plate, a heating element thereon and a hollow housing over and above the base plate and the heating element, of means for maintaining the hollow housing at a relatively low temperature, said means comprising a metal cover plate engaging the top of the heating element, relatively heavy welding seams connecting the cover plate to the base plate to provide a good heat flow path from the top of the heating

element to the base plate, heat-insulating material over the cover plate to reduce heat flow upwardly from the heating element and an air moving device in the hollow housing to move air past the upper surface of the heat insulating material.

10. In an electrically heated iron, the combination with a base plate, a heating element thereon and a hollow housing above the base plate to provide an air space between the housing and the heating element, of means for maintaining the housing at a relatively low temperature during operation, said means including a metal cover plate engaging the top of the heating element and relatively heavy welding seams connecting the cover plate to the base plate to cause heat from the top of the heating element to flow to the base plate, a barrier of heat insulating material over the cover plate to reduce heat-flow toward the housing and an electric means to move air continuously into and out of the space between the heat insulation and the housing.

11. In an electrically heated iron, the combination with a base plate and an electrical heating element thereon, of a hollow housing above the base plate covering the heating element, a motor driven fan in the hollow housing energized simultaneously with the heating element, an air inlet in the housing through which air is drawn into the housing by the fan and air discharge means for the exhaust of air from the hollow housing, located adjacent to the junction of the base plate and the hollow housing.

12. In an electrically heated iron, the combination with a base plate and an electrical heating element secured against the top of the base plate, of a hollow housing above the base plate, a motor driven fan supported by and located within the hollow housing, an air inlet in the housing through which air is drawn into the hollow housing by the fan and an air outlet for the exhaust of air from the housing, located adjacent to the junction of the base plate and the lower edge of the housing and being extended throughout the front, sides and rear portions of the iron.

13. In an electrically heated iron, the combination with a base plate, an electric heating element thereon and clamping means holding the heating element against the base plate, of a hollow housing over the base plate and the heating element, securing means holding it in proper operative position relatively to the base plate with a marginal space below the lower edge of the housing, an opening in the housing wall at the rear end of the housing and a motor driven fan supported by and located within the housing with the fan substantially in register with the opening in the housing wall to draw air into the space inside of the housing and force it therefrom through the marginal space.

14. In an electrically heated iron, the combination with a base plate, an electric heating element thereon and clamping means holding the heating element against the base plate, of a hollow housing over the base plate, the heating element and the clamping means and having a hollow upstanding portion at the rear end of the iron, a motor driven fan located partly in the upstanding portion of the housing, an air inlet in the rear wall of the housing adjacent to the fan for ingress of air moved by the fan into the space beneath the housing and means holding the housing in proper operative position above the base plate with a marginal space below the lower edge of the housing to provide an air outlet for the air moved by the fan.

15. In an electrically heated iron, the combination with a base plate, an electric heating element thereon and clamping means holding the heating element against the base plate, of a hollow housing over the base plate, the heating element and the clamping means and having a hollow upstanding portion at the rear end of the iron, a motor driven fan located partly in the upstanding portion of the housing, an air inlet in the rear wall of the housing adjacent to the fan for ingress of air moved by the fan into the space beneath the housing and means holding the housing in proper operative position above the base plate with a marginal space below the lower edge of the housing to provide an air outlet for the air moved by the fan and including a handle for the iron secured against the front wall of the upstanding portion of the housing and extending forwardly therefrom.

16. In an electrically heated iron, the combination with a base plate, an electric heating element thereon and a clamping means for the heating element providing a good heat flow path from the top of the heating element to the base plate, of a layer of heat-insulating material over the heating element and clamping means, a hollow housing covering the heating element, the clamping means and the layer of heat-insulating material and providing a clear space between the housing and the heat-insulating material, securing means for holding the housing with a marginal space between the lower edge of the housing and the top of the heat-insulating material, a thermally-actuated switch in the space below the housing and a motor driven fan in the housing and adapted to move air into and out of the space within the hollow housing to reduce the temperature of the top of the housing and of the switch during operation of the iron.

17. In an electrically heated iron, the combination with a base plate, an electric heating element thereon and a metal inner plate holding the heating element against the base plate, of a metal-encased layer of heat-insulating material on the inner plate, a yoke of substantially inverted U-shape resting on the metal-encased heat-insulating material, holding means for the yoke extending into and secured to the metal inner plate, a hollow housing covering the base plate and the yoke and clamping means for the housing secured to the yoke.

18. In an electrically heated appliance, the combination with a plate to be heated, a heating element therefor at one side thereof, an inner plate in contact with said plate and a hollow housing over the inner plate, heating element and plate, of means for cooling said housing comprising a fan within the housing to cause air to move over the inner plate and into and out of the housing.

19. In an electrically heated appliance, the combination with a plate to be heated, a heating element therefor at one side thereof, an inner cover plate over the heating element and in contact with said plate, heat insulation above the heating element and a hollow housing covering the heat insulation, heating element and plate, of means for cooling the housing comprising a fan located within the housing adapted to move air into and out of the housing past the heat insulation.

20. In an electrically heated iron, the combination with a base plate, a heating element in

heat-conducting relation thereto and a hollow housing covering the heating element and the base plate, of means for reducing the amount of heat transmitted to the housing including a fan carried by the iron and positioned to move air into and out of the housing.

21. In an electrically heated iron, the combination with a base plate to be heated, a heating element in heat-conducting relation thereto and a hollow housing located above and covering the heating element and the base plate and having its lower edge spaced from the base plate, of a motor driven fan carried by the iron and positioned to draw air into the housing and force it out of the space between the lower edge of the housing and the base plate.

22. An electrically heated iron comprising a base plate, a flat heating element thereon, an inner plate overlying the heating element, a heavy welding seam of metal integrally connecting substantially the entire edge of the inner plate to the base plate to tightly clamp the inner plate against the heating element and the heating element against the base plate and to provide a good heat path from the top surface of the heating element to the base plate, a layer of heat-insulating material overlying the inner plate and means to hold the insulating material over the inner plate.

23. An electrically heated iron comprising a base plate, a flat electric heating element on the base plate, an inner metal plate overlying the heating element, a hollow housing over the base plate and heating element and means for reducing the temperature rise of the housing, said means including a welding seam connecting the edge of the inner metal plate to the base plate to conduct heat from the top of the heating element to the base plate, a layer of heat-insulating material located above the inner plate and base plate and an air-moving device in the hollow housing for causing air to flow into and then out of the hollow housing.

24. In an electrically heated pressing iron, the combination with a base plate and an electrical heating element secured against the top of the base plate, of a hollow upper housing above the base plate, and means to reduce heat flow from the heating element to the housing including an air moving device in the hollow housing energized simultaneously with the heating element, an air inlet in the housing adjacent the air moving device through which air is drawn into the hollow housing by the air moving device and an air outlet for the exhaust of air from the housing, located adjacent to and above the base plate and being extended throughout the sides and front of the iron.

25. In an electrically heated iron, the combination with a base plate, an electric heating element thereon and an inner plate on top of the heating element and secured to the base plate, of a hollow housing over the base plate, spaced from and covering the heating element and the inner plate, the lower edge of the housing being spaced from the sole plate, the housing having an integral hollow upwardly-extending rear-end portion, a motor driven fan located in said rear-end portion adapted to move air into and out of the space under the housing to cool the same, and a handle grip for the iron secured to the front surface of the rear-end portion of the housing.

26. In an electric iron, the combination with a base plate, a heating element thereon and an inner plate on the heating element, of means integrally connecting substantially the entire peripheral edge of said inner plate to the sole plate and providing a good heat flow path from the entire peripheral edge of the inner plate to the sole plate, said means consisting of a heavy seam of welding metal depending substantially from the entire peripheral edge of the inner plate and engaging the base plate.

27. In an electric iron, the combination with a base plate, a heating element thereon and a heavy inner plate on the heating element, of a heavy seam of welding metal integrally connecting substantially the entire peripheral edge of said inner plate with said base plate to tightly clamp said heating element against the base plate and to provide a good heat path from the inner plate to the base plate.

28. In an electric iron, a base plate, a flat heating element thereon, an inner plate on the heating element, protecting means between the inner plate and base plate extending around the outside of the heating element to enclose it and a substantially continuous heavy welding seam of metal on the outside of the protecting means integrally connecting the inner plate and base plate to tightly clamp the inner plate against the heating element and the heating element against the base plate to provide a heat path of low thermal reluctance between the inner plate and the base plate.

29. An electric iron having a flat base plate, a flat heating element thereon, an inner plate above the flat heating element, means around the heating element spacing the inner plate from the base plate, a heavy welding seam of metal on the outside of the spacing means connecting the inner plate to the base plate to tightly clamp the inner plate against the heating element and the heating element against the base plate and to provide a heat path of low thermal reluctance between the inner plate and the base plate, the spacing means being adapted to protect the heating element during the welding operation from the hot welding metal.

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