Oct. 31, 1950 E. A. WEILAND 2,527,779

ELECTRIC IRON WITH SIGNALING MEANS

Filed Sept. 4, 1948 2 Sheets-Sheet 1

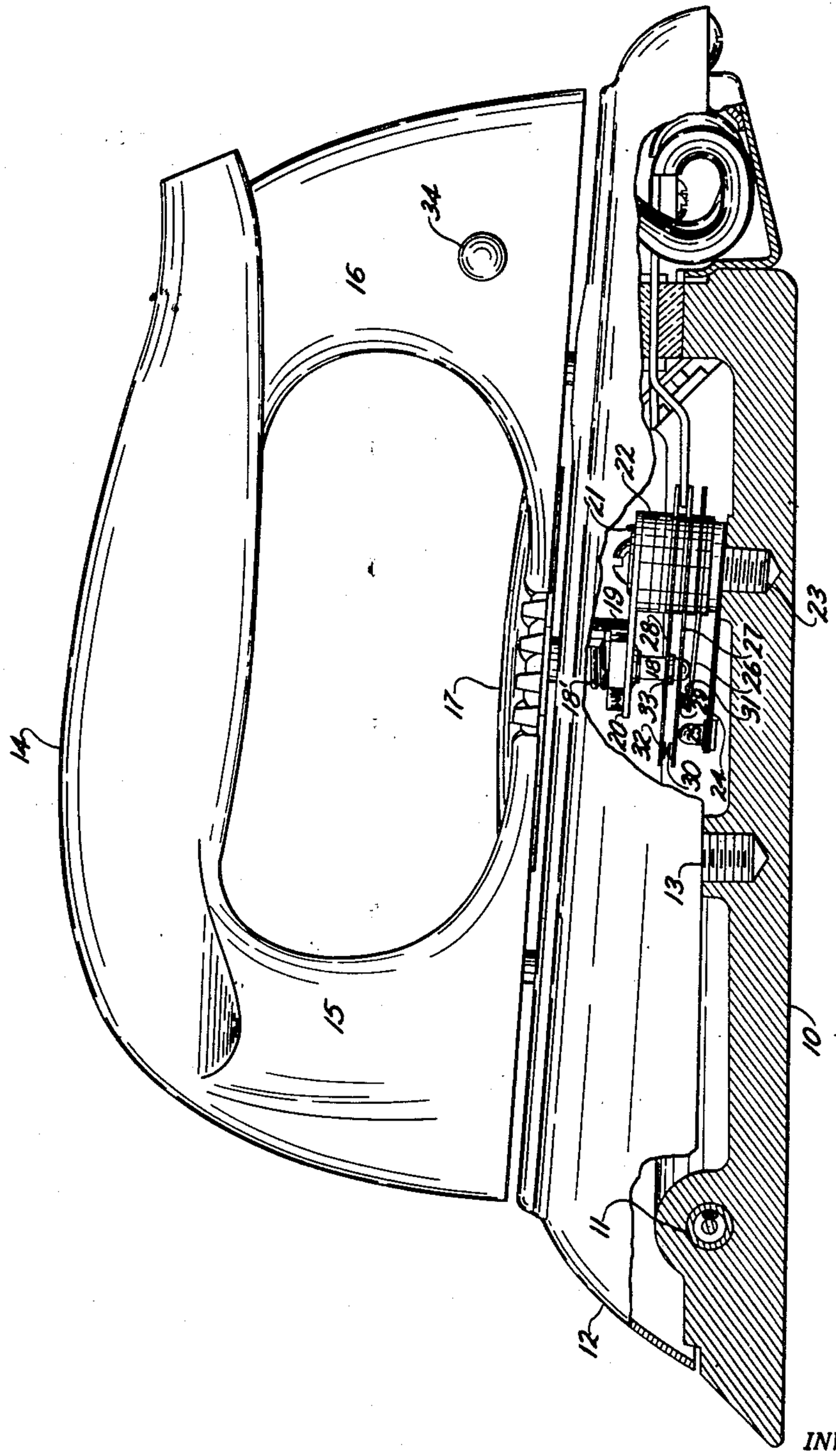

Fig. 1

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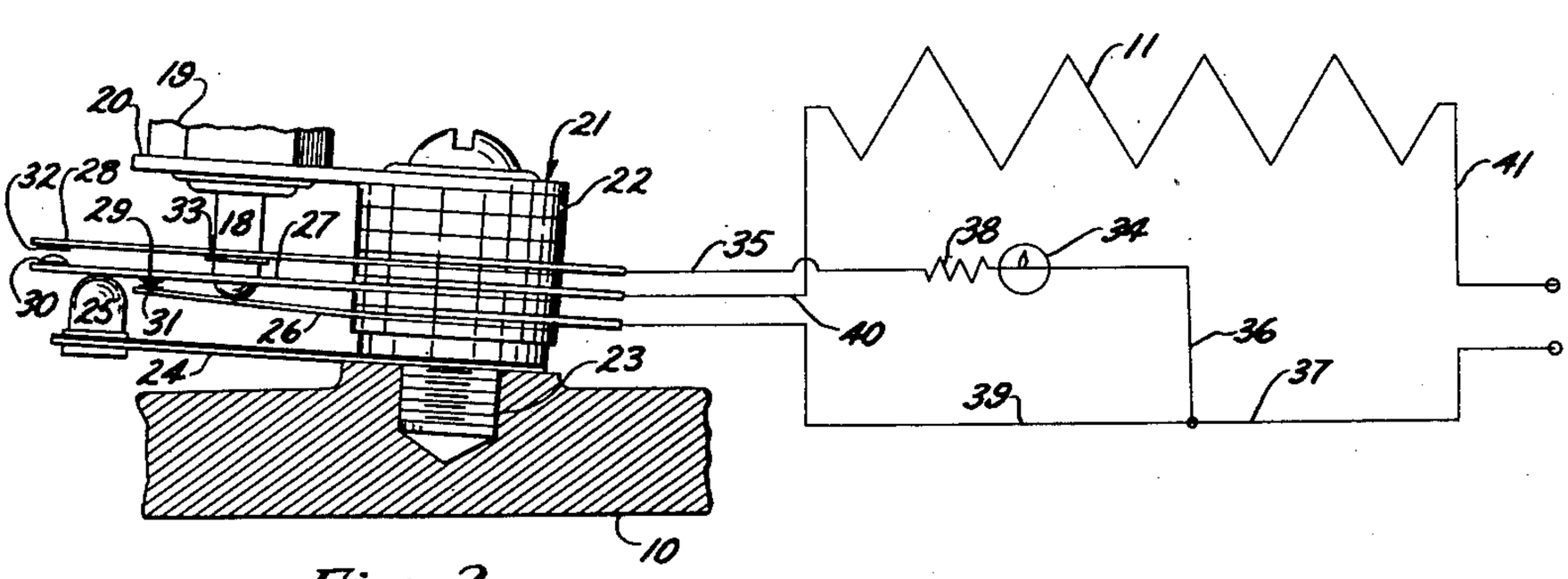

Fig. 2

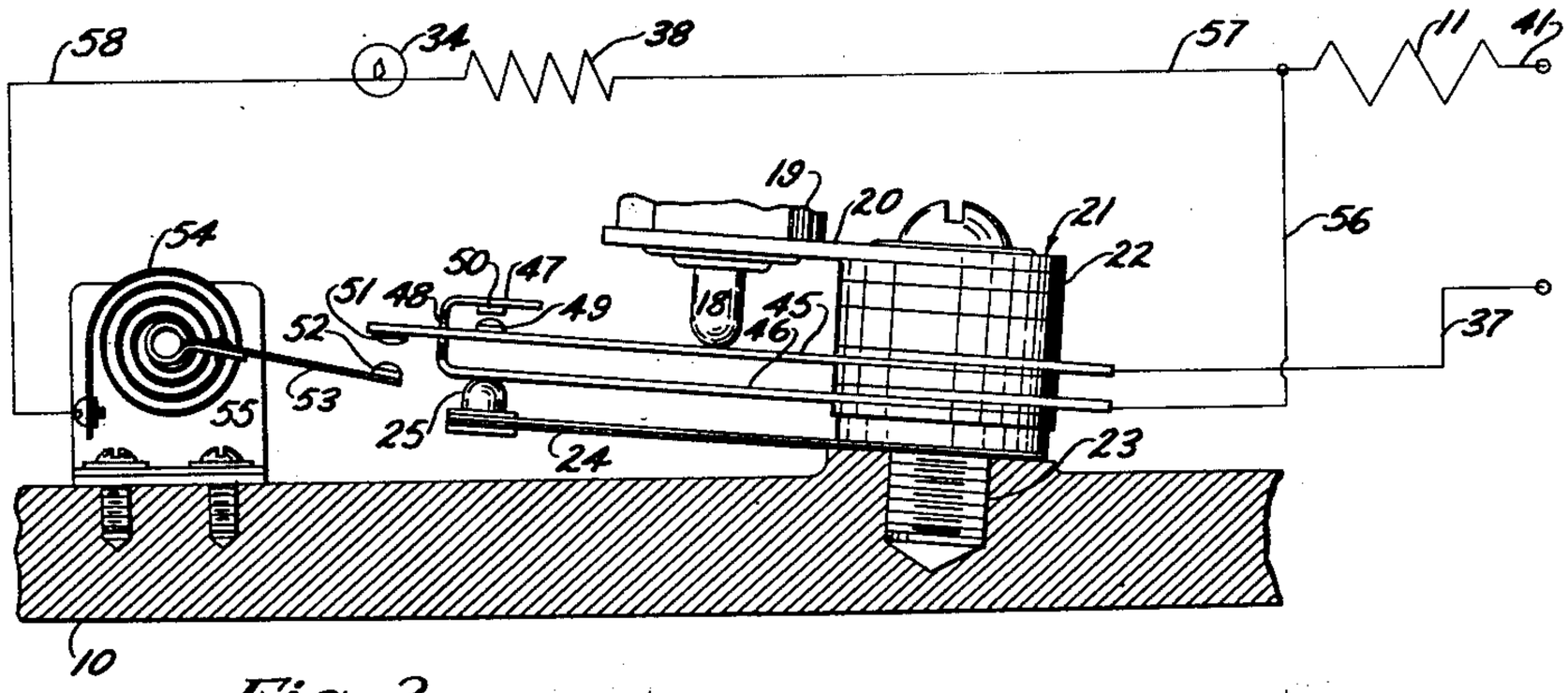

Fig. 3

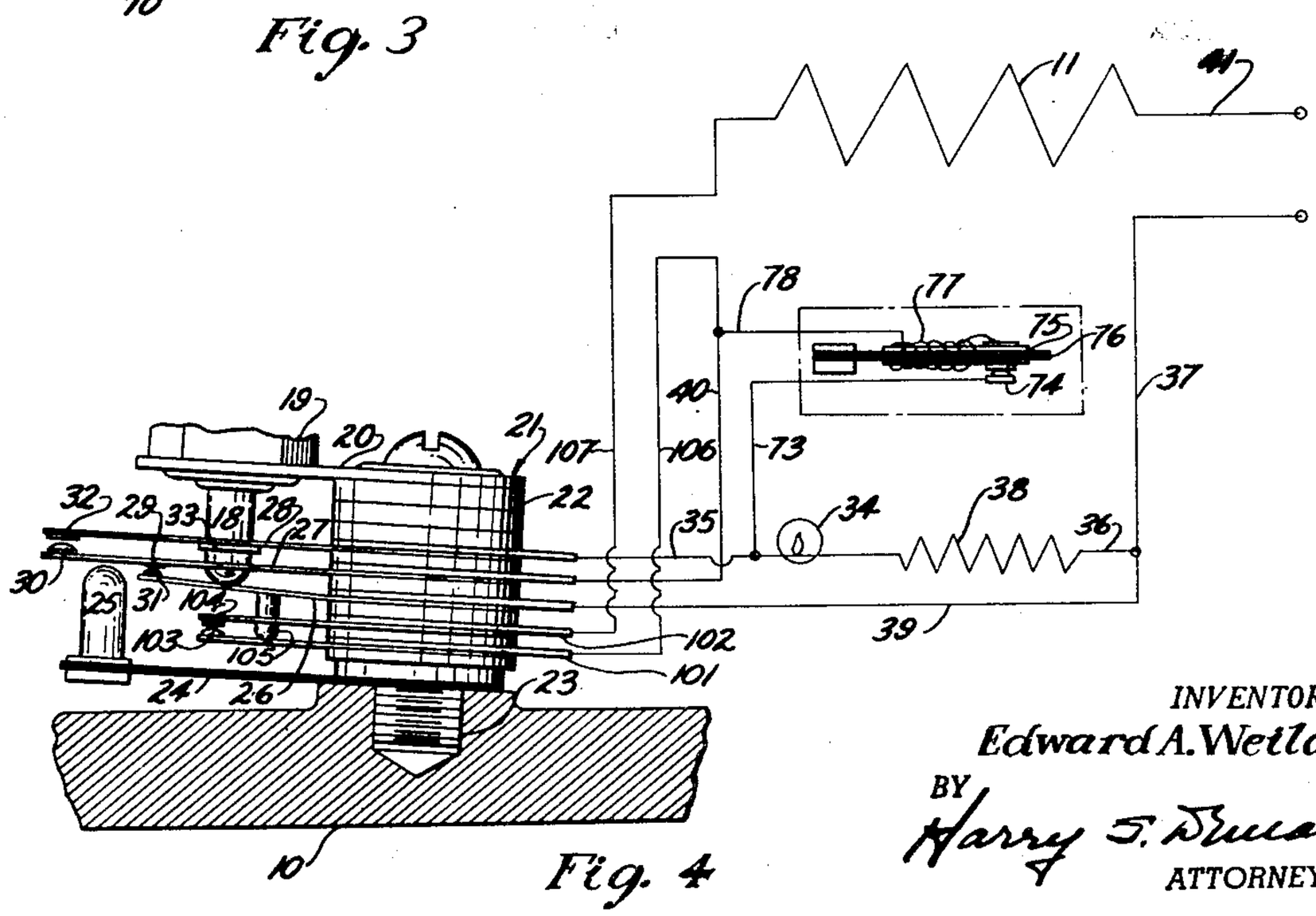

Fig. 4

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UNITED STATES PATENT OFFICE

2,527,779

ELECTRIC IRON WITH SIGNALING MEANS

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Application September 4, 1948, Serial No. 47,876

16 Claims. (Cl. 177—311)

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This invention relates to electric smoothing irons and more particularly to a control therefor which will automatically indicate to the user whether the iron is at the proper temperature for ironing the particular fabric for which the control is set.

The invention is particularly useful when a plurality of different types of fabrics are being ironed in succession. It is also useful in informing the user when the iron has reached its proper temperature at the beginning of any ironing operation.

The normal household ironing may consist of silks, rayons, cottons, wools, and linens. Controls have been provided which can be set so that the iron will be held at the proper temperature for ironing any of the foregoing fabrics. However, if an attempt is made to iron any particular fabric before the iron is hot enough futile effort is expended by the user. If the control is set at the proper temperature for ironing one particular fabric and is changed to the proper temperature for ironing another fabric some time will elapse before the iron temperature will reach the proper temperature corresponding to the new setting.

If the control is changed from a high temperature setting to a low temperature setting while the iron is hot, immediate use of the iron will scorch the fabric having a lower ironing temperature.

Conversely, if the control is moved from a low temperature setting to a high temperature setting, immediate use of the iron will result in wasted effort by the user because the iron is not immediately hot enough for ironing the higher temperature fabric.

In either case, according to this invention, the user is constantly informed as to whether or not the iron is at the proper temperature for ironing any particular fabric for which the control is set.

More particularly according to this invention a single signal light is provided which gives a signal when the iron is at too low a temperature for ironing the particular fabric for which the control is set. When the temperature of the iron is at the proper temperature for which the control is set the signal light will be illuminated in a distinctive manner to indicate that the iron is at the proper temperature. However, if the control is moved from a high temperature setting to a lower temperature setting while the iron is still hot the signal light will be illuminated in another distinctive manner to indicate to the user that the iron is too hot for ironing the fabric for which the control is set.

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Specifically, according to one form of this invention, a signal light and control is provided in which the light is off when the iron temperature is below the proper ironing temperature for which the iron is set, the light blinks on and off slowly in unison with the normal oscillation of the control bimetal when the iron is at the proper temperature as indicated by the control setting and is continuously on when the iron temperature is above that indicated by the control setting.

This application discloses and claims the basic invention of providing a single signal light which gives a signal when the iron temperature is too low, gives one distinctive active signal when the ironing temperature is correct, and gives another distinctive active signal when the iron temperature is too high. Specific embodiments of means for carrying out the foregoing in which different types of distinctive signals are given, are disclosed and claimed in an application by C. R. Schmidt, Serial No. 47,841 and an application by Otis B. Sutton, Serial No. 47,842 both filed concurrently herewith.

According to one modification of the present invention, the main control thermostat actuates a pair of coacting electrical contacts in such manner that when the control is moved from its off position to any particular setting when the iron is cold or is moved from a low temperature setting to a higher temperature setting, one pair of contacts will be closed to connect the heater directly across the line. A shunt circuit including the signal light will remain open. When the iron reaches the temperature for which the control is set the thermostat will operate to intermittently open the first pair of contacts and close the second pair to energize a circuit including the heater, the signal light and a resistance, the arrangement being such that the light will be illuminated and the heating effect of the heater reduced to such an extent that the iron will cool off until the thermostat again closes the first pair of contacts and opens the second pair. The signal light then blinks on and off in unison with the oscillation of the thermostat to indicate that the iron is at the proper ironing temperature. When the iron temperature is too high such as when the control is moved from a high temperature setting to a lower temperature setting the first contacts will remain open and the second closed whereby the light will be on steadily to indicate that the iron temperature is too hot for ironing the fabric for which the control is set. The iron will then cool down until the thermostat operates to close the first pair of contacts and

again open the second pair. The light will then blink slowly in unison with the oscillation of the thermostat to again indicate that the iron is at the temperature indicated by the new setting.

According to a second modification of this invention, the main thermostat controls one pair of electrical contacts and an auxiliary thermostat responsive to sole plate temperature controls a second pair of electrical contacts. The arrangement is such that when the control is turned from its off position to any particular setting when the iron is cold, or when the control is moved from the low temperature setting to a higher temperature setting, the main thermostat closes the first pair of contacts to connect the heater directly across the line while the auxiliary thermostat holds the second pair of contacts open and the light remains off. As the iron temperature approaches the temperature for which the control is set, the auxiliary thermostat closes the second pair of contacts to connect the signal light and a resistance in shunt circuit with the heater. However, the resistance of the shunt circuit is high enough so that substantially all the current will flow through the heater and it will continue to heat the iron until it reaches the temperature indicated by the control setting. The main thermostat will then open the first pair of contacts so that the light and resistance is connected directly across the line and the light will be illuminated. The main thermostat then oscillates back and forth to open and close the first pair of contacts to maintain the iron at the proper temperature and to intermittently cause the light to be illuminated in unison therewith to indicate that the iron is at the proper ironing temperature. When the control is moved from a high temperature setting to a low temperature setting the first pair of contacts will remain open while the second will remain closed and the light will be on steadily to indicate that the iron is too hot. When the iron cools off the main thermostat will again close the first pair of contacts and will again oscillate back and forth to intermittently cause the light to be illuminated in unison therewith to indicate that the iron is again at the proper temperature.

According to a third modification of this invention a blinker thermostat is connected in shunt circuit with the main heater. The main thermostat actuates two pairs of coacting contacts, the arrangement being such that when the control is turned from its off position to any particular setting when the iron is cold, or is moved from a low temperature setting to a higher one the first pair of contacts will remain closed to connect the heater directly across the line. The second pair of contacts will also be closed. However, the signal light, blinker heater, and a resistance in the circuit closed by the second pair of contacts are in shunt circuit with the heater and will remain inactive because of the high resistance of the shunt circuit. When the iron reaches the temperature for which the control is set the main thermostat will open the first pair of contacts whereby the light, blinker heater, resistance, and main heater will be connected directly across the line by reason of the second pair of contacts remaining closed. The resistance values of the various elements are so chosen that the heat from the main heater will be materially reduced so that the main heater in effect will remain inactive. Sufficient current, however, will flow to illuminate the light and to cause the blinker heater to rapidly heat the blinker thermostat so as to rapidly open and close a third pair of contacts and cause the light to blink on and off rapidly to indicate that the iron is at its proper ironing temperature. If the control is moved from a high temperature setting to a lower temperature setting the first pair of contacts will be opened and the second closed. The blinker heater will be connected in shunt circuit while the light and resistance will be connected directly across the line. The light will then be on steadily until the iron again reaches the temperature indicated by the control setting to indicate that the iron is too hot for ironing the fabric for which the control is set.

Other objects and advantages of this invention will become apparent as the description proceeds when taken in connection with the accompanying drawings in which:

Figure 1 is a skeleton view of an iron with the parts broken away to show how the control and signal light of this invention is applied thereto;

Figure 2 is a detail view of the control showing how the various parts are connected in circuit;

Figure 3 is a view similar to Fig. 2 showing a modified form of the invention; and

Figure 4 shows another modified form of the invention.

Figures 1 and 2

Referring to Figs. 1 and 2 of the drawings the reference numeral 10 represents a sole plate heated by an electric heater 11 of any suitable character. A cover shell 12 is secured to the sole plate 10 in any suitable manner such as by a bolt 13. A handle 14 having front and rear legs 15 and 16 is secured to the cover shell 12 in spaced relation thereto as shown in Fig. 1. A control dial 17 is positioned over the cover shell 12 between the front and rear legs 15 and 16 of the handle 14.

Drivingly attached to the dial 17 is a control shaft 18 screw threaded into a nut 19 secured to a bracket 20, supported from the sole plate 10 by a post 21 made up of a plurality of insulating washers 22 held downwardly by a screw 23. The control shaft is held against inadvertent rotation by a spring 18'. Positioned against the sole plate 10 by the washers 22 is a bimetallic thermostat 24 carrying an insulating button 25 at its free end. Above the bimetal 24 and separated therefrom and from each other by the insulating washers 22 are three spring arms 26, 27, and 28. Spring arm 27 carries a pair of contacts 29 and 30 which cooperate with contacts 31 and 32 carried by the free ends of spring arms 26 and 28 respectively. The spring arm 27 is so made that when not stressed it will occupy substantially a horizontal position and the bimetal 24 is made to flex upwardly when heated.

The shaft 18 passes through openings in the arms 28 and 27 and its lower end contacts the spring arm 26. A collar 33 on the shaft 18 is positioned below the arm 28 for a purpose which will be described hereinafter. A signal light 34 is positioned in the rear leg 16 of the handle 14.

As shown in Fig. 2 the spring arm 28 is electrically connected to the signal light 34 by a conductor 35. The other side of the signal light 34 is connected to one side of the power line by conductors 36 and 37. A suitable resistance 38 is provided in the light circuit to reduce the voltage across the light 34 and to control the flow of electric current through the circuits. Spring arm 26 is connected to the conductor 37 by a conductor 39. One side of the heater 11 is connected to the spring arm 27 by a conductor 40

and its other side to the other side of the power line by a conductor 41.

The nut 19 and shaft 18 have cooperating stops whereby rotation of the shaft 18 and the dial 17 is limited to less than a complete revolution. The arrangement is such that when the dial 17 is rotated to its limit in one direction the lower end of the shaft 18 will press the spring arm 26 downwardly sufficient to completely separate the contacts 29, 31 when the dial is in its off position and the iron is cold. The dial 17 carries indicia about its edge such as "off," "rayon," "silk," "cotton," "wool," and "linen" in the order named so that when the dial 17 is rotated to near its maximum extent from the "off" position the dial will indicate a "linen" setting and the lower end of the shaft 18 will be positioned near its upper limit.

Operation of Figures 1 and 2

Suppose it is desired to iron linen. The dial 17 will be rotated to the "linen" setting so as to raise the lower end of the shaft 18. The spring arm 26 will follow the shaft 18 and contacts 29, 31 will close and the collar 33 will raise the spring arm 28 to separate contacts 30, 32. A circuit through the heater 11 will be completed as follows: Conductor 41, heater 11, conductor 40, spring arm 27, contacts 29 and 31, spring arm 26 and conductors 39 and 37. The signal light 34 will be off because the contacts 30, 32 are open.

Heat from the heater 11 will raise the temperature of the sole plate 10 and cause the bimetal 24 to flex upwardly. When the sole plate 10 reaches the proper temperature for ironing linen the button 25 will contact spring arm 27 and flex it upwardly to open contacts 29, 31 and close contacts 30, 32 establishing the following circuit: Conductor 41, heater 11, conductor 40, spring arm 27, contacts 30, 32, spring arm 28, conductor 35, resistor 38, signal light 34, and conductors 36 and 37. While the heater 11 still remains in circuit its heating effect will be materially reduced because the resistance 38 is in series therewith. The signal light 34 will be on to indicate that the sole plate temperature is at the proper value for ironing linens.

The residual heat of the sole plate 10 will cause the bimetal 24 to move past the position in which the contacts 30, 32 close so that the light 34 will remain on. The sole plate 10 will immediately begin to cool and eventually the bimetal 24 will move downwardly again to permit the spring arm 27 to move downwardly to open contacts 30, 32 and close contacts 29, 31, cutting the light 34 out of circuit and reenergizing the heater 11 to its maximum capacity.

The bimetal 24 will oscillate back and forth to maintain the sole plate at its proper temperature and to intermittently energize the signal light 34. Thus, as long as the sole plate is at its proper temperature the light 34 will be giving a blinking signal to indicate to the operator that the sole plate is at its proper temperature.

Suppose it is desired to iron rayon or silk while the iron is still hot. The dial 17 will be rotated to the proper setting which will move the lower end of the shaft 18 downwardly and flex the spring arm 26 downwardly so as to separate contacts 29, 31 and deenergize the heater 11. Spring arm 28 will follow the collar 33 on the shaft 18 so as to maintain the contacts 30, 32 closed and the light 34 will be on steadily until the sole plate 10 has cooled off sufficiently to cause the bimetal 24 to flex downwardly and move the button 25 away from the spring arm 27. This

will permit the spring arm 27 to move downwardly and open contacts 30, 32 and deenergize the signal light 34 and close contacts 29, 31 to reenergize the heater 11. The bimetal 24 will then oscillate back and forth as previously described to intermittently and alternately energize and deenergize the heater 11 and the signal light 34.

If the control is again moved to a high temperature setting the end of the shaft 18 will be raised upwardly causing the contacts 29, 31 to remain closed. The collar 33 will raise the spring arm 28 and separate the contacts 30, 32 so that the signal light will remain off until the sole plate 10 again reaches its operating temperature thus informing the user that the sole plate is too cold for ironing the fabric for which the control dial is set.

If the control dial 17 is moved to the off position, the lower end of shaft 18 and the collar 33 forcibly separate the contacts 29, 31 and 30, 32 so that the entire iron is deactivated.

From the foregoing it will be noted that the signal light 34 is continuously off when the sole plate is below its set ironing temperature, continually on when the sole plate is above its set temperature and is intermittently blinking when the sole plate is at its proper ironing temperature.

Figure 3

Fig. 3 shows a modification of the invention. Where the parts are the same they have been given the same reference numerals as in the modification of Figs. 1 and 2. In this modification a pair of spring arms 45 and 46 are carried by the post 21. The free end of arm 46 is reversely bent at 47 and has an opening 48 therethrough through which the free end of the spring arm 45 extends.

A contact 49 on the spring arm 45 cooperates with a contact 50 on the end 47 of arm 46. A second contact 51 carried by the free end of arm 45 cooperates with a contact 52 carried by the free end of arm 53 attached to the center of a spiral bimetallic element 54. The outer end of the spiral bimetal 54 is rigidly attached to the sole plate 10 by a bracket 55 so as to be responsive to the temperature of the sole plate.

The spring arm 45 is electrically connected to one side of the power line by the conductor 37. Spring arm 46 is connected by conductor 56 to a conductor 57 which connects the heater 11 to the resistor 38 and to one side of light 34. The other side of the signal light 34 is connected by conductor 58 to the fixed end of the spiral bimetal 54.

Operation of Figure 3

When the control is turned from the off position to some particular setting the bimetal 24 will be cold and flexed downwardly from the position shown in Fig. 3 so that the spring arm 46 will be in its downward position and the contacts 49, 50 will be closed. The heater 11 will thus be energized in a circuit comprising conductor 41, heater 11, conductor 56, spring arm 46, contacts 49, 50, spring arm 45, and conductor 37.

The spiral bimetal 54 will also be cold and the arm 53 will be held downwardly so that the contacts 51, 52 are open and the signal light 34 will be out of circuit. As the temperature of the sole plate rises the bimetallic element 24 will flex upwardly until the button 25 engages the end of the spring arm 46 to separate the contacts 49, 50 and deenergize the heater 11. As shown

shown in Fig. 3 the contacts 51, 52 are separated. The spiral bimetal 54 will also be heated to cause the contacts 51, 52 to close slightly before contacts 49, 50 are separated and establish the following circuit: Conductor 41, heater 11, conductor 57, resistance 38, light 34, conductor 58, bimetal 54, arm 53, contacts 52, 51, spring arm 45, and conductor 37.

While the heater 11 is still in circuit its heating effect will be much reduced because the resistance 38 is in series therewith. The sole plate 10 will then cool off until the contacts 49, 50 are reclosed.

The circuit including a lamp 34 and the resistance 38 being connected in shunt circuit will pass very little current even if contacts 51, 52 are still closed because of the high resistance of that circuit. The bimetal 24 will then oscillate back and forth to alternately open and close contacts 49, 50 and the signal light 34 will blink on and off to indicate that the sole plate is at the proper temperature.

Now if the control is moved to a lower temperature setting the lower end of the shaft 18 will press downwardly on the spring arm 45 to hold the contacts 49, 50 open but the contacts 51, 52 will remain closed. This will cause the heater 11 to have a reduced heating effect because resistor 38 is in series therewith. The sole plate 10 will then cool off while the signal light 34 remains on to indicate that the sole plate is too hot for ironing the fabric for which the control is set.

When the sole plate cools to the proper temperature indicated by the dial setting the control will operate intermittently as before to maintain the sole plate at the proper temperature and the signal light 34 will blink to signal that the sole plate is at its proper ironing temperature.

If the control is again moved to a higher temperature setting the lower end of the shaft 18 will move upwardly and permit the spring arm 45 to move upwardly to close contacts 49, 50 and open contacts 51, 52. Thus, the light 34 will remain off until the sole plate 10 comes up to the proper temperature indicated by the control setting to inform the operator that the sole plate is not yet hot enough.

Figure 4

The modification of Fig. 4 is similar to that of Figs. 1 and 2 except that a blinker has been added to give the blinking signal and a second switch has been added to deactivate the entire iron when the control is moved to its off position. Similar parts have been given the same reference numerals as in Figs. 1 and 2.

An additional pair of spring arms 101, 102 have been provided above the bimetal 24. The spring arms 101, 102 carry cooperating contacts 103, 104. An insulating button 105 extends downwardly from the spring arm 26 through an opening in the spring arm 102 so as to contact the spring arm 101 and separate contacts 103, 104 when the control is moved to its off position. At all other times the contacts 103, 104 are closed. The conductor 40 is broken and the spring arms 101, 102 are connected across the break by conductors 106, 107 respectively.

A blinker bimetal 76 suitably insulated from the sole plate 10 has been provided for giving the blinking signal when the sole plate 10 is at the proper temperature. The blinker bimetal 76 is heated by a blinker heater 77. The blinker heater 77 is controlled by a contact 75 carried by the free end of the blinker bimetal 76 which cooperates with the contact 74 connected by conductor 73 to one side of the signal light 34. The other side of the blinker heater 77 is connected by conductor 78 to the conductors 106 and 40.

Operation of Figure 4

Assume that the control is moved from its off position to a high temperature setting and the bimetal 24 is cold. The contacts 29, 31 and 103, 104 will be closed and contacts 30, 32 will be held open by the collar 33. The heater 11 will be energized through the same circuit as explained in connection with Figs. 1 and 2 except that conductors 106 and 107, spring arms 101, 102, and contacts 103, 104 will be in circuit. The signal light 34 and the blinker heater 77 will be in shunt circuit and little current will flow therethrough because of the high resistance 38.

As the sole plate temperature rises the bimetal 24 will flex upwardly until the button 25 engages the free end of the spring arm 27 to move it upwardly and separate contacts 29, 31. In this modification the collar 33 is so positioned as to hold the contacts 30, 32 open when the sole plate is at the proper ironing temperature. The blinker heater 77 and the signal lamp 34 will then be energized by the following circuit: Conductors 37, 36, resistor 38, signal light 34, conductor 73, contacts 74, 75, blinker heater 77, conductors 78, 106, spring arm 101, contacts 103, 104, spring arm 102, conductor 107, heater 11, and conductor 41. While the heater 11 is still in circuit its heating effect will be materially reduced and the sole plate 10 will cool until the contacts 29, 31 again close. In the meantime the blinker heater 77 will quickly heat the blinker bimetal 76 and cause the contacts 74, 75 to alternately open and close so that the signal light 34 will blink rapidly to indicate that the sole plate is at the proper ironing temperature. When the contacts 29, 31 again close the signal light 34 will go out but this will be only momentary until the bimetal 24 again opens the contacts 29, 31.

If the control is then moved to a lower temperature setting, the lower end of the shaft 18 will positively open contacts 29 and 31 and the collar 33 will move away from spring arm 28 and permit the contacts 30, 32 to close. This will shunt the blinker heater 77 out of circuit and the light 34 will burn steadily to indicate that the sole plate temperature is too high for the control setting. This will continue until the bimetal 24 moves downwardly sufficiently to permit the spring arm 28 to move into contact with the collar 33 so as to open contacts 30, 32. The bimetal 24 will then oscillate back and forth to maintain the sole plate at the new temperature setting and as before the signal light 34 will blink rapidly to indicate that the sole plate is at the proper temperature.

If the control is again moved to a high temperature setting the contacts 29, 31 will close and the signal light 34 will remain off until the proper sole plate temperature is again reached indicating that the sole plate temperature is too low.

If the control is moved to its completely off position the lower end of the shaft 18 will press the spring arm 26 downwardly so as to press the insulating button 105 into contact with the spring arm 101 and positively separate the contacts 103, 104 to deenergize the entire iron.

The spring arms 101 and 102 and their assembled parts may be omitted if desired in which case the cord plug should be pulled when the con-

trol is moved to its off position to prevent the light from blinking.

From the foregoing it can be seen that this invention provides a control for an electric smoothing iron together with single signal light giving different types of distinctive signals when the iron is below, at or above its set temperature whereby the user is continuously informed as to the temperature condition of the iron with relation to the control setting.

While I have shown but three modifications of my invention it is to be understood that these modifications are to be taken as illustrative only and not in a limiting sense. I do not wish to be limited to the particular structure shown and described but to include all equivalent variations thereof except as limited by the scope of the claims.

I claim:

1. An electric iron comprising; a sole plate; an electric heater therefor; a signal light, switching means; thermostatic means; and conductor wires connecting said heater, light and switching means to a power line in such manner as to form a plurality of circuits; said switching means being connected in said circuits in a manner to energize said heater at a maximum in one position of said switching means while said light remains inactive, to energize said light so as to give one type of visible signal in a second position of said switching means while said heater is intermittently activated and deactivated and to energize said light so as to give another type of visible signal in a third position of said switching means while said heater is deactivated; said thermostatic means being so constructed and so positioned relative to said switching means to actuate said switching means to control the flow of current through said circuits in such manner that said heater is continuously activated as long as the sole plate temperature is below a set value and said switching means is in its first position, is intermittently activated and deactivated when the sole plate temperature is at said value and said switching means is in its second position to maintain the sole plate at said value and is continuously deactivated as long as the sole plate temperature is above said value and said switching means is in its third position; whereby said light is energized to give one type of active visible signal when the sole plate temperature is above said value and said heater is inactive, is energized to give a second type of active visible signal when the sole plate temperature is at said value and the heater is being intermittently activated and deactivated to maintain the sole plate at said value and is controlled to signal when the sole plate temperature is below said value and said heater is being activated to bring said sole plate up to temperature.

2. An electric iron comprising; a sole plate; an electric heater therefor; a signal light; switching means including a plurality of spring arms carrying a plurality of coacting contacts; conductor wires connecting said heater, light and contacts to a power line so as to form a plurality of circuits; said switching means being connected in said circuits in a manner to energize said heater at a maximum in one position of said switching means while said light remains inactive, to energize said light so as to give one type of visible signal in a second position of said switching means while said heater is intermittently activated and deactivated and to energize said light so as to give another type of visible signal in a third position of said switching means while said heater is deactivated; thermostatic means having a part responsive to sole plate temperature for acting upon said switching means for opening and closing said contacts to control the activation of said heater and thus to control the sole plate temperature and to control the activation and deactivation of said light; and manually actuatable means for acting upon said spring arms to vary the temperature at which said thermostatic means activates and deactivates said heater; whereby that when said thermostatic means is activating and deactivating said heater to maintain the sole plate at a set temperature value with said switching means in its second position said light will be actively energized to give one type of active visible signal, when said control is moved from a high temperature setting to a lower one and said switching means is in its third position said heater will be deactivated and said light will be actively energized to give a second type of active visible signal and when the sole plate temperature is below a set temperature and said switching means is in its first position the heater is activated to bring the sole plate up to temperature and said light will signal that the sole plate is not at the set temperature.

3. An electric iron comprising; a sole plate; an electric heater therefor; a signal light; switching means; thermostatic means; and conductor wires connecting said heater, light and switching means in such manner as to form a plurality of circuits; said switching means being adapted to be oscillated in an oscillating position and to take a first position below its oscillating position and a second position above its oscillating position and being connected in said circuits to connect said heater directly across said line and to render said light inactive when in said first position, to intermittently connect said heater across the line and to deactivate it and to energize said light so as to give a first distinctive visible signal when being oscillated in its oscillating position and to deactivate said heater and energize said light so as to give a second distinctive type of visible signal when in said second position; said thermostatic means being so constructed and arranged relative to said switching means to actuate said switching means to control the flow of current through said circuits so as to continuously activate said heater as long as the sole plate temperature is below a predetermined value and said switching means is in said first position, to oscillate said switching means in its oscillating positon to intermittently activate said heater when the sole plate temperature reaches said value so as to maintain said sole plate at said value and to activate said light in said first distinctive manner when said heater is being intermittently activated and to activate said light in said second distinctive manner when the sole plate temperature is above said value when said switching means is in said second position.

4. An electric iron according to claim 3 including manually actuatable control means cooperating with said thermostatic means and switching means to vary the oscillating position of said switching means and vary said predetermined value, the arrangement being such that when said control is moved from a high temperature setting to a lower temperature setting said switching means will be in said second position to control the flow of current through said circuits to deactivate said heater and activate said light in

said second distinctive manner until the sole plate temperature falls to the lower temperature setting whereby said thermostatic means will oscillate said switching means in its oscillating position to control the flow of current through said circuits to again intermittently activate said heater to maintain said sole plate temperature at the new temperature setting and to activate said light in said first distinctive manner.

5. An electrically heated iron comprising; a sole plate; an electric heater for said sole plate; a signal light; auxiliary current controlling means; multiple position switching means for controlling the operation of said light, auxiliary current controlling means and heater; said switching means being connected to said heater, light and auxiliary current controlling means so that in a first static position of said switching means said heater is connected directly across the line and said light is inactive, in an oscillating position said heater is intermittently connected across the line to render it inactive and said light is energized to give a first distinctive type of visible signal and in a second static position said heater is rendered inactive and said light is energized to give a second distinctive type of visible signal; and thermostatic means coacting with said switching means to move it to its various positions; said thermostatic means and switching means being so constructed and arranged as to move said switching means to its first static position to activate said heater and deactivate said light when the sole plate temperature is below a predetermined value, to oscillate said switching means in its oscillating position to intermittently activate said heater when the sole plate temperature reaches said value so as to maintain the sole plate temperature at said value and to activate said light so as to give said first distinctive type of active signal as said heater is intermittently activated, and to move said switching means to its second static position to deactivate said heater and activate said light so as to give said second distinctive type of active signal when the sole plate temperature is above said value.

6. An electric iron according to claim 5 including manual control means coacting with said switching means and thermostatic means to vary the temperature at which said thermostatic means intermittently activates said heater to maintain the sole plate temperature; the arrangement being such that when said control is moved from a high temperature setting to a lower temperature setting said switching means will be moved to its second static position and said heater will be inactivated and said light will be activated so as to give said second distinctive signal until the sole plate temperature falls to the lower temperature setting after which said heater will be intermittently activated by said switching means being oscillated in its oscillating position and said light will be activated so as to give said first distinctive signal; and when said control is moved from a lower temperature setting to a higher temperature setting said switch means will be moved to its first static position and said heater will be continuously activated and said light continuously deactivated until the sole plate temperature rises to the higher temperature setting and when said control is moved to its off position both said heater and light will be continuously deactivated.

7. An electric iron comprising; a sole plate; an electric heater therefor; a signal light; switch means for controlling the activation of said heater and light; thermostatic means positioned to

respond to sole plate temperature; and a plurality of electrical circuits including said switch means, said light and said heater; said switch means being so connected in said circuit as to connect said light in series circuit with said heater or to open circuit it while said heater remains energized; the resistance values of said circuit being such that when said light is connected in series circuit with said heater said light will be active and said heater inactive; said thermostatic means being positioned to operate said switching means in such manner that when the sole plate is below a set temperature value said heater will be connected in circuit and when said sole plate is above said value said light will be connected in series circuit with said heater; the arrangement being such that said thermostatic means will oscillate back and forth to operate said switching means to alternately connect said light and heater in series circuit and open circuit said light to maintain said sole plate at said value; whereby when said sole plate is below said value said light will remain inactive, when said thermostatic means is oscillating back and forth to maintain said sole plate at said value said light will be alternately active and inactive and when the sole plate temperature is above said value said light will be continuously active.

8. An electric iron comprising; a sole plate; an electric heater therefor; a signal light; switching means for controlling the activation and deactivation of said heater and signal light; and thermostatic means for actuating said switching means; said thermostatic means being positioned to be responsive to sole plate temperature and to actuate said switching means to activate and deactivate said heater to maintain said sole plate at a predetermined temperature value and to activate said light intermittently or continuously; said thermostatic means and said switching means being so constructed and arranged that when the temperature of said sole plate is below said value said light will remain inactive, that when said thermostatic means is operating to activate and deactivate said heater said light will be activated intermittently and when the temperature of said sole plate is above said value said light will be activated continuously.

9. An electric iron comprising; a sole plate; an electric heater therefor; a signal light; thermostatic means responsive to sole plate temperature; switching means; and a plurality of electrical circuits including said heater; said light and said switching means; said switching means being connected in said circuit so as to activate both said heater and said light; said thermostatic means being positioned to actuate said switching means in response to sole plate temperature to alternately activate and deactivate said heater to maintain said sole plate at a set temperature value and to activate and deactivate said light; the arrangement being such that said light is deactivated, activated continuously or activated intermittently depending upon whether said sole plate is below said value, above or at said value.

10. An electric iron according to claim 9 in which the arrangement is such that said light is continuously deactivated when the sole plate temperature is below said value, said light is activated intermittently when said thermostatic means is actuating said switch to alternately activate and deactivate said heater and is activated continuously when the sole plate temperature is above said value.

11. An electric iron comprising; a sole plate; an electric heater therefor; a signal light; thermostatic means responsive to sole plate temperature; switching means; and a plurality of electrical circuits including said heater, said light and said switching means; said switching means being connected in said circuit so as to activate said heater and said light, said thermostatic means being positioned to actuate said switching means in response to sole plate temperatures to alternately activate and deactivate said heater to maintain said sole plate at a set temperature value and to activate and deactivate said light; the arrangement being such that said light is deactivated when the sole plate temperature is below said value, said light is activated in one distinctive manner when said thermostatic means is actuating said switch to activate and deactivate said heater to maintain said sole plate temperature and said light is activated in another distinctive manner when the sole plate temperature is above said value.

12. An electric iron comprising; a sole plate; a heater therefor; a signal light; a bimetallic element positioned to be responsive to sole plate temperature and carrying a button at its free end; a first spring arm positioned above said bimetallic element having its free end positioned to engage said button; a second spring arm having its free end positioned between said first spring arm and said bimetallic element; a third spring arm having its free end positioned above the free end of said first spring arm; a manually actuatable control having an axially movable shaft extending through said third and first spring arms into contact with said second spring arm; said shaft having a collar positioned between said third and first spring arms; a first pair of coacting contacts carried by the free ends of said first and second spring arms; a second pair of coacting contacts carried by the free ends of said first and third spring arms; first conductors connecting said first spring arm to said heater and said heater to one side of a power line; second conductors connecting said second spring arm to the other side of the power line and third conductors including a resistance connecting said third spring arm to said light and said light to said second conductors; the arrangement being such that when the sole plate temperature is below a set value said first contacts will be closed whereby said heater is energized directly across the line and said second contacts are open, as the sole plate reaches said value said bimetallic element will flex to open said first pair of contacts and close said second contacts whereby said heater, light, and resistance will be connected in series circuit across the line; the resistance values being such that said heater will be deactivated and said light will be activated whereby said bimetallic element will oscillate back and forth to intermittently activate and deactivate both said heater and light and cause said light to blink on and off; and when said control is moved from a high temperature setting to a low temperature setting the shaft will engage with second spring arm to separate said first contacts and said collar will release said third spring arm to close said second contacts whereby said light and resistance is connected directly across the line and the light will be activated continuously until the sole plate reaches the new temperature setting.

13. An electric iron comprising; a sole plate; a heater therefor; a signal light; first and second bimetallic elements positioned to be responsive to sole plate temperature; a first spring arm having its free end positioned above the free end of said first bimetallic element in a position to be engaged by a button carried by the free end of the first bimetallic element; a second spring arm having its free end positioned above the free end of said first spring arm; said first spring arm having a reverse bend extending over the free end of said second spring arm; a manually actuatable control having an axially movable shaft in contact with said second spring arm; a first pair of coacting contacts carried by the reverse bend of said first spring arm and the free end of said second spring arm; a second pair of coacting contacts carried by the free ends of said second bimetallic elements and said second spring arm; first conductors connecting said first spring arm to said heater and said heater to one side of a power line; second conductors connecting said second spring arm to the other side of the power line; and third conductors including a resistance connecting said second bimetallic element to said light and said light to said first conductors; the arrangement being such that when the sole plate temperature is below the control setting, said first contacts are closed and said second contacts open whereby said light is deactivated and said heater is connected directly across the line, as the sole plate temperature approaches that for which the control is set said second bimetallic element will close said second contacts whereby said light and resistance is connected in shunt circuit, the resistance values being such that said light will remain inactive and said heater active, when the sole plate temperature reaches that for which said control is set, said first bimetallic element will open said first contacts whereby said heater, light and resistance will be connected in series circuit across the line, the resistance values being such that said light becomes active and said heater inactive, said first bimetallic element will then oscillate back and forth to intermittently activate said heater and said light whereby said light will blink on and off in unison with the oscillation of said first bimetallic element and when said control is moved from a high temperature setting to a lower one said shaft will engage said second spring arm to separate said first contacts whereby said light, resistance and heater is connected in series circuit across the line so that the heater will remain inactive and said light will be continuously on until the sole plate temperature reaches the new temperature setting.

14. An electric iron comprising; a sole plate; an electric heater therefor; a signal light; a resistance; switching means; conductors connecting said heater, light, resistance and switching means to a power line so as to form a plurality of circuits; the arrangement being such that said heater may be connected directly across the power line, that said light and resistance may be connected in shunt circuit with said heater or that said heater may be connected across the power line in series circuit with said light and resistance; the resistance values being such that when said light and resistance is connected in shunt circuit with said heater little current will flow through the shunt circuit so that said light will be inactive and said heater active and when said heater is connected in series circuit with said light and resistance sufficient current will flow to render said light active but insufficient to render said heater active; a first thermally responsive element responsive to sole plate tem-

perature positioned to actuate said switching means to connect said heater directly across the line when the sole plate temperature is below a predetermined temperature value; and a second thermally responsive element responsive to sole plate temperature positioned to actuate said switching means to connect said light and resistance in shunt circuit with said heater as the sole plate temperature approaches said value whereby said light will remain inactive and said heater active; said first thermally responsive element also being operative to actuate said switching means to connect said heater in series circuit with said light and resistance when the sole plate temperature reaches said predetermined temperature whereby said light will become active and said heater inactive and said first thermally responsive element will oscillate back and forth to thus intermittently render said heater and light active and inactive to maintain said sole plate at said value and to cause said light to blink on and off; the arrangement being such that when the sole plate temperature remains above said value said first thermally responsive element will act upon said switching means to hold said heater in series circuit with said light and resistance whereby said heater will remain inactive and said light active so that said light will be on steadily as long as the sole plate temperature remains above said value.

15. An electric iron comprising; a sole plate; a heater for said sole plate; a signal light; a blinker switch; a bimetallic element positioned to be responsive to sole plate temperature and having a button at its free end; a first spring arm having its free end positioned to be engaged by said button; a second spring arm having its free end positioned between said bimetallic element and said first spring arm, a third spring arm having its free end positioned above the free end of said first spring arm; a manually actuatable control having an axially movable shaft extending through said third and first spring arms into contact with said second spring arm; said shaft having a collar between said first and third spring arms and engaging said third spring arm; a first pair of coacting contacts carried by the free ends of said first and second spring arms; a second pair of coacting contacts carried by the free ends of said first and third spring arms; first conductors connecting said first spring arm to said heater and said heater to one side of a power line; second conductors for connecting the second spring arm to the other side of the power line; third conductors including a resistance and said light for connecting said third spring arm to said second conductors and fourth conductors for connecting said blinker switch to said first conductors and to said second conductors between said third spring arm and said light whereby said heater may be connected directly across the line, said heater may be connected across the line in series with said light, the resistance and blinker switch may be connected across the line in series circuit with said light and resistance; the resistance values being such that when said heater is connected in series circuit with said light, resistance and blinker switch, said heater will be inactive and said light and blinker switch active and when connected in series circuit with said light and resistance, said heater will be inactive and said light active; the arrangement being such that when the sole plate temperature is below that indicated by the temperature setting, said first contacts will be closed and said second contacts open whereby said heater will be active and said light inactive, when the sole plate temperature reaches that indicated by the control setting said bimetallic element will open said first contacts while said second contacts will remain open whereby said heater, light, resistance, and blinker switch will be connected in series circuit and said heater will be inactive, said blinker switch will be active and said light will be intermittently active and inactive by the action of said blinker switch; and when said control is moved from a higher temperature setting to a lower one the shaft will engage said second spring arm and open said first contacts and said collar will move away from said third spring arm to close said second contacts whereby said heater, light, and resistance will be connected in series circuit and said heater will be inactive and said light will be steadily on until the sole plate temperature falls to that indicated by the new control setting.

16. An electric iron comprising; a sole plate; a heater therefor; a signal light; a resistance; a blinker switch; switching means; conductors connecting said heater, light, resistance, blinker switch and switching means to a power line so as to form a plurality of circuits; the arrangement being such that said heater may be connected directly across the line with said light, resistance, and blinker switch inactive; connected in series circuit with said light, resistance, and blinker switch or connected in series circuit with said light and resistance with said blinker switch inactive; the resistance values being such that when said heater is connected in series circuit with said light, resistance and blinker switch said heater will be inactive and said light and blinker switch will be active so that said light will blink rapidly by the action of said blinker switch and when said heater is connected in series circuit with said light and resistance said heater will be inactive and said light active so as to remain on steadily; and a bimetallic element responsive to sole plate temperature positioned to actuate said switching means in such manner that when the sole plate temperature is below a set value said heater will be connected directly across the line so as to be active, when the sole plate temperature is at said set value said heater will be connected in series circuit with said light, resistance, and blinker switch so that said light will blink on and off and when the sole plate temperature is above said set temperature said heater will be connected in series circuit with said light and resistance so that said light will remain on steadily.

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