

F. H. McMANUS.
ELECTRIC FLAT IRON.
APPLICATION FILED JULY 27, 1910.

987,901.

Patented Mar. 28, 1911.

2 SHEETS—SHEET 1.

Fig. 7.

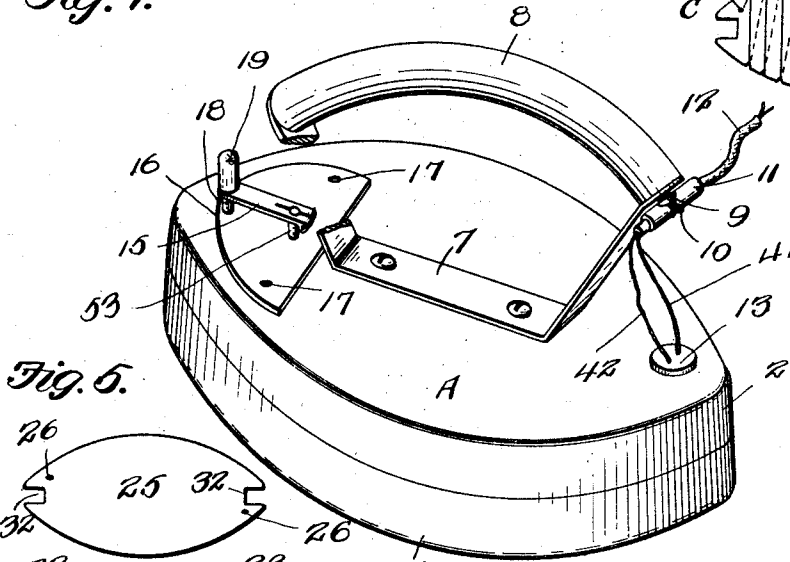


Fig. 4.

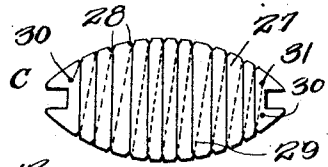


Fig. 5.

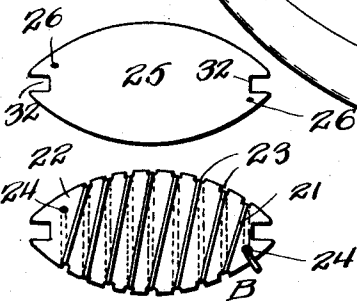


Fig. 6.

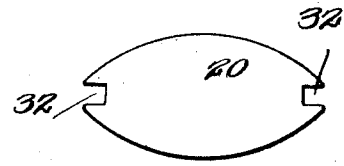


Fig. 7.

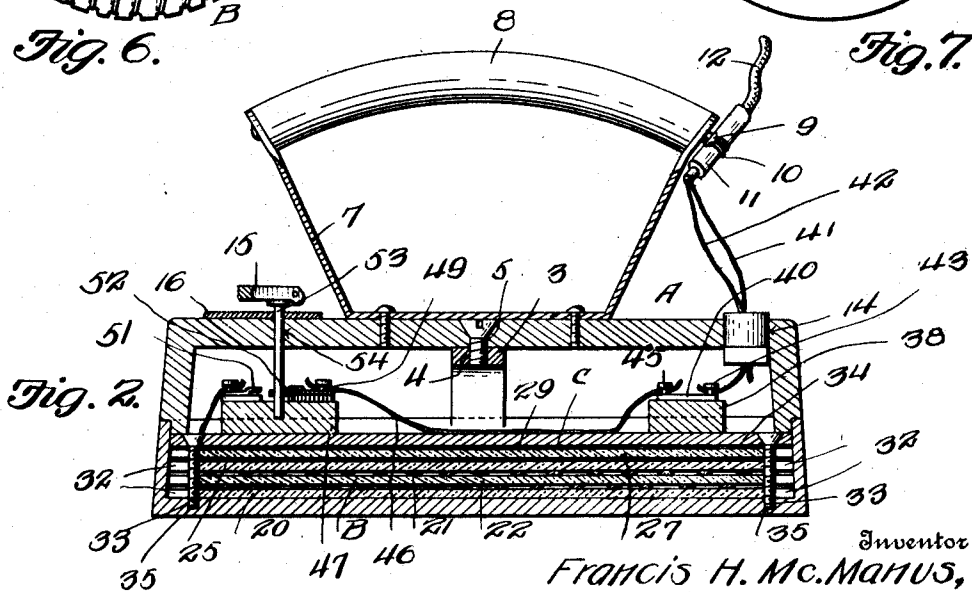


Fig. 2.

Witnesses

C. Richardson.

LeMay.

Inventor
FRANCIS H. McMANUS,

By Victor J. Evans

Attorney

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2 SHEETS—SHEET 2.

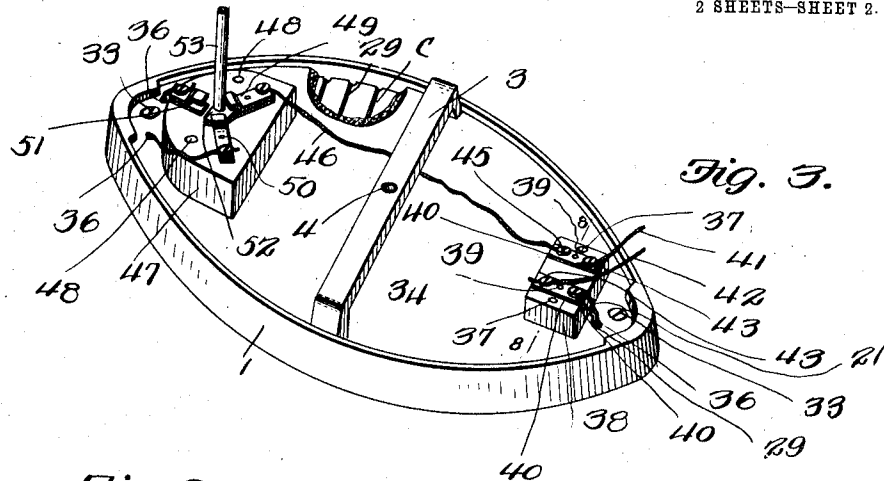


Fig. 8.

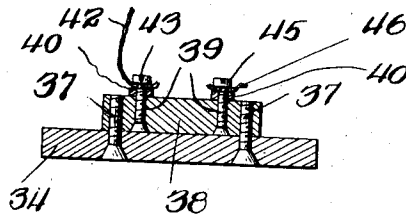


Fig. 9.

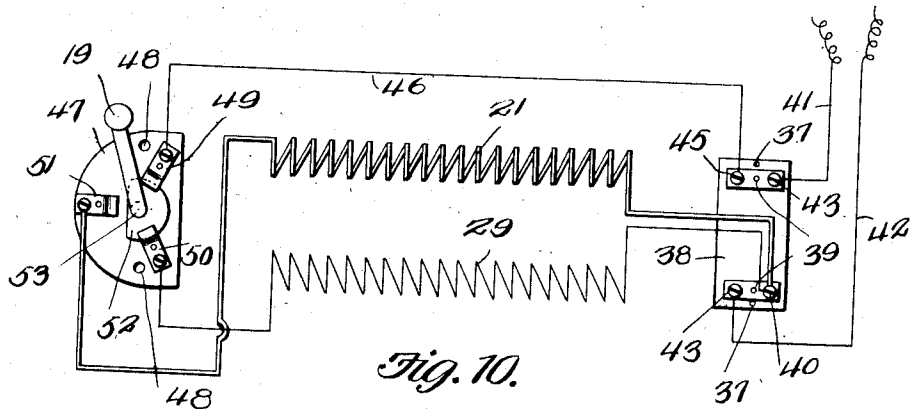
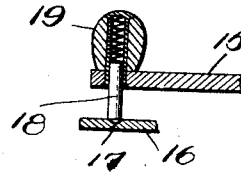


Fig. 10.

Witnesses
G. Richardson.
G. Richardson

Inventor
Francis H. McManus,

By *Victor J. Evans*
Attorney

UNITED STATES PATENT OFFICE.

FRANCIS H. McMANUS, OF BOSTON, MASSACHUSETTS.

ELECTRIC FLAT-IRON.

987,901.

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Application filed July 27, 1910. Serial No. 574,100.

To all whom it may concern:

Be it known that I, FRANCIS H. McMANUS, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Electric Flat-Irons, of which the following is a specification.

This invention relates to flat irons of that type heated by the passage of an electric current through a resistance element contained within the hollow body of the iron.

The invention has for one of its objects to improve and simplify the construction of irons of this character so as to be comparatively simple and inexpensive to manufacture, reliable and efficient in use, and consuming a minimum of current, compared with the heat produced and conserved.

Another object of the invention is the provision of a flat iron having improved means for obtaining different degrees of heat, according to the nature of the fabric to be ironed, there being within the body of the iron, heating coils or windings capable of producing different heats by the turning of a regulating switch to different positions.

Another object of the invention is to provide an improved attaching device for securing the cord conductor to the handle of the iron so as to thereby prevent destructive strains on the conductor in the use of the iron.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a perspective view of the iron with a portion of the handle broken away. Fig. 2 is a vertical longitudinal section of the iron. Fig. 3 is a perspective view of the iron with the top section of the body removed. Fig. 4 is a plan view of one heating element or winding. Fig. 5 is a plan view of the insulating plate between the windings or heating elements. Fig. 6 is a plan view of the bottom heating elements or windings. Fig. 7 is a similar view of the insulating plate between the bottom winding and body of the iron. Fig. 8 is a detail section on line 8-8, Fig. 3. Fig. 9 is

a detail view of the controlling lever or regulator for the windings. Fig. 10 is a diagrammatic view of the circuit connections.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawings, A designates the body of the flat iron, which body is made in upper and lower sections 1 and 2 that are chambered so as to receive the electric heating element, and extending across the bottom section 1 is an arched cross bar 3 that has a central tapped opening 4 for receiving a countersunk screw 5 that passes through the top section 1 whereby the screw fastens the sections of the iron body together. On the ends of the top sections are depending lugs 6 that fit into the ends of the bottom section so as to hold the sections in proper relation. Secured to the top face of the upper section 2 is a U-shaped bar 7 which is provided with the grip or handle 8 whereby the iron can be operated, the extremities of the bar 7 being fastened to the handle by screws 9. One of the screws secures to the handle an attaching device or holder 10 which is provided with an insulating tube or bushing 11 through which passes the cord conductor 12 that supplies current to the iron, the said cord conductor leading into the body of the iron through an insulating plug or bushing 13 of asbestos composition or the like that is fitted in an opening 14 in the top section of the body A at one end thereof. At the opposite end of the top section 2 is a regulator arm or lever 15 which controls the degree of heat, and this arm is movable over a plate 16 fastened to the top of the iron body and having spaced depressions 17 suitably designated so that the lever can be moved to the proper point for obtaining different heats. On the lever is a spring-pressed pin 18 that is slidably mounted in the knob 19 and the lower end of this pin is adapted to enter in one of the depressions 17 of the plate 16 so as to hold the lever in proper position.

In the bottom of the chamber in the body of the arm is a plate 20 of mica or other insulating material and bearing directly on the same is a heating element B which consists of a ribbon winding 21 supported by a plate 22 of mica or other suitable material, the edges of the plate having notches or seats 23 for the convolutions of the rib-

bon winding. The terminals of the windings are passed through openings 24 and are connected in circuit in a manner to be described. Resting on this lower heating element B is a plate 25 of mica or the like which has openings 26 through which the terminals of the winding 21 pass in an upward direction, and this plate 25 separates the lower heating element B from the upper heating element C, the latter consisting of a flat plate or support 27 of mica or the like that has its opposite edges provided with notches 28 for receiving the convolutions or turns of the heating wire 29. This plate 27 has openings 30 through which the terminals of the ribbon winding 21 extend, and it has also an opening 31 through which one terminal of the wire winding 29 extends, the other terminal extending through the opening 30 at the opposite end of the plate 27. The insulating plates 20 and 25 and supporting plates 22 and 27 are of practically the same shape, and in their pointed ends are recesses 32 for receiving screws 33 that hold the heat-retaining and insulating board or plate 34 in place, the screws being threaded in openings 35 in the bottom of the base section of the iron, and in this manner the heating elements are securely clamped between the bottom of the iron and the plate 34. This plate 34 is preferably made of an asbestos composition so as to prevent the upward radiation of heat from the windings and also to insulate the latter from the iron body. The terminals of the windings pass through openings 36 in the top plate 34. On one end of the top plate 34 is fastened, by screws 37, a block of insulation 38 that has secured thereto by screws 39 metal strips 40. The wires 41 and 42 of the cord conductor are connected to these metal strips by screws 43, and one terminal of both windings is connected to one of the strips 40 by a binding screw 44, while the other strip has connected thereto, by a binding screw 45, a wire 46 that leads to the switch D, Fig. 3. This switch D consists of a block of insulation 47 fastened by screws 48 to the plate 44, and the wire 46 is connected with a spring contact 49 fastened to the block 47. Spring contacts 50 and 51 are also fastened to the block and are connected respectively with the terminals of the windings 21 and 29. A rotary bridging contact 52 is mounted on a vertically-disposed shaft 53 that has its lower end journaled in the block 47 and its upper end rotatably mounted in an opening 54 in the top section of the body A, and on the upper end of this shaft is fastened the regulator arm or lever 15. By means of this bridging contact 52, the spring contacts 50 and 51 can be connected separately with the contact 49 and thereby connect either winding in circuit with the source of cur-

rent, and when the contact 52 is out of engagement with the contact 49, no current will flow through either winding.

When the regulator arm is in the first position, the bridging contact will be out of engagement with the spring contact 49, as shown in Fig. 10, and consequently the windings will not be connected with the source of current. When the regulator arm is thrown to the second position, the bridging contact will engage the spring contacts 51 and 49 and as the result current will flow through the wire 42 of the cord conductor, metal strip 40 to which the wire is connected, winding 29, spring contact 51, bridging contact 52, spring contact 49, wire 46, metal strip 40, and return wire 41 of the cord conductor. The passage of the current through the wire winding 29 will cause the same to become heated and this heat will be transmitted to the body of the iron, but more especially to the bottom thereof, where it is to be used for ironing the fabric. When a different degree of heat is required, the lever or regulator arm 15 will be turned to the third position and as the result the bridging contact 52 will connect the spring contact 50 with the contact 49 and current will now flow through the ribbon winding 21. When the windings are to be cut out of circuit, it is merely necessary to turn the regulator arm back to its first position.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what I claim as new, is:—

1. An iron comprising a chambered metal body, separate heating windings therein, a handle for the body, a switch within the body for connecting either winding in circuit, and an operating means for the switch located exterior to the body.

2. An iron comprising a chambered body, an insulating plate arranged within the chamber and resting on the bottom of the body, a heating element resting on said plate, a second heating element, an insulating plate between the elements, a heat insulating plate disposed on top of the second heating element, fastenings passing through the plates and elements and engaging the body of the iron, a switch mounted on the last-mentioned plate for connecting either winding

in circuit, and a cord conductor connected with the windings.

3. An iron comprising a chambered body composed of upper and lower sections, means for securing the sections together, a handle secured to the upper section, insulating elements mounted in the chamber of the body and each consisting of a flat supporting plate of insulation and a winding coil around the same, means for insulating the elements from each other, a non-conductor of heat in the form of a plate disposed in the chamber, a switch mounted on the plate, means mounted on the plate for connecting circuit wires thereto, a connection between one of the circuit wires and the switch, means for connecting both windings to the other circuit wire, and means for operating the switch to connect either winding in circuit.

4. An iron comprising a chambered body, a plurality of sheets of insulation in the said body, windings on alternate sheets, a plate of heat insulating material disposed on top of the sheets, fastenings passing through the plate and sheets and screwing into the bottom of the iron body, a switch mounted on the plate and to which the windings are connected, means on the plate for connecting the windings with the circuit wire, said switch including a movable element, and means for moving the element to connect either winding in circuit.

5. An iron comprising a chambered body composed of upper and lower sections fitted together, a cross bar on the lower section fitting into the upper section, a fastening passing through the upper section and connected with the cross bar, a plurality of superimposed sheets of insulating material, alternate sheets having notches in their edges, windings on the notched sheets, the turns of the windings being engaged in the notches, a plate of heat insulating material disposed over the sheets, said sheets and plate being disposed under the cross bar on the lower section of the body, fastenings for securing the said plate and sheets in the bottom section of the body, and means for connecting

the windings in circuit with the source of current.

6. An iron comprising a chambered body composed of upper and lower sections fitted together, a cross bar on the lower section fitting into the upper section, a fastening passing through the upper section and connected with the cross bar, a plurality of superimposed sheets of insulating material, alternate sheets having notches in their edges, windings on the notched sheets, the turns of the windings being engaged in the notches, a plate of heat insulating material disposed over the sheets, said sheets and plate being disposed under the cross bar on the lower section of the body, fastenings for securing the said plate and sheets in the bottom section of the body, an insulating block secured to the said plate, contacts arranged on the block, means for connecting each winding to one of the contacts, a second block on the said plate, binding posts on the second block, circuit wires leading into the chamber of the body and connected with the said binding posts, a wire connecting one of the binding posts with one of the contacts of the switch, means for connecting both windings to one of the binding posts, said switch including a movable contact element, and means for actuating the element to connect either winding in circuit.

7. An iron comprising a chambered body, heating elements mounted therein, a switch within the body for connecting either element in circuit with a source of current, a regulator arm connected with the switch and disposed outside the body, a spring catch device mounted on the arm, and means on the body of the iron with which the catch engages for holding the movable element of the switch in different positions.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS H. McMANUS.

Witnesses:

J. F. McHUGH,
F. P. PHILBRICK.