

**1,615,464**

2 Sheets-Sheet 1

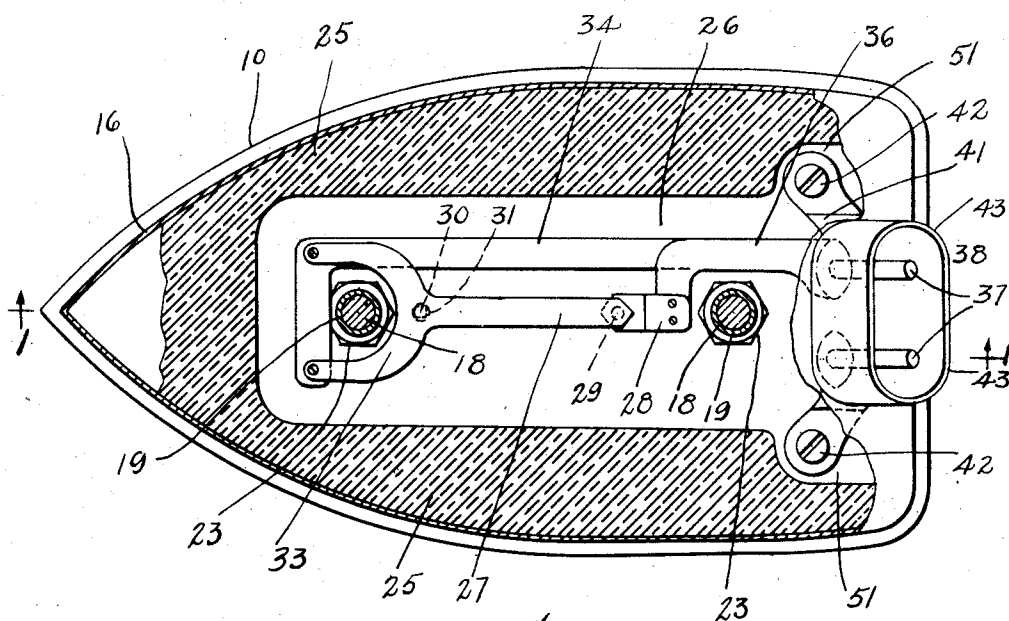
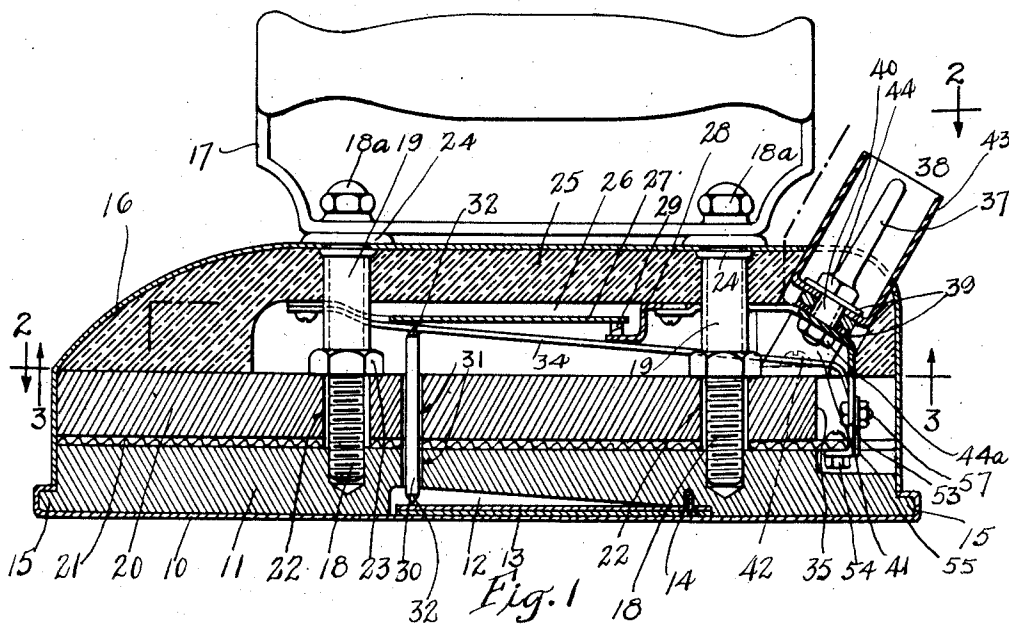


*Fig. 2*

INVENTOR  
J. E. Marden  
BY W. L. Beebe  
ATTORNEY

Jan. 25, 1927.

1,615,464

J. E. MARSDEN

ELECTRIC SADIIRON

Filed Sept. 24, 1925

2 Sheets-Sheet 2

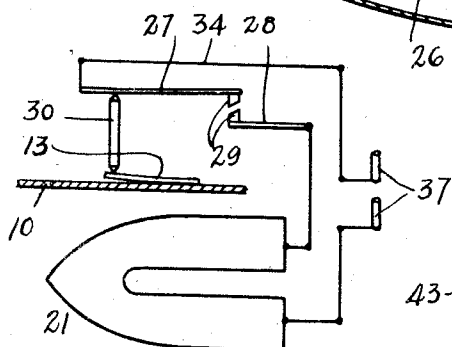
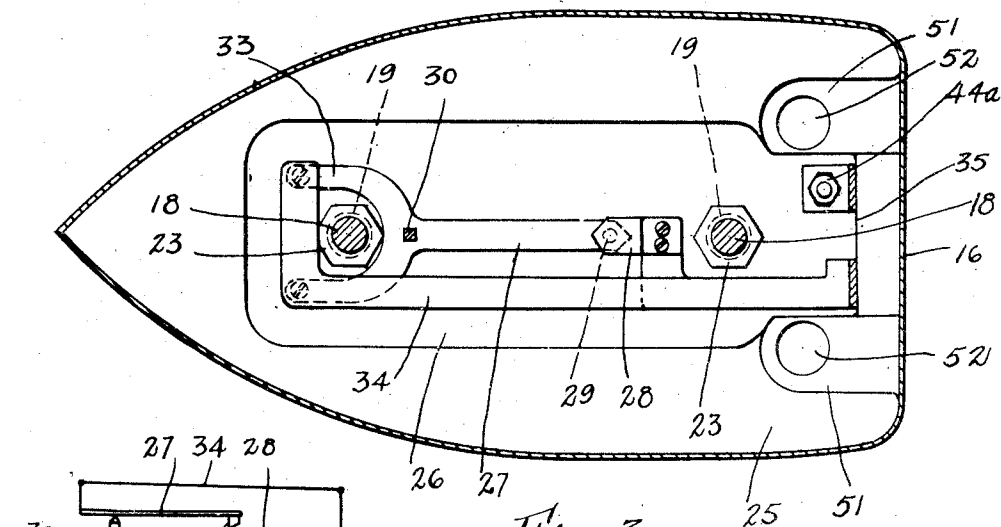


Fig. 5

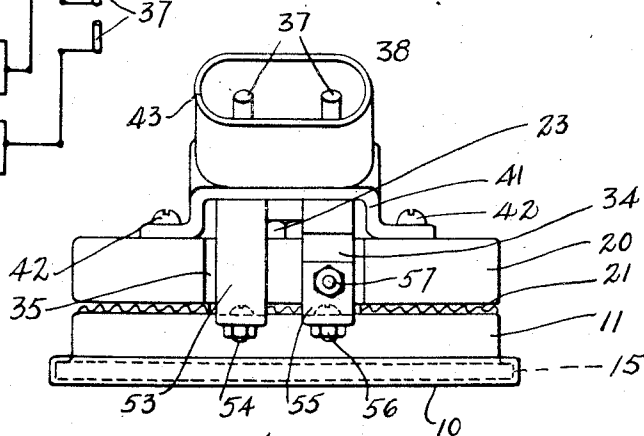


Fig. 4

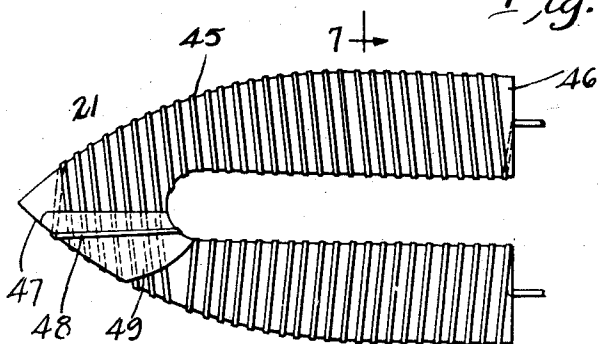


Fig. 6

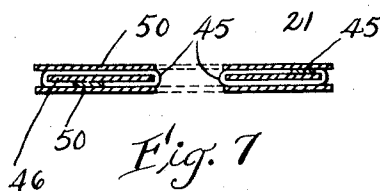


Fig. 7

INVENTOR  
J. E. Marsden  
BY  
Chas. H. Reed  
ATTORNEY

## UNITED STATES PATENT OFFICE.

JOHN E. MARSDEN, OF PHILADELPHIA, PENNSYLVANIA.

## ELECTRIC SADIRON.

Application filed September 24, 1925. Serial No. 58,226.

This invention relates to electric sadirons and more particularly to devices of that nature having automatic means for regulating the temperature of the iron.

Among the objects of this invention is to provide an electric sadiron or the like comprising a thermostat arranged to operate in conjunction with means for controlling the flow of current to the heating coil whereby the temperature of the iron is automatically regulated.

Another object of this invention is to provide an electric sadiron or the like comprising a shoe arranged for normal co-operation with the iron and in such manner that the expansibility of the body of the iron is utilized for retaining the shoe taut when the iron is heated up and thus preventing warping of the shoe and other ill effects.

Another object of the invention is to provide an electric sadiron having a body comprising a mass of heat conducting material arranged to give weight to the sadiron, a layer of insulation extending along said body and arranged to contain devices for controlling the flow of current to the heating coil of the sadiron, a shell being provided for the outside of the iron, and novel fasteners co-operating to retain the different parts of the iron in engagement with each other and to prevent any strain from going upon the insulating material.

Still another object of this invention is to provide an electric sadiron which comprises a heating coil and automatic means for controlling the flow of current thereto depending upon the predetermined desired temperature of the iron, the various parts of the iron being especially arranged to permit of rapid assemblage, of manufacture at low cost, and to provide particularly a sadiron which is fool-proof in operation and is adapted for long and continuous use.

With the foregoing and other objects in view the invention consists in the arrangement and combination of parts hereinafter described and claimed, and while the invention is not restricted to the exact details of construction disclosed or suggested herein, still for the purpose of illustrating a practical embodiment thereof reference is had to the accompanying drawings in which like reference characters designate the same parts in the several views, and in which—

Figure 1 is a vertical section of the sadiron showing the operating mechanism there-

in, approximately on the line 1—1 of Fig. 2.

Fig. 2 is a section approximately on the line 2—2 of Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is an end view of the interior structure of the iron and showing a step in the assemblage thereof.

Fig. 5 is a diagram of the circuit.

Fig. 6 is a plan view showing the heating coil.

Fig. 7 is a section on the line 7—7 of Fig. 6.

Referring now more specifically to the drawings I show my invention as comprising a sadiron having a shoe 10 of relatively thin material and a mass of heat conducting material 11 extending along the iron to which the shoe is secured in any suitable manner. The layer of iron 11 is provided with a recess 12 adjacent to the shoe wherein is positioned a thermostat 13 secured to said layer as by means of a screw 14, the thermostat being arranged to lie preferably directly adjacent to the shoe so as to be readily responsive to the temperature thereof.

The body 11 is formed with novel engaging means extending along the outside thereof near the bottom of the iron, the shoe 10 having engagement with said means in such manner as to lie snugly along the iron. To provide for simplicity of construction said engaging means takes preferably the form of a projection 15 extending continuously around the iron, the shoe 10 being beaded to engage over said projection whereby a neat and rigid fastening is provided for. While the block 11 may be formed of any suitable metal it is preferably made of cast iron while the shoe 10 is composed of a metal of such a heat conductivity with relation to the heat conductivity of the member 11 that the difference in expansion as between the two members may be utilized to retain the shoe in taut position. More specifically, such shoe is formed of stainless steel and has a lower co-efficient of expansion than the member 11. In this way when the iron is heated up in any suitable manner and more specifically as will be indicated hereinafter, the expansion of the member 11 will be greater than that of the shoe and will operate to prevent warping thereof and to retain the same in perfectly smooth flat condition. A shell 16 is provided to inclose the sadiron, said shell being formed of relatively thin material and of any suitable metal, novel

fastening means being provided operative between the base portion of the iron such as the member 11 and the top portion of said shell so as to secure said shell in fixed relation to the iron and in spaced position relatively thereto to prevent said shell from being subjected to any undue stress, said fastening means having preferably engagement directly with a handle 17 whereby the weight of the member 11 is borne directly by the handle. More specifically, said fastening means includes a bolt 18 which is threaded into the member 11, said bolt extending continuously upward through the shell and into engagement with said handle as by means of the nuts 18<sup>a</sup>, suitable spacing means being provided such as the sleeves 19 for the purpose set forth hereinbefore.

To provide for additional heat capacity of the iron, I use a member 20 formed of metal and extending along the member 11, a heating coil 21 being positioned directly between said members. The member 20 is provided with holes 22 through which the bolts 18 pass freely, nuts 23 being screwed down upon the bolts after the same have been threaded into the base member 11 so as to retain said members in rigid engagement with each other and the heating coil in efficient heat conducting relation to said members. The spacing sleeve 19 which is mounted upon said bolt has abutment against the upper part of the nut 23 and against a reinforcement or anchor member 24 provided upon the shell 16 and through which the bolt is arranged to pass into engagement with the handle. It will be seen that this arrangement provides particularly for a sadiron having suitable mass and weight and arranged to be neatly and rigidly secured together to prevent undue strain of any part of the iron and thus eliminate the possibility of any parts of the interior becoming loose and causing dissatisfaction.

Insulating means 25 is provided within the shell 16 extending along the layer 20, said insulating means being so arranged as to contain a suitable make and break mechanism which controls the flow of current to the heating coil. Thus it will be seen that the layer is hollowed out to provide a chamber 26, and receives a make and break contact mechanism including a spring 27 and a bracket 28, the spring and bracket being mounted in any suitable manner as upon the insulation, novel contact means being provided borne by said spring and said bracket, the contacting face 29 of said contact means being inclined at an angle to the direction of movement of the spring so as to give an effective wiping contact and insure a proper and effective electrical action. Means is provided to render the operation of the thermostat effective to said make and break contact, said means taking the form of a pin

30 which extends through the members 11 and 20 and is arranged slidably therein and for direct abutment as between the spring and the thermostat. Thus it will be seen from Fig. 5 that when the iron is heated up and the thermostat operates the pin 30 becomes effective for breaking the contact. The pin 30 is constructed preferably of square cross section while holes 31 through which it is arranged to pass are of round formation, thus minimizing the frictional contact between the pin and the surrounding members. The ends of the pin are beveled to a point as shown at 32 to insure accurate operation. The spring 27 is made of U-form as shown at 33 to provide for a plurality of points of engagement thereof with the insulating member 25. An electric conductor 34 which is formed of flat material of relatively large cross section has contact with the spring at both points and extends continuously lengthwise of the iron and downwardly through the chamber 26 into engagement with the heating coil. The member 20 has a cut out 35 at the rear of the iron to facilitate the fastening of the coil to the conductor 34. A conductor 36 is provided likewise having contact with the bracket 28 and extending into engagement with a contact bar 37 of the socket connection 38.

Said socket connection comprises a plurality of the contact pins 37 which are positioned in spaced relation to each other and are suitably insulated as by means of plates of insulation 39 and by means of the insulation sleeves 40. A bracket 41 is provided to support said socket, said bracket being secured directly to the member 20 as by means of screws 42. The socket comprises a shell 43 while contact pins 37 are formed with the integral nuts 44 so that the socket may be assembled directly by using a wrench upon the nuts 44, the lower ends of said pins being threaded to engage into the nuts 44<sup>a</sup>, thus securing the parts of the electrical socket in connection with each other and to the electric conducting members and in position upon the bracket 41.

The method of assemblage of the iron as thus far described may be seen by observing Fig. 4 which shows the shoe fastened upon the member 11 while the member 20 is secured down by means of the bolts 23, the socket being likewise fastened in position. It will now be necessary merely to fasten the make and break mechanism into the layer of insulation and to position the same upon the iron, and finally to slip the shell 16 into position and fasten the handle 17 in place by means of the nuts 18<sup>a</sup>.

The heating coil 21 is constructed in a novel manner, the winding being formed of wire 45 of flat cross section wound upon a supporting member 46 which may be com-

posed of insulating material such as mica, a pair of insulating plates 50 being provided to lie without the coil and disposed at the sides thereof. The heating coil 21 is formed of U-shape so as to provide a space for the passage of the bolts 18. I provide a novel method of winding the wire 45 upon the member 46 as by turning the wire continuously upon one arm of the U toward the crotch thereof and then winding the wire from side to side of the U continuously toward the point 47 thereof and then leading the wire back by means of a bend as shown at 48 toward the crotch of the U and then continuing the winding along the other side of the U member toward the end thereof. An insulating plate 49 is inserted beneath the portion 48 to insulate the same from the rest of the winding. It will thus be seen that the heating coil is particularly adapted for compact construction and that extensive wear or cutting action upon the mica plates 46 and 50 is prevented inasmuch as the wire is disposed with the larger sides thereof extending along said plates so that the bearing action of the members 11 and 20 upon the heating coil tending to compress the mica plates against the wire will be eliminated.

It will be seen that the shoe 10 constitutes what is in effect a veneer for the sadiron covering the relatively rough surface of the cast iron block 11. Machining or finishing of any kind is eliminated. Moreover, said shoe is made of rustless, stainless, metal and can be highly polished and in general worked more satisfactorily than the block 11 could be.

The handle 17 is spaced from the shell 16 of the sadiron by means of the washers 24 to provide an air space to retain the handle in as cool condition as possible.

The projecting portion 15 provides a sadiron which is particularly facilitated for the ironing of frills, ruffles and the like where the edge portion of the iron must be used. While the projecting member extends wholly about the iron to simplify the construction it will be understood that my invention contemplates any specific arrangement of this member in regard to size or position as may be desired.

The insulation member 25 will be understood as having suitable strengthening material to afford the necessary rigidity and strength thereto. Said block of insulating material is provided with cutouts 51 and holes 52 to receive the bracket 41 and the heads of the screws 42 respectively, the latter being directly accessible through said holes as by means of a screw driver for engaging the bracket to the block 20 if desired.

The invention contemplates preferably a factory adjustment for the switch mechanism, the pin 30 being altered in length until

the test condition is met. The pin is readily filed down or otherwise shortened for this purpose. The make and break contact device being positioned in the chamber 26 within the insulation block is retained under uniform operating conditions and against disturbance due to changes in the atmosphere, such as an increase in humidity which would promote arcing across the contacts, or an increase in circulation of the air about the iron which would cool the upper part thereof more rapidly and change the expansion and relative position of the parts of the make and break contact device, thus altering the gap between the contacts and consequently the adjustment of said device relative to the thermostat.

The flat form of the wire used in the heating coil possesses numerous advantages in that an increase in heating efficiency of the coil is obtained since a greater surface for the transmission of the heat of the coil to the case iron blocks is provided for. The excessive drop in the temperature as between the heating coil and the body of the iron is thus eliminated, permitting the coil to be operated at somewhat lower temperature for the same predetermined temperature of the iron. A longer life of the heating coil is thus obtained.

While any type of connection can be used at the heating coil, I use preferably an angle member 53 connected to said coil by means of a bolt 54 and to the socket by the nut 44<sup>a</sup>. Likewise an angle member 55 is used with bolts 56 and 57, the former to connect with the heating coil and the latter with the conductor 34.

I claim:

1. In an electric sadiron, the combination of a body, an electric heating coil, a thermostat, and make and break contact means in the body co-operative with said thermostat to regulate the flow of current to said coil, said body comprising insulation serving to enclose said make and break contact means to make the same more uniformly responsive to the heat of said coil, the make and break contact means including a spring contact member.

2. In an electric sadiron, the combination of a body having a mass of heat conducting material at the base of the iron, and a layer of insulation along the top of the iron, a shell enclosing said body, fasteners having engagement with said mass of heat conducting material, spacing sleeves surrounding said fasteners to retain the shell in spaced predetermined relation to said mass of heat conducting material and prevent said layer of insulation from being subjected to stress, the upper end of said fasteners extending through said shell, and a handle secured to said ends.

3. In a sadiron, the combination of a body

of relatively strong rigid material having an engaging portion extending along the sides of the iron near the base thereof, and a shoe of relatively thin sheet material for the iron having engagement with said engaging portion and whereby the shoe is retained in taut condition along the body.

4. The combination as set forth in claim 3 wherein said shoe is composed of a metal having a lower expansibility under heat than said body.

5. A sadiron comprising a block of rigid heat conducting material, and a shoe having engagement with the block, said shoe being made of stainless metal covering the outside of said block and constituting a veneer, said shoe having engagement with the block around the side surfaces thereof and having a lower co-efficient of expansion than the block to grip the same snugly when the iron is heated up.

6. In a sadiron, the combination of a body of relatively strong rigid material having a

flange portion extending along the sides of the iron near the base thereof, and a shoe of relatively thin sheet material of a lower expansibility under heat than said body and having an inturned flange to embrace the flange of the body and extend inwardly thereover in a direction approximately parallel to the base of the iron to permit of relative movement as between said shoe and said body under expansion and contraction due to heat, the flange of the shoe having snug contact with the side edges of the flange of the body to be retained in taut condition along the body when the iron is heated up, the engagement of the flanges as aforesaid serving to retain the shoe in engagement with the body as when the iron is cooled and the body contracts more than the shoe eliminating frictional engagement along the side edges of the body flange.

In testimony whereof I affix my signature.

JOHN E. MARSDEN.