C. P. MADSEN.

ELECTRIC HEATER.

APPLICATION FILED DEC. 26, 1911.

1,187,757.

Patented June 20, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

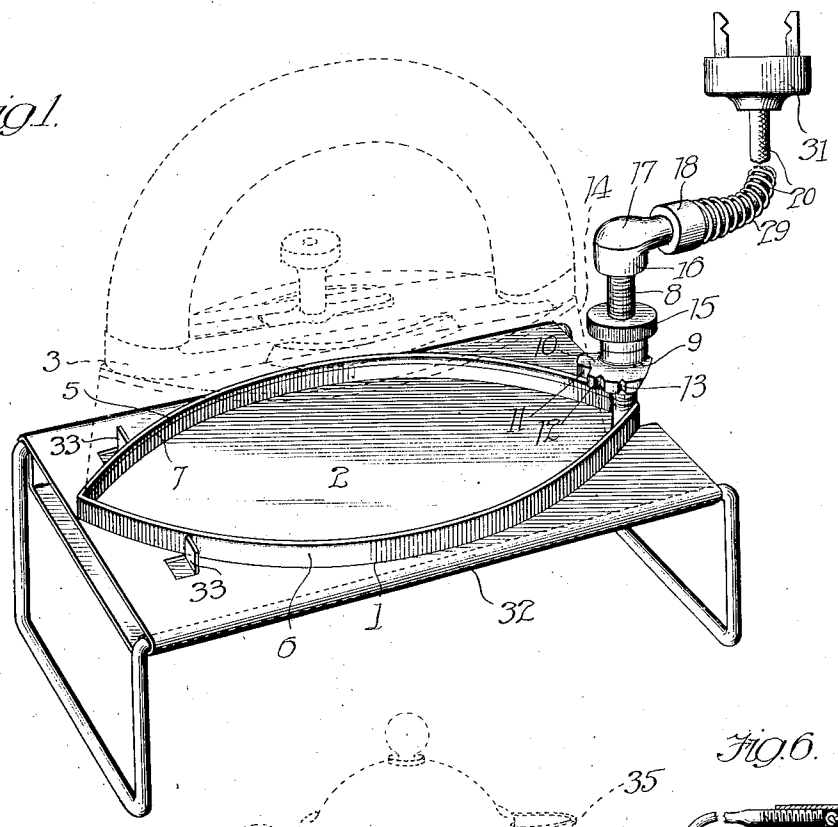


Fig. 6.

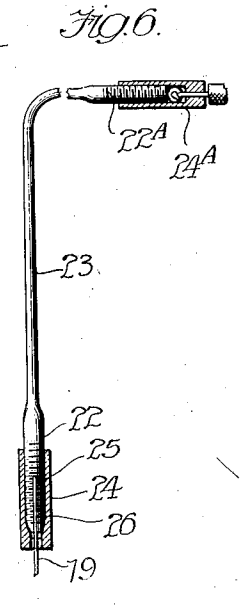
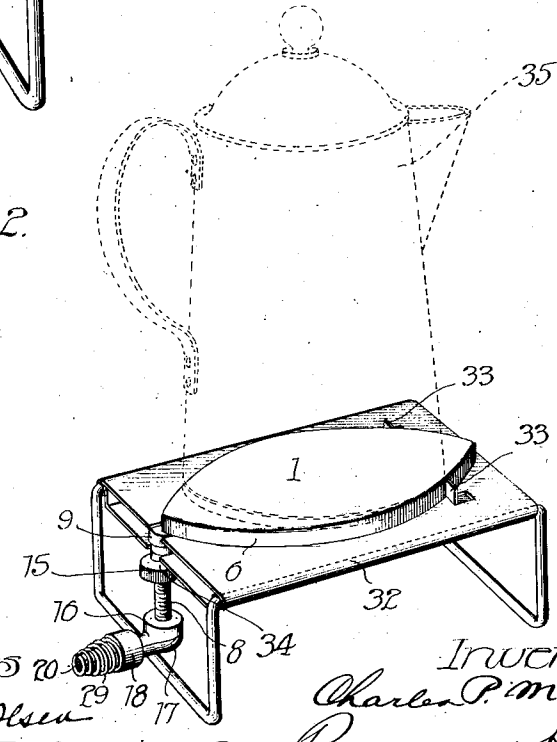


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

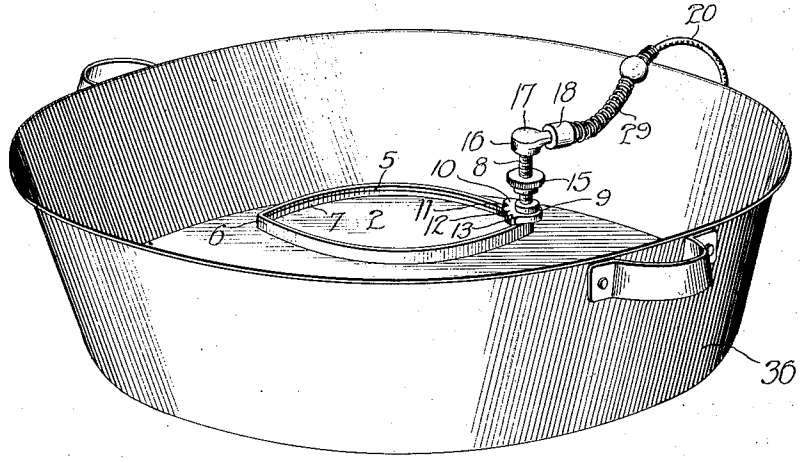


Fig. 4.

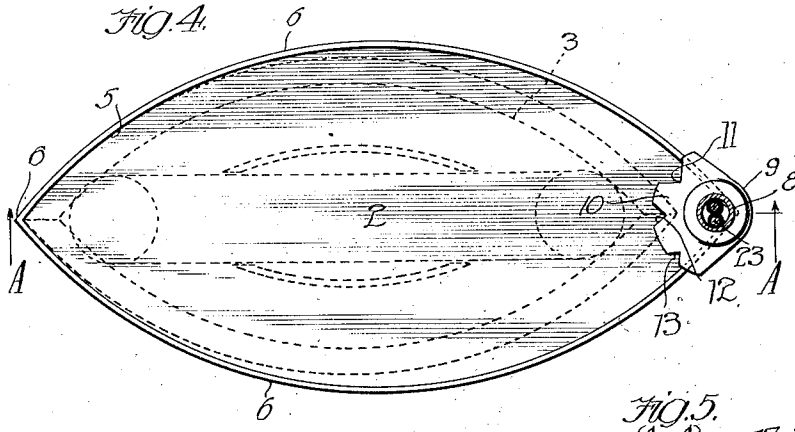
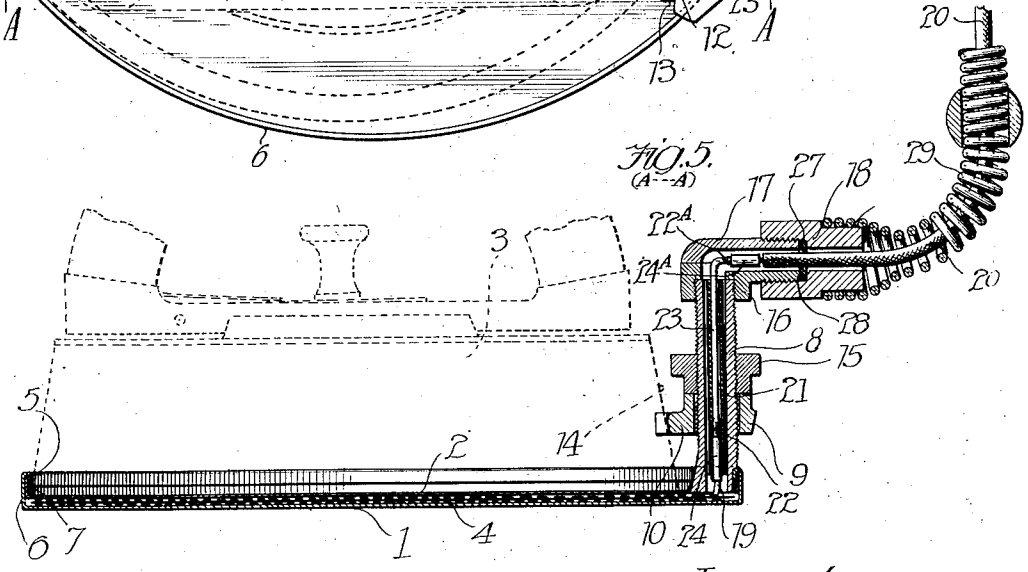


Fig. 5.
(A—A)



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UNITED STATES PATENT OFFICE.

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ELECTRIC HEATER.

1,187,757. Specification of Letters Patent. **Patented June 20, 1916.**

Application filed December 26, 1911. Serial No. 667,945.

To all whom it may concern:

Be it known that I, CHARLES P. MADSEN, a citizen of the United States of America, and a resident of Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Electric Heaters; of which the following is a specification.

The main objects of this invention are to provide an improved form of electric heater adapted to be readily attached to another object to serve as a heating face therefor; to provide such heater adapted for use with any of the ordinary types of sad-irons, whereby one may readily be converted into a practical electrically heated sad-iron; to provide improved means for rigidly securing the heater to the iron; to provide an improved heater of this kind which may be also used for other purposes; to provide an improved construction of the heater itself; and to provide an improved form of connection between the electric conductors and the resistance material of the heating element.

An illustrative embodiment of this invention is shown in the accompanying drawings, in which:—

Figure 1 is a perspective view of a heater constructed according to this invention, secured to a Potts sad-iron and supported on a stand. Fig. 2 is a perspective view of the heater inverted and secured to the stand, whereby it is adapted for use as an electric stove, a coffee pot being shown in dotted outline thereon. Fig. 3 is a perspective view of the heater placed in a pan or basin for use as an immersion heater. Fig. 4 is a plan view of the heater, a Potts sad-iron being shown in dotted outline thereon. Fig. 5 is a longitudinal sectional elevation of the same, taken on the line A—A of Fig. 4. Fig. 6 is a detail view, partly sectional, of the improved connection between the electric conductors and the resistance wire of the heating element.

In the construction shown in the drawings, a pair of plates 1 and 2, such as sheet metal punchings, are shaped substantially the same as the ordinary type of sad-iron, but somewhat larger. Between the plates is secured a heating element 4, the same being suitably insulated therefrom.

A shoulder 5 is provided by bending up the edges of the plates so as to form the respective abutting flanges 6 and 7, the outer one being bent down over the inner one and then welded thereto so as to form a watertight joint. A threaded tubular standard 8 is welded or otherwise secured to the heater at one of its points and carries the clamping means by which the heater is secured to the iron or other object.

The clamping means comprises a member 9 slidably mounted on the standard 8 and having a concentric segment 10 in which are formed the V-shaped notches 11, 12 and 13. The member 9 is set so as to cause one of the notches to engage the vertical corner 14 of the iron so that when the member 9 is urged downwardly along the standard, the heater will be secured to the iron through the engagement of the corners of the iron with the member 9 and the flange 5. The member 9 is urged to and secured in its clamped position by means of a knurled nut 15 having threaded engagement with the standard so as to be moved up and down thereon. The notches 11, 12 and 13 are of respectively different depths so that the heater may, within a limited range, accommodate sad-irons of different lengths.

A transversely disposed extension is secured to the standard 8 substantially in the form of a goosehead, which comprises a pair of members 16 and 17 having their rearward ends threaded to receive a nipple 18 by which they are clamped together. The member 16 is threaded so as to be attached to the upper end of the standard 8. In the standard 8 and its extension are housed the connector rods 23, which complete the connection between the resistance ribbon 19 of the heating element 4 and the electric conductors 20. These connector rods are of L-shaped construction and are insulated from the standard 8 and transverse connection by means of suitable insulating material, as asbestos sleeving 21. The ends of the conductors are enlarged and threaded, as at 22 and 22^A, to which are secured the caps 24 and 24^A. The end 22 of each rod has a slit 25 extending inwardly substantially equal in width to the thickness of the resistance ribbon 19. The ends of the enlargements 22 and the caps 24 have coacting tapered shoulders 26, which, when the cap is firmly screwed on to the enlargement, cause the ribbon 19 to be gripped in the slot 25. The ends of the conductors 20 are in-

serted through an aperture in the end of the caps 24A and suitably knotted as shown in Fig. 6, so that when the caps 24A are firmly screwed on to the enlargement 22A, the ends of said conductors are secured between the abutting faces of the caps and enlargement.

A resilient ring 27, such as asbestos or rubber, is located between the ends of the members 16 and 17, and the shoulder 28 on the nipple 18, whereby when the nipple is screwed up, the ring 27 is expanded so as to grip the conductors 20, and relieve the same from strain through a pull thereon, and also form a watertight joint. A coiled spring 29 surrounds the conductors 20 adjacent to their connection to the heater to prevent excessive bending of the conductor cord. The forward end of the spring is enlarged to receive the end of the nipple 18, and is suitably secured thereto.

The device is used and operated in the following manner:—When it is to be used in conjunction with a sad-iron of the usual type, to constitute an electrically heated sad-iron, the nut 15 is run up on the standard 8 so that the corners of the sad iron may be respectively inserted into the forward point of the shoulder 5 and one of the notches in the member 9. The nut 15 is then screwed down so as to force the member 9 downwardly and urge the iron forwardly against the shoulder 5, whereby the heater is firmly clamped to the sad-iron 3. The socket plug 31 is then inserted into a suitable socket, whereupon the sad-iron is ready for use, the bottom of the plate 1 becoming the ironing or heating surface. During such times as the sad-iron is not being used for ironing, it is placed upon the stand 32, as is customary with electrically heated irons.

When the device is to be used for an electric stove, the heater is placed upon the stand 32 in an inverted position, so that the forward part is received between the shoulders 33, and the standard 8 is received in the notch 34 at the rear of the stand 32. The nut 15 may then be screwed up to clamp the edge of the stand between the plates and the member 9, whereby the heater is secured to the stand. When so arranged, utensils may be placed upon the heater, as is customary with the ordinary type of electric stove, a coffee-pot 35 being indicated in dotted outline in Fig. 2.

When the device is to be used as an immersion heater, the same is placed in a utensil 36, containing the water to be heated, and the current turned on, whereupon the heater serves to heat the liquid.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention, as defined by the following claims.

I claim:—

1. The combination with a sad-iron of a heater comprising a pair of plates having upstanding flanges around their edges adapted to nest one within the other, said flanges constituting a rim adapted to embrace said sad-iron.

2. The combination with a sad iron of an electric heater comprising a pair of plates of substantially the same shape as said sad iron, secured together and having a shoulder near one edge thereof adapted to engage said sad iron at one end thereof, a heating element interposed between said plates, and means located on said heater and adapted to engage the opposite end of said sad iron and coact with said shoulder for clamping said heater to said sad iron.

3. The combination, with a sad-iron, of an electric heater comprising a pair of plates of substantially the same shape as said sad-iron, secured together and having an upstanding shoulder near the edge, a heating element interposed between said plates; a standard on said heater; and means adjustable on said standard for engaging one end of said sad-iron so as to force the opposite end into contact with said upstanding shoulder for securing said heater to said sad-iron.

4. The combination, with a sad-iron, of a heater comprising a pair of plates secured together so as to fit upon the base of said sad-iron and having a heating element interposed between them, an upstanding shoulder near the perimeter of said heater, a standard on said heater, a member movable along said standard and having a notch therein adapted to engage one corner of said sad-iron, a nut having threaded engagement with said standard and adapted to be operated for causing said member to urge said sad-iron into clamping engagement with said heater.

5. The combination, with a sad-iron of a heater comprising a pair of plates secured together so as to fit upon the base of said sad-iron and having a heating element interposed between them, an upstanding shoulder near the perimeter of said heater, a hollow standard on said heater, a member movable along said standard and having a notch therein adapted to engage one corner of said sad iron, a nut having threaded engagement with said hollow standard and adapted to be operated for causing said member to urge said sad-iron into clamping engagement with said heater, a hollow nut threaded upon top of said hollow standard and adapted by means of contained packing to clamp an insulated conductor passing through it and said hollow standard.

6. The combination of an electric heater consisting of two flat plates having a mar-

ginal flange near their edges, a heating unit between them, a hollow upright near one end with clamping means on said upright; with insulated connecting bars in said hollow upright adapted to clamp a flat wire in one end thereof and a round wire in the other end.

Signed at Chicago this 19th day of December 1911.

CHARLES P. MADSEN.

Witnesses:
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