April 19, 1938. L. NAWO 2,114,888

HOT PLATE

Filed Feb. 19, 1937

Fig. 1.

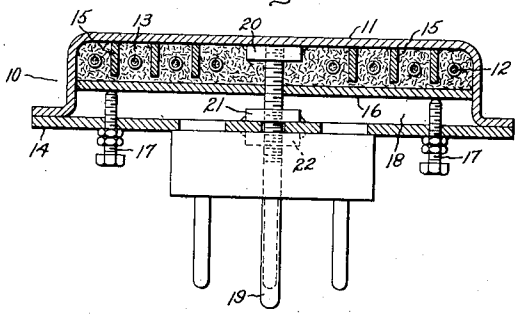
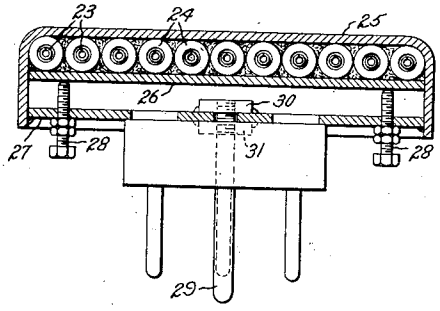


Fig. 2.



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HOT PLATE

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4 Claims. (Cl. 219—37)

This invention relates to hot plates, more particularly to electrically heated plates, and it has for its object the provision of an improved plate of this character.

This invention contemplates the provision of an improved hot plate having a substantially uniform temperature distribution over the heat radiating surface, a relatively small heat loss through the opposite side, and further, a cooking plate which is impervious to moisture.

In accordance with this invention, two plates are provided. One is shaped like a plate or pan and constitutes the top plate, while the other is welded, or attached in a similar manner, to the top plate as a closing cover, the two plates defining a casing that is impervious to moisture. The resistance conductors are placed in the plate or pan-shaped top member and are either embedded in granulated insulating material, or are mounted in insulating beads. In either case, a pressure plate is mounted in the casing to compress or press against the insulating material. An air space is left between the pressure and cover plates to retard the flow of heat downward through the cover plate.

For a more complete understanding of this invention, reference should be had to the accompanying drawing in which Fig. 1 is an elevation chiefly in section of an electric hot plate embodying this invention; and Fig. 2 is a similar view illustrating a modified form of this invention.

Referring more specifically to Fig. 1, the hot plate 10 comprises a top plate 11 having, as shown, the shape of a pan or deep plate and in which the resistance conductor 12 is placed. Preferably, the resistance conductor 12 will be wound in the form of a helix and preferably the helix will be disposed in a spiral arrangement within the cover plate 11. The conductor 12 is embedded in and supported in spaced relation with reference to the walls of the top plate 11 by means of granulated electrically insulating and good heat conducting material 13, such as powdered magnesium oxide.

The top plate 11 is closed at the bottom by means of a bottom plate 14 which will be secured to the top plate in any suitable manner so as to provide a moisture impervious joint between them, as by welding. Preferably, suitable spacer members 15 will be arranged at spaced intervals between the turns of the spiral wound resistance conductor 12, as shown in Fig. 1. These members 15 will be rigidly secured to the bottom surface of the top plate 11.

A suitable pressure plate 16 is mounted in the top plate 11 and bears against the insulating material 13. The pressure plate 16, as shown, is spaced from the cover plate 14 and is held in its spaced relation to the cover and against the insulating material by means of a plurality of screws 17. These screws, it will be observed, project from the cover plate 14 so that they can be adjusted from the exterior of the heating unit. The space 18 between the closure and pressure plate defines a heat insulating barrier and retards to a minimum the loss of heat downwardly of the plate. The distance that the pressure plate 16 is adjusted with reference to the closure plate 14, is calculated in accordance with the air insulation desired in the space 18 and also in accordance with the insulating characteristics of the material 13.

An earthing or ground plug 19 has screwed thereon a series of plates 20, 21, and 22. The plate 20 is welded or otherwise secured rigidly to the under-surface of the top plate 11 while the plates 21 and 22 are secured in a similar manner to the opposite sides of the cover plate 14. This arrangement materially reinforces the mechanical strength of the hot plate.

In Fig. 2 there is illustrated a modified form of the invention. In this case, the resistance conductors 23 are mounted in insulating beads 24. The insulating beads are received in a pan-shaped top-plate 25 and rest against the bottom surface of the pan. They are pressed against this surface by means of a pressure plate 26. The top plate is closed by a cover plate 27 and through this cover plate suitable adjusting screws 28 are provided for the pressure plate 26.

In certain cases, such as in the smaller cooking plates of the type shown in Fig. 2, it is not necessary that the earthing or grounding plug extend through the cooking plate, as in Fig. 1. In these cases, it is sufficient to attach the grounding plug 29 to the cover plate 27 only. As here shown, the screw 29 is secured to plates 30 and 31 positioned on opposite sides of the cover plate 27 and secured to it in any suitable manner, as by welding.

In order to improve the transmission of heat from the resistance conductor 23 to the top surface of the plate 25 a suitable good heat conducting material, such as powdered magnesium oxide, may be sprinkled between and around and about the insulating beads 24, the whole being pressed together and against the top plate by the pressure plate 26.

While I have shown particular embodiments of

my invention, it will be understood, of course, that I do not wish to be limited thereto since many modifications may be made, and I, therefore, contemplate by the appended claims to cover any such modifications as fall within the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. An electric hot plate comprising a pan-shaped top plate, a resistance conductor in said top plate coiled so as to be distributed over the surface of said plate spacing members between the turns of said resistance conductor secured to said top plate, a closing cover secured to said top plate, electrically insulating material in said top plate holding said resistance conductor in spaced relation with said top plate and said spacing members, a pressure plate bearing on said insulating material and spaced from said cover so as to provide an air space between the pressure plate and cover, and means accessible on the exterior of said cover for adjusting the position of said pressure plate.

2. An electric hot plate comprising a pan-shaped top plate, a resistance conductor in said plate, insulating material in said plate covering said resistance conductor, a cover for said top plate, a pressure plate between said cover and said insulating material and means accessible on the exterior of said cover for adjusting the position of said pressure plate.

3. An electrically heated hot plate comprising a pan-shaped top plate, a resistance conductor housed in said plate, a cover plate rigidly secured to said top plate, electrical insulating material in said top plate covering said resistance conductor, a pressure plate in said top plate spaced from said cover plate and bearing against said insulating material, and screws threaded through said cover plate and engaging said pressure plate whereby its position in said top plate can be adjusted.

4. An electrically heated hot plate comprising a pan-shaped top plate, a resistance conductor housed in said plate, a cover plate welded to said top plate to have a liquid impervious joint with it, electrically insulating material in said top plate covering said resistance conductor and insulating it from the top plate, a pressure plate in said top plate spaced from said cover plate and bearing against said insulating material, and screws threaded through said cover plate and engaging said pressure plate whereby its position in said top plate can be adjusted.

LOUIS NAWO.

CERTIFICATE OF CORRECTION.

Patent No. 2,114,888. April 19, 1938.

LOUIS NAWO.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, first column, line 12, claim 1, after "plate" insert a comma; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 24th day of May, A. D. 1938.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.