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L. R. HAMLIN,
ELECTRIC HEATING UNIT OR HOT PLATE.
APPLICATION FILED APR. 11, 1921.

1,436,034.

Patented Nov. 21, 1922.

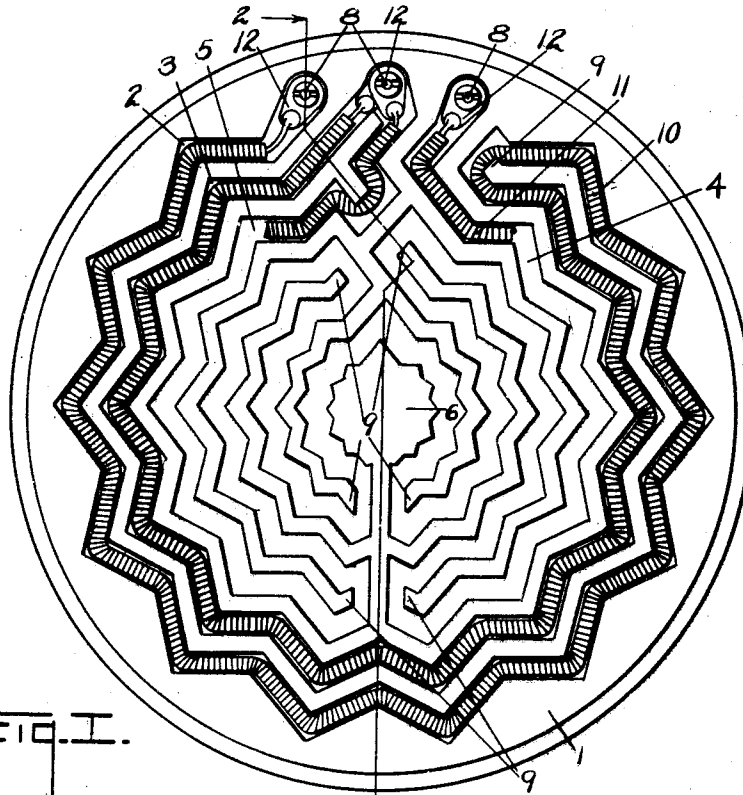


FIG. I.

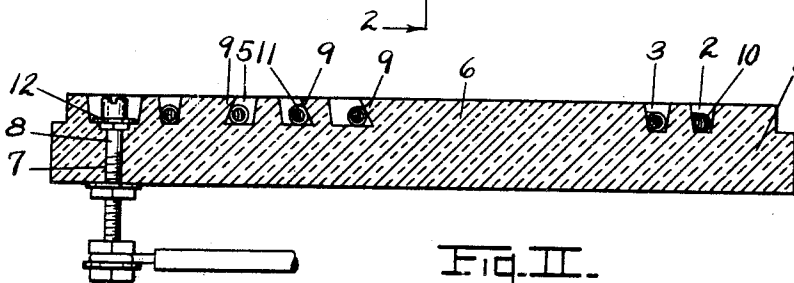


FIG. II.

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Patented Nov. 21, 1922.

1,436,034

UNITED STATES PATENT OFFICE.

LOUIS R. HAMLIN, OF KOKOMO, INDIANA, ASSIGNOR TO THE GLOBE STOVE & RANGE COMPANY, OF KOKOMO, INDIANA.

ELECTRIC HEATING UNIT OR HOT PLATE.

Application filed April 11, 1921. Serial No. 460,588.

To all whom it may concern:

Be it known that I, LOUIS R. HAMLIN, a citizen of the United States, residing at Kokomo, Howard County, State of Indiana, have invented certain new and useful Improvements in Electric Heating Units or Hot Plates, of which the following is a specification.

This invention relates to improvements in electric heating units or hot plates.

The main objects of this invention are:

First, to provide an improved electric heating unit or hot plate in which the grooves for the heating coils are so formed as to effectively retain the heating coils.

Second, to provide an improved heating unit or hot plate in which the terminals or ends of the coils are so disposed as to be readily connected.

Third, to provide an improved insulating plate for heating units.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the device and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which;

Fig. I is a top view of my improved heating unit, portions only of the coils being shown.

Fig. II is a vertical section on a line corresponding to the broken line 2—2 of Fig. I.

In the drawing similar reference characters refer to similar parts throughout the several views.

Referring to the drawing, the insulating plate 1 is formed of suitable insulating material, commonly of porcelain. The plate has a plurality of zig-zagged coil grooves in its face, the plate illustrated having two grooves. The outward and return reaches of the outer groove are designated by the numerals 2 and 3, respectively. These grooves are tapered outwardly, that is, they are wider at the top than at the bottom.

The outward and return reaches of the outer coil groove are in the structure illustrated concentrically disposed. The outward and return reaches 4 and 5, respectively, of the inner coil grooves each com-

prise a plurality of segmental loops disposed oppositely of the center 6 of the plate.

At the ends of the grooves the plate is provided with holes 7 for the binding posts 8. The ends 9 of the grooved walls around which the coils are looped are undercut as shown in Fig. II to prevent the tension on the coils drawing them out of the grooves, particularly when the coils are first laid in the grooves and before the current has been applied thereto.

The outer coil 10 is laid in the outer and return reaches 2 and 3 of the outer groove with its bight engaging the undercut end 9 of the center wall of these grooves. The inner coil 11 is laid in the inner coil groove, which as stated, comprises the outer and return reaches each formed of a plurality of segmental loops, and engages with the undercut ends of the center walls of the loops of this inner groove so that it is likewise effectively retained.

The angles forming the zigzags in the grooves are disposed in radial alignment, the coils are stretched slightly when placed in the grooves so that they are held in binding engagement with the angles formed by the zigzag. When heated and cooled the coils take a permanent set conforming to the grooves and are held therein without other securing means than that provided by the zigzag grooves and the undercut ends described. The ends of the coils are provided with clips 12 which are engaged with binding posts.

The coils may be easily removed if desired and new coils positioned by an unskilled person.

My improved hot plate is very economical to produce as it may be readily molded, is not likely to be broken and the coils may be quickly placed therein and are effectively retained as stated without attaching means other than is provided by the plate itself.

A further advantage of this construction is that by changing the size of the wire the plate can be adapted for a 110 or 220 volt usage. The arrangement of the reaches of the grooves provides a plate of large capacity and the inner coil is of suitable length, being equal to or greater in length than the outer coil, which is a feature of substantial advantage.

My improved heating unit is desirable for use in various relations. I have not attempt-

ed to illustrate the various adaptations and applications thereof, as I believe they will be understood by those skilled in the art to which my invention relates.

5 Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In an electric heating unit, the combination of a porcelain plate having outer and
10 inner zig-zagged coil grooves, the outer groove comprising outward and return reaches, the inner groove comprising outward and return reaches disposed oppositely and each comprising a plurality of segmental
15 loops, the ends of the center walls of the grooves around which the bights of the coils engage being undercut.

2. In an electric heating unit, the combination of a porcelain plate having outer
20 and inner zig-zagged coil grooves, the outer groove comprising concentrically disposed outward and return reaches, the inner groove comprising outward and return reaches disposed oppositely and each comprising a plurality of segmental loops, and coils disposed
25 in said grooves.

3. In an electric heating unit, the combination of a porcelain plate having a plurality of zig-zagged coil grooves comprising
30 outward and return reaches, and coils disposed in said grooves, the ends of the groove walls around which the coils are looped being undercut.

4. An insulating plate for heating units
35 having a plurality of zig-zagged coil grooves, there being an outer groove comprising concentrically disposed outward and return reaches and an inner groove compris-

ing outward and return reaches each comprising a plurality of segmental loops. 40

5. An insulating plate for electric heating units having a zig-zagged coil groove comprising outward and return reaches, a coil disposed in said groove and engaged with the several angles thereof, the end of
45 the center wall of the grooves around which the coil is looped being undercut.

6. An insulating plate for electric heating units having a zig-zagged coil groove comprising outward and return reaches, a coil
50 disposed in said groove and engaged with the several angles thereof.

7. An insulating plate for electric heating units having a plurality of zig-zagged coil grooves, the ends of the walls of said grooves
55 around which the coils are looped being undercut.

8. In an electric heating unit, the combination of an insulating plate having a zig-zagged coil groove, the walls of which converge inwardly, and a coil arranged in said
60 groove around the angles of the zig-zags, all coacting for the purpose specified.

9. In an electric heating unit, the combination of an insulating plate having a zig-zagged coil groove, and a coil arranged in
65 said groove around the angles of the zig-zags, all coacting for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two
70 witnesses.

LOUIS R. HAMLIN. [L. S.]

Witnesses:

EARL F. OREM,

ERNEST D. GARR.