Aug. 15, 1950 R. E. HAINES ET AL 2,518,683

ELECTRICALLY HEATED HOT PLATE

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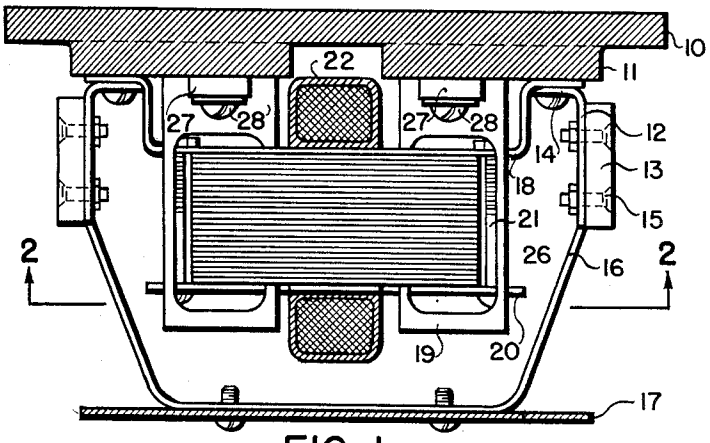


FIG. 1

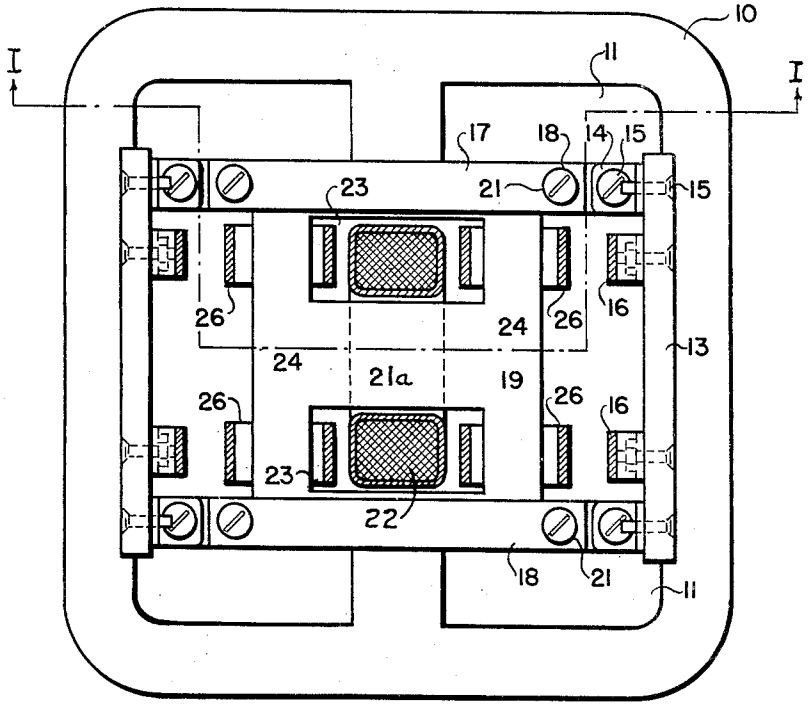


FIG. 2

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ELECTRICALLY HEATED HOT PLATE

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2 Claims. (Cl. 219—37)

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This invention relates to an electrically heated hot plate.

It is an object of this invention to provide a hot plate in which the greatest possible part of the electrical energy supplied, may appear as heat energy at the plate surface.

It is a further object to provide a hot plate which will be rugged in its construction.

The invention accordingly comprises an article of manufacture possessing the features, properties and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a central vertical section of the device on the line I—I of Figure 2, and Fig. 2 is a horizontal section on the line II—II of Figure 1.

In the drawings the numeral 10 constitutes a heavy plate of aluminum or the like having a boss 11 upon its underside. It is supported by brackets 12 from an insulating block 13 which is held to the boss 11 by screws 14 and the block 13 by screws 15, The block 13 is carried by U-shaped brackets 16 from a base plate 17.

A U-shaped strip 18 has its ends offset upwardly to be clamped beneath screws 14 and its lower center portion is clamped to the ends of an iron core 19 by a strip 20 and screws 21.

The core 19 is of the familiar type commonly known in transformer construction as the completely enclosed type having a central leg 21^a carrying a coil 22, and two lateral legs 23 joined together at their ends by the end strip 24.

The core 19 is centrally positioned upon the central leg 21^a. The secondaries comprise each a solid ring of aluminum or copper 26, which completely surrounds the end-strips 23 at their free portions. Four of these secondaries are provided. Each extends upwardly, having a lug 27 which may be screwed to the under side of the boss 11 by screws 28.

By reason of their independent means of support and their mechanical rigidity these secondaries can be held free from any contact with the iron core so that no heat will be transferred to the core from them.

The resistance of the secondaries is made substantial compared to their inductance so as to

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maintain a good power factor in the primary and that resistance is so chosen relative to the primary that the heat conversion is concentrated in the secondary. The primary itself is free from contact with the hot plate or with the secondary. Thus the primary coil and core may be maintained cooler than the plate.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

We claim:

1. A hot plate comprising in combination, a plate to be heated, a magnetic core supported beneath said plate and out of contact therewith, a primary coil surrounding a portion of said core and supported in spaced relation to said plate, a plurality of integrally short circuited secondaries each surrounding another portion of said core, and secondaries being held in firm heat conducting contact with said plate at distributed points on the under surface thereof, and being separated from the core by an air space.

2. A device according to claim 1 in which the resistance loss of the secondary exceeds that of the primary.

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