

F. KUHN.
ELECTRIC HEATER.

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929,095.

Patented July 27, 1909.

Fig. 1. A-

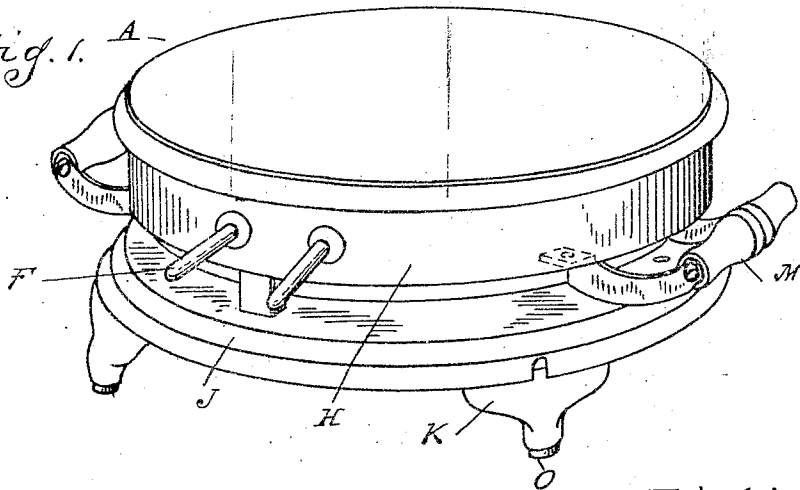


Fig. 2.

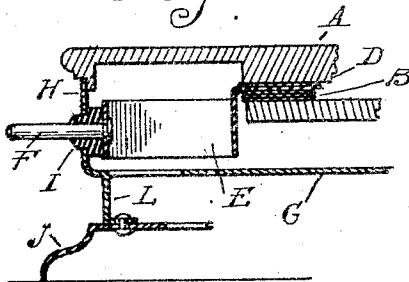


Fig. 3.

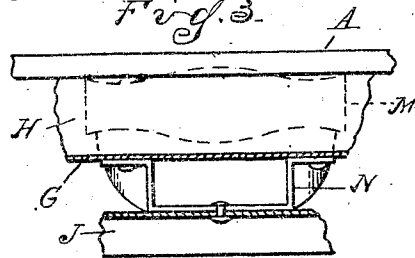
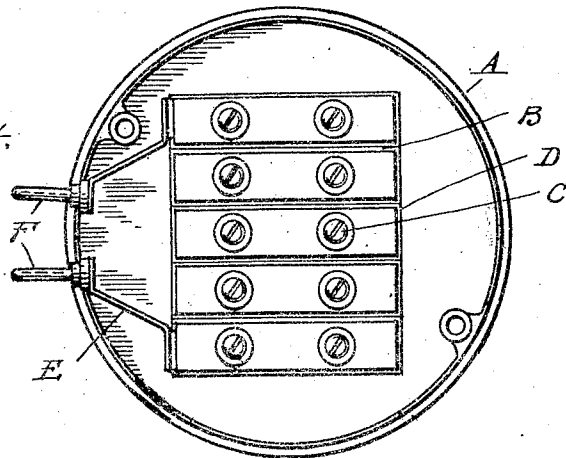


Fig. 4.



Inventor
Frank Kuhn

Witnesses
A. L. Hobby
J. B. Knapp

By Whittmore, Hulbert & Whittmore
Attys.

UNITED STATES PATENT OFFICE.

FRANK KUHN, OF DETROIT, MICHIGAN, ASSIGNOR TO AMERICAN ELECTRICAL HEATER COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

ELECTRIC HEATER.

No. 929,095.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK KUHN, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Electric Heaters, of which the following is a specification, reference being had therein to the accompanying drawings.

It is the object of the invention to provide a construction of electrical heater particularly adapted for use as a hot plate, and the construction consists in certain features of construction as hereinafter set forth.

In the drawings—Figure 1 is a perspective view of the heater; Fig. 2 is a vertical section through a portion of the heater, illustrating the electrical terminal connections; Fig. 3 is a section illustrating the handle connections; Figure 4 is a bottom plan view of the hot plate detached from its supporting casing.

A is the hot plate, which is preferably circular in form.

B is an electrical heating unit secured to the under side of the plate preferably consisting of a series of insulated unit sections clamped by screws C to a downwardly-projecting boss or thickened portion D of the plate. The end sections of the unit are connected to flexible terminals E preferably formed of resilient sheet metal, and having secured thereto at their outer ends the coupling pins F.

To diminish the heat lost from the under side of the plate and the unit, the latter is preferably inclosed in a casing G forming an air chamber. This casing is preferably formed of sheet metal, being provided with an annular upwardly-extending flange H, engaging with a marginal bearing upon a hot plate, so as to form a substantially air tight joint, as well as affording support for the plate. There are also apertures in this flange for the passage outward of the coupling pins F, and these are positioned and insulated from the casing by insulator bushings I sleeved thereon projecting through the apertures in the casing and bearing against the inner side of the latter.

The casing G is preferably supported by a suitable base, and this, as shown, is formed by a base ring J struck up out of the sheet metal. The casing G is provided with downwardly-extending lugs L, which, as

shown, are struck out from the metal forming the bottom of the casing G, and are riveted to the ring J. Additional supports are formed by handle sections M which, as illustrated in Fig. 3, have shanks N extending into the space between the ring J and casing G. These shanks are preferably secured by riveting both to the under side of the casing G and to the top of the ring, thus forming a firm connection.

With the construction as described in operation the heat generated in the unit is distributed by conduction directly to the plate. Moreover, both the unit and the plate are free from contact with other parts of the structure, with exception of the annular flange H, which is at the periphery of the plate. As this flange is formed of thin metal, the heat conducting section is relatively small. Waste of heat is further prevented by the air space within the casing G, and by forming the surface of the casing of bright metal—such as nickel—which is a poor radiator. Conduction of the heat to the base ring is limited by the small section of the supports formed by the lugs L and handle shanks N, so that this base ring remains comparatively cool. The legs K may, if desired, be provided with tips O of rubber or other poor conducting substance, thus permitting the heater to be placed upon a large table without doing injury.

What I claim as my invention is:

1. An electrical heater comprising a hot plate, having a heating unit secured to the under side thereof, and a casing surrounding said unit and spaced therefrom, having a marginal supporting bearing for said plate, and forming an air chamber on the under side thereof.

2. An electrical heater comprising a hot plate, a heating unit secured to the under side thereof, and a casing formed of sheet metal having an annular flange forming a supporting bearing for the margin of the plate, and forming an air chamber beneath said plate and unit.

3. An electrical unit comprising a hot plate, a heating unit secured to the under side of said plate, a casing having a marginal supporting bearing for said plate and forming an air chamber beneath said plate and unit, a terminal connection secured to said unit projecting outward through an aperture in said casing, and an insulator

bushing seated on said casing and projecting through said aperture surrounding said terminal.

4. An electrical heater comprising a hot plate, an electrical heating unit secured to the under side of said plate, a casing supporting said plate and forming an air chamber beneath the plate and unit, a base ring spaced from said casing, and supports of limited section for said casing upon said base ring.

5. An electrical heater comprising a hot plate, a heating unit secured to the under side thereof, a sheet metal casing having a peripheral flange forming a marginal support for said plate and having a bottom extending beneath said plate and unit out

of contact therewith, a base ring spaced from said casing, and a support for said casing upon said base ring struck out from the metal of the bottom of the casing.

6. An electrical heater comprising a plate, a heating unit secured to the under side thereof, a casing surrounding said unit, a base ring spaced from said casing, and a handle having a shank projecting into the space between said casing and ring, and secured to each.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK KUHN.

Witnesses:

NELLIE KINSELLA,
W. J. BELKNAP.