July 7, 1931. J. H. REICHART 1,813,767

ELECTRIC HEATER CONSTRUCTION

Filed March 30, 1929

FIG. 1

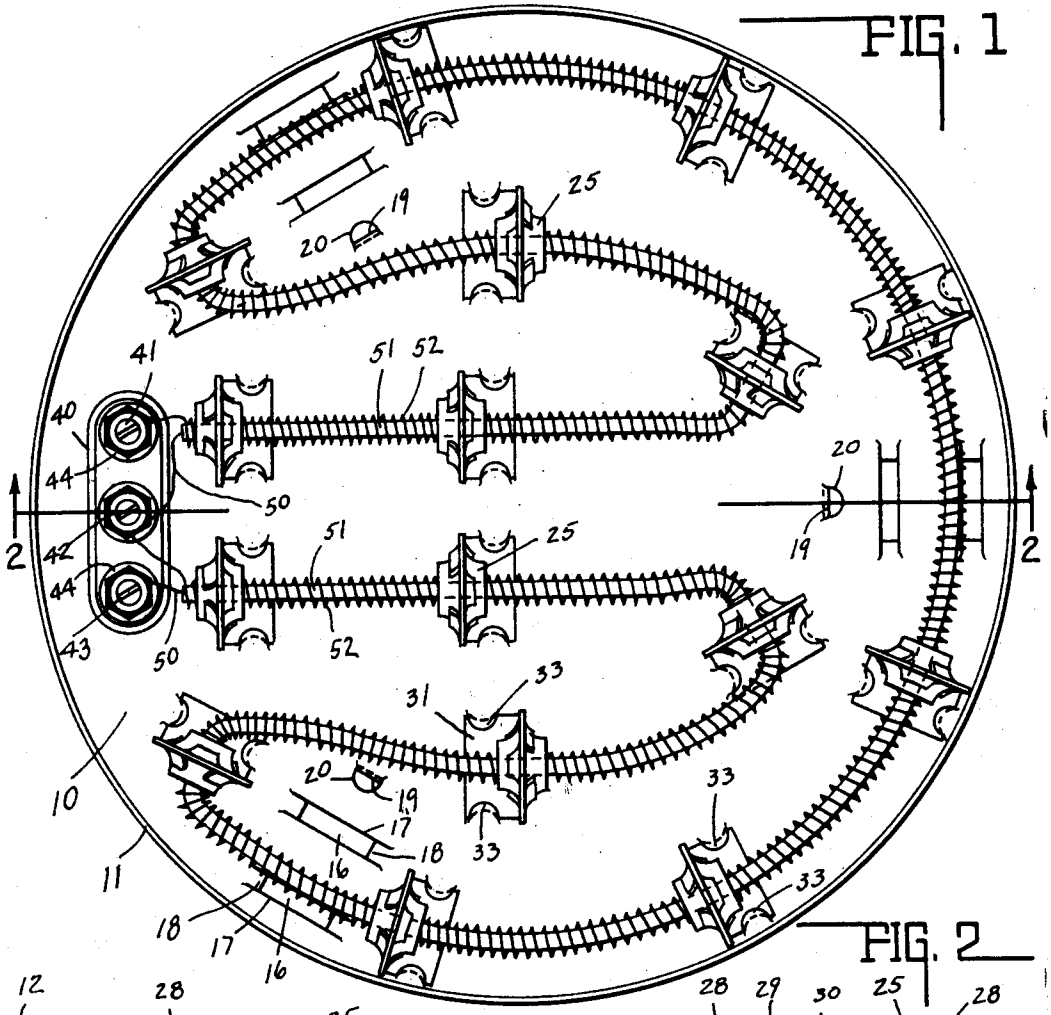


FIG. 2

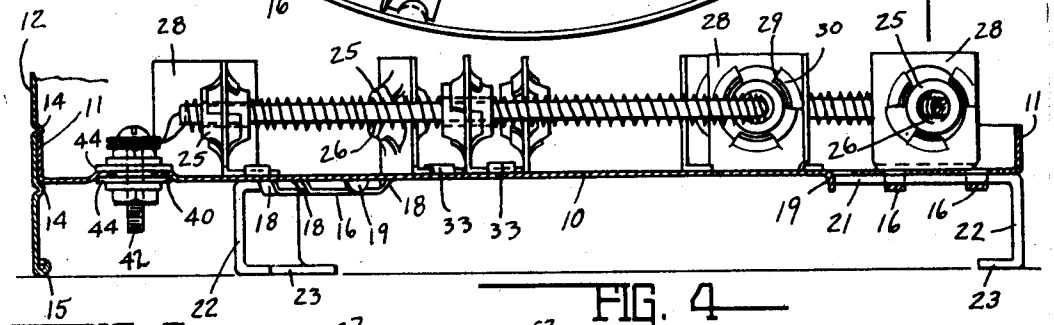


FIG. 3

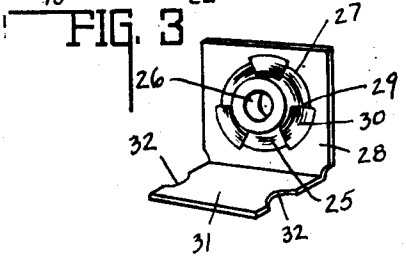
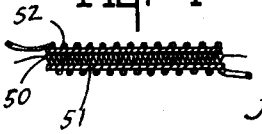


FIG. 4



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ELECTRIC HEATER CONSTRUCTION

Application filed March 30, 1929. Serial No. 351,185.

This invention relates to an electrical heater construction.

The chief object of the invention is to simplify the heating means and its support for an electrical heating device such as a combination fireless cooker, frying pan, hot plate, corn popper or similar electrical apparatus.

One feature of the invention consists in the insulated support for the heating element and the mounting for said support.

Another feature of the invention consists in the formation of the heating element such that a single support arrangement simultaneously serves for two heating constructions, providing not less than two different heats.

A third feature of the invention consists in the formation of the supporting plate such that the plate is reinforced and is relatively rigid although of thin stock and is also so fashioned that it is readily associated with the insulator supports and also with suitable supports for spacing it or supporting the same as desired.

The full nature of the invention will be more fully understood from the accompanying drawings and the following description and claims.

In the drawings Fig. 1 is a plan view of a heating plate capable of incorporation in one of the devices aforesaid, or the like. Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 1 and in the direction of the arrows of the plate incorporated in a device. Fig. 3 is a perspective view of one of the insulator supports with the insulator mounted therein. Fig. 4 is a longitudinal central sectional view through a portion of the multiple heating element.

In the drawings 10 indicates a metallic plate of relatively thin stock and substantially circular in outline. 11 indicates a flange at right angles thereto and forming a peripherally enveloping and protective skirt. 12 indicates the body portion of a construction which may be a corn popper or the like and provided with a pair of spaced inwardly directed corrugations 14 between which is mounted the skirt of the heater construction. If desired the enveloping member 12 or casing may include an inwardly turned protective bead 15.

The plate 10 is provided with three pairs of off-set portions 16. Each pair of off-set portions 16 is parallel and each is formed by the parallel slits 17, the offset portions being joined to the plate 10 by the angular portions 18. In transverse alignment with each pair of parallel offset portions 16 is an angular tongue or stop 19 struck from the plate as at 20. An angular construction including the lateral portion 21 and the leg portion 22 is slidably receivable in a socket comprising the plate stop 19 and the offset portion 16. The end of the lateral portion 21 abuts the stop 19. The leg 22 may have the angular foot 23 if desired. The support construction thus formed may constitute a support or footing, or may constitute a hanger when the heating plate is to be inverted and hung from a suitable support.

The heating element is insulatably supported in spaced relation to the skirt and to the supporting plate by a plurality of insulators and mountings. Each insulator includes an apertured insulation member 25 having a central aperture 26 extending therethrough. The eye-let construction includes an external peripheral rib 27 intermediate the ends of the insulator by which the same is rigidly anchored. The anchorage for each insulator comprises a plate 28 having an aperture therein. The walls of the aperture are pierced radially as at 29 forming tongues 30. Adjacent tongues 30 are inclined inwardly toward the aperture axis and are inclined outwardly from the plane of the plate, and adjacent tongues are oppositely directed from opposite sides of the plate. Herein three tongues are shown upon each side of the plate and each is of equal length. The six tongues clampingly mount the insulator by engaging opposite sides of the central rib formation 27.

The plate 28 includes an angular foot 31 which preferably is notched as at 32 upon opposite sides, said notches being substantially semi-circular. Struck from the plate 10 at the desired points are oppositely di-

rected tongues 33 which clampingly engage the upper face of the feet 31, and said tongues are mounted or seated in the notches 32. In this manner movement of the supporting plate 28 in all directions is prevented. In this manner the plate 28 is rigidly mounted upon the supporting plate 10.

As shown in Fig. 1 the plate anchorages may be positioned in either of two positions so that the insulator can be adjusted to either of two positions by double the width of the distance between the plate 28 and the notches 32. In Fig 1 the two end insulation support constructions are arranged with the foot directed toward the left and the two inner ones are arranged with the foot directed to the right. It may also be noted that there are six radially arranged insulation supports and thus the support may be secured to the plate with the plate portion of the insulation anchorage positioned to the right or to the left of the tongues as desired.

As shown in the several figures the heating element is continuous from end to end and is so arranged that substantially uniform distribution of the heat therefrom is obtained. The plate 10 is offset to form a groove or trough 40 upon one side and an elevation upon the opposite side. Three holes are provided therein through which extend the terminal anchorages 41, 42 and 43. The terminal anchorages 41, 42 and 43 are spaced equi-distant from each other and are insulated from each other and the plate 10 by the insulation 44. Said insulation is nested in the groove 40 and three terminals are provided so that multi-heating can be obtained.

It is not new to provide two heating coils on a heating plate construction and provide terminals for the same or a switch arrangement therefor. The special novel arrangement of the three terminals shown herein is such that the standard female detachable two-contact plug of the flexible cord construction now upon the market can connect to either end terminal and the central terminal. Thus if two heating coils are connected to these terminals, both heating elements having a common connection to one of the terminals, an end one in this instance, two degrees of heat can be obtained. Preferably the heating elements are of dissimilar heating capacity.

A modified form of the aforesaid construction is where the three terminals are arranged in triangular relation with the same spacing between each terminal. With this type of construction three heats are possible using the same two heating elements. Since, if in this case terminals 41 and 43 would be connected, both heating elements would be in series and a different degree of heating would be obtained than if the terminals 41 and 42 or 42 and 43 were connected to the source of power.

The heating element herein shown includes an inner coil or heating element 50 surrounded by a flexible insulation tube 51 which in turn is surrounded by an exterior heating coil 52. The heating coil 52 is insulatably supported by the plate through the eye-lets 25. The same mounting, therefore, serves for both heating elements and each is so arranged that substantially uniform distribution of the heat therefrom is obtained.

The invention claimed is:

1. An electric heater construction including a supporting plate, a plurality of apertured insulation supports supported in spaced relation by said plate, and a heating element supported by said insulation member and comprising an elongated heating coil, a flexible tubular insulation therefor and inclosing said coil, and a second elongated heating coil surrounding said first mentioned coil and the tube supported by the latter.

2. In an electric heater construction the combination of a supporting metallic plate, an elongated heating element in spaced relation therewith, a plurality of apertured insulators, said element extending through the insulated aperture, a metallic plate anchorage for each insulator including an angular foot, and an inter-locking tongue and notch connection between the foot and supporting plate for rigidly securing the anchorage in predetermined position.

In witness whereof, I have hereunto affixed my signature.

JAMES H. REICHART.