L. G. COPEMAN.

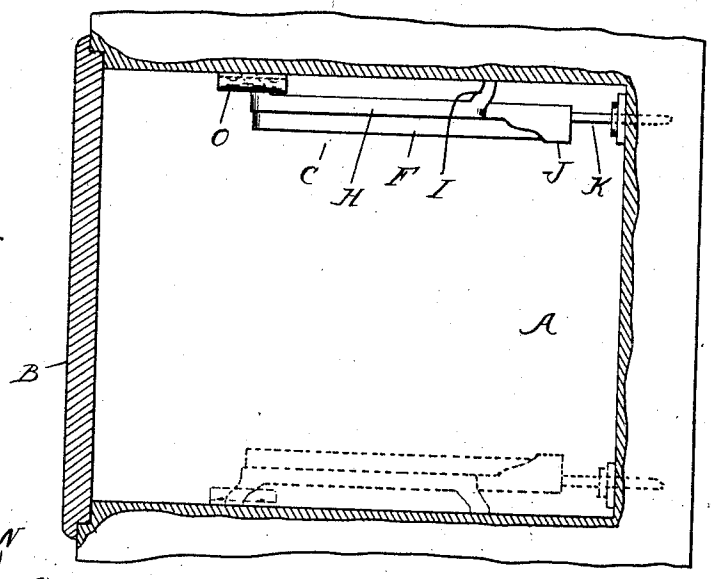
ELECTRICALLY HEATED OVEN.

APPLICATION FILED JAN. 23, 1914.

1,141,176.

Patented June 1, 1915.

Fig. 1.



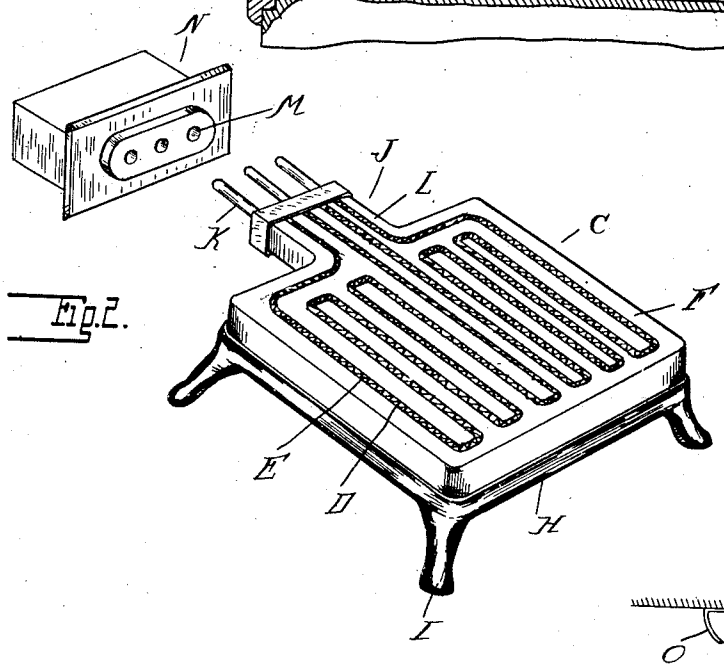


Fig. 2.

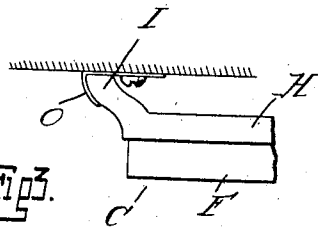


Fig. 3.

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UNITED STATES PATENT OFFICE.

LLOYD GROFF COPEMAN, OF FLINT, MICHIGAN, ASSIGNOR TO COPEMAN ELECTRIC STOVE COMPANY, OF FLINT, MICHIGAN, A CORPORATION OF MICHIGAN.

ELECTRICALLY-HEATED OVEN.

1,141,176. Specification of Letters Patent. Patented June 1, 1915.

Application filed January 23, 1914. Serial No. 813,935.

To all whom it may concern:

Be it known that I, LLOYD GROFF COPEMAN, a citizen of the United States of America, residing at Flint, in the county of Genesee and State of Michigan, have invented certain new and useful Improvements in Electrically-Heated Ovens, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to electric heaters and has particular reference to the construction of an electrically heated oven.

It is the object of the invention to obtain a construction in which the heating unit is detachable and may be arranged in different positions within the oven chamber according to the nature of the cooking operation to be performed.

It is a further object to provide a means of mechanical and electrical attachment which requires no skill on the part of the operator in shifting the unit and in which there is no danger of short circuits, either during the shifting of the unit or by the spilling of liquid or food upon the contacts.

With these objects in view, the invention consists in various features of construction as hereinafter set forth.

In the drawings: Figure 1 is a vertical longitudinal section through the oven, showing in full lines the heating unit in its upper position of adjustment, and in dotted lines in a lower position; Fig. 2 is a perspective view of the unit and the attachment socket therefor; and Fig. 3 is a cross section showing the manner of supporting the unit in its upper position.

In the operation of electrical cooking utensils it is usual to provide a closed oven chamber for confining the heated air, and thereby obtaining the most efficient use of the electric heat. For most cooking operations it is desirable to have the unit located at the base of the oven and to communicate the heat to the upper portion of the chamber by internal convexation of the air. For certain operations, however, such as broiling, the arrangement of the unit at the top of the chamber is preferable. With my improved construction I provide means for exchangeably positioning the unit at either the top or the bottom of the oven chamber, and I further provide mechanical and electrical connections which may be readily engaged or disengaged in either position.

In detail, A is an oven chamber of any suitable construction, and which is normally closed by a tight-fitting door B.

C is the electrical heating unit, preferably in the form of a rectangular plate for covering the larger portion of the area of either the top or bottom of the oven. As shown, the unit is formed by a naked resistor D, which is wound in a coil or spiral and arranged in grooves E formed in an insulator plate F. This plate is formed of any suitable insulating material which will stand the heat developed, and is preferably mounted in a metallic frame H having a plurality of legs I and also a lateral projection J for receiving the terminal portion of the unit. As illustrated the unit is provided with two circuits and three terminals K, which project from the portion J of the frame and are insulated by mounting in a projecting portion L of the insulator plate F. The terminal contacts K are adapted to engage with socket contacts M and an insulator socket member N, the latter being arranged on one of the vertical walls of the oven casing.

With the construction as described the unit C may be placed in operative position by inserting the contacts K into the sockets M, there being provided two of said sockets, one located adjacent to the bottom and the other adjacent to the top of the oven. In the lower position the frame H of the unit will be supported upon the bottom by the legs I which rest thereon, while a heat-insulating air space is left between the bottom of the unit and the oven bottom. In the upper position of adjustment the legs I bear against the top of the oven chamber and are supported by a hooked engagement with supporting lugs or bearings O. Thus in this upper position the unit is inverted and the heat generated in the resistor is radiated directly downward upon the work therebeneath.

The arrangement of the terminal contacts as projecting laterally from the unit and engaging sockets in the vertical wall of the oven is advantageous over constructions in which the terminals engage sockets in the bottom of the oven. One of the advantages of this construction is the prevention of the fouling or short circuiting of the socket contacts by water or food spilled in the oven. It will be observed that the socket for the lower position of the unit is raised above

the bottom in the rear wall of the oven and consequently there is no danger of fouling. Another advantage of the construction is that the same unit is used for either the bottom or the top of the oven, and by making this unit reversible, direct radiation from the resistor is possible in each position. Also the reversing of the unit will bring the legs at the top in the upper position, and will form a heat-insulating air space between the unit and the oven lining in the same manner as is the case at the bottom.

What I claim as my invention is:

1. The combination with an oven casing of a reversible electrical heating unit, and means for mechanically and electrically engaging said unit respectively adjacent to the top and the bottom of said oven casing and in reverse positions.

2. The combination with an oven casing of an electrical heating unit in the form of a hot plate adapted to directly radiate the generated heat from one side only, said plate having an exposed naked resistor in one surface thereof, and means for mechanically and electrically connecting said hot plate in reverse positions adjacent respectively to the top and bottom of said oven casing.

3. The combination with an oven casing of a detachable electrical heating unit comprising an insulator supporting plate, a resistor mounted thereon, legs projecting from said plate on the opposite side from said resistor, and means for reversibly, mechanically and electrically engaging said unit with its legs bearing respectively upon the bottom and against the top of the oven casing to form a heat-insulating air space between said unit and oven casing in each position.

4. The combination with an oven casing, of an electrical heating unit provided with projecting terminal contacts, socket terminal contacts mounted on a vertical wall of the oven casing adapted to detachably engage said projecting terminal contacts, said socket contacts being positioned respectively near the oven casing top and bottom to engage said projecting terminal contacts when said heating unit is positioned respectively at the top and the bottom of said oven casing and in reverse positions.

5. The combination with an oven casing, of a combined reversible electrical heating unit and stand, and means for detachably, mechanically and electrically engaging said combined unit and stand adjacent to the top and bottom of said oven casing to form a heat-insulating air space between said unit and stand and oven casing in each position.

6. The combination with an oven casing, of an electrical heating unit, a frame supporting said heating unit provided with a plurality of legs, and means for detachably engaging said legs and electrically connecting said heating unit adjacent to the top and bottom of said oven casing and in reverse positions.

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

LLOYD GROFF COPEMAN.

Witnesses:
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