L. F. PARKHURST.

ELECTRIC HEATING DEVICE.

APPLICATION FILED MAR. 17, 1915.

1,220,781.

Patented Mar. 27, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

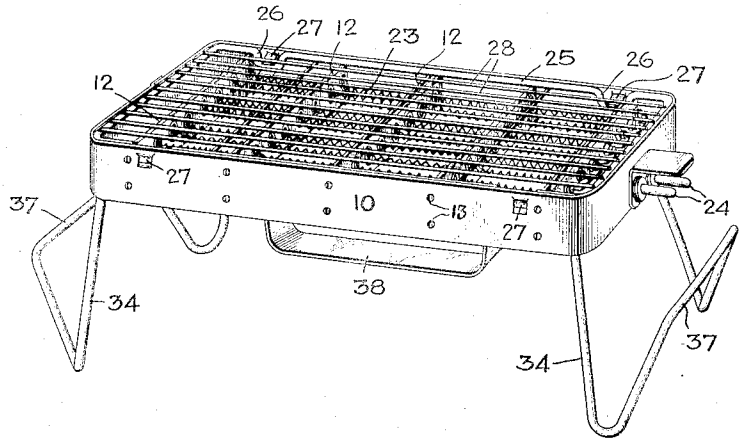


Fig. 2.

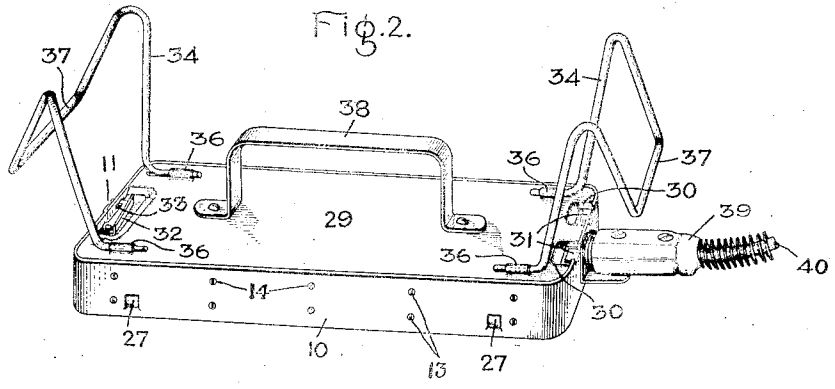
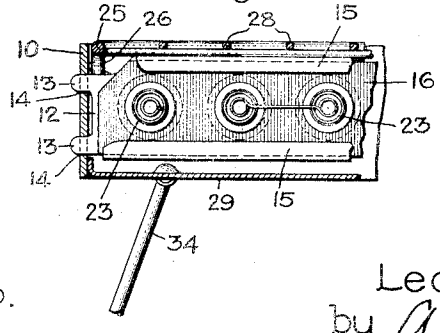


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

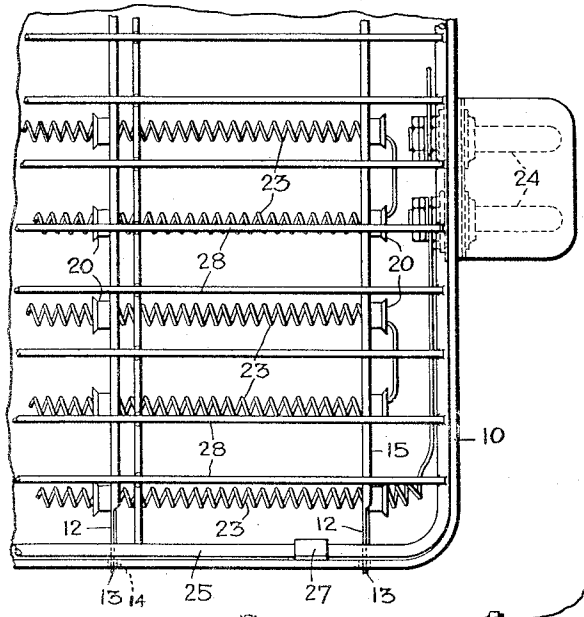


Fig. 5.

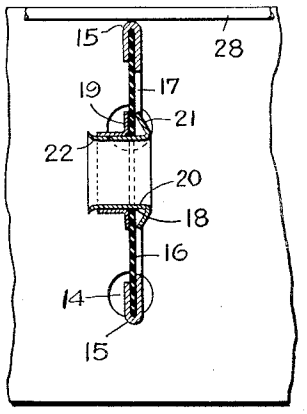


Fig. 6.

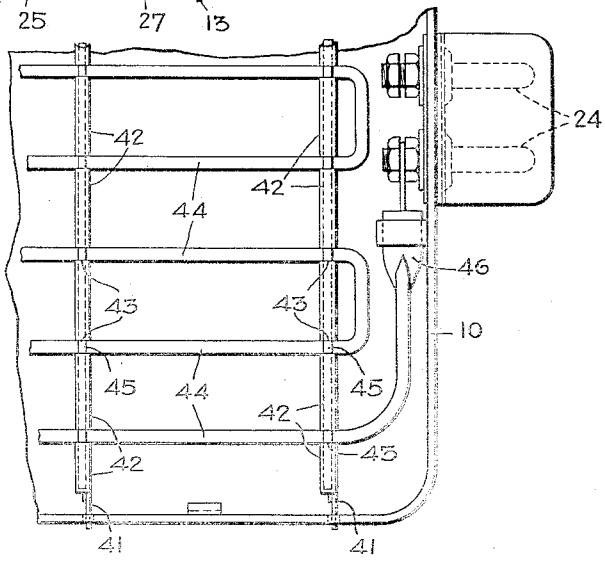
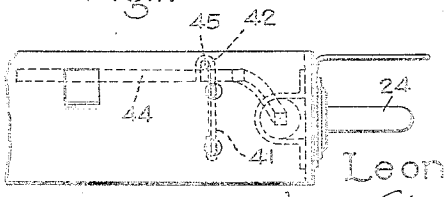


Fig. 7.



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by
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UNITED STATES PATENT OFFICE.

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ELECTRIC HEATING DEVICE.

1,220,781. Specification of Letters Patent. Patented Mar. 27, 1917.

Application filed March 17, 1915. Serial No. 15,097.

To all whom it may concern:

Be it known that I, LEON F. PARKHURST, a citizen of the United States, residing at Pittsfield, county of Berkshire, State of Massachusetts, have invented certain new and useful Improvements in Electric Heating Devices, of which the following is a specification.

My invention has reference to an electric heating device that is well adapted for performing broiling and other cooking operations, and has for its object the provision of a device of this character which is simple, cheap, and generally reliable in operation.

Electric heating devices have hitherto been used in which the heating unit was exposed above to heat an article located on top of the device, and in which the unit might or might not be exposed below. Such devices have, however, always been used in an upright position, and have frequently been provided with parts which would preclude their being used as a heater in an inverted position, and have never been designed with reference to such use. They have, for example, frequently been provided with parts, such as handles, extending into the plane of the top of the device, or with loose parts which would be dislodged in case the device were inverted, either of which would, of course, preclude the device being used in an inverted position. Furthermore, such devices have not been provided with means by which they could be readily inverted, and their structure has been such that they were not adapted for use in this manner.

In accordance with my invention, the electric heating unit is open at one side, and the device is provided with means whereby the same may be supported in an upright position, in which position it may be used for performing the usual operations of frying, toasting, etc., and in addition is provided with means by which the device may readily be inverted, and which adapt it for operation in such inverted position. When the heating device is thus inverted, the part of the device exposed to direct radiation from the heating unit, which is the top when the device is in an upright position, is now brought into direct engagement with the article to be treated, the device being free from parts extending into the plane of the top which would interfere with such inversion.

Another object of my invention is the provision of a novel heating unit, and particularly the mounting for the unit.

Other novel features of my invention will be described in the specification, and particularly pointed out in the claims.

For a fuller understanding of my invention, reference may be had to the accompanying drawings, in which Figure 1 is a perspective view of a heating device embodying my invention standing in an upright position. Fig. 2 is a perspective view of the same inverted. Fig. 3 is a sectional detail view showing the preferred form of structure for supporting the resistance unit. Fig. 4 is a plan view of a portion of the device. Fig. 5 is a detail sectional view of the metal bearing for the resistance unit and the parts coöperating therewith. Fig. 6 is a plan view of a modified form of heating unit. Fig. 7 is a side view of Fig. 6.

Referring now to the drawings, the frame for the heating device comprises a metal strip 10, which is preferably closed, the ends of the strip from which the frame is formed being secured together at 11. This frame is preferably rather shallow, so as to bring the heating unit rather close to the article when the device is inverted. Supporting metal cross plates 12 are provided with tongues or ears 13 engaging openings 14 in the metal strip 10. The ears 13 may, of course, be bent over if desired. The edges of the plates 12 are reflexed at 15 (see Figs. 3 and 5) to receive an insulating plate 16, of mica or other suitable insulating material. The plates 12 are provided with openings 17 at the points where the resistance unit is to be threaded through the frame, and the insulating plates 16 are provided with openings 18 which register with the openings 17 in the plates. A metal bearing is mounted in the opening 18 in the insulating plate, and comprises a flanged eyelet 19 seated against the plate 16 around the opening 18. A second flanged eyelet 20 passes through the opening 18 and through the eyelet 19 and is flared outwardly at 22 against the end of the eyelet 19, while the opposite end is provided with a flange 21 which engages the insulating plate 16, whereby the inner eyelet

is held in position within the insulating plate. This bearing affords a surface sufficiently extended to preclude the possibility of adjacent helical turns of the resistance unit passing over the ends of the metal bearing, and thus causing displacement of and injury to the unit. A resistance unit 23 is threaded back and forth through the various eyelets, and the ends are connected to terminal pins 24 in the usual manner. A top grid is provided for the protection of the resistance units, and comprises a continuous wire frame 25, which is received within the metal strip 10 and is provided with depressed portions 26 which are sprung beneath lugs 27 struck inwardly from the metal strip 10. Wires 28 are suitably secured to the frame 25.

The bottom of the frame of the heating device is closed by a plate 29 provided at one end with depressions 30 which engage beneath lugs 31 turned inwardly from the metal strip 10. The opposite end of the plate 29 is provided with a pivoted latch 32 which engages an opening 33 in the metal strip to hold the plate in position. Standards 34 are provided, for supporting the heating device in an upright position. Preferably, these are formed of a wire, the ends of which are bent over to engage eyelets 36, which may conveniently be formed from the metal plate 29, so that the standards may be readily removed. The wire standards 34 are looped back sharply at 37, and form handles by which the operator can invert the heating device. These handles are sufficiently heat insulated from the body of the heating device so that they may be conveniently grasped by the operator during the operation of the device without causing discomfort. Preferably, the bottom of the device is also provided with a hand grip 38, located in the middle of the device, by which the same may be manipulated by the operator with one hand. The terminals of the heating device are connected to the conductors 40 by a connecting plug 39 of usual construction.

In Figs. 6 and 7 is shown a modification of the structure which I prefer when the resistance is of the type known in the art as sheathed wire. Such wire comprises an inner resistance core surrounded by a metal sheath, with a layer of compressed refractory material between the resistance wire and the sheath. Metal cross-plates 41 are secured in the frame in the same manner as described in connection with Fig. 1. The tops of the plates, however, are reflexed to form a U, as indicated in Fig. 7. The upper edges of these plates at the reflexed portions 42 are provided with slots 43, for the reception of the sheathed wire 44. After the sheathed wire is laid in the slots as indicated in Fig. 6, bars or rods 45 are passed through the U-shaped portions 42 of the cross-plates, and above the sheathed wire, and thus lock the sheathed wire in position. The sheathed wire is preferably provided with enlarged terminals 46, of the character indicated in Whitney Patent No. 1,093,512.

It will be obvious that when the heating device is supported in the upright position shown in Fig. 1, the same may be used for toasting, frying, and cooking operations in general; and when it is desired to utilize the device for broiling or grilling, the same is inverted by the operator, and placed directly upon the article, such as a steak, which is to be broiled. By performing the broiling operations in this manner, the plate or platter upon which the operation is conducted and from which the article is served, is heated, which is in itself desirable, and at the same time the juices of the steak or other article are preserved. When the device is used in this manner, the bottom plate 29 acts as a baffle or reflector for the heat, which is thrown back upon the article being broiled. It will further be apparent that the heating unit will always be at the same distance from the article which is being cooked, and this will result in uniform operation of the device. It will be apparent that the device can readily be cleaned by removing the bottom plate 29.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is only illustrative, and that the invention can be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. A heating device comprising a frame open at the top, an electric heating unit mounted therein, a plate for closing the bottom of said frame, means for removably securing said plate to said frame and a hand-grip mounted on the bottom of said plate.

2. A heating device comprising a frame open at the top, a plate for closing the bottom thereof, means for removably securing said plate to said frame and a hand-grip mounted on said plate.

3. A heating device comprising a frame open at the top, an electric heating unit mounted therein, a releasable plate for closing the bottom thereof, and means secured to the bottom of the heating device for supporting the same in an upright position and means whereby said device may be manually inverted.

4. A heating device comprising a frame open at the top, an electric heating unit mounted therein, a releasable plate for closing the bottom of the frame, and one or

more members secured to the bottom of said plate for supporting the heating device in an upright position and formed to constitute handles by which the heating device may be inverted.

5. A heating device comprising a frame open at the top, an electric heating unit mounted therein, a releasable plate for closing the bottom of said frame, said plate being provided with means for supporting the device in an upright position and with a hand-grip by which the same may be manually inverted.

6. A heating device comprising a shallow frame open at the top, the device being free of projections protruding into the plane of the top of the frame, an electric heating unit mounted in said frame, a releasable plate for closing the bottom of said frame, and means secured to said plate for supporting the device in an upright position and with means whereby the device may be manually inverted.

In witness whereof, I have hereunto set my hand this fifteenth day of March, 1915.

LEON F. PARKHURST.

Witnesses:
A. K. UNGLERT,
O. L. READ.