C. S. STEWARD.

ELECTRIC HEATING UNIT.

APPLICATION FILED NOV. 12, 1913.

1,087,198. Patented Feb. 17, 1914.

Fig. 1.

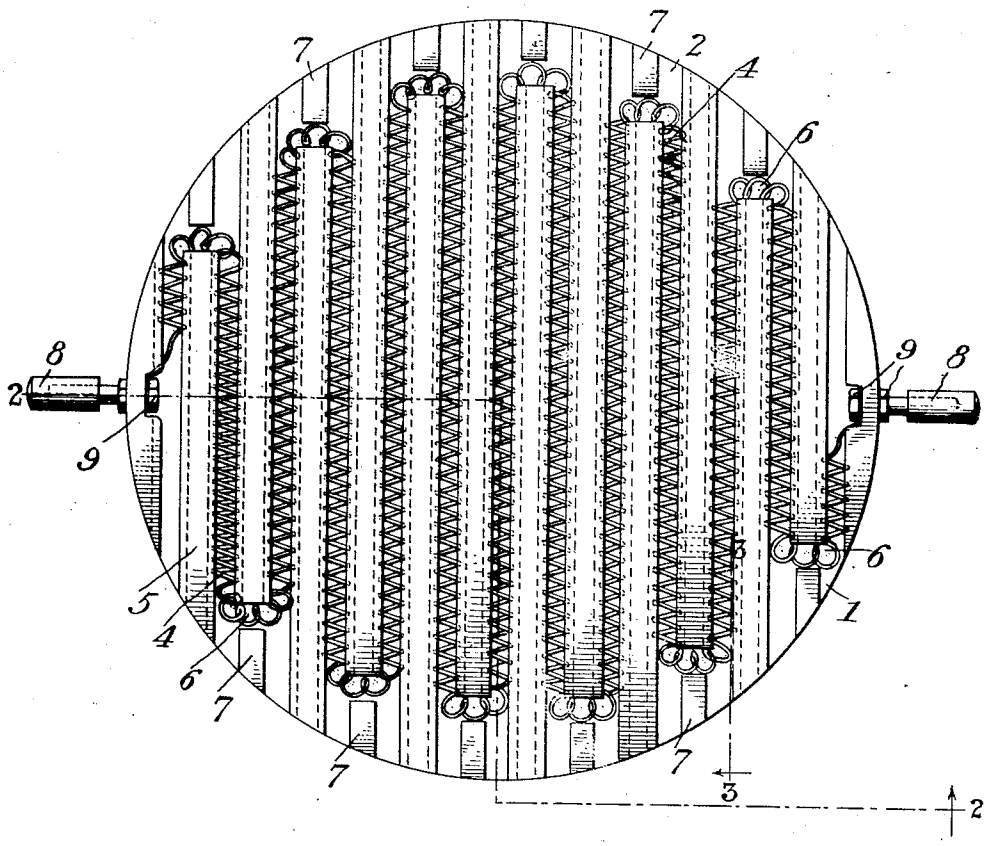


Fig. 2.

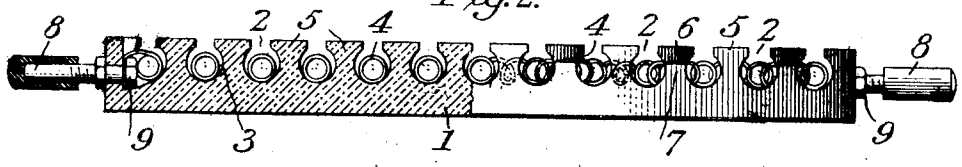
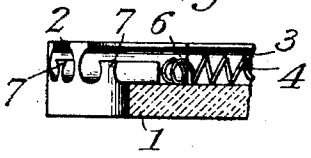


Fig. 3.



Witnesses

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ELECTRIC HEATING UNIT.

1,087,198. Specification of Letters Patent. Patented Feb. 17, 1914.

Application filed November 12, 1913. Serial No. 800,627.

To all whom it may concern:

Be it known that I, CLARENCE S. STEWARD, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Electric Heating Units; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in heating units for electric heaters and it has for its object the provision of a unit of this character constructed of suitable noncombustible insulating material of any desired shape and having one of its faces provided with grooves disposes in parallel relationship, the said grooves being wider at the bottom than at the top and being designed to receive a resistance wire, either coiled or in other form, the portion of the groove receiving the wire being of greater diameter than the width of the slot in the surface of the unit so that the resistance wire will at all times be retained against possible accidental displacement.

The invention has for a further object the provision of a heat unit of the character described in which the resistance wire is so disposed as to afford the greatest possible efficiency in giving off heat by direct radiation and imparting heat to the overhanging portions of the plate interposed between the resistance coils, which portions are brought into direct contact with the article to be heated.

A further object of the invention resides in the provision of a heat unit of the character described which is imperforate and in which means is provided for detachably securing the resistance wire without the use of plates, bolts, screws or other mechanism which is not embraced in the construction of the device itself and in which the rear face of the unit presents a uniformly smooth surface adapted to be used as a griddle, suitable for use in baking cakes, etc., the unit being provided upon opposite sides with trunnions which permit the unit to be lifted from position and reversed so that its cooking surface can be brought into position for use in cooking, the electric circuit being opened or closed through the trunnions as the unit is removed or replaced.

A further and essential object of the invention consists in the provision of a unit of the character described so constructed as to secure a combination by means of which it is possible to heat any vessel or article when the same is placed upon the unit by means of the radiation from the wire and by contact with the material of which the unit is composed.

While I have shown in the drawings a heat unit circular in form, it will at once be evident that, if desired, it may be rectangular or other preferred shape, the unit being preferably constructed of steatite or soapstone, as the character of this material is such as to best adapt it for the purpose.

To these ends and to such others as the invention may pertain, the same consists in the novel construction of the heat unit and in the peculiar arrangement, combination and adaptation of parts, all as will be more fully hereinafter described, shown in the accompanying drawings and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the numerals of reference marked thereon, form a part of this specification and in which:—

Figure 1 is a top plan view of a heat unit embodying the features of my invention. Fig. 2 is a section upon line 2—2 of Fig. 1, and Fig. 3 is a detail sectional view taken on line 3—3 of Fig. 1.

Reference now being had to the details of the drawings by numeral, 1 designates a disk, constructed preferably of steatite, soapstone, or other noncombustible material adapted for the purpose. Disposed at intervals and extending transversely across one face of the disk is a series of parallel grooves 2, 2. These grooves are open at their ends and have their lower portions milled to form an enlarged part 3 for the purpose of receiving the resistance wire 4. Each alternate end of each of the bars 5, separating the slots 2, is cut away as shown at 6, 6, the said cut away portions 6 being provided with a lug or stop 7, the upper face of which stop is disposed above the horizontal plane taken through the lower surface of the bottom of the slots.

It will be observed that the resistance wire 4 comprises a single continuously wound wire having its ends secured to the trunnions 8, 8 by means of suitable binding screws 9. By the construction described, it will be seen that the seating of the wire within the slots is readily effected by first attaching an end of the wire to the trunnion upon one side thence, when the wire is carried to the open end of the slots at the termination of the bar separating the first and second slots, it may be bent around the bar separating said slots and is then carried to the opposite end where the depressed portion 6 admits of the wire being carried around into the next succeeding slot and thence alternately carried from one slot to another by means of the open spaces 6 which are provided at the ends of each alternate set of slots. When thus threaded and in place, the opposite end of the wire is clamped to the trunnion upon the side of the unit opposite to that at which the first end was attached. It will be seen that, when the resistance wire is thus seated within the slots provided for its reception, it will be effectually protected or locked in position against accidental displacement and will at all times be retained below the surface of the disk, while the overhanging edges of the bars separating the slots will form a means for quickly receiving heat from the wires and transmit the same to the body of the bars. It will also be noted that in the construction which I have described the disk is imperforate, no means being required for placing or retaining the resistance wire in position, other than that provided in the construction of the unit itself and it will be further noted that by this construction the face of the unit opposite that which is provided with the slots carrying the resistance wires, being imperforate, forms a smooth and uniform surface adapted for use for cooking purposes. When the unit is designed for heating purposes, these trunnions are placed within their bearings, which are provided with means whereby a current is established with the wire. When it is desired to reverse the plate so as to present its rear face, it is simply necessary to lift the unit from its bearings and, after reversing it, to again restore the trunnions to their journal bearings when the current will be reëstablished and the heat imparted by the wires will be transmitted to the disk. It will be noted that in reversing the plate, the wires will be at all times securely retained within the slots in which they are seated and that no provision whatever, other than described, will be required in order to retain the wires in place.

Having thus described my invention, what I claim to be new and desire to secure by Letters Patent is:—

1. In a heating unit for electric heaters, an imperforate disk of suitable electrical insulating and heat storage material, said disk being adapted to receive a resistance wire, trunnions disposed upon opposite edges of the disk, said trunnions making connection with a source of current when the disk is placed in position in the heater, substantially as shown and described.

2. A heating unit for electric heaters, the same comprising an imperforate body portion or a disk having chambers within the body portion thereof, said chambers being arranged in parallel relation and of a size and form adapted for the reception of a resistance wire, a series of open slots arranged in parallel relationship and communicating with the chambers, said unit being so constructed that it may be reversed in position so as to present either a uniform surface or the chambered surface, substantially as shown and described.

3. A reversible heating unit for electric heaters, the same comprising, in combination, an imperforate disk having incorporated therein a series of chambers adapted to receive a resistance wire, said chambers being separated by bars integral with the disk, the edges of the bars overhanging the wire receiving chambers, each alternate bar being cut away to form open slots, said chambers being provided with wire retaining lugs, means upon opposite sides of the unit for securing the ends of the wire, and means substantially as described for automatically making and breaking the circuit in reversing the unit, substantially as shown and described.

4. A heating unit for electric heaters, the same comprising an imperforate body portion or disk provided with a series of resistance wire chambers disposed in parallel relationship and arranged below the surface of the disk, the said chambers being so disposed as to permit the continuous winding of a resistance wire throughout the series of chambers, slots of less width than the width of the chambers, said slots communicating with the face of the disk, means integral with the body portion of the disk and below the surface thereof adapted to prevent the movement of the wire in either direction within the chambers, substantially as shown and described.

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

CLARENCE S. STEWARD.

Witnesses:
A. R. Fowler,
Franklin H. Hough.