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ELECTRIC TOASTER

Filed March 21, 1932

Fig. 1.

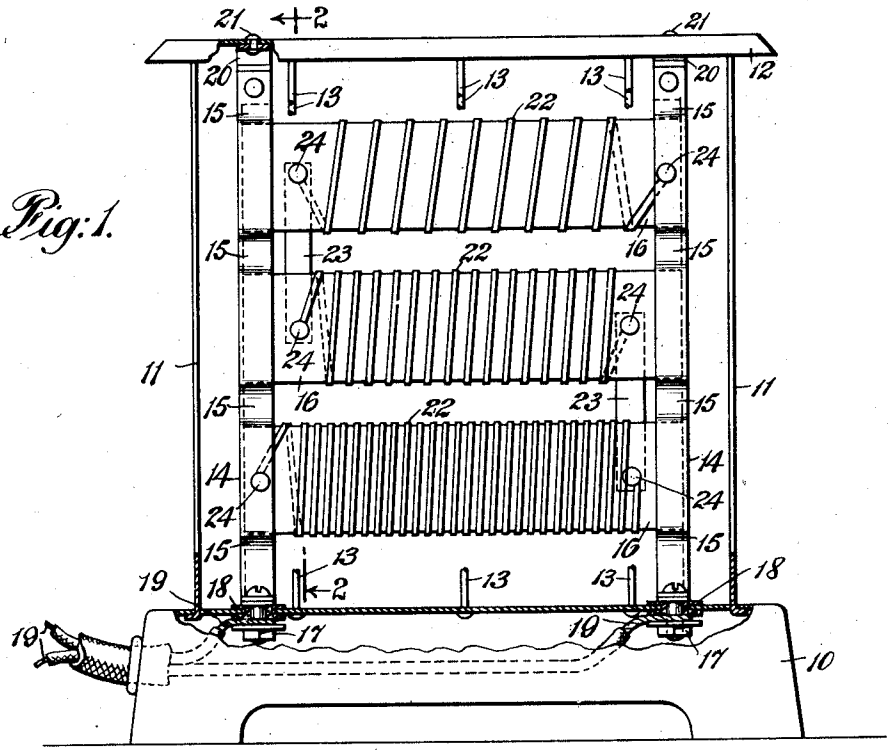


Fig. 2.

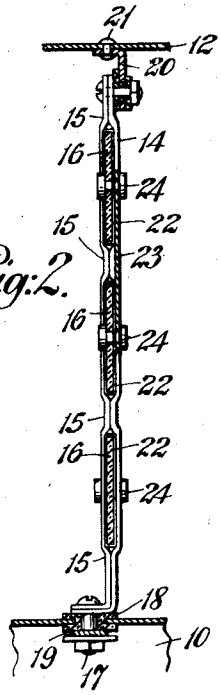
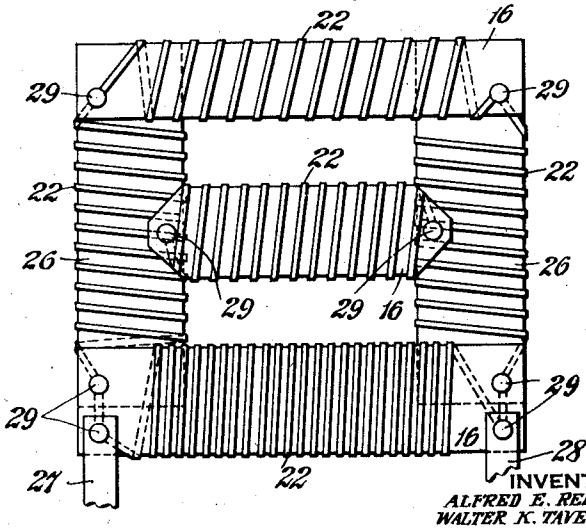


Fig. 3.



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ELECTRIC TOASTER

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3 Claims. (Cl. 219—19)

Our invention relates to electric bread toasters and the object of our invention is to provide improved heating units for such devices which shall be more efficient in operation, more durable in use and less costly to make.

Referring to the drawing which forms a part of this specification:

Fig. 1 is a front elevational view partly in section, showing a bread toaster embodying our improved heating unit, and

Fig. 2 is a sectional view taken on lines 2—2 of Fig. 1.

Fig. 3 shows a front elevation of a heating unit embodying our invention in another form.

10 indicates the base of the toaster to which the vertical side frame members 11—11 respectively, are suitably attached, and 12 indicates the top of the toaster frame supported by the side frame members. Extending between the top and base of the toaster frame are a plurality of guard wires 13—13 etc., against which the bread slice to be toasted is inclined in the usual manner. As is customary, the rear of the toaster frame is similarly provided with guard wires and is in all respects identical with the front so that two slices of bread may be simultaneously toasted, one on either side of the toaster frame.

Centrally positioned within the frame is an electrical heating unit comprising upright supports 14—14, respectively, each of which is formed channel shape from a single strip of conducting metal and crimped, as at 15—15 etc., to hold opposite ends of the horizontally extending parallel strips 16—16 etc.

The strips 16 must be of material which provides good insulation against both heat and electricity. Micaceous material is well suited and generally used in devices of this class but is expensive in large pieces relative to its cost per pound in pieces of small size. One of the economies of our construction resides in the employment of a plurality of small pieces of such material.

The supports 14 are offset adjacent the base, as shown, and are held in position by means of screw, nut and washer combinations, 17, insulated from the base by bushings 18 of porcelain, mica, or other suitable material. These combinations 17 also serve as binding terminals for the lead wires 19, as illustrated.

The supports 14 are similarly insulated and fastened at their upper ends to angular brackets 20, the brackets, in turn being riveted at 21 to the frame top 12.

Each of the strips 16 is evenly wound with flat uninsulated resistance wire or ribbon 22, each strip being wound with a different number of turns, so that they provide a plurality of heating elements having varying heat radiating capacities. The elements are arranged to extend parallel, one over the other, in the order of their respective capacities, the strip having the most turns wound thereon, and therefore affording greatest resistance and heating capacity, being situated closest to the base of the toaster frame. This arrangement is made to provide even toasting of the bread slice since the heat generated radiates upwardly and also because the slice is upwardly inclined against the guard wires 13 and its lower end is therefore spaced from the heating unit a greater distance, as will be readily understood.

The wires 22 of the several heating elements are electrically connected in series by conducting jumpers 23—23 and the upright supports 14 (Figs. 1 and 2), the several connections being made by means of rivets 24—24 etc., which pass thru the micaceous strips 16 and also serve to reinforce the construction. Thus the current flows from one of the lead wires 19 to one of the conducting uprights 14, thence thru the several resistance wires 22, which are thereby suitably heated, and finally returns to the other lead wire 19 thru the opposite upright to complete the circuit.

It will be noted that the comparatively fragile wires 22 are not extended from their respective strips 16 and that the only connections between the heating unit and the frame is by means of the upright supports 14.

By employing separate resistance ribbons or wires 22 on the several strips 16, a substantial economy is effected in manufacturing the heating unit, it being practicable to evenly wind the strips by means of a coil winding machine rather than by hand. This feature of the construction also permits of simple and inexpensive repair of the heating unit in case any one of the fragile resistance wires becomes broken or burns out. This is done by replacing only one of the elements or rewinding one of the strips with new ribbon. It has been found that it is usual for only one of the wires 22 to burn out at a time, whether because of an overload of current or long use. Where it is desired to substitute an entire new heating unit for an old one, such substitution may be more readily made than in other constructions of this type.

In the modification of our invention shown in Fig. 3, vertically extending micaceous strips 26—26 are substituted for the uprights 14. The current flows from the terminal pole 27 thru the

resistance wires 22 wound on all of the strips, as shown, and returns to terminal pole 28, the wires being connected in circuit by rivets 29 which pass thru the several strips to hold them in assembled position.

In this modification the elements are shown connected in the circuit in series parallel, the current being divided at the junctures of the lowermost and intermediate lateral elements with the vertically extending side strip elements. This construction permits the employment of an even larger number of smaller micaceous pieces.

In either device, the heating unit comprising evenly wound micaceous strips and the conducting supports therefor (14 or 27 and 28) constitute a sub-assembly which may be cheaply constructed and quickly mounted in the toaster frame to provide a very durable and efficient device at low cost.

Having thus described our invention, we claim as new:

1. An electric heating unit adapted for use in a bread toasting device comprising a pair of vertical conductors, a plurality of nonconducting heat resisting strips each having an uninsulated resistance wire of different length evenly wound thereon to provide separate heating elements of different heating capacities, said strips being supported adjacent their opposite ends by said conductors and arranged horizontally one above the other in the order of their heating capacities, and means connecting said resistance wires in circuit with said conductors and with each other.

2. An electric heating unit adapted for use in a bread toasting device comprising upwardly extending conducting means, a plurality of nonconducting heat resisting strips each having an uninsulated resistance wire of different length evenly wound thereon to provide separate heating elements of different heating capacities, said strips being supported adjacent their opposite ends by said means and arranged horizontally one above the other in the order of their heating capacities, and means connecting said resistance wires in circuit with said conducting means and with each other.

3. The structure defined in claim 2; said upwardly extending conducting means comprising uninsulated resistance wires supported in wound relation on vertical strips of nonconducting heat resisting material to provide the unit with additional heating capacity.

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