

F. HOKE.
HOT PLATE HEATING MEANS FOR CORN POPPING MACHINES AND THE LIKE.
APPLICATION FILED JULY 16, 1914.

1,152,950.

Patented Sept. 7, 1915.

Fig. 1.

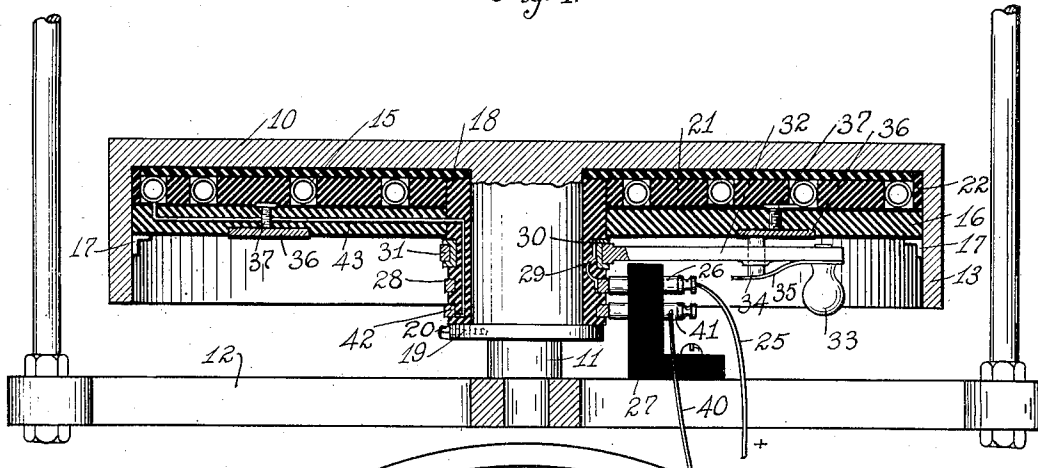


Fig. 2.

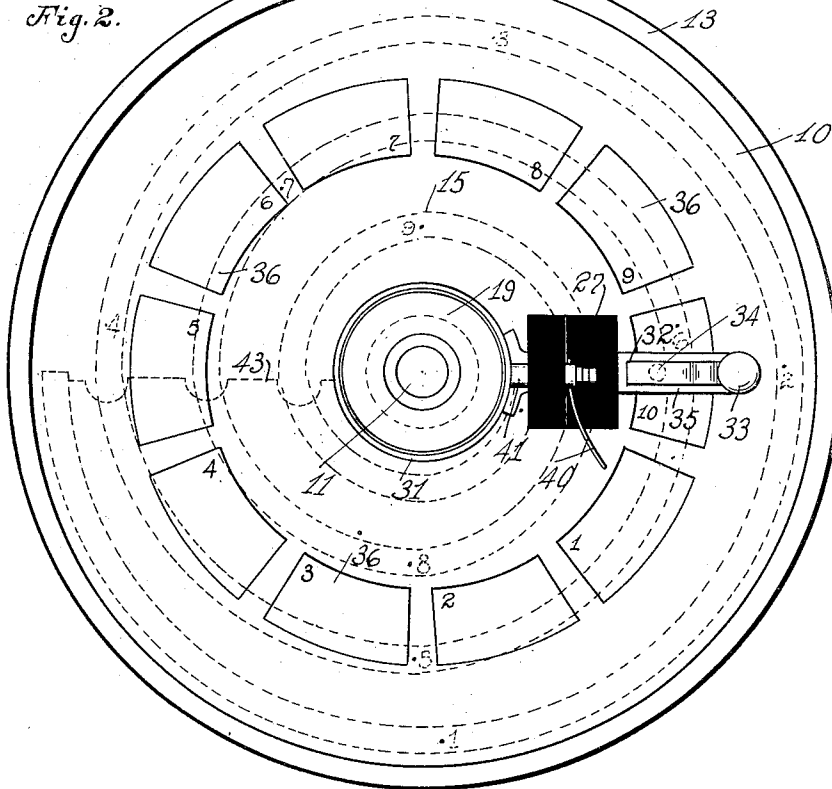
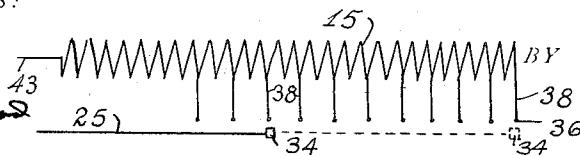


Fig. 3.

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HOT-PLATE-HEATING MEANS FOR CORN-POPPING MACHINES AND THE LIKE.

1,152,950.

Specification of Letters Patent.

Patented Sept. 7, 1915.

Application filed July 16, 1914. Serial No. 851,317.

To all whom it may concern:

Be it known that I, FREDERICK HOKE, a citizen of the United States, and a resident of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Hot-Plate-Heating Means for Corn-Popping Machines and the like; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

The object of this invention is to improve the heating means in popcorn machines and the like so that the heat of the popper or hot plate can be readily varied or regulated to suit the condition of the popcorn or the like and so that it may be electrically heated by currents of different voltage. The voltage of the currents with which the popcorn machines and the like may be connected by various purchasers or users thereof throughout the United States necessarily varies a good deal and one purpose of the invention is to attach the machine used in connection with any electric service which a purchaser or user may have to employ.

One feature of the invention consists in providing an electrical heating coil below the hot plate of the machine for heating the same and electrical connections with said heating coil at various points throughout the length thereof through which current is introduced to the coil, whereby the amount of coil through which the current passes may be varied and thereby the heat regulated.

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

In the drawings, Figure 1 is a vertical central section through the portion of a corn popping machine which includes a hot plate. Fig. 2 is a bottom view of the device with the supporting bar omitted and with some of the insulation not shown in black, for the sake of clearness. Fig. 3 is a diagram of the heating coil and sectional connections with the current supply.

In detail there is shown herein a hot plate 10 with a central downwardly extending column 11 having a reduced portion with bearings in a frame bar 12 which is stationary. The means for rotating the hot plate

is not shown. Said hot plate has a downwardly extending flange 13 on its periphery.

A wire heating coil 15 is located immediately under the hot plate and is supported by an annular body 16 of insulating material which rests upon a bracket 17 secured to the flange 13 of the hot plate. The insulating member 16 at its center surrounds a sleeve 18 of insulation which surrounds the column 11 and is supported by a collar 19 secured to the reduced portion of said column by a set screw 20. The heating coil 15 is continuous and spirally disposed, as indicated in Fig. 2, and the spiral sections thereof are separated by separate strips 21 of insulating material and mica insulating strips 22 separate the same from the hot plate.

The current comes in over the line 25 to a brush 26 mounted in a brush holder 27 which is secured on a frame bar 12. The brush which is stationary wipes a conducting ring 28 surrounding and embedded in the sleeve 18 and connected by a conductor 29 in said sleeve 18 with an annular metallic channeled ring 30 also embedded in said sleeve and in which a ring 31 is mounted carrying a switch arm 32 with a handle 33 whereby said switch arm can be turned around the sleeve 18 to any desired position. The switch arm carries a contact pin 34 extending loosely through it and pressed upward by a spring 35 on the switch arm against any of the contact plates 36 which are embedded in and secured to the underside of the insulation 16 by a screw 37. There is a series of these contact plates 37, annularly arranged, as shown in Fig. 2, and provided with separate connections 38 with the heating coil 15 at successive points therein, as indicated by the diagram in Fig. 3.

In Fig. 2 the plates 36 are numbered from one up to ten and the points in the heating coil with which said plates are electrically connected by the wires 38 are indicated by corresponding numerals in order to make the construction clear without indications in Fig. 2 by dotted lines of said wires 38 which would be extremely confusing.

A negative wire 40 is connected with a brush 41 in the holder 27 and wipes a ring 42 embedded in the sleeve 18 and connected by a wire 43 with one end of the heating coil 15, as shown in Fig. 1.

The construction, therefore, is such that when the switch arm 32 is moved and set to bring the pin 34 in contact with the first plate 36, the current will pass through but a small portion of the heating coil 15, and, therefore, will give but slight heat to the hot plate. If the switch arm 32 is moved to the second plate 36, twice as much of the heating coil will be heated and proportionately more of said heating coil is heated as the switch arm is moved over the series of plates until it reaches the last plate when all of the heating coil will be heated. Therefore, it is apparent that this machine is adapted for use in connection with electrical service having currents of different voltage and also can be readily adjusted for proper treatment of material under these different conditions. Thus when the popcorn is damp, more of the heating coil is brought into the electrical circuit and it thus furnishes heat to a correspondingly greater portion of the hot plate. In this particular machine the hot plate revolves and the popcorn leaves the same with centrifugal movement. The ring 31 fits tightly enough in the member 30 to hold the arm 32 and pin 34 in place when adjusted so that the switch arm and pin 34 revolve with the hot plate, but remain in position relative to the hot plate to which said switch arm is adjusted.

The invention claimed is:

1. A hot plate for a popcorn or like machine, a heating coil located adjacent the same in spiral form, an annular series of contact plates in electrical connection with said heating coil at successive points, a switch arm rotatably mounted substantially concentric with said coil and carrying a contact point adapted to engage any of said contact plates according to the position of said switch arm, and means for conveying current to the switch arm and therethrough to the coil so that the extent of the length of said coil through which the current passes may be regulated.

2. A hot plate for a popcorn or like machine, a heating coil located below the top surface of said hot plate, a body of insulating material in which said heating coil is mounted and having a central downwardly extending portion, an annular series of contact plates secured to the underside of said body of insulation and in electrical connection with successive points on said heating coil, a switch arm rotatably mounted on said downward extension of the body of insulating material and carrying a contact point adapted to engage any of said contact plates according to the position of said switch arm, and means for conveying current to said switch arm.

3. A circular hot plate for a popcorn or like machine, a heating coil located below the top surface of said hot plate, a body of

insulating material in which said heating coil is mounted and having a central downwardly extending portion, an annular series of contact plates secured to the underside of said body of insulation and in electrical connection with successive points on said heating coil, a ring surrounding and embedded in the downwardly extending portion of the body of insulating material, means for supplying current to said ring, a switch arm having an annular end mounted in said channel so that the switch arm can be angularly adjusted, a contact point loosely carried in said switch arm in position to engage any of said contact plates according to the position of said switch arm, and a spring for forcing said contact point against the contact plates.

4. A rotary hot plate for a popcorn or like machine, a heating coil located immediately below the top surface of said hot plate, a body of insulating material in which said heating coil is mounted and having a central downwardly extending portion, an annular series of contact plates secured to the underside of said body of insulation and in electrical connection with successive points on said heating coil, a channeled ring surrounding and embedded in the downwardly extending portion of the body of insulating material, a switch arm having an annular end mounted in said channel so that the switch arm can be angularly adjusted, a contact point loosely carried in said switch arm in position to engage any of said contact plates according to the position of said switch arm, a spring for forcing said contact point against the contact plates, a pair of rings embedded in a downwardly extending portion of said body of insulation, means for connecting one of said rings with the ring on which the switch arm is mounted, means for connecting the other ring to the end of the heating coil, a stationary bracket near said rings, brushes on said bracket for engaging said rings, and electrical connections with said brushes.

5. The combination of a rotary hot plate for a popcorn or like machine having a central downwardly extending column for rotatably mounting the same and a flange extending outward from the periphery of said plate, an electrical heating coil below said plate between said flange and central column and spirally disposed, an insulating sleeve surrounding said column, means connected with said column for supporting said sleeve, an annular body of insulating material surrounding said sleeve and extending to the flange of the hot plate and supporting said heating coil, means connected with the flange of the hot plate for supporting said insulating member, insulating strips extending between the sections of said heating coil for separating the same, a chan-

neled ring secured on said insulating sleeve,
a switch arm with an annular portion
mounted in the channel of said ring so that
the switch arm will be angularly adjustable,
5 a contact pin loosely mounted in said switch
arm, a spring on said switch arm for forcing
said spring upward, a series of contact
plates mounted in succession with said annular
body of insulating material and in
10 position to be engaged successively by said
contact point, electrical connection between
said contact plates and successive portions
of said heating coil, rings surrounding said
insulating sleeve, means for connecting one

of said rings with said channeled ring, 15
means for connecting the other ring to the
end of the heating coil, a stationary brush
for supplying current to one of said rings,
and another stationary brush for taking
current from the other ring, substantially as 20
set forth.

In witness whereof, I have hereunto af-
fixed my signature in the presence of the
witnesses herein named.

FREDERICK HOKE.

Witnesses:

J. H. WELLS,

O. M. McLAUGHLIN.