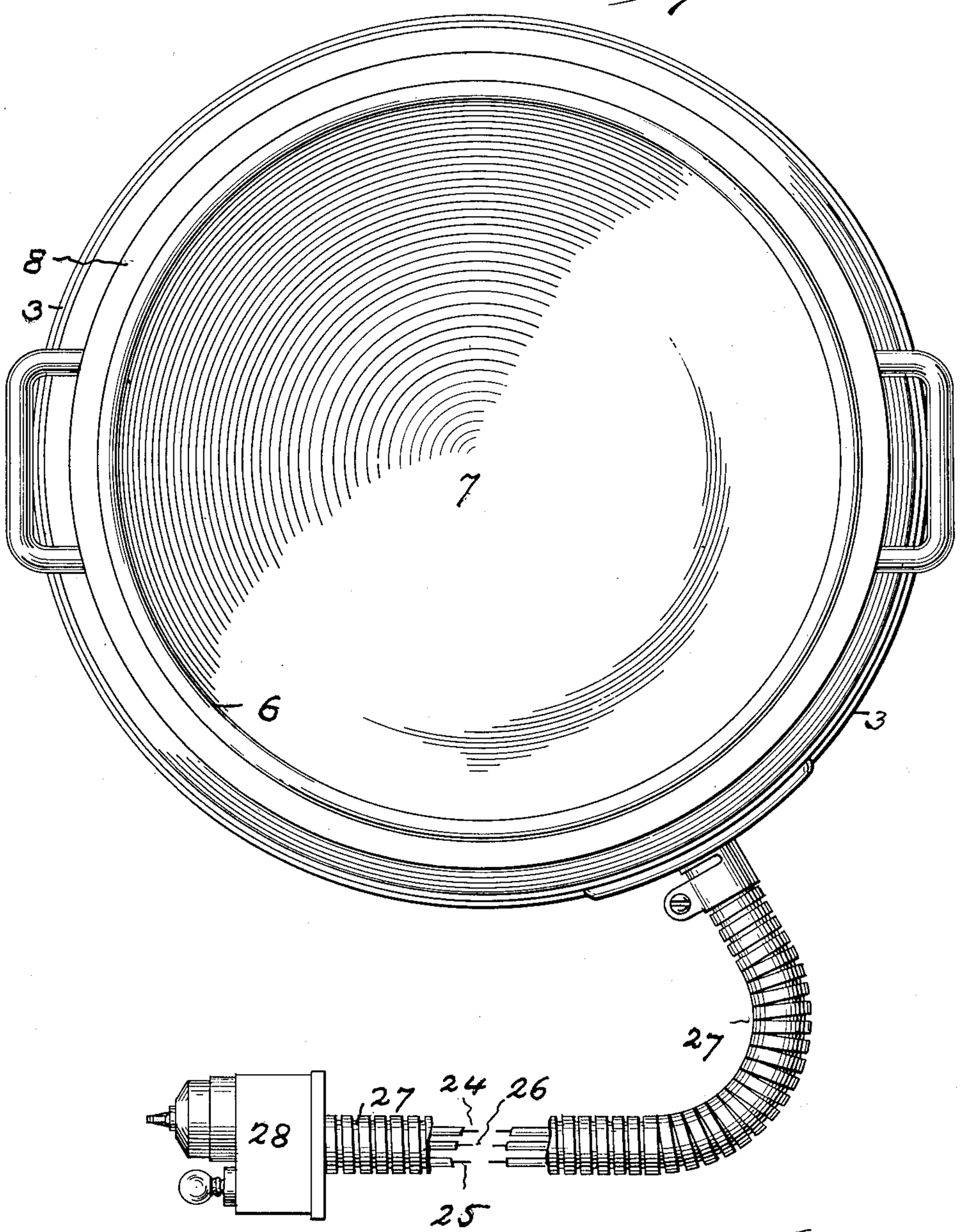
June 5, 1934. C. CRETORS 1,961,136

CONFECTIONER'S MELTING FURNACE

Filed April 12, 1933 3 Sheets-Sheet 1

Fig. 1.



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CONFECTIONER'S MELTING FURNACE

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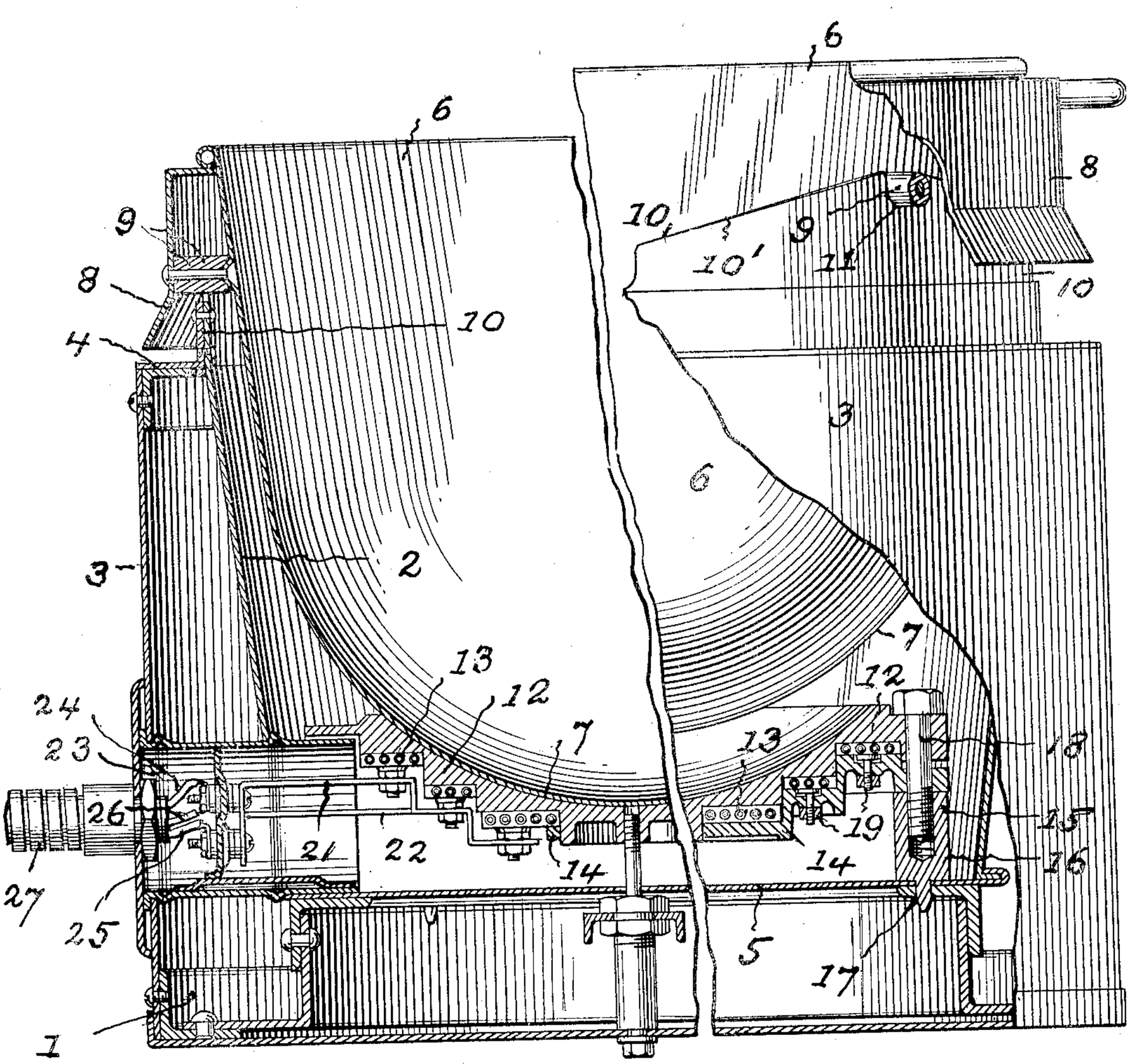

Fig. 2.

Fig. 3.

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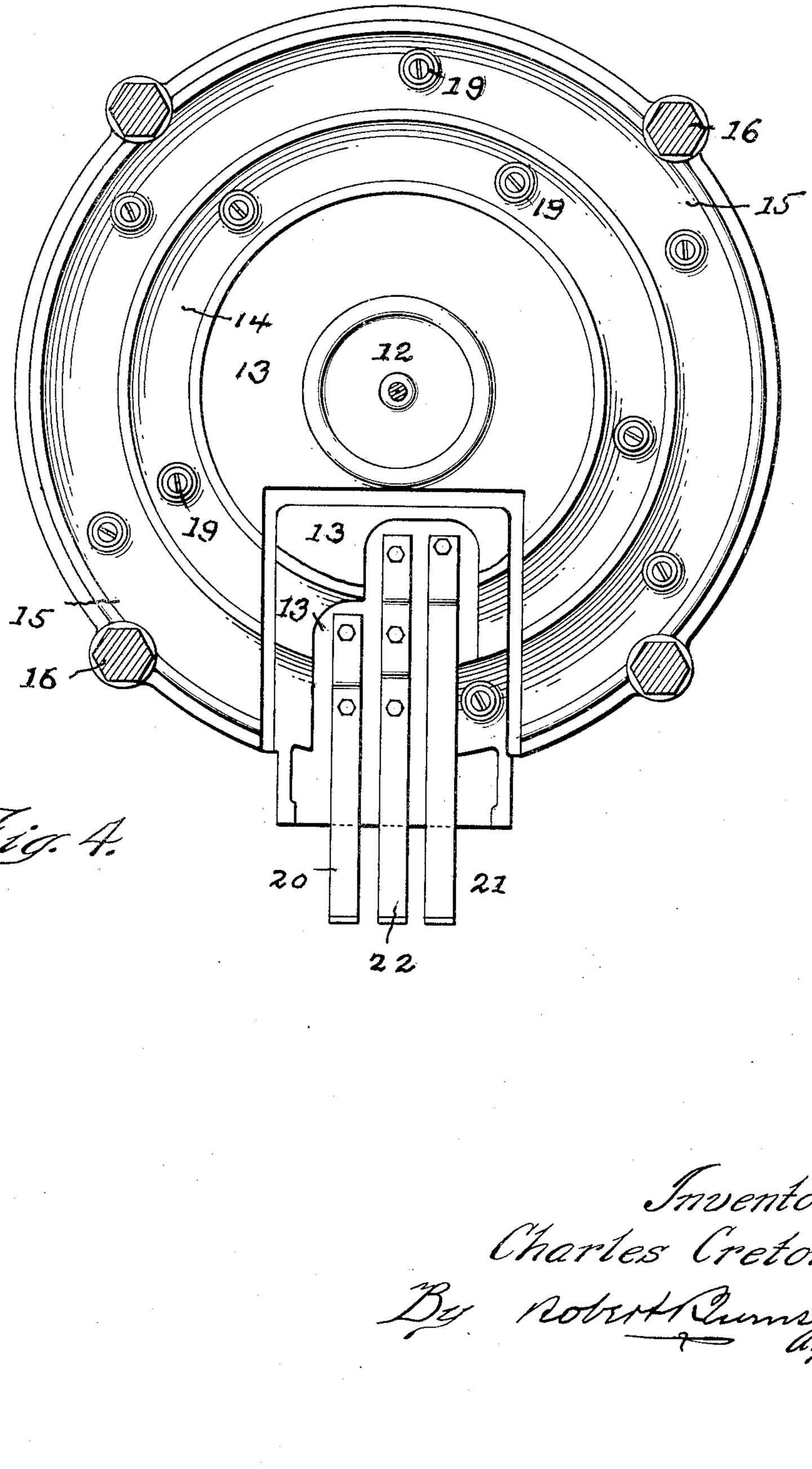

Fig. 4.

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CONFECTIONER'S MELTING FURNACE

Charles Cretors, Chicago, Ill.

Application April 12, 1933, Serial No. 665,730

7 Claims. (Cl. 219—43)

This invention relates to confectioners' melting furnaces of the open top pot type, in which the heating medium is provided with a plurality of electric resistance elements. And this improvement has for its objects:

To provide a structural formation and combination of parts in which an open top melting pot with its bottom wall of a spheral form is removably associated with a stationary electrical heating member, the sole plate of which is of a complementary form to that of the spheral bottom wall of the melting pot affording extended heat transfer contact between the parts. The under face of the sole plate being of an annular stepped formation adapted for extended heat transfer contact with a series of flat annular electrical heating members.

To provide a formation and association of the component parts of a melting furnace of the present type, by means of which the open top melting pot is capable of ready limited vertical adjustment away from its heating member, and substantially supported in such elevated position in one or more of the steps or operations in the confection making art, all as will hereinafter more fully appear.

In the accompanying drawings:

Fig. 1 is a top view of the candy melting furnace, with the preferred form of this invention applied.

Fig. 2 is a fragmentary vertical section on line 2—2 Fig. 1, of approximately one-half of the furnace, the melting pot being shown in its lower position in heat transfer contact with its electrical heating member.

Fig. 3 is a similar fragmentary vertical section on line 3—3 showing the melting pot in its raised position for treatment of its molten contents in intermediate step or steps in the manufacture of a candy confection.

Fig. 4 is a bottom plan of the electrical heating member and its electrical connections.

Like reference numerals indicate like parts in the several views.

The preferred construction of the furnace shown in the drawings is more especially adapted for use in a candy making apparatus of the type in which an open top melting pot and its enclosing and heating accessories have movable connection with a work table or the like, and adapted to be moved and stored in the interior thereof when not required for actual use, an example of which is disclosed in my prior application for patent, Serial No. 580,813, filed December 14, 1931.

In the construction shown, the furnace housing comprises a base portion 1, of a shell form, and an upstanding hollow wall portion formed by inner and outer circular wall plates 2 and 3 in spaced relation and connected together by an annular top plate 4, the construction providing an annular heat insulating space in the furnace wall and around the open top heating chamber of the furnace. Said space being filled with loose asbestos or like heat insulating substance when so desired.

With the described construction, a horizontal plate member 5 constitutes the bottom of the furnace heating chamber aforesaid, and a roof plate for the central chamber of the furnace base 1, with said plate member providing a support for the electrical heating unit of the furnace, hereinafter described in detail.

The melting pot 6, above referred to, is of an open top form with its bottom wall 7 of a spheral shape, and with its upper marginal portion formed with an annular depending skirt portion 8 in spaced relation to the adjacent wall portion of the pot, in order to provide a protecting enclosure for the means for lifting the melting pot a distance away from its heating element and supporting the same in said elevated condition in periods of the practical operation of the apparatus, with such means comprising a combination of parts as follows:—

Between the pot wall and the depending skirt 8 aforesaid, a plurality of radially disposed roller studs 9 are mounted at their respective ends and in operative relation to a circular track rail 10 formed as a fixed upward extension of the top plate 4 of the furnace casing, with its tread for bearing engagement with the roller studs 9 formed into a plurality of spirally inclined sections 10' corresponding with said roller studs and individual thereto, with such inclined sections ending at their remote points in depressed pockets 11, in which said roller studs are adapted to engage and support the melting pot in the elevated position above described, and prevent any accidental retrograde movement of the melting pot from the described elevated position.

The heating member above referred to comprises a main upper sole plate 12 of metal, the upper face of which is formed with a spheral recess corresponding with the spheral formation of the bottom wall 7 of the melting pot with such construction providing a maximum heat exchange contact of the parts when the belting pot is in its lowered and active position. With a view to insure said heat exchange contact between the parts, the initial portion of the cam formations

10′ aforesaid, are depressed a small distance below their roller studs 9 to avoid operative contact and so that the melting pot is wholly supported by the sole plate 12 when the pot is in its lowered condition, as illustrated in Fig. 1. The under face of the sole plate 12 is of the stepped or offset formation shown in order to provide a corresponding stepped series of receiving sockets for the plurality of annular electrical heating units 13 of the apparatus, such structural arrangement being adapted to bring said heating units into close and uniform proximity to the spheroconcave heat transfer surface of the sole plate 12.

A confining plate 14, of a stepped formation corresponding with that of the under face of the sole plate 12, is secured in place beneath the sole plate to hold the plurality of heating units 13 in place in their receiving sockets in said sole plate.

An annular supporting member 15 is fitted to the under side of the confining plate 14 aforesaid, and is provided with a plurality of depending legs 16, having at their lower ends stud extensions for engagement in a plurality of positioning orifices 17 in the bottom plate 5 of the heating chamber of the furnace with a view of preventing a turning disarrangement of the parts.

The sole plate 12, confining plate 14 and annular supporting member 15 are clamped together in proper relation by screw bolts 18 passing through marginal portions of said parts.

The electrical heating units 13, above referred to, are preferably of the annular flat plate type now in general use as standard products, and in the construction shown heat exchange contact between said units and the wall of their receiving sockets in the sole plate 12 is attained by individual pluralities of screw bolts 19 adjustable in the confining plates 14 and having bearing against the under faces of the heating units 13, as shown in Fig. 3.

Three annular electrical heating units 13 are shown as illustrative of this invention, and are electrically connected with a pair of inlet buss bars 20 and 21, and a single outlet buss bar 22, the connections being preferably arranged as follows:

The inlet buss bar 20 with the outer and intermediate annular heating units aforesaid, and the inlet buss bar 21 with the inner one of the said electrical heating units. While the outlet buss bar 22 is electrically connected with all three of the heating units as illustrated in Figs. 2 and 4 of the drawings.

As shown, the plurality of buss bars 20, 21 and 22, above described, are housed in a tubular trunk 23 forming a part of the upstanding wall plates 2 and 3 of the furnace, with said buss bars having connection with inlet conductors 24, 25, and outlet conductor 26, enclosed in a flexible and preferably armored casing 27, with said conductors connected to terminals of a remotely located three way switch 23 of any usual construction arranged in the supply lines from a suitable source of electro-motive supply.

With the above described electrical connection of parts, an initial heating action of the furnace is attained by the energizing of the outer and intermediate heating units, which is followed by a higher heating action by the energizing of all three electrical heating units, with a much lower heating effect attained at any required stage in the candy making operation by the energizing of the inner electrical heating unit, to the exclusion of the outer and intermediate units.

Having thus fully described my invention what I claim as new, is:

1. A confectioner's melting furnace comprising in combination an open top furnace housing, a vertically movable open top melting pot arranged in said housing and having its bottom wall of a spheral shape, a stationary heating member arranged in the lower portion of said housing and having a sole plate formed with an upper face complementary to the spheral bottom wall of the melting pot, and an under face of an annular stepped form, a plurality of flat heating members in contact with the under horizontal faces of the stepped formation of said sole plate, and means for maintaining close heat exchange contact between the sole plate and said flat heating members.

2. A confectioner's melting furnace as specified in claim 1, and wherein the flat heating members have an annular form.

3. A confectioner's melting furnace as specified in claim 1, and wherein the flat heating members are held in place by an annular confining plate secured to the under side of the heating member, and having an annular stepped formation corresponding with the stepped formation of the under face of the sole plate of the heating member.

4. A confectioner's melting furnace as specified in claim 1, and wherein the electrical heating member comprises a sole plate the upper face of which is formed with a spheral concave heat transfer contact surface and its under face with a plurality of circular offsets, a plurality of electrical resistance units arranged in said offsets, a confining plate secured to the under side of the sole plate in supporting contact with said resistance units, and individual pluralities of clamping screws passing through the confining plate and having bearing against the resistance units to maintain the same in close heat transfer contact with the sole plate.

5. A confectioner's melting furnace comprising in combination, an open top furnace housing, a vertically adjustable open top melting pot arranged in said housing, an electrical heating means stationary in the lower portion of said housing and adapted for supporting contact with said melting pot, a circular cam track attached to said housing at its upper end, and roller studs mounted on the melting pot adapted for engagement with said cam track and adapted in a partial rotation of the melting pot to lift the melting pot upwardly from contact with said electrical heating means.

6. A confectioner's melting furnace as specified in claim 5 and wherein the terminal ends of the cam track are formed with holding pockets adapted to receive the roller studs and maintain the melting pot in its elevated position.

7. A confectioner's melting furnace, as specified in claim 5, and wherein the melting pot is provided at its upper end with a depending annular skirt adapted to enclose and guard the cam track and associated roller studs.

CHARLES CRETORS.