M. R. FREI.

ELECTRIC STERILIZER FOR FOOD PRODUCTS.

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907,140. Patented Dec. 22, 1908.

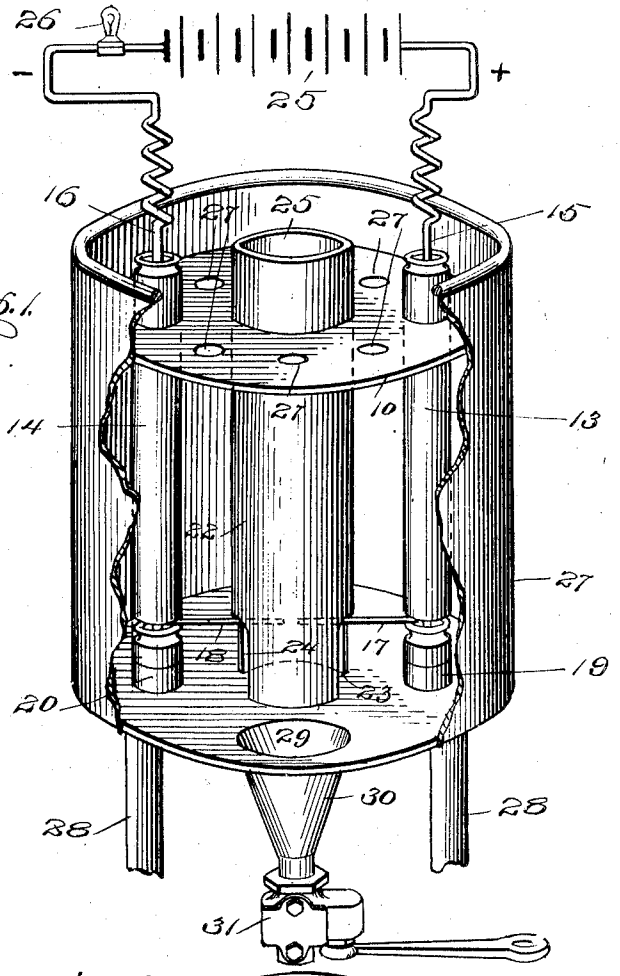


Fig. 1.

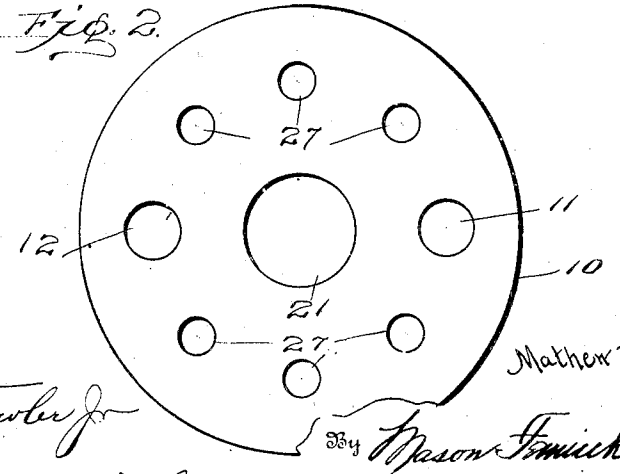


Fig. 2.

Witnesses

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ELECTRIC STERILIZER FOR FOOD PRODUCTS.

No. 907,140. Specification of Letters Patent. Patented Dec. 22, 1908.

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To all whom it may concern:

Be it known that I, MATHEW R. FREI, citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Electric Sterilizers for Food Products; 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.

This invention relates to sterilizers and more especially to that class of sterilizers employing electric current as a sterilizing agent.

The object of the present invention is to provide an electric sterilizer adapted for use in association with vessels of usual and ordinary type, for sterilizing liquid.

A further object of the invention is to provide in an electric sterilizer improved means for bringing the material to be acted upon in an intimate relation with the electrodes.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter more specifically described and claimed.

In the drawings: Figure 1 is a view in perspective of the improved sterilizer shown in operative association with a special receptacle, and, Fig. 2, is a top plan view of the diaphragm member.

Like characters of reference designate corresponding parts throughout the several views.

The sterilizer forming the subject matter of this application comprises a diaphragm or partition member 10 provided with diametrically oppositely disposed openings 11 and 12 through which are inserted insulating sleeves 13 and 14 respectively. The sleeves 13 and 14 may be of any desired length and of any approved insulating material and through such sleeves are inserted the conductors 15 and 16, terminating below or at the lower end of the sleeves in electrodes 17 and 18 preferably turned substantially at right angles to the sleeves. The electrodes 17 and 18 are of such length and relative positions that they extend toward each other with the ends spaced apart the required distance as indicated in Fig. 1.

To support the electrodes insulating feet 19 and 20 are provided designed to rest upon the bottom of the receptacle and to support the sleeves with the electrodes spaced at some little distance above the bottom of the receptacle. The diaphragm 10 is also provided centrally with an opening 21 through which is inserted a tube 22 carried by the said diaphragm and slitted at the bottom as shown at 23 and 24 to permit the insertion of the electrodes 17 and 18 in association and opermit the passage of fluid or liquid material from the tube 22 to the receptacle.

The conductors 15 and 16 are of course connected with any preferred or convenient source of electrical energy shown diagrammatically at 25 and means for indicating the strength of the current is preferably interposed in one of the conductors, here represented as the lamp 26. The diaphragm member 10 is also provided with a plurality of holes or openings 27 designed to permit the escape of gas from the receptacle provided the diaphragm member fits the receptacle somewhat tightly.

While as above stated the electrodes and their accompanying and associate parts are designed to be used in any convenient and ordinary receptacle, the receptacle 27 here shown is particularly adapted for use in the sterilizing process supported in any convenient manner as upon the legs 28 and provided at one side of the bottom with an opening 29 and a discharge spout 30. It is desirable to have the discharge spout 30 provided with a gate or valve as shown conventionally at 31, the tube leading from such valve being intended to convey material acted upon to the bottle or other storage receptacle.

In operation the fluid, semi-fluid or liquid material to be sterilized is poured into the upper open end of the tube 22 and flowing downward comes into operative relation with the spaced ends of the electrodes 17 and 18. Until the receptacle 27 is filled or partially filled the device is not in full operative condition, but when so filled it is desirable to regulate the inflow and outflow to correspond so that the material introduced in the upper open end of the tube 22 flows downwardly within such tube past and into the sphere of influence of the electrodes 17 and 18 thence outwardly through the openings 23 and 24 into the receptacle 27.

The material acted upon by the electrodes is partially decomposed. The electrode 17 being considered positive and the electrode 18 considered negative, oxygen will be liberated at the terminal of 17 while hydrogen

will be liberated at the terminal of 18. The decomposition or partial decomposition and the liberation of the gases within the fluid acted upon thoroughly sterilizes the material. The liberated oxygen especially having that effect.

While it is desirable to employ the sterilizer in association with the receptacle shown or a similar receptacle it will be obvious that it may be used in ordinary household and culinary pursuits and may be inserted and employed in vessels of any nature and size it only being requisite that the material pass downwardly through the tube 22 into association with the electrodes. This being the case the particular form and size of the containing receptacle is relatively unimportant.

What I claim is:

1. In a sterilizer a diaphragm member, insulating sleeves carried by the diaphragm member, a tube carried by the diaphragm member, and provided at its lower end with apertures, means to support the diaphragm and associated parts within a receptacle, conductors carried within the sleeves, electrodes carried by the conductors and having their terminals inserted through apertures in the tube and spaced apart within such tube.

2. In a sterilizer the combination with a receptacle of a diaphragm supported within the receptacle, insulating sleeves carried by the diaphragm, a tube carried by the diaphragm and disposed between the sleeves, conductors disposed within the sleeves and electrodes carried by the conductors and having their terminals spaced apart within the tube.

3. In a sterilizer the combination with a receptacle of a diaphragm adapted to be supported within the receptacle conductors supported by and depending below the diaphragm a tube carried centrally of the diaphragm and provided with a slitted lower end and electrodes carried by the conductors with their terminals inserted through the slits and spaced within the tube.

4. In a sterilizer, a tube having an open upper end and provided adjacent its lower end with opposed openings through which liquid poured into the upper end of the tube may flow, and electrodes having their terminals extending into the openings in opposed relation.

5. In a sterilizer, a member into which the liquid to be sterilized is to be poured, the said member being formed with outlet openings, and electrodes having their terminals projecting into the said openings.

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

MATHEW R. FREI.

Witnesses:

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