

Aug. 6, 1929.

R. C. MASON

1,723,743

HEATER

Filed July 2, 1927

Fig. 1.

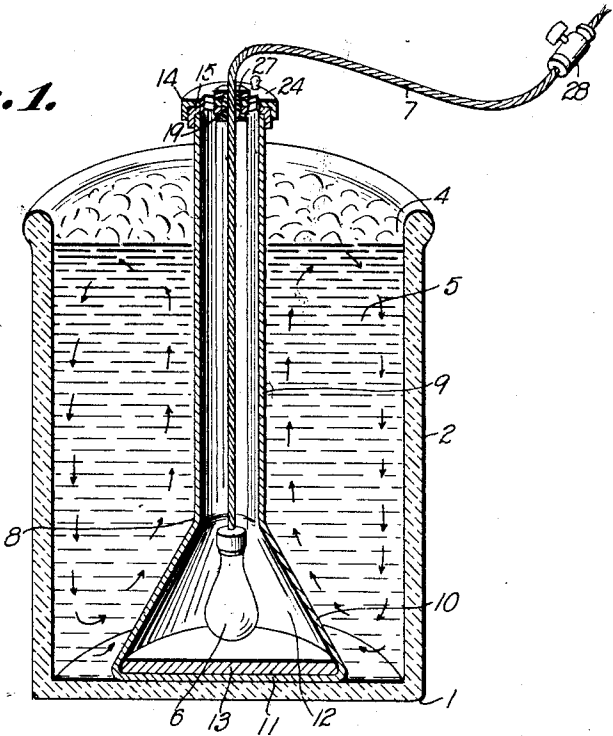


Fig. 4.

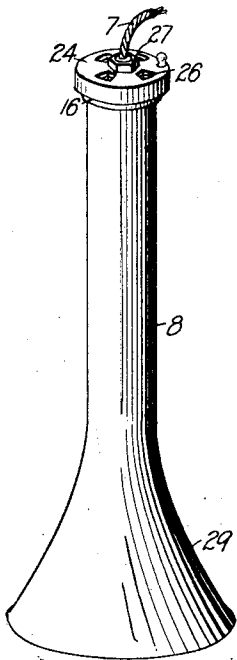


Fig. 2.

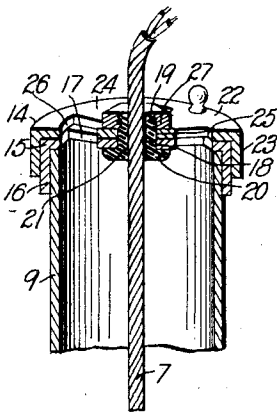
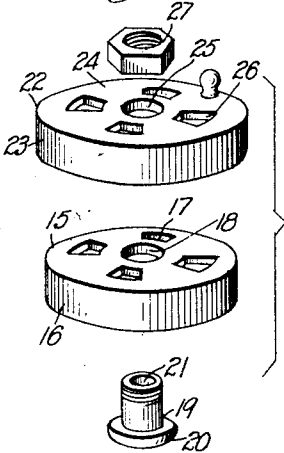


Fig. 3.



INVENTOR
Richard C. Mason
BY *Arthur C. Brown*
ATTORNEY

UNITED STATES PATENT OFFICE.

RICHARD C. MASON, OF TULSA, OKLAHOMA, ASSIGNOR TO THE MASON CORPORATION,
OF TULSA, OKLAHOMA, A CORPORATION OF OKLAHOMA.

HEATER.

Application filed July 2, 1927. Serial No. 203,197.

My invention relates to heaters and has for its objects the heating of a fermentable liquid, the control of temperature for such heating and the circulation of the liquid to expedite and equalize the fermentation.

In accomplishing my objects I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a sectional perspective view of a heater installed for use.

Fig. 2 is a sectional view of the upper portion of the heater and of a regulating element.

Fig. 3 is a detail perspective view of the heat regulator elements disassembled.

Fig. 4 is a modified form of housing member for the heater.

Referring in detail to the drawings:

1 designates a jar having the side wall 2 and the closed bottom 3, the top of the jar being open, as indicated at 4. The jar is designed to contain a liquid mixture 5 in which a ferment-creating agent, such as yeast, may be contained to cause the decomposition of the other compounds of the mixture to produce a transformation of the liquid, the fermentation and transformation being accomplished by the application of heat.

I show as the heating element the electric light bulb 6 suspended by the cord 7 in a housing 8 that is supported on the bottom of the jar, the heat from the bulb being transmitted through the walls of the housing to the liquid.

The housing 8 is formed of copper or similar heat-conducting material and comprises the tubular body portion or flue 9 extending through the jar and projecting therefrom, and the expanded frusto-conical base portion 10 having the closed lower end 11 and providing the chamber 12 in which the heater is suspended. A weight 13 is provided in the base portion to retain the housing in position in the jar against the buoying effect of the liquid.

A closure member 14 is provided for superposition on the upper end of the housing, the closure member constituting a heat regulator and a means of supporting the lamp cord 7 and the bulb 6 in the housing by elements to be described. The closure 14 comprises a cap 15 having the annular flange 16 removably positioned on the upper end

of the housing, the cap having an annular series of ports 17, and a central opening 18 to receive an insulating connector sleeve 19 having an annular shoulder 20 adapted to seat against the under side of the cap, the connector sleeve having the central opening 21 through which the lamp cord is extended.

A valve member 22 comprises the depending flange portion 23 adapted to engage slidably the flange of the cap, and the disk valve portion 24, the valve having the central opening 25 to receive said connector sleeve and the ports 26 adapted to alignment with the ports 17 of the cap member upon rotation of the valve member over the cap member.

A nut 27 is provided and sleeved on the cord to engage the end of the connector sleeve to clamp the valve and cap member together, sliding movement of the members with relation to each other being permitted. The rotation of the valve member over the cap member accomplishes alignment of the ports for admission of air to the housing and emission of air therefrom.

The elements being provided as described and the lamp bulb energized by electric current through the socket 28, heat generated by the bulb within the chamber 12 is radiated to the walls of the conical portion of the housing and the liquid in contact with the outer surface of the housing is heated and caused to move upwardly along the flue. Heat from the bulb also flows upwardly through the flue and warms the walls of the tubular portion of the housing so that heat is radiated from this portion also. The heated liquid rising to the surface adjacent the housing turns outwardly towards the walls of the jar and there, encountering the lower temperature of the walls, tends to move downwardly along the wall surface to the bottom of the conical portion of the housing which extends against the walls, and is again caused to move upwardly.

The greater spacing between the flue and the jar walls than between the conical base and the walls, permits the liquid that has risen to move towards the walls, and to fall towards the bottom of the jar, before encountering heat.

The liquid under the influence of the heat radiated from the housing and because of

the structure of the housing is given a constant rolling motion. The desired degree of mild agitation of the mixture is therefore brought about under moderate temperature, and all portions of the mixture are brought into contact with the heating elements.

It is especially desirable that the mixture be maintained at an even and moderate temperature throughout the process of fermentation and the structure provided accomplishes this object of the device through the means shown for adjusting the circulation of air through the housing. The ports of the regulator element may be brought into alignment for maximum effective port area through the rotation of the valve member on the cap, and the effective port area may be varied as desired to restrain the heat within the housing or to permit the heat to depart through the ports and cooler air to enter the housing. A desired amount of heat may, therefore, be provided, and gradations of small degree may be effected.

In Fig. 4 a modified form of the housing element is shown which differs from the preferred form in that a base portion 29 is provided having an exterior concave outline providing an easy gradual curved surface whereby the liquid may be deflected into less abrupt incidence with the vertical flue member.

What I claim and desire to secure by Letters Patent is:

1. In combination with an electric light cord and bulb, a tubular heater housing having an enlarged conical base, a closure ele-

ment comprising a cap having ports and a valve movable over the cap member to vary the effective area of said ports, means connecting the cap with the valve, and means supporting the cord and bulb in the housing.

2. In combination with an electric light cord and bulb, a tubular flue to receive the bulb, and a regulating element on the upper end of the flue comprising a closure member having a port and a valve slidable over the closure member to vary the effective area of the port, and means connecting the closure member to the valve including insulating means for admitting the cord through the regulating element.

3. A heater of the character described including a tubular standard having relatively small diameter and an enlarged closed portion comprising a chamber at its lower end, a heating element adapted to be introduced throughout the standard and a conductor extended through the standard and suspending the heating element within the chamber.

4. In a heater for heating liquid in a cylindrical vessel, a tubular standard having an enlarged substantially conical closed chamber at its lower end for positioning in the bottom of the vessel to support the heater, a closure member on the upper end of the standard, a lamp cord extending through the standard and suspended from said closure member, and a lamp bulb movable through said standard and suspended from said cord within said chamber.

In testimony whereof I affix my signature.

RICHARD C. MASON.