No. 880,360. PATENTED FEB. 25, 1908.

J. D. COLLINS.

FREEZER.

APPLICATION FILED JAN. 26, 1906.

Fig. 1

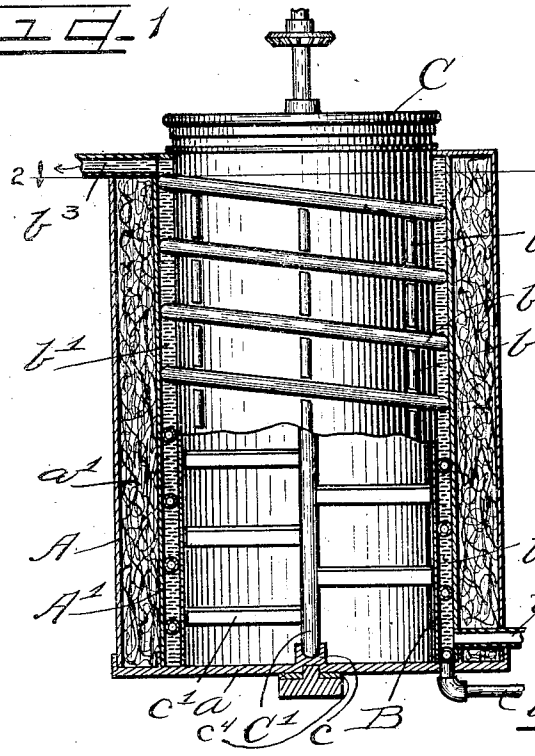


Fig. 4

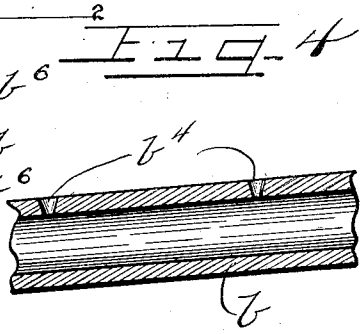
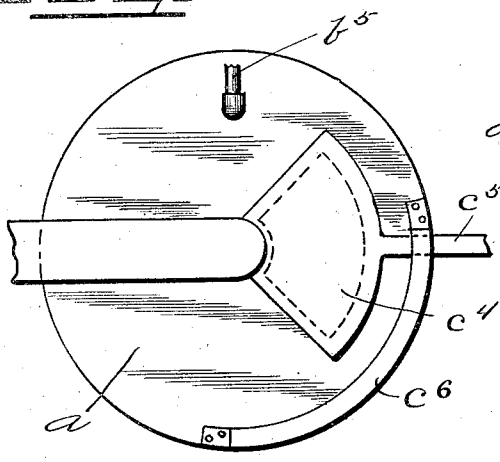
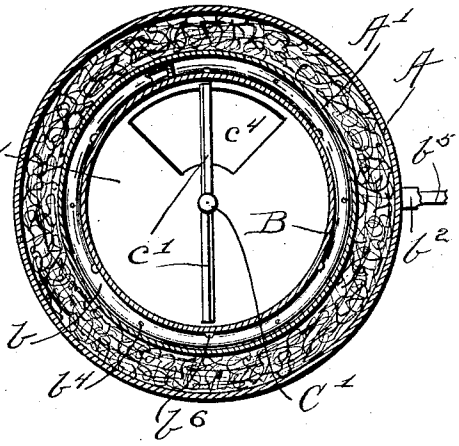


Fig. 2

Fig. 3





Witnesses

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by Charles W. Hills Atty.

UNITED STATES PATENT OFFICE.

JESSE D. COLLINS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE CREAMERY PACKAGE MFG. COMPANY.

FREEZER.

No. 880,360. Specification of Letters Patent. Patented Feb. 25, 1908.

Application filed January 26, 1906. Serial No. 297,940.

To all whom it may concern:

Be it known that I, JESSE D. COLLINS, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Freezers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention is shown embodied in an ice cream freezer though adapted for many other purposes.

The object of the invention is to refrigerate by means of a flowing current of brine formed of ice and salt or some other suitable refrigerant and to utilize compressed air both to aid in reducing temperature and to agitate the liquid refrigerant used.

The invention consists in the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a central vertical section of a device embodying my invention. Fig. 2 is a section taken on line 2—2 of Fig. 1. Fig. 3 is a bottom plan view. Fig. 4 is an enlarged section of the air pipe.

As shown in the drawings: said refrigerator or freezer comprises a vessel, cylindric in form and having a bottom a, and double, concentric walls A—A′ between which is packed nonconducting material a', such as mineral wool. Within this vessel is secured the containing can B, which is also secured to the bottom a, to afford a tight joint and is concentric with the walls A—A′ and is spaced from said wall A′ by a pipe b which is coiled around and secured to the outer side of the wall B in a spiral leading from the bottom to the top thereof. Said pipe is of a size to fit closely between the walls B and A′ affording between its turns a relatively broad spiral channel b', for the refrigerant fluid which is admitted thereinto through a pipe b^2 leading from any suitable source of supply and is delivered from the top of the freezer through a pipe b^3. Said pipe b is provided in its upper side as shown in Fig. 4 with closely arranged small apertures b^4 through which air is forced into the brine or other refrigerant thus agitating the liquid and aiding by its expansion in the liquid to maintain a low temperature. The air is admitted to said pipe b under pressure from the pipe b^5 which opens thereinto through the bottom. Secured on the outer side of the vessel B are ribs or riffles b^6 which lie between the turns of the pipe b and which serve to set up cross currents in the upwardly flowing current and thus bring all of the refrigerant in contact with the containing wall B. A cover C fits on said inner can closing the same and journaled in said can and supported on a central bearing c in the bottom of the can is a shaft C′ provided with beaters c'. Said shaft extends through the cover C and is provided at its upper end with a beveled gear or other convenient means for transmitting power thereto. As shown said freezer is provided with an aperture in the bottom through which the contents may be discharged and a cover c^4 is pivoted to close the same and provided with a handle c^5 which is supported on a strap c^6 secured to the bottom.

The operation is as follows: After filling the can and starting the beater the refrigerant is forced through the pipe b^2 and around the can between the turns of the pipe b and is constantly affected by the inflowing air through the pipe b which mixes the brine or refrigerant and prevents unequal refrigeration at different parts of the can. The riffles b^6 also deflect the refrigerant constantly from the surface of the can producing cross currents which insures maximum efficiency of the refrigerant.

Obviously details of construction may be modified without departing from the principles of my invention.

I claim as my invention:

1. A freezer comprising a jacketed can, an air pipe perforated on its upper side and wound around the can between the same and its jacket affording a spiral passage for the refrigerant between the turns of the air pipe, and riffles on the sides of the can for deflecting the refrigerant.

2. In a freezer, the combination, with a jacketed can, of perforated means for directing a stream of refrigerant spirally between the can and jacket and adapted to conduct air jets into said stream of refrigerant.

3. In a freezer the combination with a can of a jacket therefor and spaced a distance therefrom, an apertured tube coiled between the can and jacket and affording between its coils a spiral channel for refrigerant, and

riffles on the side of said can adapted to deflect the refrigerant to and from the sides of the can.

4. In a freezer the combination with a can of a jacket therefor and spaced a distance therefrom, a pipe coiled in the space between the can and jacket and provided with apertures opening into the channel thus formed between the coils, an inlet and an outlet pipe opening into said channel and adapted to direct refrigerant therethrough and means for deflecting the refrigerant as it passes through said channel.

5. In a device of the class described the combination with a can of a jacket adapted to fit around the same and affording a space for the refrigerant therebetween, an apertured pipe coiled around said can and permitting air to be forced into said refrigerant and a plurality of deflectors between adjacent coils.

6. In a freezer the combination with a jacket of a can adapted to fit therein and affording a space between the same and jacket, an aperture in the bottom of the can, a closure therefor, an apertured coiled pipe in said space adapted to simultaneously direct fluid spirally around the can and to admit cooling expansible fluid thereinto, and means in the passages between adjacent coils to agitate and deflect the passing fluids.

7. In a device of the class described the combination with a can and a jacket having a space therebetween of an inlet and outlet pipe opening into said space at opposite ends thereof, means in said space for directing a continuous flow of fluid spirally from said inlet to the outlet and spraying jets of fluid thereinto and means for agitating said fluids so that they act efficiently upon the article to be refrigerated.

8. The combination with a can and jacket therefor of a coiled pipe between the same and having a plurality of apertures therein, a pipe opening into said coil adapted to conduct a current of fluid thereinto, said coiled pipe conducting a continuous stream of fluid spirally between the coils of the same and means for deflecting the same during the passage therethrough.

9. In a device of the class described the combination with a can and jacket having a space therebetween of means for directing a stream of fluid spirally around the can and injecting air into the same and means for agitating said fluid while in said space.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

JESSE D. COLLINS.

Witnesses:
W. W. WITHENBURY,
WM. C. SMITH.