

A. L. BURTON.
COOLING TANK FOR HARDENING ICE CREAM.
APPLICATION FILED AUG. 2, 1911.

Patented June 3, 1913.

1,063,652.

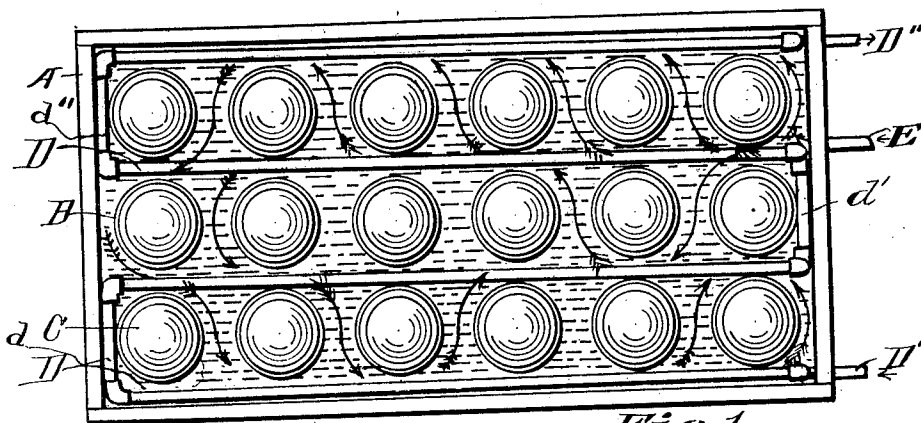


Fig. 1.

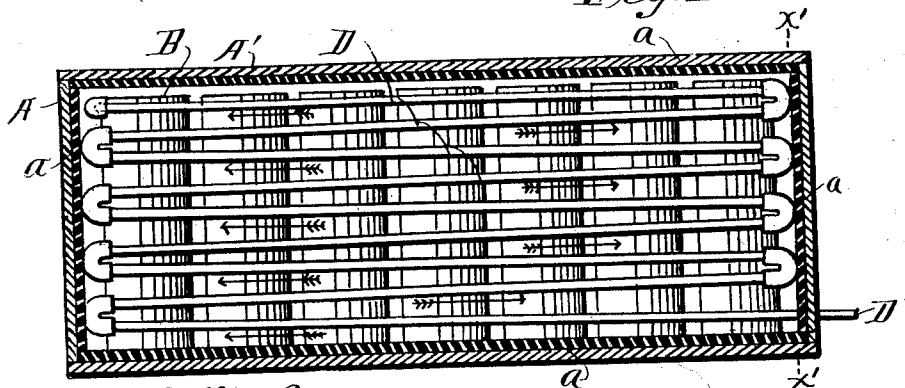


Fig. 2.

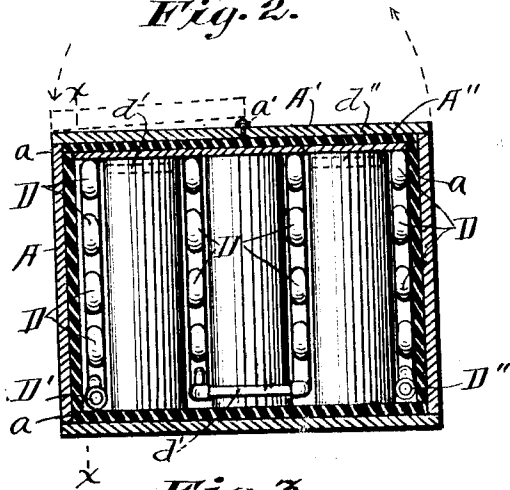


Fig. 3.

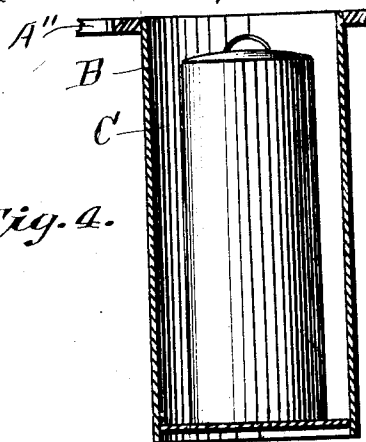


Fig. 4.

Inventor

Arthur L. Burton,

by Ethel J. Kelley

Attorney

Witnesses

R. L. Williams
W. Edison

By

UNITED STATES PATENT OFFICE.

ARTHUR L. BURTON, OF MILES CITY, MONTANA.

COOLING-TANK FOR HARDENING ICE-CREAM.

1,063,652.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed August 2, 1911. Serial No. 642,027.

To all whom it may concern:

Be it known that I, ARTHUR L. BURTON, a citizen of the United States, residing at Miles City, in the county of Custer and State of Montana, have invented certain new and useful Improvements in Cooling-Tanks for Hardening Ice-Cream, of which the following is a specification.

My invention relates to improvements in appliances for hardening ice cream after it has been frozen in the usual manner of freezing ice creams, and its objects are: first, to provide a means whereby the cream may be hardened in a uniform manner throughout the storage cans in which it is to be stored and shipped or delivered, and, second, to provide a means whereby the cream may be kept at a uniform temperature for an indefinite period of time. I attain these objects by the combination of elements and arrangement of parts indicated in the accompanying drawing, in which—

Figure 1 is a top plan of the device with the cover removed to show the distribution and arrangement of the several elements that make up the device, and with the receptacles set some distance apart to more plainly illustrate the circulation of the brine around and about the several receptacles, the ammonia pipes, &c. Fig. 2 is a vertical section of the same on the line $x-x$ of Fig. 3, and with the receptacles set close together as they are designed to be placed in the tank. Fig. 3 is a vertical section of the same on the line $x'-x'$ of Fig. 2, and Fig. 4 is a sectional elevation of a receptacle with a storage can in position therein.

Similar letters refer to similar parts throughout the several views.

In the construction of this device I first form a large tank A, having a sectional, hinged lid A' so constructed that it may be opened either direction from the hinge or pivotal lines a^1 , as indicated by the dotted lines in Fig. 3. The walls and cover of this receptacle are thoroughly insulated with some non-heat conducting substance, as indicated at $a-a$ in Figs. 1, 2 and 3, to protect the contents of the tank from the influence of the outer atmosphere, as much as possible. In this tank I place, and permanently anchor several lines of receptacles, B B, which are designed, first, to receive and hold the cans C while the contents of said cans is being hardened, and, second, to insure an equal depth of brine in the tank whether the

cans are in position or not, and at the upper end of these receptacles I place a supporting piece or cover A'', which has openings for the ends of the receptacles to pass through, as indicated in Fig. 4, so that the cans C may be readily placed into, or taken out of the receptacles without producing any effect upon the depth of the brine in the tank, as hereinbefore intimated. The brine in the tank A is cooled by the evaporation in the coils D of some volatile refrigerant, such as ammonia, in the manner usually employed in refrigerating machines.

The ammonia coils, hereinbefore described, are so distributed in and through the tank A that a row of receptacles B, for the cans C, may be placed between each two tiers of pipes, as indicated in Figs. 1, 2 and 3, into which the ice cream cans are placed after the cream has been frozen in an ordinary freezer and then transferred to these cans for final freezing and hardening. The space between the outer surface of the cans C and the inner surface of the receptacles is left as an air space so that the cans may be readily removed from the receptacles without first removing other material, from between the cans and the receptacles.

When the cans are properly filled and placed in the receptacles, the space in the tank around the receptacles and the ammonia pipes may be filled with a strong brine that surrounds the receptacles and ammonia pipes, or the device may be used with only air surrounding the receptacles, while the ammonia is being forced through the pipes the air or brine in the tank is constantly agitated, either by means of a strong current of air being forced through the pipe E into the tank, or by any other available method, to cause the air or brine to flow in diverse strong currents among the receptacles and the ammonia pipes, as indicated by the arrows in Fig. 1; so that all of the low temperature induced by the operation of the ammonia in the coils D will be transmitted freely to the receptacles and their contents. By this means a constant change of the refrigerating elements upon the receptacles will cause the temperature in the receptacles and around the cans to fall sufficiently to eventually reduce the contents of the cans to a solid frozen mass.

After the cream has been properly frozen in an ordinary ice cream freezer it should be placed in this freezer and left until it has

been reduced to a solid mass, and should there remain frozen solid until used or shipped.

5 D' represents the pipe through which the refrigerant flows into the coils D.

D'' represents the pipe through which the refrigerant flows out of the coils, and d, d', d'' represent cross pipes arranged to connect the several tiers of coils D D in the tank.

10 What I claim as new, and desire to secure by Letters Patent of the United States, is:

In a device of the class described, a tank having its side walls and bottom lined with heat insulating material, a supporting piece

or cover at the top of the tank, having aper- 15
tures therein, receptacles for holding ice
cream secured in said apertures and extend-
ing down into the tank, cooling coils ar-
ranged in tiers located between said recep- 20
tacles, and an outer cover composed of two
parts hinged together and located above said
supporting piece or cover.

Signed at Miles City Montana, July 26th
1911.

ARTHUR L. BURTON.

In presence of—

S. D. McKINNON,
GRACE O'KEANE.