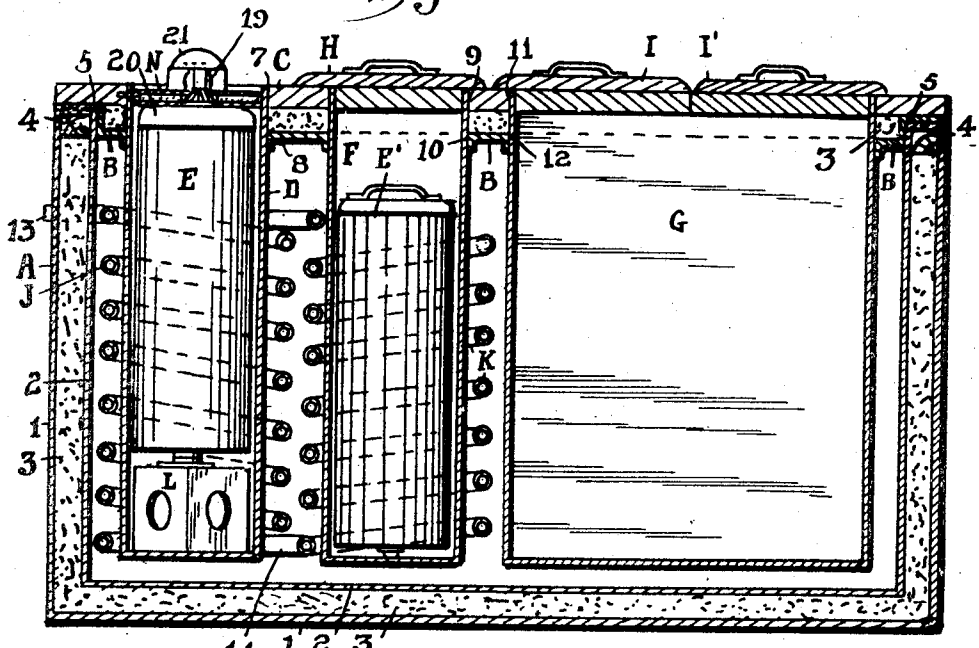
Aug. 7, 1928. 1,679,656

R. W. GEARHART

COMBINATION FREEZER AND REFRIGERATOR CABINET

Filed May 22, 1925

Fig. 1



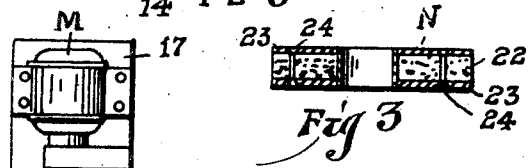


Fig 3

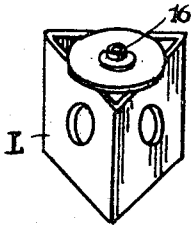


Fig. 4

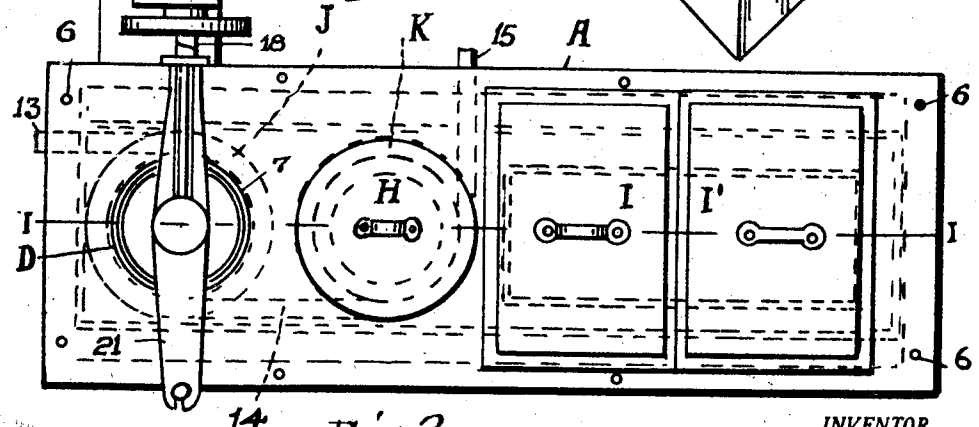


Fig. 2

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Patented Aug. 7, 1928. 1,679,656

UNITED STATES PATENT OFFICE.

RALPH W. GEARHART, OF CLEARFIELD, PENNSYLVANIA, ASSIGNOR TO GEARHART SALES CABINET CO. INC., OF CLEARFIELD, PENNSYLVANIA, A CORPORATION OF DELAWARE.

COMBINATION FREEZER AND REFRIGERATOR CABINET.

Application filed May 22, 1925. Serial No. 32,066.

In manufacturing ice cream and other frozen food products, the product, after the freezing operation, is in a more or less slushy or semi-solid state, and must be hardened before it is fit for use. In domestic production, the product is usually packed with ice and salt in the freezer and allowed to stand until used. However, this practice is impracticable in the case of drug and confectionery stores, restaurants, hotels and similar establishments which manufacture their own products, as the products are being continually dispensed and the supply must be maintained; and it is therefore necessary to provide means for hardening the product after it is removed from the freezer. In the commercial manufacture of frozen food products on a large scale, facilities are at hand for such procedure, but in the character of establishments above referred to such facilities have been up to the present time out of the question.

The object which I have in view is the provision of a compact and inexpensive, combined freezing and hardening mechanism, suitable for use by establishments which dispense the products for consumption on the premises or at retail, thus enabling them to manufacture their own products at low expense.

For this purpose I have invented a compact cabinet having heat-insulated walls in which is contained an ice-cream freezer, a hardening chamber, and also, preferably a refrigerating compartment for general use.

I have also invented, preferably for use as a part of my improved cabinet but adapted for separate use, a freezer mechanism comprised of a bath of brine into which depends a container and in which container the freezer can is rotated, and a pipe-coil surrounding said container and having passed through it a suitable refrigerating agent. The container is also preferably filled with brine up to within a short distance of the top of the freezer can, say two inches.

Novel features of construction, and also of subcombination, and also of arrangement of parts will appear from the following description.

In the accompanying drawings, Fig. 1 is a longitudinal vertical section of a cabinet embodying the principles of my invention, the same being taken along the line I—I in Fig. 2; Fig. 2 is a plan view of the cabinet; Fig. 3 is an enlarged diametric section of the insulating pad employed to close the upper end of the container in which the freezer can revolves, and Fig. 4 is an enlarged perspective of the base block upon which the freezer can is rotatably mounted.

In the drawings, A is a cabinet which may be made of wood but is preferably of metal having an outer wall and bottom 1 and an inner wall and bottom 2, and between the same an interlining of cork or some other heat-insulating material 3.

The outer and inner walls and bottoms are suitably braced apart. Thus at the top a spacer bar 4, which may be of wood, is interposed between the outer and inner walls and is covered and sealed-in by extending the metal of one of said walls horizontally over the same.

The top closure for the cabinet is formed of the members B and C with insulating material 3, such as cork, contained between them.

B is a horizontally disposed sheet of metal spaced below the member C which may conveniently be of wood.

Around its edges the sheet B is shouldered upward as at 5 to fit flat against the member C to which it is attached in any convenient manner, such as by nails or screws. The shouldered portion rests on top of the cabinet walls and thus permits the top closure to fit down into the cabinet.

The top closure is fixed in place, as by the screws 6.

The top closure B—C is provided with openings.

Thus 7 is a circular opening in the member C near one end of the cabinet, and 8 is a similar, registering opening in the member B. D is a metal cylinder having its lower end closed and its upper end open, suspended within the cabinet by its attachment in said openings 7 and 8. The top of the cylinder may be attached, as by screws, to the wall of the opening 7 while the opening 8 in the member B is preferably provided with a depending flange which forms a collar snugly surrounding the cylinder D and which may be soldered or welded thereto. The bottom of the cylinder D is spaced above the floor of the cabinet A so that there will be

brine beneath the cylinder. This cylinder forms the container within which the freezer can E is rotated. When the freezer is being used the container D is filled with brine up to about two inches from the top of the can E.

The members C and B are also provided with a similar pair of registering openings 9 and 10 in which is attached the upper end of a second and similar metal container F. The container F is intended for use as a hardening compartment.

The top closure is also preferably provided with another pair of registering openings 11 and 12 which are preferably rectangular and elongated longitudinally of the cabinet. From these openings a rectangular metal box G is suspended in a manner similar to that of the container D.

The containers D, F and G are thus permanently attached to and depend from the top closure and may be lifted therewith out of the cabinet.

H is a lid which is adapted to close the opening 9 in the member C, and a closure is also provided for the opening 11. Thus I have shown two lids I and I′ provided for this purpose so that access may be readily obtained to either end of the compartment G. The compartment G is for cold storage of food and other products requiring refrigeration.

A lid similar to H may be provided for the opening 7 when the freezer is not being operated.

J and K are helical pipe coils surrounding the containers D and F respectively. The upper end of the coil J is connected, as shown at 13 in Fig. 2, through the wall of the cabinet to a supply of refrigerated brine or other refrigerating liquid or fluid, not shown, while the lower end of the coil J is connected, as shown at 14 in Fig. 1 with the lower end of the coil K. The upper end of the coil K is connected as shown at 15 in Fig. 2 with the return pipe of the supply circuit.

The interior of the cabinet is provided with a bath of brine whose top level is somewhat below the false floor B.

L is a block, which may be formed of sheet metal, shown of triangular cross-sectional form and which is placed in the bottom of the freezer container D to support the freezer can E. The block is provided with a pivot stud 16 which is journaled in the axial socket with which the freezer cans are provided. The can E is thus rotatably stepped on the block L.

M is an electric motor which may be mounted on a shelf 17 attached to the side of the cabniet A. The horizontally disposed drive shaft 18 of the motor is geared in the usual manner to the shaft 19 which extends up axially from the lid 20 of the freezer can E. 21 is the cross-arm which carries the motor gears and in which the driving shaft 19 is journaled. The arm 21 is detachably bolted to the cabinet.

The driving connection of the motor to the freezer can is shown as of a well-known type, but as the same in itself forms no part of the present invention, it is not herein shown or described in detail.

N is a closure, shown in Figs. 1 and 3, of annular form and adapted to fit down on the lid of the can E and thus seal the upper end of the container D. I prefer to form such closure as a mat 22 of felt or similar heat-insulating material contained between the metal disks 23 which may be held together by the long rivets 24. The felt is preferably kept saturated with brine.

The cabinet may be used in the following manner.

The ice cream or other frozen food products is made in the freezer can in the container D and then, the can is removed from the container D and placed in the container F for the hardening of its contents. Thus, I show a freezer can E, in the container D, in which a fresh supply of product is being frozen, while a second freezer can E′ is placed in the container F for hardening its contents. The compartment G is used for the storage of the hardened products and also for general refrigeration.

The refrigerating liquid or fluid passing through the coils J and K provides the low temperatures necessary for the freezing and hardening operations and also keeps the brine bath in the cabinet at proper temperature for refrigerating the contents of the compartment G.

It is apparent from the foregoing that my invention provides a unitary mechanism which will prove very advantageous for use in drug and confectionery stores, restaurants and small hotels, enabling such establishments to economically produce frozen food products on the premises for consumption and retail distribution. The mechanism is compact, so that it may be installed in the limited space available. It requires but ordinary attention and skill for its efficient operation, and the products are frozen, hardened and refrigerated, so as to be at all times available for use and distribution.

What I desire to claim is:—

1. In mechanism for freezing ice cream and similar substances, the combination of a tank adapted to contain a bath of brine, a removable top closure for said tank, a closed bottom container carried by said top closure and depending within said bath, a pipe coil in said tank, through which a refrigerating agent is caused to travel, said coil being disposed in cylindrical form about said container, and a freezer including a freezer-can rotatably and removably mounted in said container.

2. In mechanism for freezing ice cream and similar substances, the combination of a tank adapted to contain a bath of brine, a removable top closure for said tank, a closed bottom container carried by said top closure and depending within said bath, a pipe coil in said tank, through which a refrigerating agent is caused to travel, said coil being disposed in cylindrical form about said container, a freezer including a freezer-can rotatably and removably mounted in said container, and means for operating said freezer mounted on said top closure.

3. In mechanism for freezing ice cream and similar substances, the combination of a tank adapted to contain a bath of brine, a removable top closure for said tank, a closed bottom container carried by said top closure and depending within said bath, a pipe coil in said tank, through which a refrigerating agent is caused to travel, said coil being disposed in cylindrical form about said container, a freezer including a freezer-can rotatably and removably mounted in said container, a raised bearing for the lower end of the freezer in the bottom of the container, and means mounted on the top closure and operatively connected with the upper end of the freezer for operating the same.

Signed at Clearfield, Pa., this 25th day of April, 1925.

RALPH W. GEARHART.