

(No Model.)

2 Sheets—Sheet 1.

F. W. MERRILL.
ICE CREAM COOLER AND FREEZER.

No. 501,894.

Patented July 18, 1893.

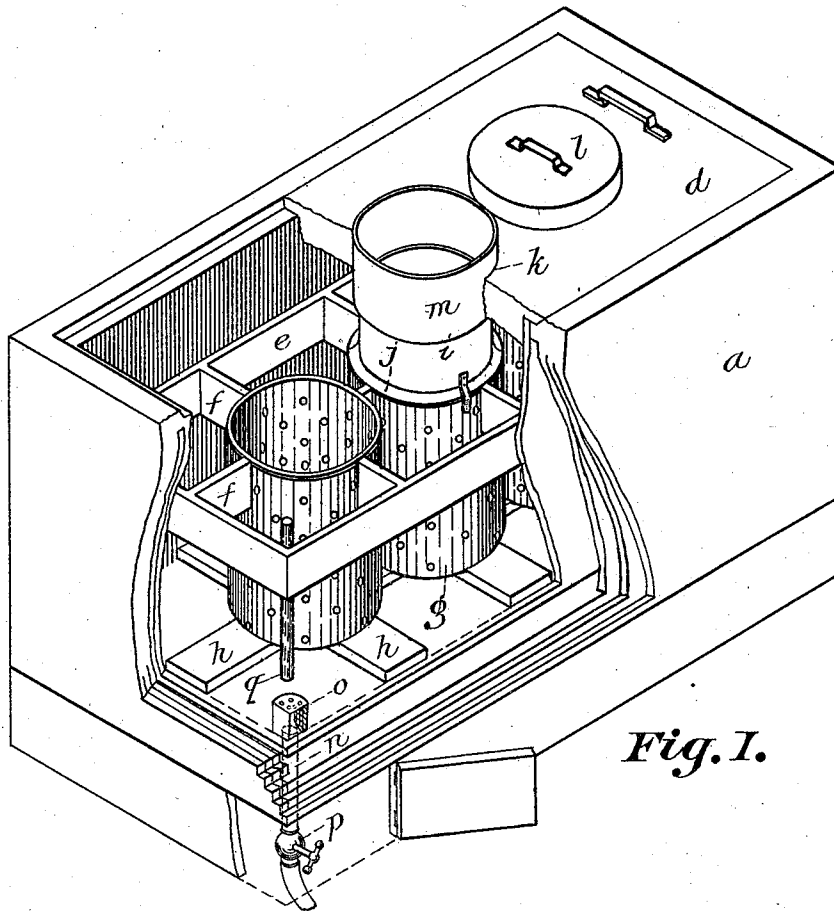
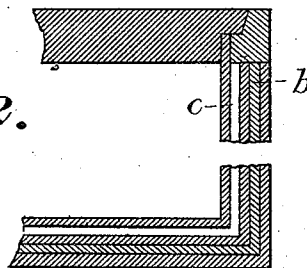


Fig. 1.

Fig. 2.



Witnesses:

Nathan Clifford.
Geo. H. Blake.

Inventor:

Frank W. Merrill,
By Elgin C. Merrill,
att'y.

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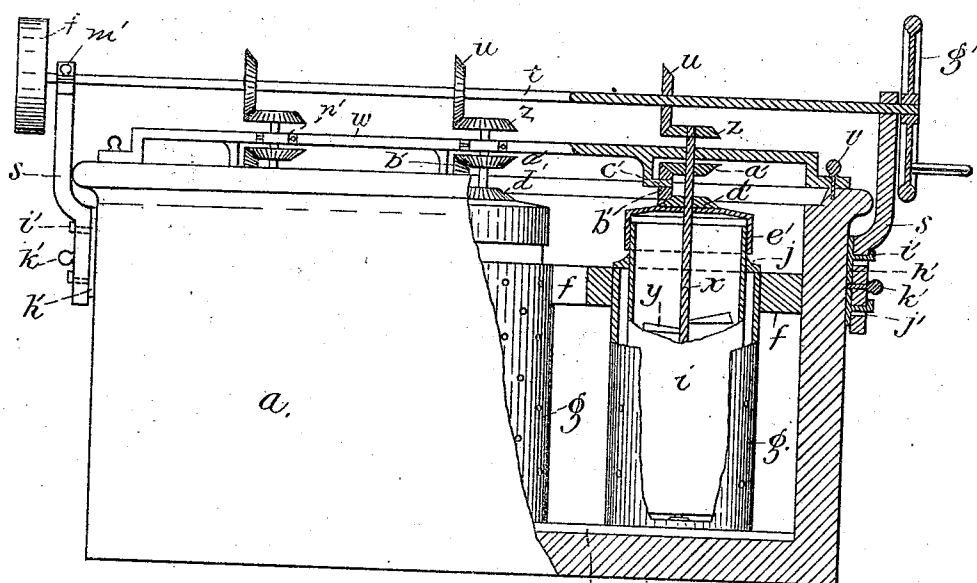


Fig. 3.

Witnesses:

Nathan Clifford.
Geo. H. Blake.

Inventor.

Frank W. Merrill,
By Edwin Merrill
att'y.

UNITED STATES PATENT OFFICE.

FRANK W. MERRILL, OF DEERING, MAINE.

ICE-CREAM COOLER AND FREEZER.

SPECIFICATION forming part of Letters Patent No. 501,894, dated July 18, 1893.

Application filed May 10, 1892. Serial No. 432,483. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. MERRILL, of Deering, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Ice-Cream Coolers and Freezers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a perspective view of my improved ice cream cooler and freezer with part broken out to show interior. Fig. 2 is a cross section of the casing of the chest. Fig. 3 is an elevation of the cooler with freezing apparatus attached thereto, parts being broken out to show interior, and same letters refer to like parts.

My invention relates to an apparatus for cooling and freezing ice cream.

It consists in a suitable chest having in its walls two spaces, the outer filled with hair cloth or other non-conductor of heat, the other with air.

It also consists in a series of perforated shields supported in a frame adapted to fit closely against the inner walls of the chest but not attached thereto, cans having a form similar to said shields and adapted to rest therein and having flanges thereon adapted to rest upon the top edges of said shields and to be supported thereby, a cover having tubular openings therein into which the open ends of said cans are adapted to project, a waste outlet and protector therefor, an overflow pipe, mechanism for rotating the cans and the cream therein, and in certain other details of construction which will be hereinafter more fully described.

In said drawings *a* represents a chest the walls of which have spaces *b* and *c*, the space *b* being filled with mineral hair or other substance which is a non-conductor of heat and the space *c* with air. This arrangement is specially adapted to keep in the cold and at the same time prevent the outside from "sweating." The cover *d* is adapted to fit into the top of the chest and may have the same arrangements of spaces as the walls and bot-

tom. Within said chest is a frame *e* adapted to rest against the interior walls of said chest but not attached thereto. Set in said chest are one or more perforated shields *g* held in a fixed position therein by the cross ties *f* which rigidly connect the said shields with said frame, said shields resting on the bottom of the chest or on a foundation plate *h* which serves to steady the bottom of the shields both in the chest and when the frame and shields are removed from the chest. Inside of these shields are placed cans *i*, said cans having annular flanges on the outside adapted to rest on the top edges of said shields and to support said cans at some distance from the bottom of the shields, thus permitting the ice water to circulate freely under the bottoms of said cans. The cans may of course rest upon the bottoms of the shields if desired, in which case the flanges *j* may be omitted. In said cover *d* are openings *k* similar in form to the tops of said cans, the tops of said cans projecting upwardly into said openings, as seen in Fig. 1, when the cover *d* is in position. Said openings have on top of the cover *d* covers *l* which open directly into the cans but do not in any way communicate with the interior of the chest. The openings in the cover may have inserted therein a tube *m* which projects upwardly through said cover *d* and into which the tops of the cans project as before, when the cover is in position.

In the bottom of the chest and for convenience in one corner thereof is placed pipe *n* having a valve *p* therein through which the water may be drawn out of the chest. Over the inner end of said pipe is placed a raised strainer *o* having its walls made of fine mesh wire cloth, said walls being at some little distance from the mouth of the opening. This prevents the salt crystals and ice from forming over the end of the pipe and thus preventing the water from running out. The salt forms evenly over the bottom of the chest and as the strainer has its perforations in its walls, the water may always be drawn off completely. This arrangement is of great importance inasmuch as it is necessary that the end of the pipe shall not project above the bottom of the chest.

To prevent the water from overflowing into the cans an overflow pipe *q* extends from a

point just below the tops of the cans to the outside of the chest.

To prevent the cans when the cream is nearly removed and the ice melts in the chest, from floating up and thus forcing the covers from the opening in the chest cover, the cans should be fastened to the shields in some convenient way, a spring catch *r* being shown in Fig. 1 for that purpose.

It will often be desirable to freeze the cream in the cooler itself so that it may not be necessary to transfer it from the freezer to the cooler. This may be readily done by my improved device. To do this I make the cooler as before described, except that the cover is temporarily removed. To the exterior walls of the chest are attached brackets *s* and journaled therein is a shaft *t* having beveled gears *u* rigidly set thereon. On the top of the chest and attached thereto by set-screws *v* is a bar *w*. Extending down through bar *w* and into cans *i* are spindles *x* which carry the clappers or stirrers *y*. Each spindle *x* has on its upper end a gear *z* meshing with gear *u* on shaft *t* and a gear *a'* meshing with gear *b'* set on a journal *c'*. Said gear *b'* in turn meshes with a gear *d'* which is rigidly attached to the can or its cover *e'*. Thus the turning of the shaft *t* turns the spindle in one direction and the cans in the opposite direction. The shaft may be turned by a belt on pulley *f'* or by a crank wheel *g'*.

To render the mechanism which effects the freezing readily removable, the brackets *s* are made with slots *j'* adapted to receive the ends of pegs *i'* and are held to the chest by set-screws *k'*.

To remove the mechanism which pertains particularly to the operation of freezing, raise the hinged cap *m'* which holds the shaft *t* and remove shaft *t*, then remove the set screws *v* and open the hinged plates *n'* and remove bar *w*, after which the spindles *x* may be readily removed. The cover *d* may then be placed upon the chest and the small covers *l* are placed over the openings in the said cover *d*. Thus it is unnecessary to remove the cans and the same freezing mixture that was employed to freeze the cream may be used to continue to keep it frozen.

The advantages of the present invention are that the cans containing the cream may be in contact with the cooling mixture and in the ice chamber and embedded in the ice and yet arranged so that the cream may be

removed at any time without opening into the interior of the chest, that by means of the frame and shield the cans are always in a given position, that the frame and shields may be removed when it is desired to clean the chest or remove the ice and salt, that the water may be completely drawn off at all times by means of the improved arrangement of the strainer, and that the cream may be frozen in the cooler, thus obviating the necessity of transferring from the freezer to the cooler.

Having thus described my invention and its use, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination with a suitable chest, of a removable frame adapted to fit closely against the interior wall of said chest perforated shields supported in a fixed position relative to said walls by said frame and adapted to rest upon the bottom of said chest but not attached thereto, cans for cream resting in said shields and having their sides entirely surrounded thereby, a cover to said chest having openings therein directly over the tops of said cans when in position and supplementary covers for said openings, substantially as and for the purposes set forth.

2. The combination with a chest having a removable cover, a removable frame adapted to rest against the interior walls of said chest, perforated shields supported in said frame and held thereby in fixed positions relative to the walls of said chest and cans stepped in the bottoms of said shields, of a shaft journaled in brackets attached to said chest a bar attached to the top of said chest, spindles passing through said bar and extending down into said cans and having a series of stirrers attached thereto and a system of gears substantially as described, arranged and adapted to impart a rotary motion to said cans and a rotary motion in the opposite direction to said spindles by means of the revolution of said shaft, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature, at Portland, Maine, this 27th day of April, 1892, in presence of two witnesses.

FRANK W. MERRILL.

Witnesses:

ELGIN C. VERRILL,
FRED. H. WILBUR.