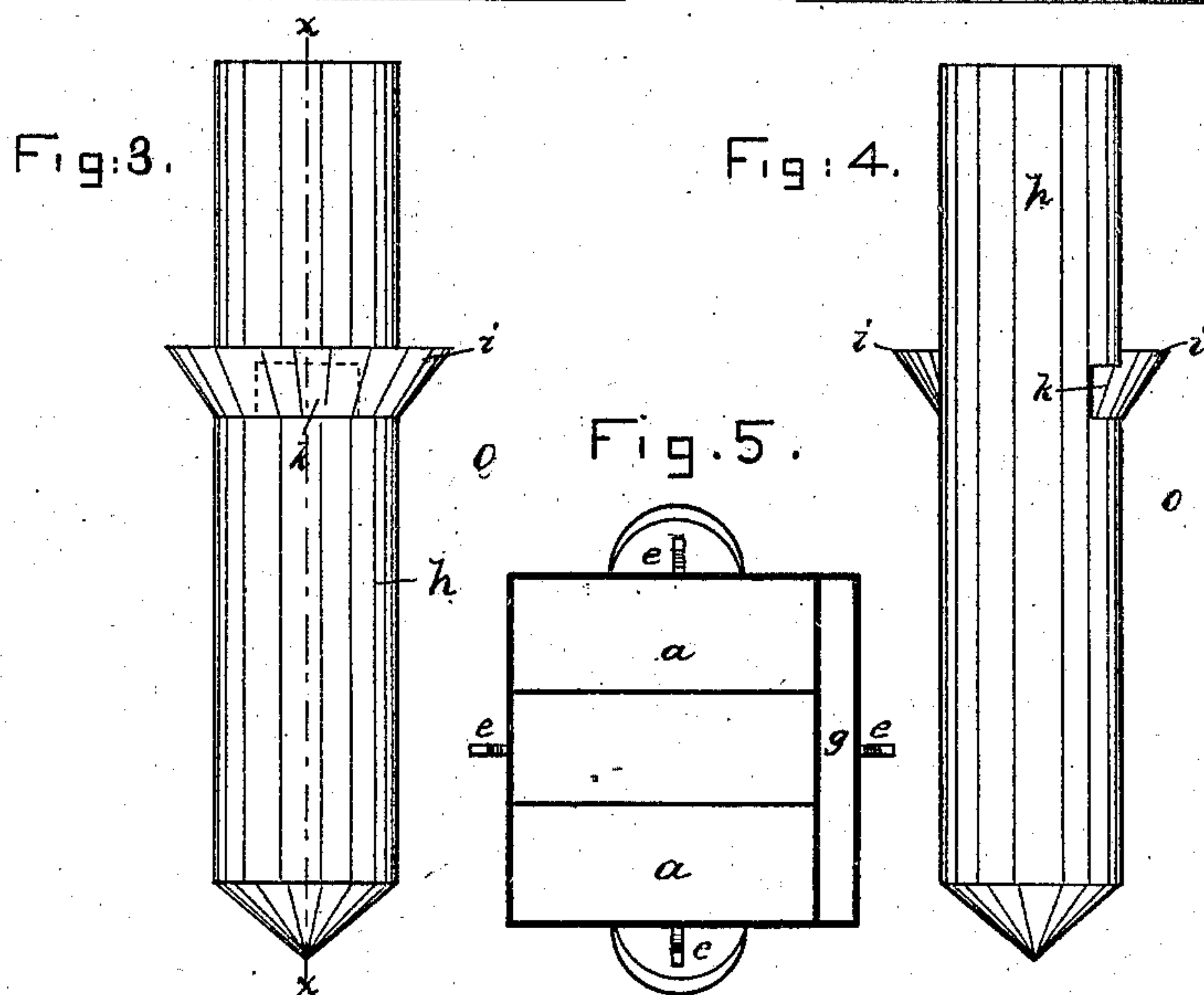
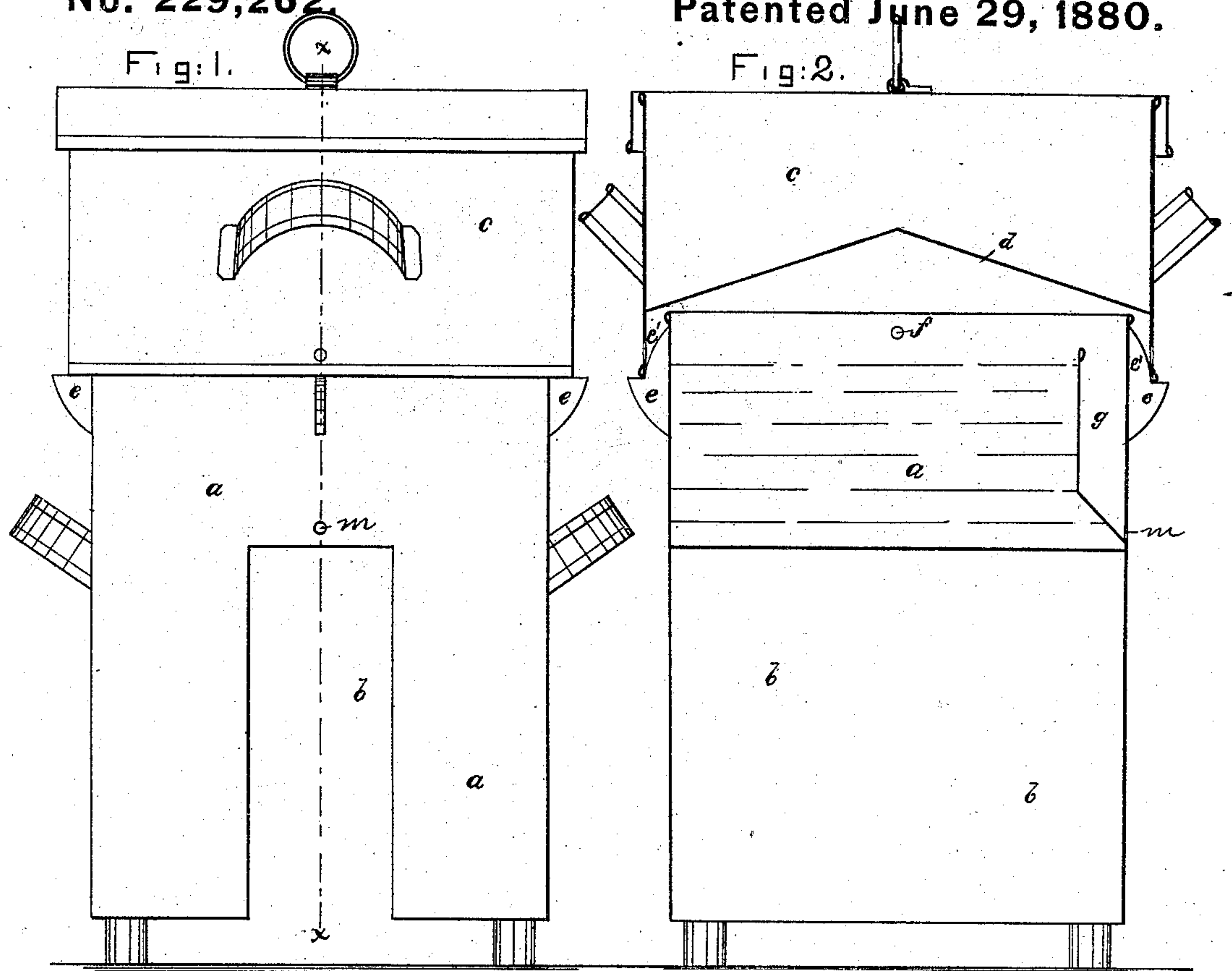


(No Model.)

W. E. LINCOLN.
Milk Cooler.

No. 229,262.

Patented June 29, 1880.



WITNESSES.
L. F. Connor.
Jos. R. Livermore

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UNITED STATES PATENT OFFICE.

WILLIAM E. LINCOLN, OF WARREN, MASSACHUSETTS.

MILK-COOLER.

SPECIFICATION forming part of Letters Patent No. 229,262, dated June 29, 1880.

Application filed March 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. LINCOLN, of Warren, county of Worcester, State of Massachusetts, have invented an Improvement in Milk-Coolers, of which the following description, in connection with the accompanying drawings, is a specification.

My invention relates to apparatus for cooling milk, and has for its object to produce a milk-vessel capable of rapidly cooling a large body of milk; and it consists in the construction and arrangement of parts hereinafter specified and claimed.

Figure 1 is a front elevation of a milk-cooling apparatus embodying my invention. Fig. 2 is a vertical section thereof on line *x x*, Fig. 1; Figs. 3 and 4, an elevation and section, respectively, of the cream-removing apparatus detached. Fig. 5 is a top-plan view, on a reduced scale, of the milk-vessel.

The milk-vessel *a*, which may be of large size, is shown as provided with a channel, *b*, in its lower portion, extending well up into the body of the vessel, such a channel nearly doubling the surface to be acted upon by a cooling material surrounding the said vessel. It is obvious that any desired number of channels *b* can be made in the vessel, so as materially to increase its cooling-surface.

By extending the channel *b* only part of the way to the top of the can the upper surface of the said channel is available as cooling-surface, the milk extending over the top of the said channel, and by extending the channel across from side to side the cooling-fluid is allowed a free circulation, neither of which advantages are attained by a tube or chamber extending up from the bottom through the interior of the can.

The cover *c* to the vessel *a* is shown as an ice-receptacle, having an inclined bottom, *d*, to conduct away the moisture of condensation, as shown in my United States Patent No. 219,358. It is supported on lugs *e* upon the outside of the vessel *a*, which engage the lower edge of the cover to hold it in proper position to allow the moisture of condensation on the bottom thereof to flow freely over the edge of the vessel *b*. The cover sustained in this way allows a proper ventilation of the contents of

the can, and in order to insure that there shall always be a passage for the gases I provide a suitable number of holes, *f*, in the upper part of the vessel between its edge and the highest line to which the milk will rise.

The lugs *e* are provided with curved shoulders *e'*, to enable the cover to be readily placed over them, and then held in proper position without admitting of lateral movement on the vessel *a*.

At one of the sides of the can is placed a pocket, *g*, into which the cream may be caused to flow after it has risen to the surface by introducing any displacing body in the liquid, preferably the cream-removing device *o*, as shown in Figs. 3 and 4. This device is shown as a cylindrical vessel, *h*, having a sharp or conical bottom to enable it to pass through the cream with slight disturbance. When nearly all the cream has flowed into the pocket *g* it becomes difficult to prevent skim-milk from also entering the said pocket, and then the cream-removing device is properly manipulated to cause the cream to pass over the edge of a flaring collar, *i*, thereon, whence it passes through an opening, *k*, into the said vessel *h*, in which it may be removed.

The edge of the pocket *g* is placed at a suitable level to allow the liquid contents of the vessel *a* to flow into it before rising to the ventilating-holes *f*, and the said pocket, besides serving to receive the cream, as hereinbefore described, might also be used to receive liquid of condensation from the bottom of the cover *c* in case the said liquid does not pass over the edge of the vessel *a*.

The liquid contents may be removed from the pocket *g* by any suitable pipe, an orifice, *m*, being provided therefor.

I am aware that milk-cooling vessels have been used provided with tubes or chambers extended up through the interior thereof; but in such the cooling-fluid does not circulate freely, but will soon become of the temperature of the milk or surrounding fluid, and the upper surface of the said chamber or space is not utilized as a cooling-surface.

I claim—

1. In a creaming apparatus, a channeled milk-containing vessel, an overflow pocket

therein, and a cover to contain cooling material, substantially as shown and described.

2. In a creaming apparatus, a milk-containing vessel provided with an internal chamber
5 or pocket to receive the liquid from the said vessel when its level is sufficiently raised by a displacing body, substantially as and for the purpose set forth.

3. In a milk-tank, the lugs *e*, having curved
10 portions *e'*, and adapted to receive and sustain the cover, substantially in the manner shown and described.

4. The cream-removing cylinder, combined with the collar *i* thereon and opening *k*, substantially as and for the purpose described. 15

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WM. E. LINCOLN.

Witnesses:

JOS. P. LIVERMORE,
N. E. C. WHITNEY.