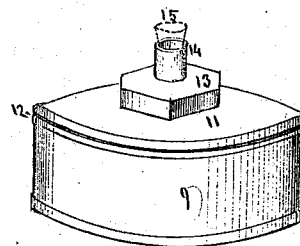
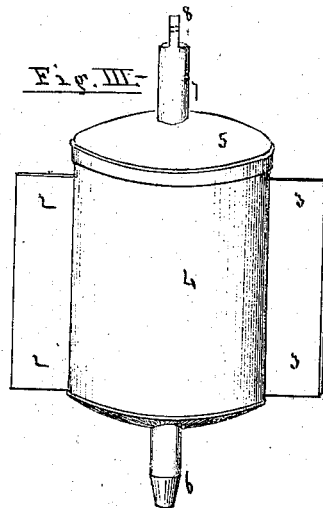
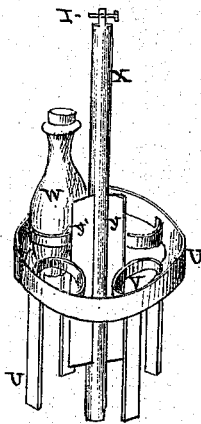
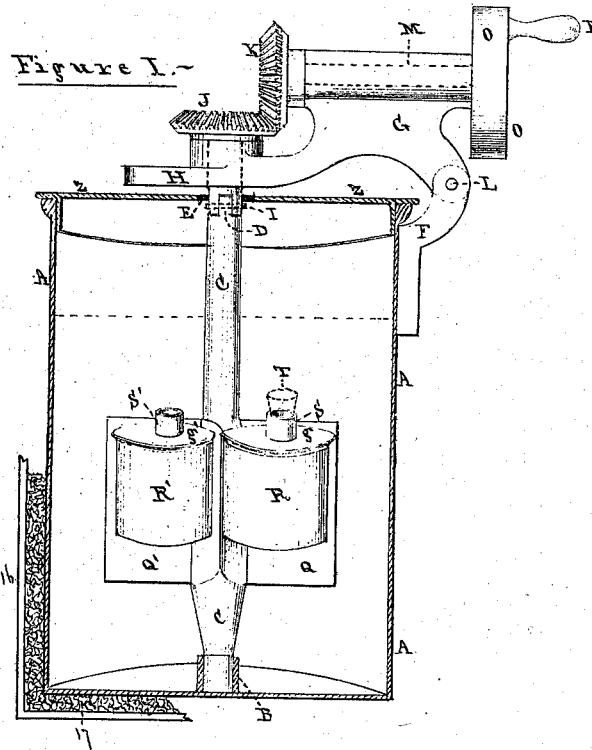


M. ROSENSTEIN.  
MANUFACTURE OF ICE.

No. 107,962.

Patented Oct. 4, 1870.



In presence of  
Oscar Osellborn,  
John M. Batshelder.

Mositz Rosenstein

# United States Patent Office.

MORITZ ROSENSTEIN, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 107,962, dated October 4, 1870.

## IMPROVEMENT IN THE MANUFACTURE OF ICE.

The Schedule referred to in these Letters Patent and making part of the same

*To all whom it may concern:*

Be it known that I, MORITZ ROSENSTEIN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in the Manufacture of Ice; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing making a part of this specification.

Figure I is a vertical section of the apparatus.

Figure II is a perspective view of the apparatus used for cooling wine and other liquids.

Figure III is a view of a freezing-vessel provided with wings.

Figure IV is another form of freezing-vessel.

My apparatus for the manufacture of ice consists, mainly, in the form and construction of various mechanical parts, and also in certain chemical substances to be used in the machine, which, by their solution and rapid motion, cause the congelation of water contained within hollow vessels or cases.

The apparatus is constructed as follows:

A hollow tub or vessel is represented at A, Fig. I. This should be made of wood or other non-conducting material.

At the middle of the bottom of this vessel, there is a step or recess, to receive the lower end of the vertical shaft C, which extends upward, and passes through a hole in the cover Z.

The top of this shaft has a tenon or clutch, D, which engages with the prolongation of a short vertical shaft that is made fast to the gear-wheel J, this tenon being secured in place by the pin I.

The removable arm G H turns on the pin-joint L, which is supported by the standard F, affixed to the outside of the tub or vessel A.

The upper part of the movable arm G is hollow, and receives the horizontal shaft M, which has at one end the gear-wheel K, and at the other the pulley or wheel O, which may be turned by a belt from a steam-engine or other motor, or by the hand applied at the crank P.

When this is turned, the motion of the gear-wheel K is communicated to the wheel J, causing the shaft C to revolve.

Attached to this shaft, by hooks or other convenient fixtures, are two, four, or more, metallic cases, R R', provided with screw-covers g g'.

In the middle of these covers, there are holes, S S', which are stopped with a cork or India-rubber stopper, as at T.

There may be two, four, or more, vanes or arms, Q Q', fastened to the shaft, for the purpose of stirring the liquid contained in the case A, and causing currents to flow freely around the cases R.

The vessel or tub A may have an outer covering or tub, as shown, in part, at 16 17, the space between the two vessels being filled with any non-conductor of

heat. This prevents the contact of the outer air with the refrigerating-vessel A.

When ice is to be made, the cases R are to be filled with water, the covers g screwed on, and the stopper T inserted, this last being coated slightly with tallow, to prevent the saline mixture from entering the cases. The cases are then hooked onto the shaft C, and the vessel A is filled with water above the level of the top of the cases. Then add, in a powdered state, about one pound of chloride of ammonium, one pound of nitrate of potassa, and one pound of sulphate of soda, for each four pounds of water contained in the vessel A. The cover Z is then put on, the edges of the hole through which the shaft passes, being closed by the India-rubber washer E. The arm H G is then turned forward to its place, the pin I put in, and the shaft, with its attached cases R, is put in rapid rotation by turning the wheel O. In about fifteen minutes, the water in the cases is frozen, and the solid ice is to be removed for use. The necks S allow sufficient space for the expansion of the ice in freezing. A second charge of water may now be introduced, the time required for freezing this being longer than for the first charge.

If the water that is placed in the vessel A and in the cases is at a low temperature, the sulphate of soda may not be required.

The saline mixture is to be heated, to evaporate the water, and recover the salts, which are then dried, and, after being pulverized, are to be used again for freezing successive charges of water.

The form of the cases may be varied at pleasure, as in Fig. III, 6 7 8 showing the central shaft; 4, the case; 5, the cover; 2 and 3, the rings. Or, as in Fig. IV, in which 9 is the case; 11, the cover, screwed to the case at 12; 13, a projection of suitable shape to receive a wrench; 14 and 15, neck and stoppers.

Fig. II shows, on a reduced scale, a stand, U, resembling a caster, which contains in the rings V the bottles W, which are to contain the liquids that are to be cooled. This is to be set into the tub A, Fig. I, and immersed in the saline mixture. The shaft X, provided with wings y y', is then introduced in place of the shaft C, and, on being turned within the central space between the bottles, the temperature of the liquid is rapidly reduced.

The metallic vessels are to be tinned or coated with substances not injurious to health.

What I claim, and desire to secure by Letters Patent, is—

The combination of the hinged bevel-gears, the central shaft C, the attached freezing-cases R, and the wings Q, substantially as described.

MORITZ ROSENSTEIN. [L. S.]

Witnesses:

OSCAR ESSELBORN,

JOHN M. BATHWELDER.