

A. ALBERTSON.

Improvement in the Manufacture of Ice.

No. 115,409.

Patented May 30, 1871.

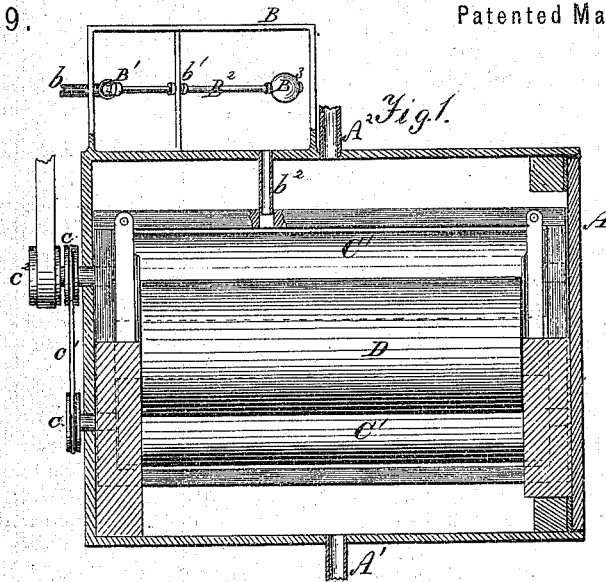


Fig. 2.

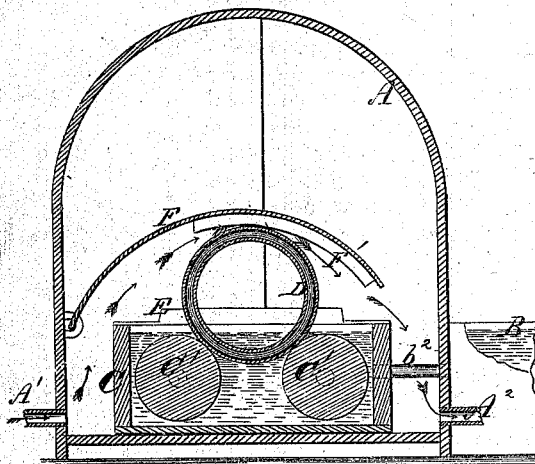


Fig. 3.

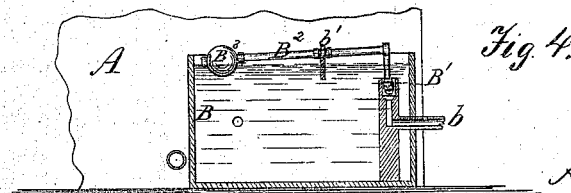
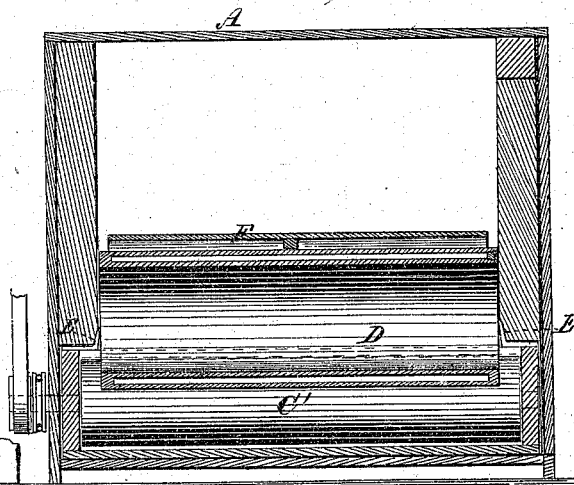


Fig. 4.

Witnesses
A. Ruppert
J. H. Kistner

A. Albertson
Inventor.
D. F. Holloway & Co
Attys

UNITED STATES PATENT OFFICE.

ALBERT ALBERTSON, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN THE MANUFACTURE OF ICE.

Specification forming part of Letters Patent No. 115,409, dated May 30, 1871.

To all whom it may concern:

Be it known that I, ALBERT ALBERTSON, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain Improvements in the Method of Freezing Ice; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing making part of this specification, in which—

Figure 1 represents a sectional plan of so much of an apparatus for freezing ice as is necessary to illustrate my invention. Fig. 2 is a vertical transverse section thereof. Fig. 3, a vertical longitudinal section through the center. Fig. 4 is a vertical section of the feed-water tank.

The same letters of reference are used in all the figures in the designation of identical parts.

The object of this invention is to freeze ice into blocks of any desired form in a more rapid manner than is possible by the use of the ordinary tanks in which the still body of water is frozen from the surface; and my improvement consists in freezing the ice upon or around a core of any desired form by alternately immersing the core in the water and again lifting it out of the water to expose the thin film of water attaching to its surface, or that of the ice already formed upon it, to the surrounding cold air and freeze it, continuing the process until a block of the desired size has been formed around the core, from which it is then separated in a manner herein-after to be explained. The improvement further consists in several novel features of construction and arrangement of the apparatus shown, to be generally set forth in the following description and specifically pointed out in the claims.

In the annexed drawing, A represents the freezing-chamber of an ice-machine, into which the cold air passes through the pipe A¹, and from which it issues, after it has been utilized, through the exhaust-pipe A² upon the opposite side. The chamber is constructed with double or multiple walls, packed with any suitable non-conducting material to prevent the external atmosphere from affecting the temperature of the interior of the chamber. Upon one side of this chamber is built a reservoir, B, which is charged with water from any

convenient source through a pipe, b, the end of which, issuing into the reservoir, is controlled by a valve, B¹. To the stem of this valve is attached a lever, B², pivoted at b¹, and provided, at the end of its long arm, with a float, B³, which, when the water is at the proper level in the reservoir, is borne up so as to seat the valve and stop the flow of the water into the reservoir until the water therein, falling, permits the valve to open again. In this manner the water in the reservoir will always stand at a uniform height. Other means than those described to affect this result may be employed. The water flows from the reservoir B through a pipe, b², into a tank, C, of which there may be any number arranged in the freezing-chamber A. In the example illustrated, the ice is to be formed around a cylindrical revolving core, D, which is placed upon and between two rollers, C' C', so as to have a portion of its surface immersed in the water in the tank C. The rollers C' are journaled in the end walls of the tank in any suitable manner so as to form a water-tight joint therewith, and at one end the journals extend beyond the tank and pass through the wall of the freezing-chamber. Each carries on its overhung journal a pulley, c, which pulleys are connected by a belt, c¹, so as to revolve in the same direction when power is applied at the driving-pulley c² upon one of the journals. The core D fits snugly between the knives or scrapers E, one of which is mounted on each end of the tank, presenting its sharp edge upward. These knives serve to scrape off the ice as fast as it forms on the ends of the core. The friction of the revolving rollers C' upon the core D will cause it to revolve also continuously, so as to expose its surface, leaving the water, covered by a thin sheet or film thereof, to the action of the incoming cold air, which will immediately freeze it. The core is left on the rollers until the ice upon it has obtained the desired thickness, when it is taken out and drawn out of the ice in the following manner: The shell of the core is made hollow, and contains at one end a nozzle or a trap to which to attach a steam-pipe and induct steam into the annular chamber. The walls will very soon be heated so as to melt a thin sheet of the ice attached to its outer surface, and the core may readily be drawn out of the block

of ice, it being not surrounded or covered at the ends. F is a deflector, hinged to the side of the freezing-chamber at which the cold air enters. A rib, F¹, is formed on its under side, by which it is supported upon the core D. It is used to direct the incoming cold air directly against the core, by which it is raised as its diameter augments by the formation of ice upon its surface.

I wish it to be understood that I do not confine myself to the particular means herein described for forming ice upon a core, as these means may be varied in many ways without departing from the principle of my invention. A core of any form desired may be used which receives a vertically-reciprocating action so as to alternately immerse it in and withdraw it out of the water; or a revolving core may be used, made with a cylindrical or square aperture through it, and the water discharged upon its interior surface to form solid blocks of ice of the form and size of the aperture.

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

1. The herein-described method of forming blocks of ice by freezing the water in thin

layers upon a moving surface, substantially in the matter set forth.

2. The combination of the water-tank C, revolving rollers C' C', and core D constructed with hollow walls, all arranged in a freezing-chamber, to operate substantially as set forth.

3. The combination of the revolving hollow core D and scrapers E upon the ends of the water-tank C, substantially as and for the purpose set forth.

4. The combination of the revolving hollow core D and deflector F, arranged to operate substantially as set forth.

5. The combination of the reservoir B and induction-valve B¹, which is automatically operated by a float, B³, and a lever, B², to regulate the height of the water in the reservoir, substantially as set forth.

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

ALBERT ALBERTSON.

Witnesses:

D. P. HOLLOWAY,
B. EDW. J. EILS.