A. JAS.

Refrigerating-Tank for Ice-Machines.

No. 162,659. Patented April 27, 1875.

Fig. 1.

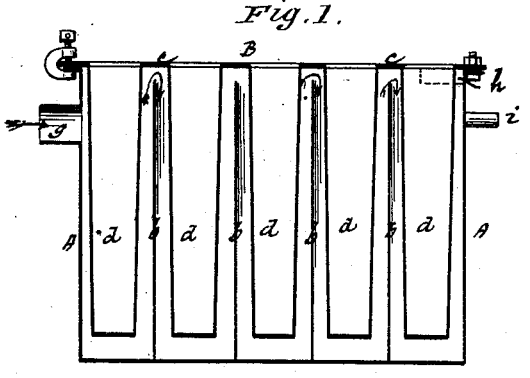


Fig. 2.

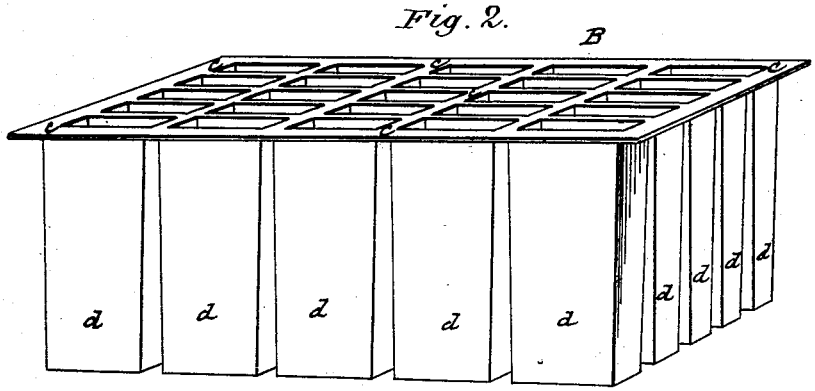
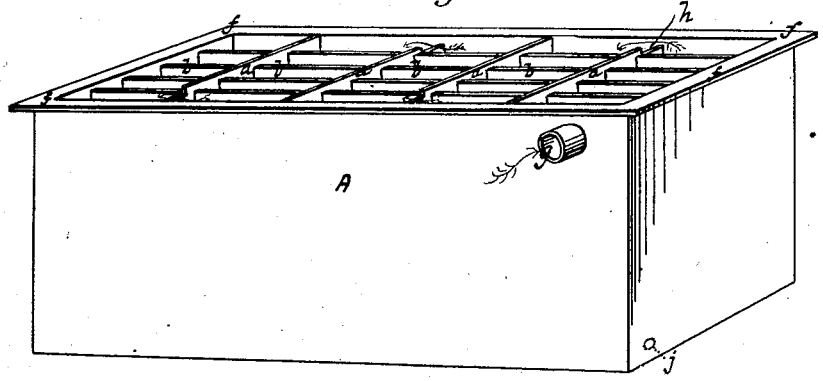


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

AUGUSTE JAS, OF NEW ORLEANS, LOUISIANA, ASSIGNOR OF ONE-HALF HIS RIGHT TO ALBERT C. JANIN, OF SAME PLACE.

IMPROVEMENT IN REFRIGERATING-TANKS FOR ICE-MACHINES.

Specification forming part of Letters Patent No. **162,659**, dated April 27, 1875; application filed April 2, 1875.

To all whom it may concern:

Be it known that I, AUGUSTE JAS, of New Orleans, Louisiana, have invented certain new and useful Improvements in Apparatus for Making Ice, &c., of which the following is a specification:

My invention relates to that portion of refrigerating or ice-making apparatus termed usually the freezing-vessel or refrigerator—that is to say, the part of the apparatus in which the liquid or other matter is refrigerated or congealed.

My invention, which is designed with a view of reducing the cost and increasing the efficiency of the refrigerator, can best be explained and understood by reference to the accompanying drawing, in which—

Figure 1 is a transverse vertical section of the refrigerator. Fig. 2 is a perspective view of the upper part of the refrigerator. Fig. 3 is a like view of the lower part.

The refrigerator is composed of two parts, A B. The lower part A is a box-like structure, whose interior is divided by vertical partitions *a b* into ranges of compartments, which are designed to receive cells attached to the top plate of the upper part B, as hereinafter described. The box A is of metal or other suitable material, such, for instance, as wood, coated on the inside with metal or other material impermeable to gases. This box, inasmuch as it must withstand considerable internal pressure, can be re-enforced by external ties or bands, or otherwise. The box is divided crosswise into five subdivisions by vertical transverse partitions *a*, which are of the same height exactly as the walls of the box. Each of these five subdivisions is in turn divided into five compartments by longitudinal vertical partitions *b*, which, however, do not extend as high as the walls of the box. Of course the number of ranges of compartments and the number of compartments in each range can be varied at pleasure. So, too, the partitions *b* can extend up flush with the tops of the box, and the flow of gas from one compartment to the other can be provided for by making one or more holes in the partitions *b*. The upper part B consists of a top plate, *c*, of suitable material, which is of a size to fit exactly upon the flange *f*, which surrounds the top of the box A. The plate *c* is formed with openings corresponding in number and form to the compartments of the box A. To the under side of the plate, and at each opening, is solidly fixed a metallic cell, *d*, preferably tapering in form, and of somewhat smaller dimensions than its corresponding compartment in the lower box, in order to leave a space all around the cell for the inflow of the gas or refrigerating-vapor, which is required to act upon the walls of the cell. The two parts thus described are fitted together, as shown in Fig. 1. A packing of rubber is placed between their contiguous flanges or outer edges, and a like packing is laid between them along the line of the transverse partitions *a*, to the end that communication between the several ranges, except by the path hereinafter described, may be closed. The two parts are then brought and held tightly together by pressure-clamps or bolts and nuts, as indicated in Fig. 1.

The refrigerating-vapor enters the refrigerator through a pipe, *g*, which opens into the first compartment of the first range. It thence passes through the successive compartments of this range, and around the cells therein, until it reaches the last compartment, whence, by a suitable passage, *h*, it passes over into the adjoining end compartment of the second range, and so on through the whole series of ranges, pursuing this serpentine path until it reaches the last compartment of the last range, from which it issues through a pipe, *i*.

I find it desirable to form in the lower exterior corner of the compartment, into which the vapor first enters, an aperture, *j*, closed by a suitable valve or cock, which will permit the discharge of the impurities carried therein by the vapor. These impurities are for the greater part, if not entirely, arrested in the first chamber.

I prefer to make the cells *d* tapering, as shown, on several accounts. The molds that contain the water to be congealed can be made of the same shape, and of a size to fit closely the interior of the cells, by which I am enabled to dispense with the ordinary non-congealable baths, which, when put in the cells, have the effect of corroding them, and the molds as

well; and, indeed, the cells themselves can serve as molds, provided their inner surfaces are made very smooth, or are coated with a fatty body, which, by reason of the constant cold, will not mix with the ice.

In the manufacture of ice it is very desirable, if not absolutely necessary, to use water that has been preliminarily freed from air. This has heretofore been done by mechanical agitators, or by other means equally cumbersome and costly. I effect the desired end in a very much simpler and more economical way, by preliminarily heating the water, and maintaining it at the boiling-point, or at a temperature in the neighborhood of that point, for some minutes. I thus obtain water which is to all intents and purposes entirely free from air, and can be converted into solid and perfectly transparent ice.

I may, in conclusion, state with reference to my apparatus above described, that in addition to the advantages of cheapness and efficiency that it possesses, it also has the important advantage of reducing to a minimum the liability of loss or escape of gas at the joints.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

The herein-described refrigerator for ice-machines and analogous apparatus, consisting of a lower box divided into distinct and separate ranges of compartments or receptacles, in combination with an upper plate-supporting cells fixed to said plate, and corresponding in numbers to the compartments, the said parts fitting together, as described, and when so fitted together forming a serpentine passage for the refrigerating vapor or gas, which is thereby caused to pass through the successive compartments of the successive ranges, substantially as set forth.

In testimony whereof I have hereunto signed my name this 19th day of March, A. D. 1875.

AUGUSTE JAS.

Witnesses:

ALBERT C. JANIN,

E. FIXARU.