A. JAS.

Ice-Machine.

No. 168,500. Patented Oct. 5, 1875.

Fig. 1.

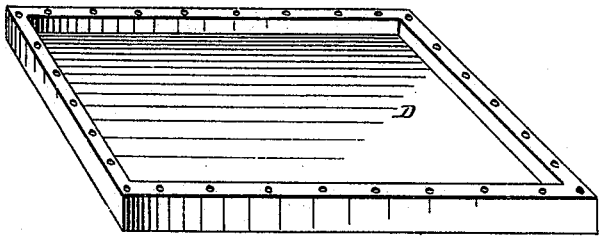


Fig. 2.

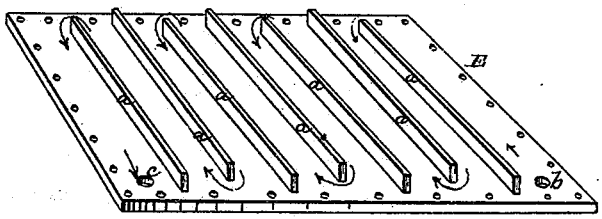
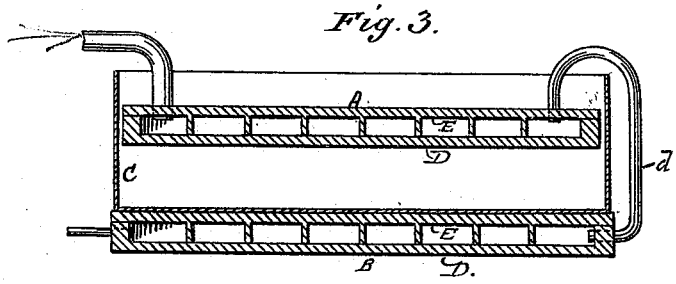


Fig. 3.



Witnesses:

Ewell a Dick

W. T. Hutchinson

Inventor:

Auguste Jas

by Atty's Poole & Bailey

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 ICE-MACHINES.

Specification forming part of Letters Patent No. **168,500**, dated October 5, 1875; application filed July 1, 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 Ice-Machines, of which the following is a specification:

My invention relates to that portion of ice-making apparatus by which the water is congealed; and it may be considered an improvement upon the apparatus described in my Letters Patent No. 162,659, dated April 27, 1875.

My present apparatus, while retaining the characteristic features of my patented machine, is so modified as to be adapted to the freezing of large and thick blocks of ice.

The nature of my improvements will be understood by reference to the accompanying drawing.

Figure 3 is a vertical central section of the apparatus. It is composed of two boxes or chests, A B, which are, in the present case, counterparts of one another, save that the upper one is of somewhat smaller dimensions than the lower one, to permit it to enter the water-vessel C, which rests on the lower one.

I shall now describe the structure of the chests. Each chest is made in two parts—D, Fig. 1, and E, Fig. 2. Each part is composed of a single casting. The part D is a box-like structure, whose sides are on the inside of a height equal to the height of the ribs *a* on the other part E. The part E is a plate of such dimensions as to fit accurately the open end of the box part D, with its border resting on the top or edges of the sides of the box. The two, when put together, are riveted or bolted, with a packing between them to make a tight joint. The ribs *a* serve as partitions to form a serpentine passage through the chest. To this end, when the two parts D E are put together the longer edges of the ribs fit closely against the bottom of the box D, and at their ends they alternately abut against opposite sides of the box, each rib at the opposite end stopping short of the side of the box, in order to leave at that end a passage through which the vapor, gas, or other refrigerant can pass from one division to the next, as indicated by arrows in Fig. 2. The inlet is marked *b* and the outlet *c*.

The foregoing will suffice to indicate the manner in which the two parts of the apparatus are made. It will be noted that I preserve the simplicity of structure and cheapness which characterize my patented apparatus, and that, as in said apparatus, each one of the present boxes or chests is made of two pieces, each of which may be a single casting, and which, when put together, will form a receiver, through which the refrigerant is forced to travel in a serpentine path. The lower chest B, as above remarked, is of a sufficient area to receive the water-vessel which rests upon it, as shown in Fig. 3.

A more perfect contact may be insured by interposing between the two parts B C a sheet of fabric or other suitable material, saturated or moistened with an incongealable conducting liquid.

I would remark that, if desired, the lower chest may be provided with hollow sides to surround the sides of the water-vessel, and thus insure more perfect action of the refrigerant on the water to be frozen. These hollow sides may also be partitioned to cause the refrigerant to travel in a serpentine path.

The upper chest A is of size to fit within the vessel C snugly, but without friction. It is designed to be suspended and sustained by any suitable mechanisms, by means of which it may at any time be raised or lowered at the will of the operator. I have not shown any such mechanism in the drawing, inasmuch as any of the ordinary means used for analogous purposes may be here employed.

The two chests, when in use, are coupled by flexible tubing *d*, or by equivalent means, such as metallic pipes with telescopic joints, through which the refrigerant, after it has traversed one chest, will be conducted to the other chest, which it will traverse in like manner.

In Fig. 3, *e* is the pipe by which the refrigerant enters the machine, and *f* is the pipe by which it leaves it.

When I employ ethers I prefer to introduce the refrigerant agent into the lower chest, and to establish an upward current. When, on the other hand, I employ a liquid refrigerant, such as ammonia, I prefer to introduce it into the upper chest, and thus to establish a natural downward current.

In using my apparatus, after establishing a current of the refrigerant through the chests I introduce into the mold or water-vessel a layer of water, pure, and deprived of air, and of a depth of a half-inch, more or less. I then lower the upper chest until its under face is nearly, but not quite, in contact with the water. When the water is sufficiently frozen I introduce a new layer of water, which is in turn frozen, and I thus proceed until I have built up a solid block of ice of the requisite thickness.

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

The described freezing apparatus, consisting of two chests formed each by the union of two parts constructed and put together to constitute a hollow structure with internal serpentine passage, as described, the two chests being connected by flexible tubing, or its substantial equivalent, as specified, and adapted to operate in connection with a water mold or vessel placed between them, substantially as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

AUGUSTE JAS.

Witnesses:

ALBERT C. JANIN,

E. FIXARY.