

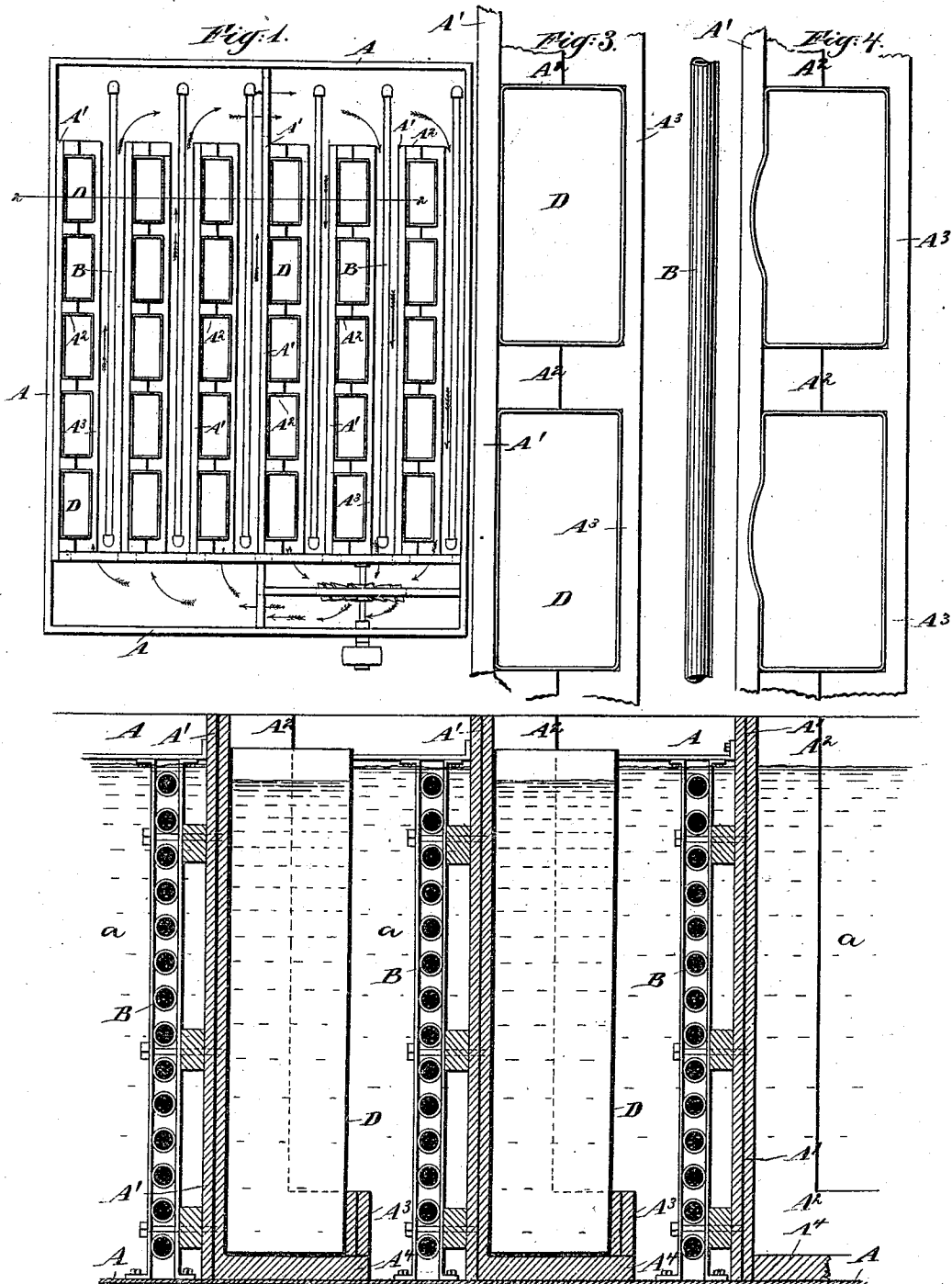
(No Model.)

L. BLOCK.

BRINE TANK FOR ARTIFICIAL ICE MANUFACTURE.

No. 501,316.

Patented July 11, 1893.



Witnesses:

Charles R. Searle,
L. L. Freeman

Fig. 2.

Inventor:

Louis Block
by his attorney
Thomas D. Bateson

UNITED STATES PATENT OFFICE.

LOUIS BLOCK, OF NEW YORK, N. Y.

BRINE-TANK FOR ARTIFICIAL-ICE MANUFACTURE.

SPECIFICATION forming part of Letters Patent No. 501,316, dated July 11, 1893.

Application filed October 31, 1892. Serial No. 450,418. (No model.)

To all whom it may concern:

Be it known that I, LOUIS BLOCK, engineer, a citizen of the United States, residing in the city and county of New York, in the State of New York, have invented a certain new and useful Improvement in Brine-Tanks for Artificial-Ice Manufacture, of which the following is a specification.

The necessities of the trade require that the ice shall be made in tolerably large masses, and it is the practice to form it in rectangular cans of thin sheet metal, which cans are filled with as pure water as can be obtained and let down into a tank of brine, which latter is kept cold by allowing ammonia to evaporate in coils traversing the brine. It has been found of advantage to shield certain portions of each can by a non-conductor so that the ice shall form mainly from the other surfaces. This has been done by attaching non-conducting material to such faces of the cans, but such is a great hinderance to the thawing of the surface necessary to the removal of the ice after the can is lifted out of the brine, and if the non-conducting surfaces are taken off to effect the thawing and replaced again such operations involve much labor. After the whole has been thus frozen, it is common to detach the ice therefrom by slightly warming the can by the application of tepid water to the exterior. It has been necessary in operating with commercial rapidity to remove the non-conducting protectors at each operation to allow the thawing to be performed on that side as well as on the other. I have discovered that the same effect may be produced by modifying the construction of the ice-tank. Such forms the basis of the present invention.

I use the ordinary thin rectangular cases without attaching any non-conducting protectors to any face, but I provide the tank with non-conducting surfaces, and provide for holding each can with one face and the bottom and the edges of the faces adjacent in tight contact with such non-conducting partition. I provide also a non-conducting platform under each can.

I form the partitions with cleats extending up and down just the proper distance apart to allow the cans to fit into the spaces between, so that while the partitions match against one

broad face of each can, the cleats cover a portion of each of the adjacent faces thereof.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a general plan view of the ice tank and its contents. The remaining figures are on a larger scale. Fig. 2 is a vertical section on the line 2—2 in Fig. 1, and Fig. 3 is a plan view of a portion. Fig. 4 is a plan view showing a modification.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

The brine-tank is marked A, certain portions being designated, when necessary, by super-numerals, as A', A², &c. The saturated solution of common salt,—brine,—with which the tank is kept partially filled, is marked a. It is important with my invention, as in all analogous ice-manufacturing apparatus, that there shall be enough brine to rise to the proper height around the several cans D when all the cans are in place. Only a few of the cans should be removed and replaced at any one time.

A', A', &c., are parallel partitions of pine planks or other non-conducting material of sufficient thickness. A², A², are cleats of similar material extending up and down at the proper distances apart to allow one of the broad faces of each can to apply against the partitions between the cleats, so that the cleats form non-conducting protectors extending up and down along the adjacent corners of the can on two adjacent sides.

A³, A³, are beveled guides of wood or analogous material, nailed or otherwise secured in the bottom of the tank in the required positions to receive each can as it is lowered, and to retain it with one of its faces in contact with one of the non-conducting partitions.

A⁴, A⁴, are horizontal planks upon which the cans rest, and which form each a good non-conducting defense for the bottom of the corresponding can.

The cans may, as is usual in the ice manufacture, be floated singly in the brine-tank empty and be filled successively through a hose and a suitable filling device, each sinking as it is filled. Care should be taken to

move each can into the correct position so that the last part of the sinking movement will bring it down into the pocket between a guide A^3 and a partition A' , with the cleats A^2 standing on each side, but this involves a very insignificant amount of labor or skill.

Bare nearly horizontal pipes through which liquid ammonia is conveyed and allowed to evaporate. The caloric required for changing the liquid ammonia into a gaseous form,—ammonia vapor,—is abstracted from the brine and holds it at so low a temperature that the water in the several cans is frozen.

My arrangement insures that the freezing shall be effected from the faces which are unprotected, the core, if any is formed, being not in the center of the ice but close to, or on, the broad surface adjacent to the partition A' , which is offered by non-conductors permanently attached to the can and without the labor of applying and removing such parts removably attached to the can.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. Instead of making the uniformly thin cans of the ordinary rectangular form, the cans may each have one side specially formed to accommodate the formation of the core a little exterior to the surface of the rectangle, extending up and down in a central position in the middle of the protected side. Such is shown in Fig. 4. The core is usually softer than the other parts of the ice, and when thus formed on the exterior can be easily removed by any suitable tool. I can set the cans wider apart, or I can set them each with its narrow side toward the partition. I can vary indefinitely the arrangement of the coils B. It is sufficient that they allow proper circulation of the brine, and that they are suitably constructed to allow the evaporation of the ammonia in their interior and the abstraction of heat from the brine.

I claim as my invention—

1. The brine tank A having the coils B and connections for inducing cold therein, in combination with non-conducting partitions A' permanently attached to and forming a part of the tank, and with means as the guides A^3 for holding ordinary ice-forming cans in contact with such non-conducting partitions and allowing the ready insertion and removal of such cans, all substantially as herein specified.

2. The brine tank A having the coils B and connections for inducing cold therein, in combination with non-conducting partitions A' permanently attached to and forming a part of the tank, and with means as the guides A^3 for holding ordinary ice-forming cans in contact with such non-conducting partitions and with such ordinary ice-forming cans having all their surfaces of thin metal and allowing the ready insertion and removal of such cans all arranged to serve substantially as herein specified.

3. In ice-making apparatus, the brine tank A, refrigerating coils B, non-conducting partitions A' , upright cleats A^2 , guides A^3 and floor planks A^4 , all of wood or analogous non-conducting material, permanently attached and forming a part of the tank and arranged to form pockets therein out of contact with but adjacent to the said coils, in combination with each other and with removable cans D of uniform thin metal, adapted to be easily inserted in and removed from the pockets formed by such non-conducting parts, all substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

LOUIS BLOCK.

Witnesses:

M. F. BOYLE,

H. A. JOHNSTONE.