

No. 754,772.

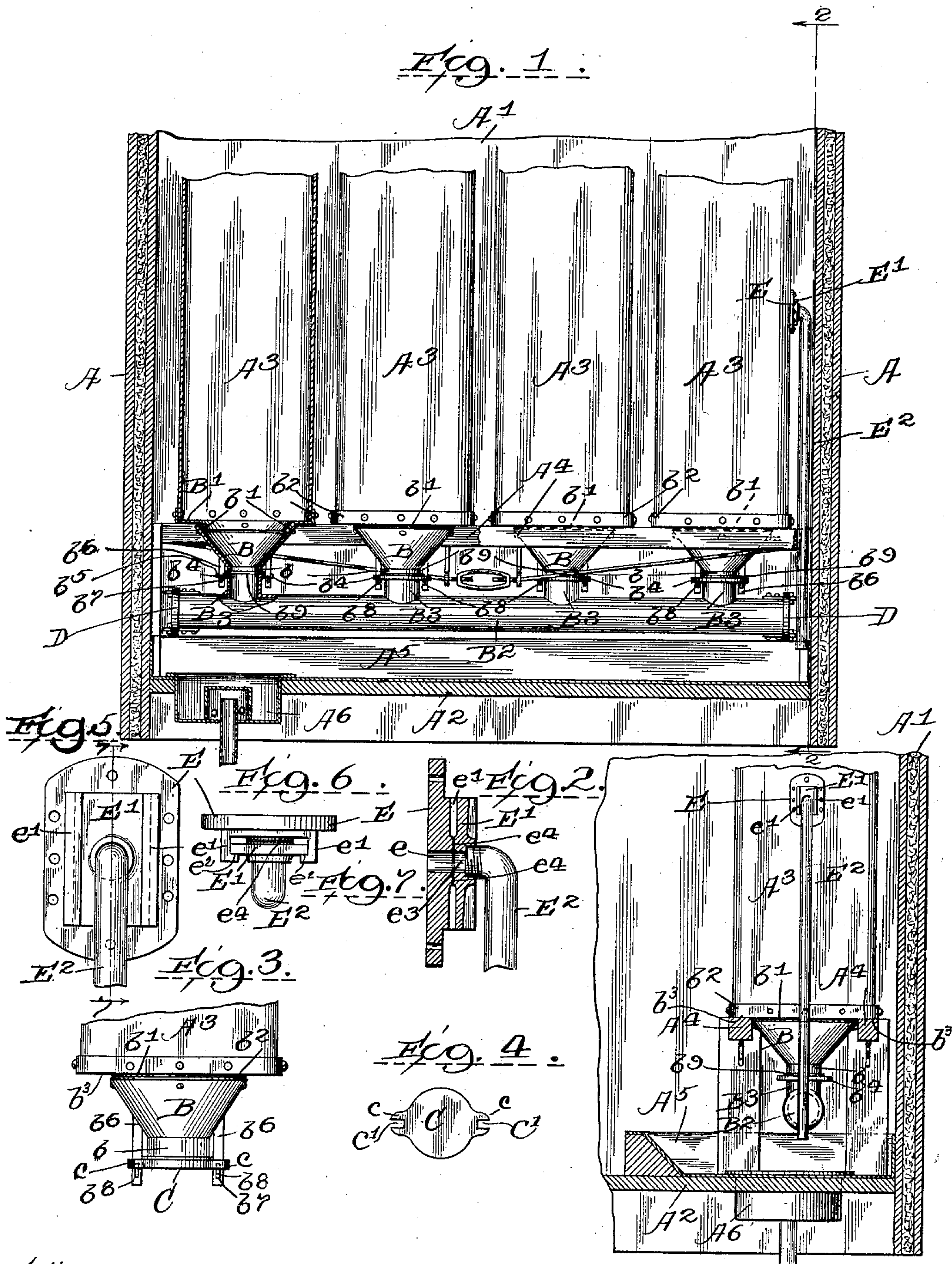
PATENTED MAR. 15, 1904.

J. I. HOPKINS.

ICE TANK.

APPLICATION FILED AUG. 13, 1900.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN I. HOPKINS, OF CHICAGO, ILLINOIS.

ICE-TANK.

SPECIFICATION forming part of Letters Patent No. 754,772, dated March 15, 1904.

Application filed August 13, 1900. Serial No. 26,689. (No model.)

To all whom it may concern:

Be it known that I, JOHN I. HOPKINS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented an Improved Ice-Tank, of which the following is a specification.

This invention relates to ice-tanks, and relates particularly to ice-tanks especially designed and adapted for use in refrigerator-cars.

Among the objects of the invention are to provide a construction which will facilitate cleaning the tanks, to provide improved and simplified means for connecting the tanks in series to secure a mixture of uniform strength in all of the connected tanks, and to provide improved and simplified means for connecting the overflow to the tanks.

To effect these ends my invention consists of the various features, combinations of features, and details of construction hereinafter described and claimed.

In the accompanying drawings my invention is fully illustrated.

Figure 1 is a partial transverse vertical sectional view of a refrigerator-car equipped with a series of tanks of my invention, showing a series or battery of tanks of my invention, partly in section. Fig. 2 is a side view of said tanks, showing a portion of the car in section. Fig. 3 is an enlarged view of a portion of a tank of my invention, showing the construction thereof when not connected in series; and Figs. 4, 5, 6, and 7 are enlarged detail views.

Referring now to the drawings, A A' A² designate the side walls, end wall, and floor, respectively, of a refrigerator-car; A³, the ice-tanks; A⁴, the frame upon which said tanks are supported; A⁵, the drip-pan, and A⁶ the trap through which water escapes from the drip-pan A⁵.

All of the foregoing features are old and well-known and as regards their usual features will be readily understood by persons familiar with the art without a detailed description thereof.

The bottom B of a tank of my invention may be described as hopper shaped, the sides

of the tank converging downwardly and terminating in an open-ended pipe *b*.

In the preferable construction shown the bottom B is made separate from the body of the tank and is secured to a flange *b'* thereon, which projects downwardly therefrom at a proper angle. Preferably, also, the flange *b'* instead of being formed directly on the tank A³ is formed on a skeleton plate B', on which is also formed an upwardly-extending flange *b''*, which fits and is secured to the lower end of the tank-body.

The bottom B is preferably made of cast-iron, pressed steel, or other good conductor of heat.

As shown, the skeleton plates B' also comprise flat portions *b''*, adapted to rest upon the supporting-timbers A⁴.

In the preferable construction shown in Fig. 1 the interiors of the tanks A³ are connected by a pipe B², the ends of which are closed and which extends beneath all of said tanks and is provided with branch pipes B³, adapted to be secured to the lower ends of the pipes *b*, so that the open ends thereof will register with each other.

As shown, the branch pipes B³ are secured to the tanks A³ in communication with the pipes *b* in the following manner: Formed on the ends of said branch pipes B³ are laterally-projecting lugs or flanges *b''*, in which are formed openings *b''*, adapted to receive downward projections *b''*, formed on or secured to the tank-bottoms B. Formed in said downward projections *b''* are holes *b''*, which extend below the flanges *b''* when the branch pipes B³ are in contact with the pipes *b* and are preferably inclined on the lower sides and are adapted to receive pins *b''*, preferably inclined on their lower sides to correspond to the incline of the lower sides of the holes *b''*. Said pins will thus form wedges adapted to force the ends of the branch pipes B³ firmly against the ends of the pipes *b*. In order to insure tight joints between the branch pipes B³ and the pipes *b*, gaskets *b''* will preferably be inserted between them in a familiar manner. In this manner it is obvious that the interiors of all of the tanks A³ will be sealed against the admission of air

thereto or the escape of water therefrom, while allowing a free circulation of liquids contained therein. My invention, however, contemplates sealing each tank separately, as shown particularly in Fig. 3. This end is effected by securing to the open end of the pipe *b* a plate or cap C, which is provided with laterally-projecting lugs *c*, in which are formed holes or openings *c'*, adapted to receive the downward projections *b'* on the tank-bottoms B. Said caps C can thus be secured to said pipes *b* by means of the wedges *b''* in the same manner as the branch pipes B³.

When it is desired to empty the tanks A³, this can be conveniently done by opening an end of the pipe B² where the tanks are connected in series, or by removing the cap C when the tanks are sealed separately. To facilitate opening the end of said pipe B², the ends thereof are closed by means of removable caps D, secured thereto in the same manner as the caps C are secured to the pipes *b*. The current created by the water running out of said tanks will operate to wash out all sediment which may have accumulated in said tanks and to discharge it into the pan or trough A⁵, whence it can very readily and easily be removed. By thus keeping said tanks clean their efficiency is greatly increased, as there is no accumulation of sediment to cover and impair the operation of the cooling-surface. Also by making the bottom of my tank of metal the efficiency thereof is greatly increased, as I dispense with the wooden lining heretofore used, wood being a non-conductor of heat and rendering the bottoms of tanks practically useless for refrigerating purposes.

A tank of my invention also comprises improved means for securing the overflow-pipe thereto. As it relates to this feature, the construction of a tank of my invention is as follows: Secured to the side of the tank is a plate E, provided with an opening *e*, which communicates with the interior of the tank. Said plate E is also provided with flanged taper guides or ways *e'*, adapted to receive a plate E', provided with correspondingly-tapered surfaces *e''*. The plate E' is provided with an opening *e'''*, in which is secured the end of the overflow-pipe E², and the relation and adjustment of parts is such that when the plate E' is fully seated in the guides or ways *e'* in the plate E the openings *e e'''* will be in register with each other, thus bringing the pipe E² into

communication with the interior of the tank. A gasket *e⁴* operates to secure a tight joint between the plates E E' around the openings *e e'''*. In practice also the surfaces of the plates E E' around the openings *e e'''* will preferably be slightly raised to create desired pressure on the gasket *e⁴* to insure a tight joint.

I claim—

1. In a refrigerating apparatus, the combination of a plurality of ice-tanks secured in fixed adjustment and provided with openings in their lower ends, a closed pipe which extends beneath said tanks, openings in said pipe, means to secure said pipe to said tanks with the openings therein in communication with the openings in said tanks, whereby said tanks will be sealed in series, said pipe being removable and adapted to be replaced by caps whereby said tanks may be sealed separately, substantially as described.

2. In a refrigerating apparatus, the combination of a plurality of ice-tanks having hopper-shaped bottoms, openings in the lower ends thereof, a pipe which extends beneath said tanks, branch pipes thereon and means to secure said branch pipes to said tanks in register with the openings in the bottoms thereof, said means comprising downward projections on said tanks, lateral lugs or flanges on said branch pipes provided with openings adapted to receive said downward projections on said tanks, holes formed in said downward projections on said tanks and wedges inserted through said holes beneath said lateral lugs or flanges on said branch pipes, substantially as described.

3. The combination with an ice-tank and an overflow-pipe therefrom of means to secure said overflow-pipe to said tank, said means consisting of a flanged taper seat formed around the overflow-opening in the tank and a plate in an opening in which the overflow-pipe is secured, said plate being wedge-shaped to fit the taper seat on said tank and the relation being such that when fully seated therein the overflow-pipe will be in communication with the overflow-opening in said tank, substantially as described.

In testimony that I claim the foregoing as my invention I have hereunto set my hand this 9th day of August, 1900.

JOHN I. HOPKINS.

Witnesses:

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