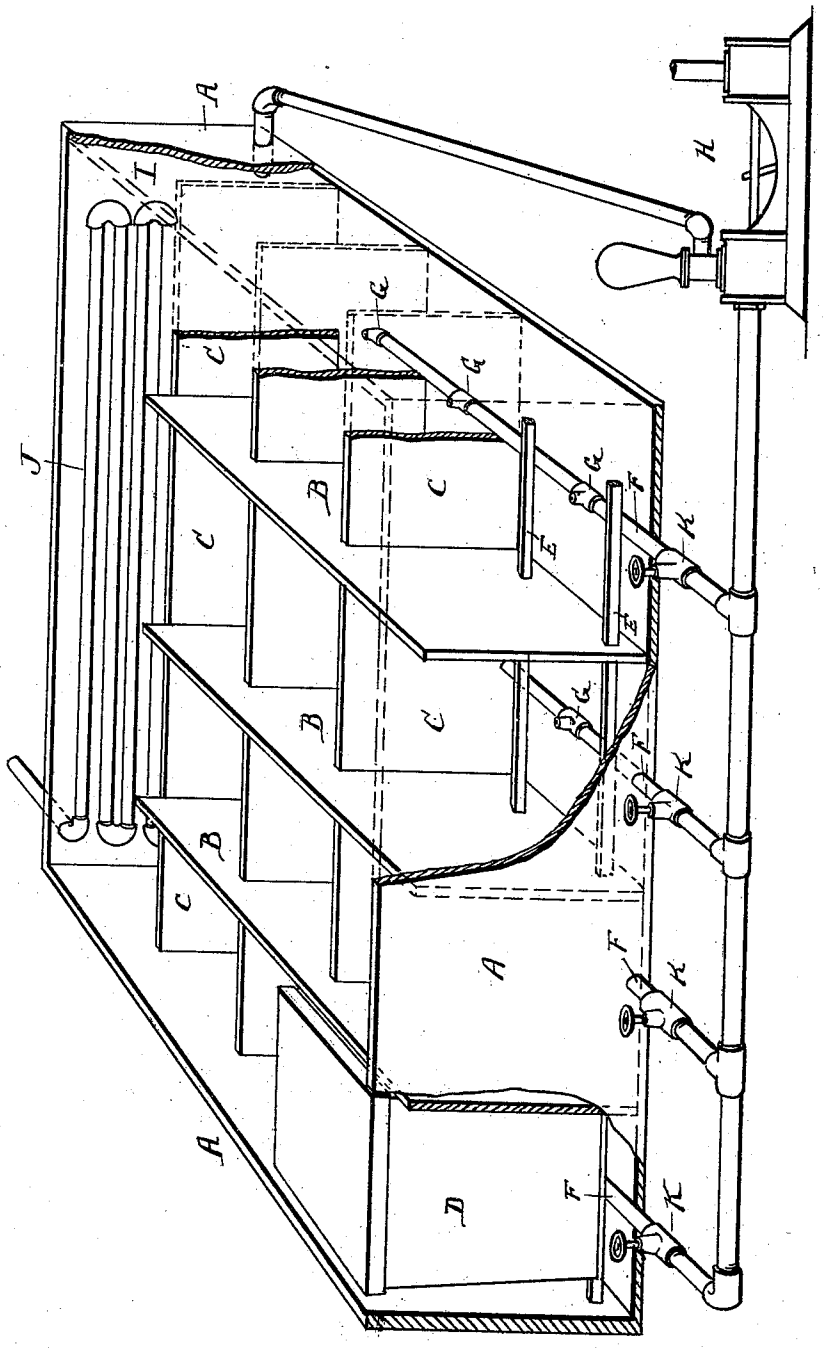
M. E. STOVER.

REFRIGERATING DEVICE.

APPLICATION FILED AUG. 9, 1909.

**982,192.** **Patented Jan. 17, 1911.**




Witnesses

O. B. Baenziger.

J. G. Lowlett.

Inventor

Mark E. Stover.

By Stoudish Backus.

Attorneys

# UNITED STATES PATENT OFFICE.

MARK E. STOVER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO WILLIAM A. JACKSON, OF DETROIT, MICHIGAN.

## REFRIGERATING DEVICE.

982,192. Specification of Letters Patent. **Patented Jan. 17, 1911.**

Application filed August 9, 1909. Serial No. 512,035.

*To all whom it may concern:*

Be it known that I, MARK E. STOVER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Ice-Making and Refrigerating Device, of which the following is a specification.

My invention relates to improvements in the freezing-tanks of refrigerating and ice-making machines; and the objects of my improvement are: first, to provide a continuous, positive and rapid circulation of a cooling medium, such as brine, around each ice-can in the tank so as to freeze the contents thereof with the greatest possible rapidity; second, to provide an ice-making and refrigerating device in which the amount of brine circulating around each ice-can shall be substantially equal in temperature and rapidity of circulation throughout the entire tank, thus producing a uniform freezing of the contents of the ice-can; and third, to provide an ice-making tank which shall be composed of compartments so constructed that the cooling medium may be cut off from any desired number of the said compartments without affecting the balance of the tank. I attain this object by the device illustrated in the accompanying drawing, in which a perspective view of my improved device is shown.

A represents the outer wall of the freezing tank, of any desired construction. The tank is divided into a plurality of compartments by longitudinal partitions B and transverse partitions C. These partitions may be joined to the bottom and sides of the tank in any desired manner, such as by riveting or soldering, but their tops are sufficiently lower than the outer walls of the tank to permit the brine to rise and flow over the partitions without overflowing the tank. Each compartment is adapted to receive an ice-can, D, supported in any desirable manner such as by bars E, placed near the bottom of each compartment. It is desirable that the cans should be of such depth that, when placed in position in the compartments, the tops of the said cans shall be sufficiently above the tops of the said partitions to permit the flow of brine over the said partitions without allowing it to flow into the cans. The cans are of sufficiently smaller dimensions than the compartments in which they are placed to allow the brine to circulate around them on all sides. The brine is supplied to the lower part of these compartments by a series of pipes F, with suitable nozzles G so placed as to admit the brine at the center of each compartment and below the ice-cans. A pump H forces the brine through the pipes into each compartment, compelling it to rise around the cans and to flow over the tops of the partitions into the brine-cooler I at one side of the tank. Here the brine is cooled by suitable means, such as flowing over cooling pipes J and is drawn from the lower part of the compartment I by the brine pump H, thus making a positive, complete and rapid circulation around each ice-can.

By making the longitudinal partitions somewhat higher than the transverse partitions, it is possible to divide the freezing tank into a series of batteries; and by providing the pipes of the circulating system with suitable valves K, the brine may be cut off from any number of batteries without affecting the operation of the balance of the tank.

I claim:

1. In a device of the class described, the combination of an outer shell, a plurality of transverse and longitudinal partitions forming compartments therein, all of said partitions forming tight joints at the intersections with each other and with the walls and bottom of said tank, the longitudinal partitions being of greater height than the transverse partitions, each of said compartments being adapted to receive an ice-can, a compartment in said tank containing means for cooling brine, a pump, pipes leading to said pump from said brine-cooler, pipes leading from said pump into each of said compartments adapted to receive ice-cans, and means for closing off said pipes from any longitudinal row of said compartments, substantially as described.

2. In a device of the class described, the combination of an outer shell, a plurality of compartments formed therein by transverse and longitudinal partitions, said longitudinal partitions being of greater height than said transverse partitions, each of said compartments being adapted to receive an ice-can, means at the ends of said tank for collecting the refrigerating liquid which flows through said compartments, pipes leading therefrom to a pump, a pump, pipes leading

from said pump into each of said compartments adapted to receive ice-cans, means for closing the pipes leading into any of said compartments, and means for chilling the refrigerating liquid located in the circulating system of said refrigerating device.

3. In a device of the class described, the combination of an outer shell, a plurality of transverse and longitudinal partitions forming compartments therein, having water-tight joints at their intersections with each other and with the sides and bottom of the tank, said longitudinal partitions being of greater height than said transverse partitions, each of said compartments being adapted to receive an ice-can, means for collecting the refrigerating liquid which flows through said tank, means for chilling said refrigerating liquid, means for causing the same to circulate and flow through each of said compartments in said tank, and means for shutting off said refrigerating liquid from any desired number of said compartments.

4. In a device of the class described, the combination of an outer shell, a plurality of transverse and longitudinal partitions forming compartments therein, all of said partitions forming tight joints at the intersections with each other and with the walls and bottom of said tank, each of said compartments being adapted to receive an ice-can, a compartment in said tank containing means for cooling brine, a pump, pipes leading to said pump from said brine-cooler, pipes leading from said pump into each of said compartments adapted to receive ice-cans, and means for closing off said pipes from any longitudinal row of said compartments, substantially as described.

5. In a device of the class described, the combination of an outer shell, a plurality of compartments formed therein by transverse and longitudinal partitions, each of said compartments being adapted to receive an ice-can, means at the ends of said tank for collecting the refrigerating liquid which flows through said compartments, pipes leading therefrom to a pump, a pump, pipes leading from said pump into each of said compartments adapted to receive ice-cans, means for closing the pipes leading into any of said compartments, and means for chilling the refrigerating liquid located in the circulating system of said refrigerating device.

6. In a device of the class described, the combination of an outer shell, a plurality of transverse and longitudinal partitions forming compartments therein, having water-tight joints at their intersections with each other and with the sides and bottom of said tank, each of said compartments being adapted to receive an ice-can, means for collecting the refrigerating liquid which flows through said tank, means for chilling said refrigerating liquid, means for causing the same to circulate and flow through each of said compartments in said tank, and means for shutting off said refrigerating liquid from any desired number of said compartments.

7. In a device of the class described, the combination of an outer shell, a plurality of partitions of substantially equal height extending between opposite walls, a second series of partitions of greater height than the first series intersecting a majority of said first series, intermediate their ends to form compartments, cooling devices within the tank between one of said first series of partitions and a wall, and pipes to supply a refrigerating liquid to each compartment at will.

MARK E. STOVER.

Witnesses:
WILLIAM VAN DYKE,
EMILY M. WARREN.