

W. C. BACON.
REFRIGERATING APPARATUS.
APPLICATION FILED JUNE 29, 1911.

1,053,345.

Patented Feb. 18, 1913

Fig. 1.

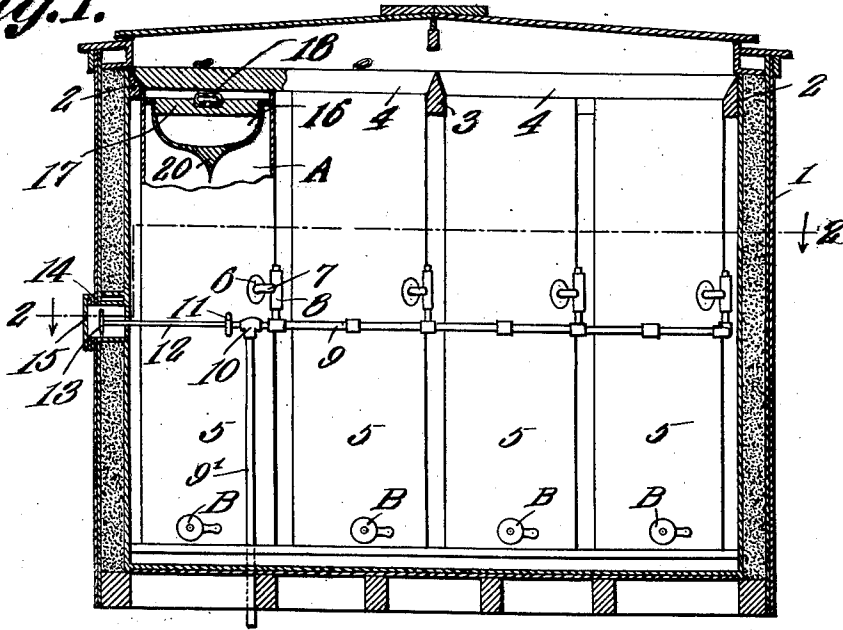


Fig. 2.

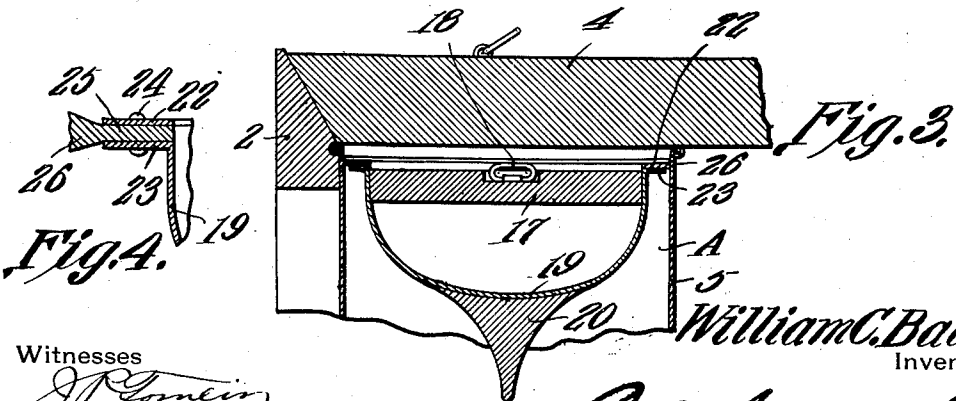
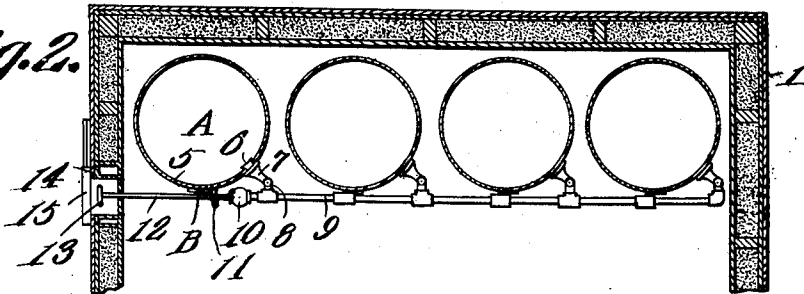
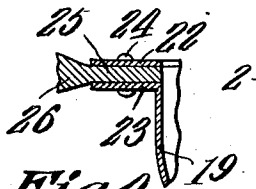


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM C. BACON, OF CHICAGO, ILLINOIS.

REFRIGERATING APPARATUS.

1,053,345.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed June 29, 1911. Serial No. 636,053.

To all whom it may concern:

Be it known that I, WILLIAM C. BACON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Refrigerating Apparatus, of which the following is a specification.

The present invention relates to improvements in a refrigerating apparatus, and more particularly to an apparatus devised to employ ice and salt to produce a brine, the main object being to retain the brine upon and around the ice and the ice down in the brine so as to fill the interstices between the pieces of ice, and thus produce the proper refrigerating effect, using the minimum amount of ice and salt, it having been discovered that if the brine is retained within the ice receptacle and practically commingled at all times with the ice and preventing the ice and brine from splashing, that a better refrigeration is produced and that with the minimum loss in ice and salt.

A further object of the invention is the provision of a following weight or cover, mounted within the ice and brine receptacle, to follow the ice, due to its melting, so that the under surface of said follower is at all times resting in contact and upon the upper layer of the ice and brine, the same being provided with peripheral contact means to closely engage the walls of the receptacle and exert sufficient friction therewith to prevent to a great extent the splashing action of the ice and brine in the receptacle due to the jars said receptacle receives when the car containing the same rounds curves or is moving upon a rough road bed.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings—Figure 1 is a transverse sectional view through the refrigerating end of a refrigerating car, with the present invention in operation therein, the upper end of one of the receptacles being shown in section with the weighted follower cover

in the position it assumes when the receptacle has been replenished or refilled. Fig. 2 is a section taken on line 2—2 of Fig. 1. Fig. 3 is an enlarged detail sectional view through the upper portion of one of the receptacles and the follower cover thereof. Fig. 4 is an enlarged detail sectional view through the peripheral and upper edge of said weighted cover.

Referring to the drawings, the numeral 1 designates the car having mounted at one end and near the top thereof the longitudinal strips 2 and 3 respectively, to provide a means for supporting the pad or top cover 4, which is generally used in refrigerator cars. Disposed in series or in batteries at this end of the car are the cylindrical receptacles 5, which are arranged as shown and provide the brine and ice chambers A of substantially the same area in cross section throughout their length, the said receptacles having mounted at their lower ends, the clean-out spouts B. Communicating with each one of said receptacles 5 and above the central lines thereof as clearly shown in Fig. 1, are the brine outlet pipes or conduits 6 having their branches 7 connected to the vertical pipes 8, said vertical pipes 8 being connected in series to the draw-off pipe 9 provided with the discharge end 9'. As before stated the brine is retained within these receptacles and is only drawn off at the icing stations or replenishing points, where used in refrigerator cars, or as used as a stationary refrigerating or cold storage apparatus, is only drawn off when the ice is replenished. In order to control the said draw-off pipe 9 so that the brine may be removed as desired, a valve 10 is employed having the operating wheel 11 within the car so that the same may be operated from within, or the stem 12 and operating wheel 13 disposed within the casing 14 whose cover 15 permits the same to open exteriorly of the car, to permit access to the wheel 13 without the necessity of entering the car at the replenishing or icing station, and permit the brine to be drawn from the receptacles through the pipes 8 and 9 and the discharge pipe 9'.

As is the custom when ice is placed in the receptacles 5, the said ice being crushed or broken so as to facilitate the handling thereof and the packing thereof within the chambers A of the receptacles, a certain quantity of salt is mixed with the ice to accelerate the

refrigerating qualities of the ice, the said quantity being regulated according to the distance between the replenishing stations, and also the articles to be refrigerated.

5 Mounted to have a vertical movement within the chambers A of the various receptacles are the followers or weighted hermetically sealing covers 16, each one of which comprises the circular head 17, which is
10 preferably made of what is known as cork board, and secured peripherally to the same is the metal casing 19, depending therefrom and adapted to be disposed within the receptacle. A handle 18 is provided concentrically of the head 17 whereby the device may
15 be removed when it is desired to replenish the receptacle. At the lower concentric point of the metal casing 19, which provides a dead air space between it and the underside of the head 17, is a conical weight 20,
20 preferably made of lead or some non-corrodible metal, and disposed between the ring 22 and the flange 23 of the said metal casing, is a gasket 25, the inner portion being clamped
25 between said ring and flange by means of the rivet 24, said gasket having the flared outer peripheral edge 25 adapted to be in frictional contact with the inner wall of the chamber A and provide a tight joint therebetween, so that as the ice melts and is there-
30 by displaced by water, the weight 20 will at all times cause the follower device to slide downwardly and have its heavy portion 20 concentrically within and below the upper
35 surface of the ice and brine and retain said ice so that it is covered by the brine within the chamber A of each receptacle. By this means it will be seen that the ice is prevented from coming in contact with the resultant air space that is formed in the upper
40 end of the receptacle due to the melting of the ice, and that the said follower device will act as a means to prevent any splashing action within the receptacle due to curves or
45 roughness in the roadbed when the refrigerating apparatus is applied to refrigerating cars.

With this form of apparatus wherein the greater portion of the ice is retained within
50 the brine at all times, the said brine and ice being held substantially in a stationary position, so that the brine is not wasted. It will also be noted that in this form of apparatus that although shown particularly as
55 used in connection with refrigerating cars,

that the same may be used in cold storage apparatus in stationary plants, and on a smaller scale for domestic refrigeration, the principle of retaining the brine upon the ice and the ice submerged in the brine, being the
60 main idea desired to be carried out with this form of refrigerating apparatus.

The receptacles 5 and the follower 16 may be made rectangular or of any non-circular form in cross section and yet be within the
65 spirit of this invention, and if desired the receptacles may be mounted singly or in series or batteries, as desired and necessary.

What is claimed is:

1. In a refrigerating apparatus, the combination of a cylindrical receptacle, and
70 means mounted within the receptacle and adapted at all times to be floated by the contents of the receptacle, said means forming a closure for the receptacle, and comprising a
75 circular disk, a semi-spherical casing carried thereby, disposed at the periphery of the disk and slidably engaging the walls of the receptacle, to hermetically seal the same at
80 such point, and a weight pendant disposed concentrically below and from the casing.

2. In a refrigerating apparatus, the combination of a cylindrical receptacle, and
85 means mounted within the receptacle and adapted to at all times be floated by the contents of the receptacle, said means forming a closure for the receptacle, and comprising a circular disk, a semi-spherical casing carried
90 thereby, and disposed at the periphery of the disk and engaging the walls of the receptacle to seal hermetically the same at such point, and an inverted conical weight disposed concentrically from the casing.

3. A refrigerator car having a plurality of vertically arranged ice containers in one
95 end, each container having an outlet intermediate its ends, a common brine outlet pipe in communication with the outlets of all containers, and a valve for said pipe, the stem of which extends into a housing in the side
100 wall of the car, whereby the valve may be manipulated from the exterior of the car.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM C. BACON.

Witnesses:

F. B. OCHSENREITER,
J. S. STEVENS.