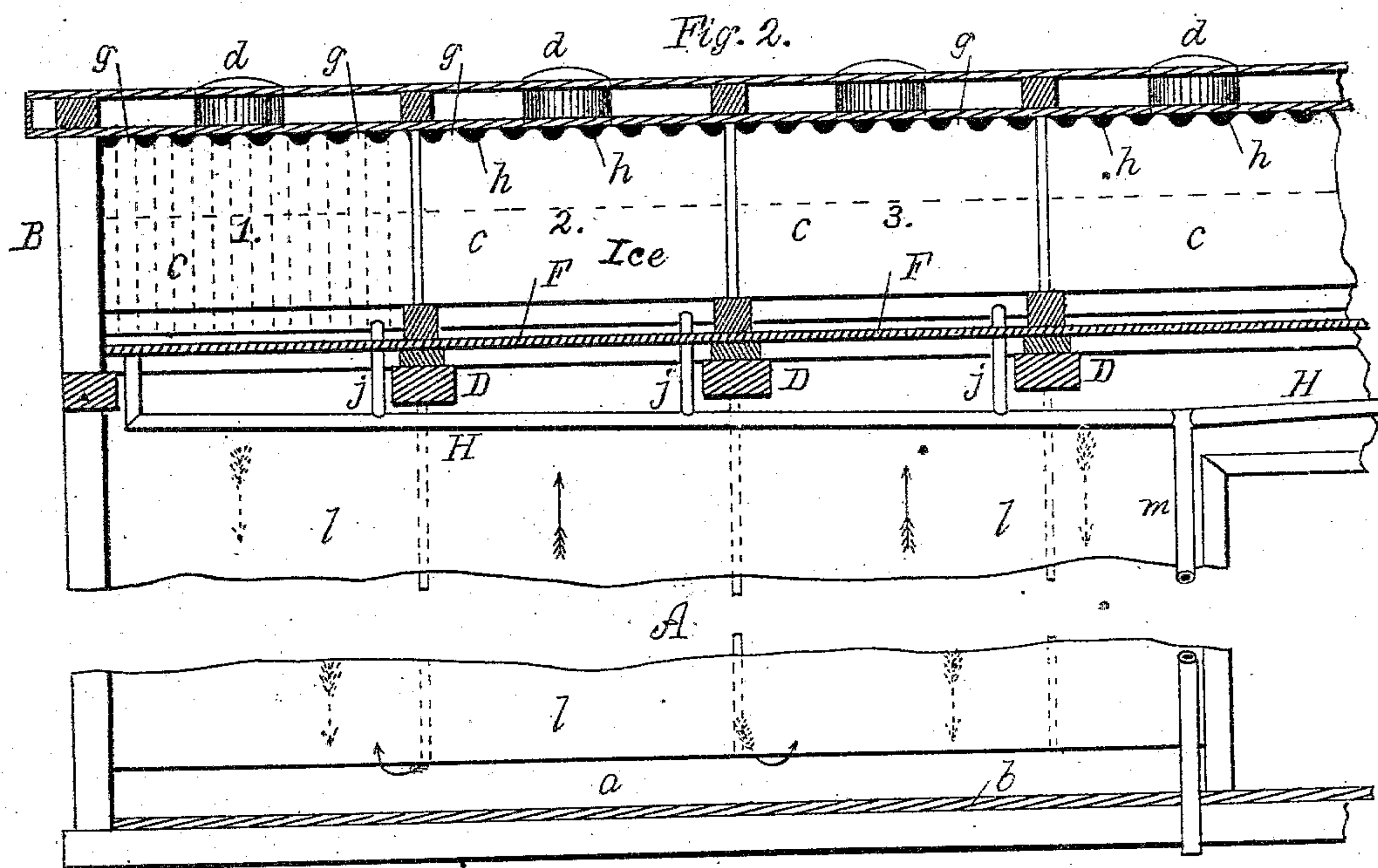
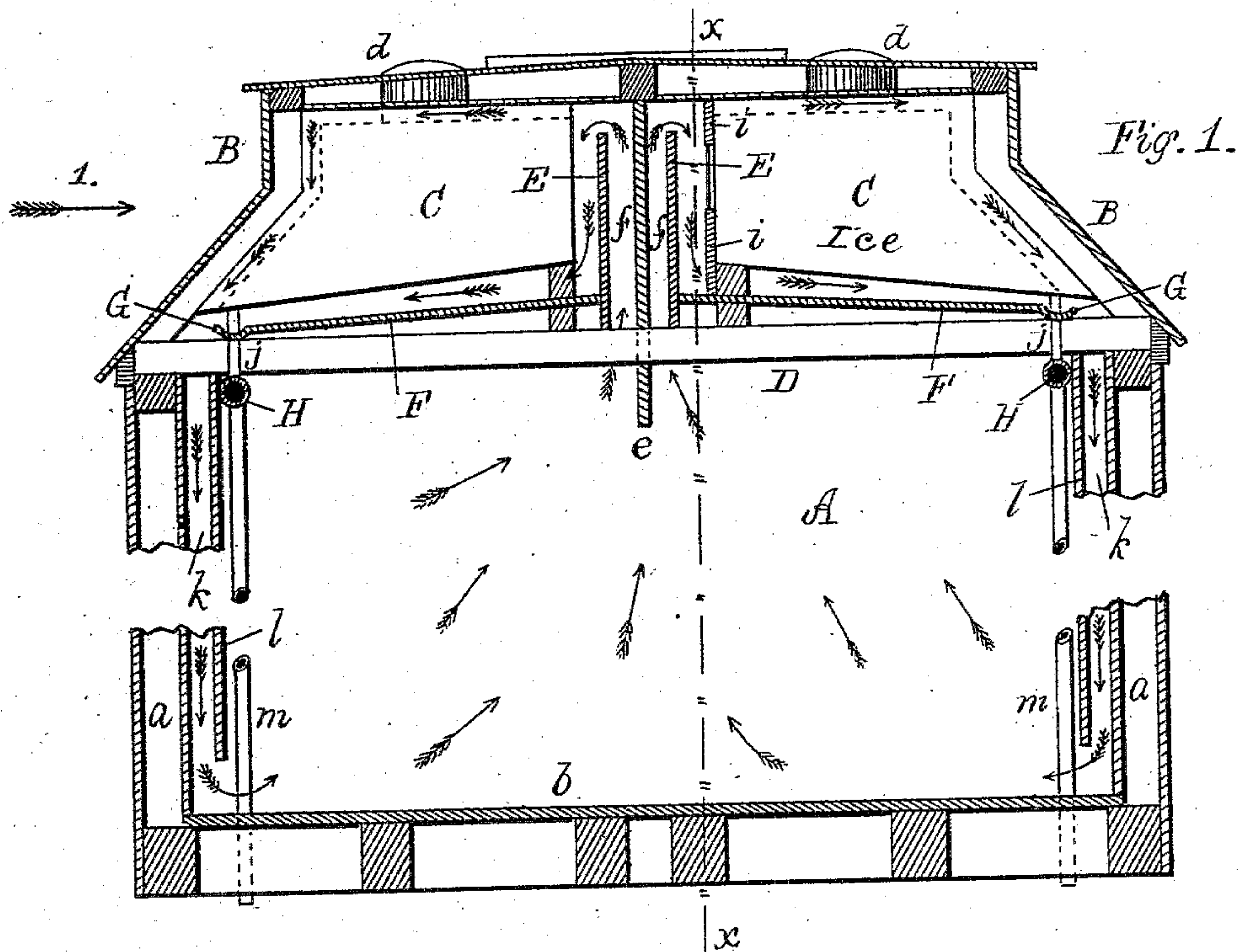


(No Model.)

W. S. POST.
REFRIGERATING STRUCTURE.

No. 288,260.

Patented Nov. 13, 1883.



Witnesses.
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REFRIGERATING STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 288,260, dated November 13, 1883.

Application filed April 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SPRAGUE POST, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Refrigerating Structures; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to refrigerating structures, but more especially to cars for transporting perishable matter—as fish, meat, vegetables, and the like—and maintain continually therein a cool dry atmosphere. The especial object is to obtain a more even temperature than is usually effected by having the refrigerating structure at either or both ends, but likewise economy in space. In the latter case the circulation is from the center to the ends, while in a structure provided with an overhead cooling apparatus constructed in accordance with this specification the circulation is at right angles to its length.

The general features of my invention consist in an ice tank or tanks extending the entire length of a room or cellar, or, in the case of a refrigerating-car, in the roof portion, to be of monitor pattern. This tank is to be divided into a series of tanks, and arranged with a drip-pan, air-conduits, and further provided with outlet-pipes, to enable the condensed moisture and pickle solution to readily pass off. Minor details and the relative position of the various parts one with the other will be more fully described hereinafter.

The drawings accompanying this specification represent in Figure 1 a cross-section through a car containing my invention, while Fig. 2 represents a longitudinal section taken on the line *x x* of Fig. 1, and looking in the direction shown by arrow 1.

In the drawings, A represents a refrigerator-car, of which *a a* are the sides, and *b* the floor, the same being provided with some non-conducting material within their walls. The

upper or monitor-roof portion, B, contains all the necessary apparatus for cooling the air and maintaining a continuous current throughout the car, and consists of two tanks or ice-chambers, C C, whose general shape is rectangular, and in practice are to be subdivided into a series of smaller tanks, *c c*, which are provided with openings or hatchways *d d*, for refilling with refrigerating material.

The entire structure rests on cross-beams D D, &c., extending across the car A. Lengthwise of the car I provide a mid-rib or partition, *e*, which extends a short distance below the beams D D, &c., while between this partition *e* and the interior wall of the tanks *c c*, I erect secondary partitions or divisions E E, which extend downward, resting on the aforementioned cross-beams. To these partitions I secure the drip-pans F F.

As the several portions of the car are alike on either side of the center, I shall proceed to further describe but one-half only of my apparatus.

The secondary wall E does not reach quite to the roof of the car, thereby allowing of flow of air through the passage *f* upward, and then down around the cooling-tank C, which may be composed of the individual tanks *c c*.

The ice tank or tanks *c c* are set snugly against the top and side portions of the monitor roof; but to allow passage of air round the upper side of said tanks I form the top and outer side of the tanks of corrugated iron, and these corrugations run at right angles to the length of the car. (See Fig. 2.) The crest portions *g g* bear against the roof, and the hollow parts *h h* are thereby separated one from the other, and form a series of conduits or air-passages, and permit the air to pass round through them, as shown by the dotted lines and arrows in Fig. 1.

The drip-pan F, as I have previously stated, is secured at one end to the lower portion of the secondary partition E, and may be continuous the entire length of the refrigerating structure, and rests on blocks, which in their turn are supported upon the beams D. This pan is to have a slight inclination, as shown, and terminates in a gutter or conductor, G, with an outer raised lip, to admit of passage

of water along it, and still prevent its escape over and into the interior of the car. This drip-pan is for the purpose to which such pans are ordinarily adapted—that is, to receive and retain the condensed moisture contained in the air within the refrigerating structure, which is then passed off through proper channels.

Each individual ice reservoir or tank is supplied with a short pipe, *j*, leading into the waste-pipe H, and this pipe or series of pipes is closed against the admission of air by being soldered both to the pipe H and to the tank, which it drains.

The waste-pipe H is suspended just below the beams D D, and has a slight pitch from either end toward the center of the car, where it unites with a vertical pipe, *m*, leading downward out of the car.

To complete and form a perfect circulation with the apparatus above described, I have attached to the inner wall of the car, with a proper and suitable space, *k*, intervening, the partition *l*. This likewise extends the entire length of the car, but does not quite reach the floor *b*. This air-space *k* is subdivided into divisions corresponding to each ice-reservoir *c* above.

To adapt my refrigerating structure to partition or compartment cars in which it may be desirable to cool one, two, or more compartments, as the case may be, or where there is sufficient perishable material to fill but one compartment, I provide each tank or reservoir *c* and its surrounding air-channels with a damper or dampers, *i i*. Suppose compartments cooled by the tanks 1 and 3 (see Fig. 2) are to be used, dampers *i i* on 2 and the remaining tanks are to be closed, and the circulation is consequently maintained only over the tanks which correspond to the compartments of the car in use—viz., 1 and 3.

Having thus described the various parts relatively to each other, I will now proceed to follow out and describe the circulation.

After the ice-reservoirs are filled and the car closed to external atmosphere, the air surrounding the ice-chamber naturally becomes chilled from contact therewith, and passes down the space or spaces *k* on either side of the car, as shown by the arrows. Warmer air, rising to take its place, strikes against the mid-rib *e* and passes up to the top of the secondary partition E, where said current is subdivided, a portion passing along over the top of the tank *c* by and through the air-passages *h h*, &c., formed by the corrugated top and

side, the remainder passing downward, and thence between the bottom of said tank and the drip-pan F, being cooled in its passage, and finally the two portions reunite just beyond the conductor G. This completes the circuit, and it is very evident that the air can be kept at a more even temperature by the currents so produced, and which effect a circulation at right angles to the length of the car. A further advantage is economy in space in the carrying capacity of the car above those in which the refrigerating apparatus is located in one or both ends.

I claim—

1. In a refrigerating structure, the ice-reservoir arranged at the top and fitting snugly thereto, with a portion of its periphery and top corrugated to provide air-passages over and around it, substantially as stated.

2. A refrigerator-car having ice-chambers C C immediately under its roof, in combination with passages between said chambers for the ascent of air, and passages extending around and down from the sides of said chambers for the descent of air, substantially as set forth.

3. The ice-chambers C C at the top of a refrigerator structure, in combination with mid-rib *e*, extending down from the roof, and auxiliary partitions E, which are arranged on each side of said mid-rib, and do not extend quite to the roof, spaces being left between said mid-rib and partitions for the descent of air, substantially as set forth.

4. In combination, the tank *c*, for containing refrigerating material, and provided with corrugations *g g h h*, the drip-pan F, conductor G, and waste-pipes H, *j*, and *m*, substantially as stated.

5. In refrigerating structures, the corrugated tank *c*, in combination with mid-rib *e*, partitions E and *l*, and drip-pan F, constituting air passages or conduits for proper cooling and circulation of air, substantially as described.

6. In refrigerating structures, the ice-reservoirs C C, arranged in the roof of said structure, and provided with a main air-passage, the latter subdivided by mid-rib *e*, substantially as stated.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM SPRAGUE POST.

Witnesses:

H. E. LODGE,
F. CURTIS.