3 Sheets—Sheet 1.

C. F. JAURIET.

Refrigerator-Car.

No. 215,625. Patented May 20, 1879.

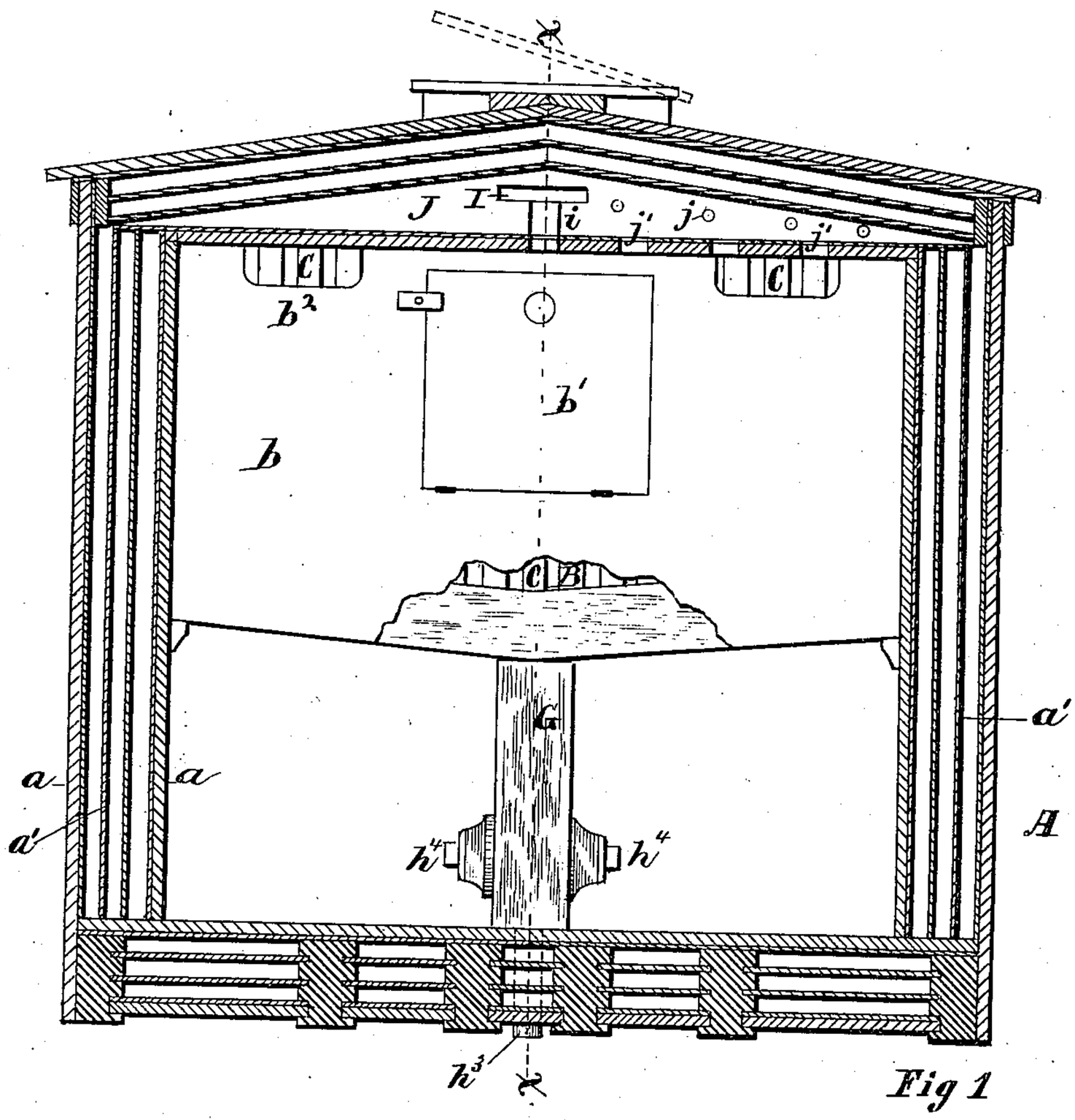

Fig 1

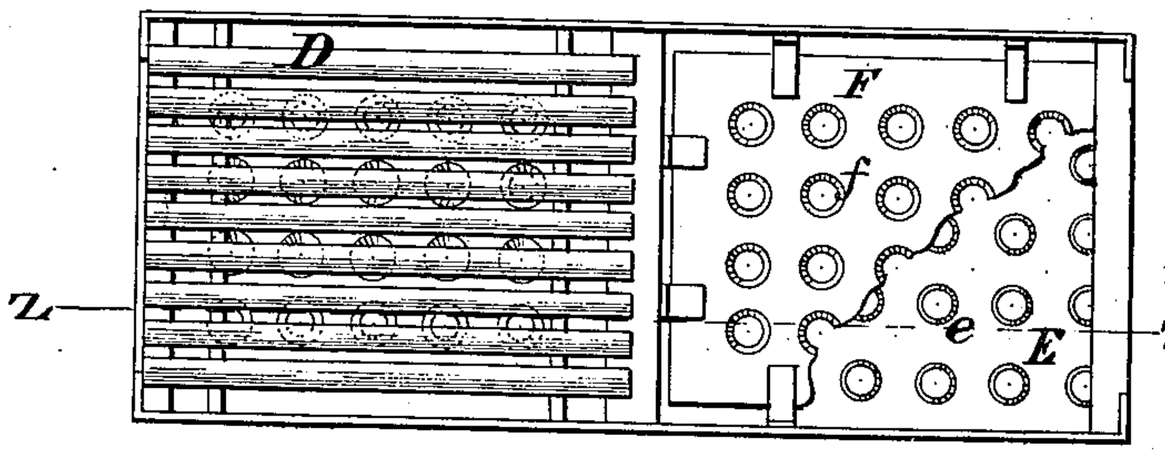

Fig 4

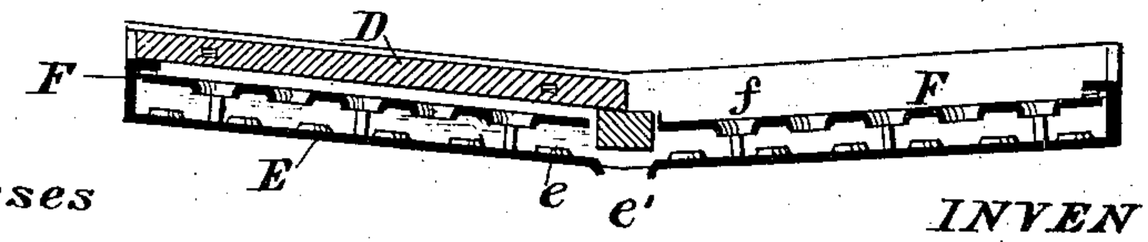

Fig 5

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3 Sheets—Sheet 2.

C. F. JAURIET.

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Fig. 2.

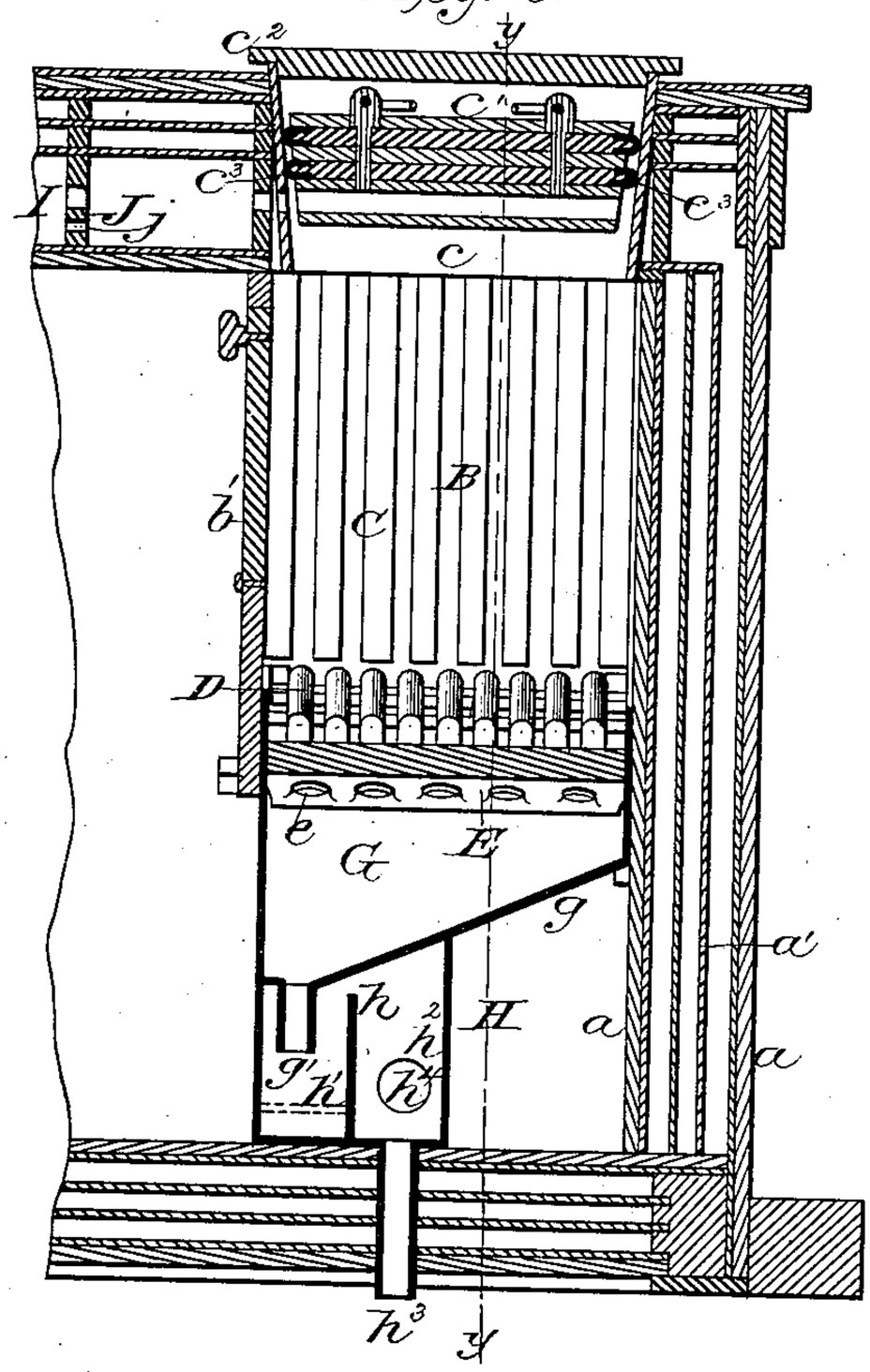
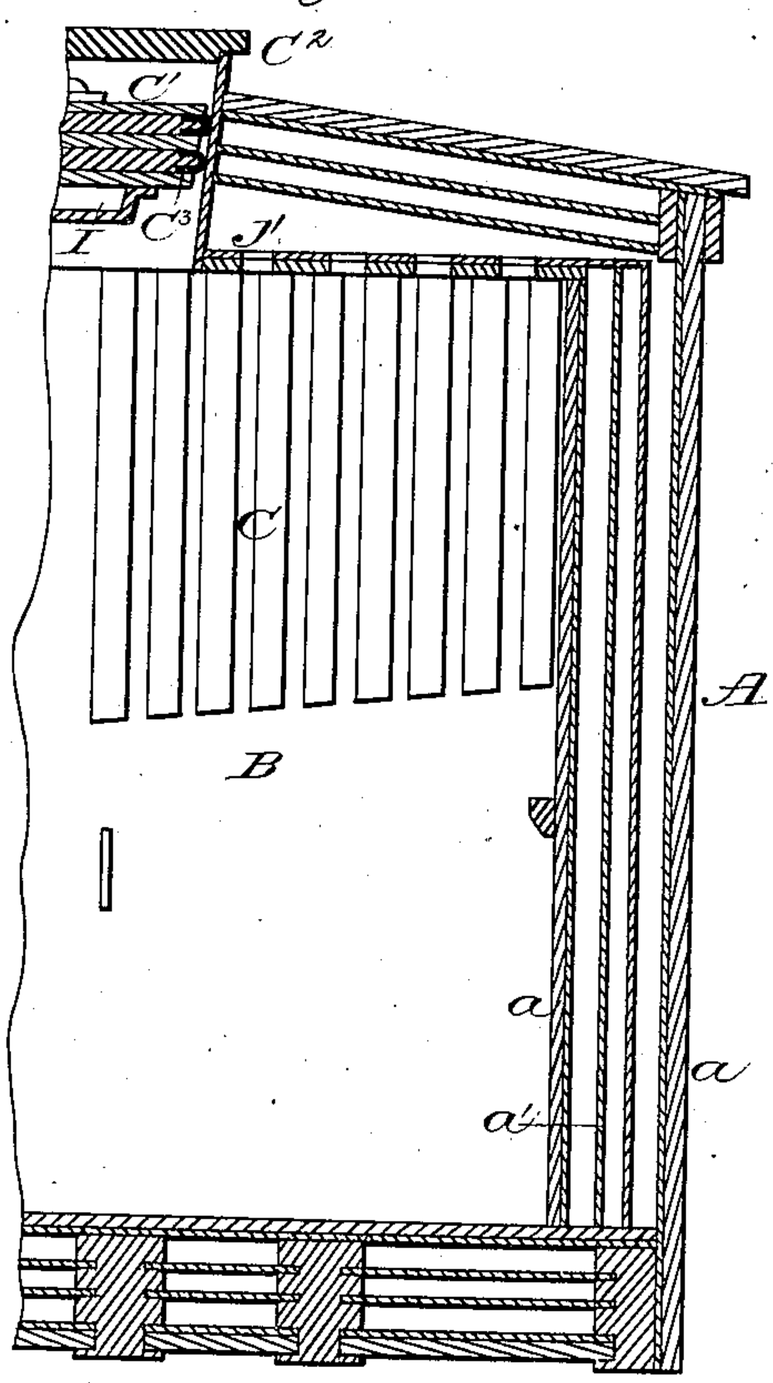


Fig. 3.



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3 Sheets—Sheet 3.

C. F. JAURIET.

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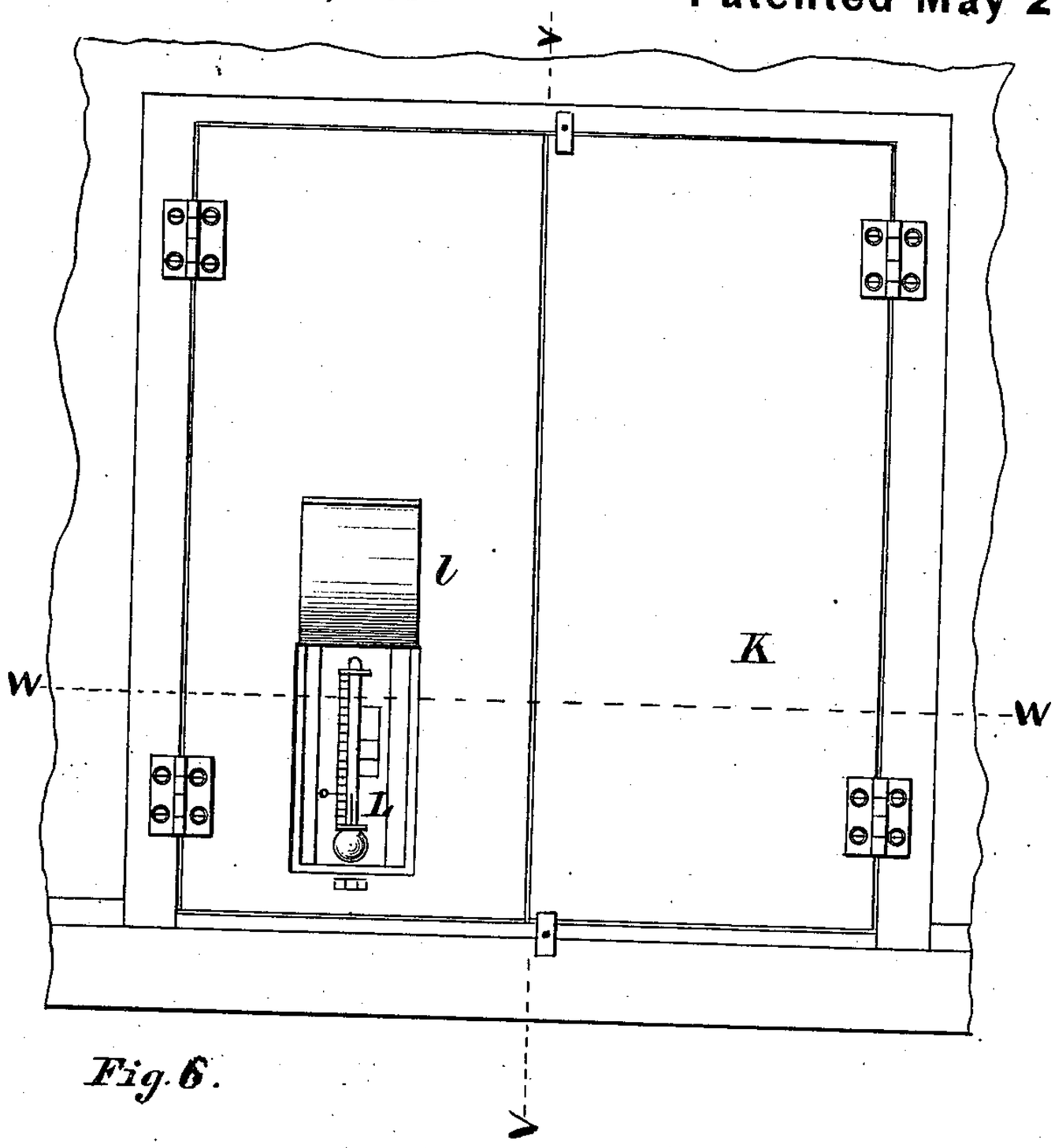


Fig. 6.

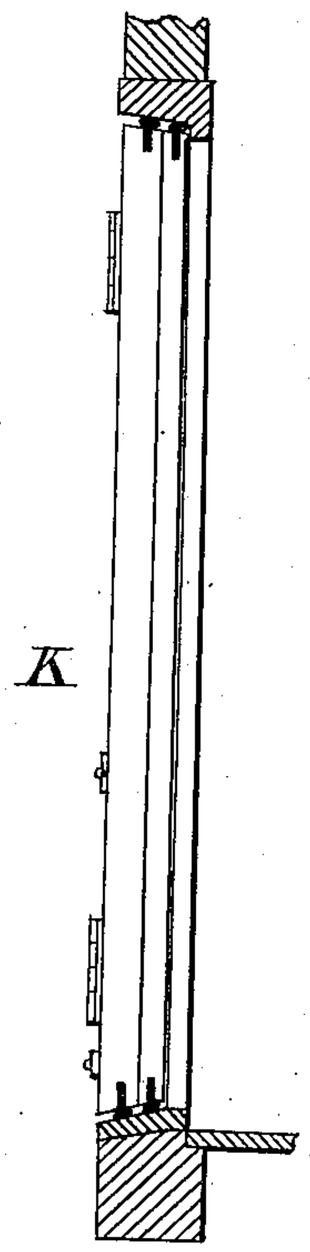


Fig 7.

Fig. 8.

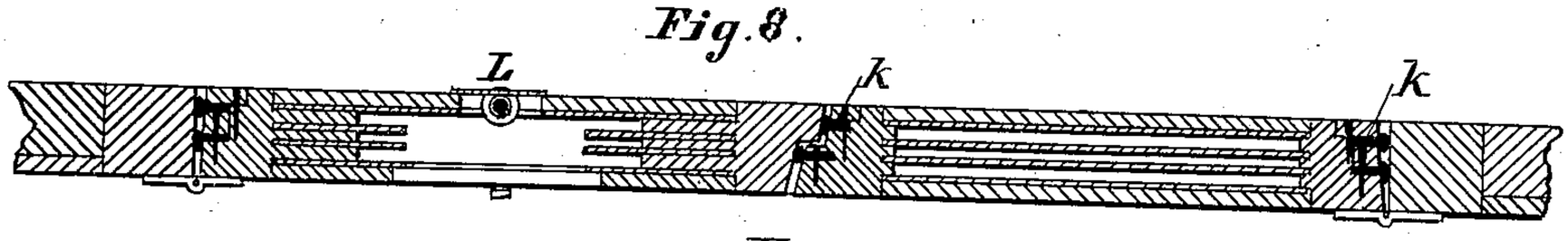
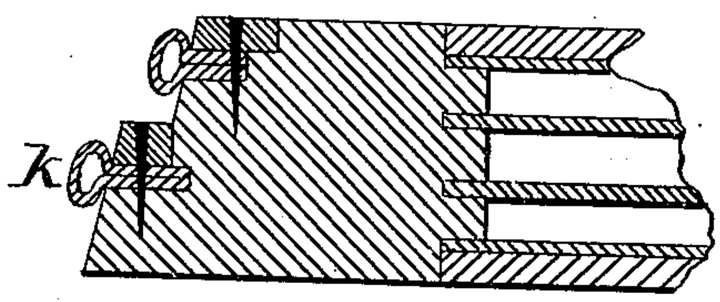


Fig. 9.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES F. JAURIET, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO JAMES B. HODGSKIN, OF NEW YORK, N. Y.

IMPROVEMENT IN REFRIGERATOR-CARS.

Specification forming part of Letters Patent No. **215,625**, dated May 20, 1879; application filed January 22, 1879.

To all whom it may concern:

Be it known that I, CHARLES F. JAURIET, of Chicago, Cook county, Illinois, have invented certain Improvements in Refrigerator-Cars, of which the following is a specification.

My improvements relate to that class of refrigerator-cars in which the walls, floor, and roof are hollow, and in which provision is made for the automatic establishment of currents of air through ice-chests in the opposite ends of the car; and my invention consists in the arrangement beneath each ice-chest of a drip-pan, the bottom of which has numerous perforations, each provided with an upwardly-projecting flange, and in the introduction between the drip-pan and the rack upon which the ice rests of a perforated shield, which prevents the water from the melted ice from falling through the perforations of the drip-pan by so directing it that it falls on those parts of the drip-pan which are not perforated. By this mode of construction an unusually ample area of outlet is provided for the fall from the chest of air cooled by contact with the ice.

I arrange on the inner walls of the chest vertical wooden slats to establish spaces between the walls and the ice, and thus facilitate the passage of air through the chest.

In operation, air entering the top of the ice-chest from the upper part of the car is cooled by contact with the ice, and makes its way by its own gravity downward through the perforated shield, and thence through the perforations in the drip-pan to that portion of the car beneath the ice-chest. In disposing of the drip-water I employ a trap-box divided by a central vertical partition into two compartments, each of which is provided with a hand-hole, permitting access to the compartment for the purpose of cleaning it whenever necessary.

In the accompanying drawings, representing a refrigerator-car embodying my improvements, Figure 1 is a transverse section. Fig. 2 is a longitudinal section of one end of the car, taken on the line *x x* on Fig. 1. Fig. 3 is a transverse section of part of the same, taken on the line *y y*, Fig. 2. Fig. 4 is a plan of the bottom of the ice-chamber. Fig. 5 is a longitudinal section of the bottom of the ice-chamber, taken on the line *z z* on Fig. 4. Fig. 6 is an elevation of the car-doors. Fig. 7 is a vertical section of the same on the line V V on Fig. 6. Fig. 8 is a longitudinal section of the same, taken on the line W W on Fig. 6; and Fig. 9 is a detail view, on an enlarged scale, showing the construction of the lapping edge of the door.

The drawings represent the body A of a refrigerator-car, having air-spaces in its walls established by means of the inner casings, *a*, and partitions *a'*. For the partitions *a'* I employ oiled pasteboard, or preferably a woolen fabric. A lining of like material may be usefully applied to the casing-boards *a* within the air-space, if desired.

Each end of the car is provided with an ice-chest, B. The front *b* of each chest, on the inside, which may either be removable or fixed, as desired, is provided with a door, b^1, by which access may be had to the interior of the ice-chest, and also with openings b^2 for the admission of air into the upper part of the ice-chest. The inner walls of the ice-chest are provided with upright slats C, for the purpose of establishing vertical passages through which air introduced into the top of the ice-chest may pass downward.

I provide in the ice-chest the wooden frame or rack D for supporting the ice. This rack is preferably made in two divisions, each of which inclines toward the center, as shown in Fig. 5. Below the rack is a drip-pan, E, preferably made of sheet metal, and fastened to the bulk-head and the sides of the car. The bottom of this pan contains numerous perforations *e*, the edges of which are each provided with short upwardly-projecting flanges, as shown in Fig. 5. These flanges may be formed by turning up the material of the pan itself, or by soldering or otherwise securing short tubes to the pan. The openings in the drip-pan permit the cold air from the ice-chest to fall through into that part of the car beneath the ice-chest. The flanges around these openings prevent the fall on the car-floor of water contained in the drip-pan. The bottom of the drip-pan is inclined from each end toward the center, where there is a discharge-opening, *e'*.

It will, of course, be understood that the direction of the inclination may be varied, and,

if varied, that the position of the discharge-opening e' must be likewise varied accordingly.

Between the drip-pan and the wooden rack D, upon which the ice rests, is a perforated shield-plate, F, which is suitably supported in such a position that water falling through the openings in the shield-plate drops upon those parts of the drip-pan which are not perforated. I preferably provide the perforations f in the shield with downwardly-projecting flanges, which serve more certainly to so direct the drip-water that it shall not fall through the openings in the drip-pan.

It will be understood, of course, that the shape of the flanged openings in the drip-pan is immaterial, so long as such openings are provided with shields, or, in other words, so long as they do not occupy positions immediately under the perforations f in the shield-plates F. The form and inclination of the shield-plates F are made to correspond with the pans.

If desired, springs may be placed under the racks D to elevate them as the ice decreases in weight by melting.

Immediately below the discharge-opening e' is a hopper or chamber, G, for receiving the water from the drip-pan. At the lower end of the inclined bottom g of the chamber G there is an opening, g^1, provided with a nozzle extending down into a drip-box, H. The lower part of this drip-box is divided into two compartments by a partition, h, the upper edge of which reaches slightly above the lower end of the nozzle g', as shown in Fig. 2.

In operation, the drip-water falling through the nozzle g^1 is discharged into and fills the compartment h^1, and thence flows over the top of the partition h into the other compartment, h^2, at the bottom of which is a pipe, h^3, which extends through the bottom of the car, and serves to discharge the drip-water outside the car. The lower end of the nozzle g^1 is sealed by the water contained in the chamber h^1, and solid materials or dirt carried out of the ice-chamber by the drip-water are caught in the compartment h^1 and prevented from clogging the discharge-pipe h^3. I provide hand-holes h^4 for each of the compartments h^1 and h^2, and by this means am enabled to clean these compartments when necessary.

Salt may be introduced into the compartment h^1 to prevent the water from freezing in cold weather.

The trap-box may, if desired, be set a little above the water-box, as shown in dotted lines in Fig. 2, and, of course, the position of the partition h may be so varied, if desired, as to increase the size of the compartment h^1, and thereby provide a larger reservoir for the salt and water.

It will, of course, be understood that if there is a discharge-opening at each end of the drip-pan there must be likewise a trap-box for each discharge, and that the construction of the trap-box may be modified to adapt it to its location.

In the top of the car, immediately over the ice-chamber, is a hatch-opening, c, for the introduction of ice. This opening is closed by a thick stopper, c^1, and above it is a lid or door, c^2. The sides of the hatchway should be slightly inclined, and the stopper should be provided with packing to enable it to make a tight joint with the hatchway.

To effect the circulation of air from the interior of the car through the ice-chambers at the ends of the car, I provide an air duct or passage, I, which extends lengthwise of the car and communicates with the top of each ice-chest. This duct passes through the rafters or supports J of the roof of the car, and also through the hatch-plug c^1, as shown in Fig. 2.

A pipe, i, near the center of the car, connects the interior of the car with the air-duct I. The warmer air in the interior of the car rises, and is drawn through the pipe i into the air-duct, and thence discharged into the top of the ice-chambers to take the place of air, which, having been cooled by contact with the ice, has fallen through the perforated plate F and the drip-pan E into the lower part of the car.

The air-duct I may, if desired, be located just underneath the ceiling of the car, though I prefer the arrangement above described. It may also be dispensed with, and the circulation be provided for by making holes j in the rafters, and also apertures j' in the ceiling of the car, near the central portion of the latter, and immediately over the ice-chambers, as shown in Figs. 1 and 3, in which case, as will be evident, the warmed air will pass up through the openings j' in the interior of the car; thence from space to space between the rafters, through the holes in the latter, to the ice-chambers through the holes in the ceiling just over the latter.

The doors of refrigerator-cars must, of course, have air-tight joints, and in order to effect this I provide the doors K with packing-strips k of folded sheet-rubber or other suitable material around the edges, which are compressed against the counter-faces when the doors are closed. This packing I make in a peculiar way by folding a strip of rubber, and securing the edges in grooves in the door, or between suitable strips by pins, nails, or screws, as shown in Fig. 9. I prefer to use two of these packing-strips, so as to provide a small dead-air space between them when the doors are closed, and I also prefer to make the packing of folded strips, as shown in Fig. 9.

The doors, which are made to overlap, and are packed at the meeting joint, as shown in Fig. 8, are constructed with dead-air spaces like the walls of the car.

I claim as my invention—

1. In a refrigerator-car provided with an elevated ice-chest, the drip-pan E, provided with the flanged openings e in its bottom, in combination with the perforated shield-plate F, substantially as and for the purpose set forth.

2. In a refrigerator-car having an elevated ice-chest, the combination of the rack D for the support of the ice, the perforated shield-plate F, and the perforated drip-pan E, substantially as described.

3. The trap-box H, provided with a partition, h, and with hand-holes h^4 opening into each of the compartments h^1 and h^2, substantially as and for the purposes set forth.

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Witnesses:
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W. C. CORLIES.