J. H. CANFIELD.

Refrigerator-Car.

No. 166,341. Patented Aug. 3, 1875.

Fig. 1.

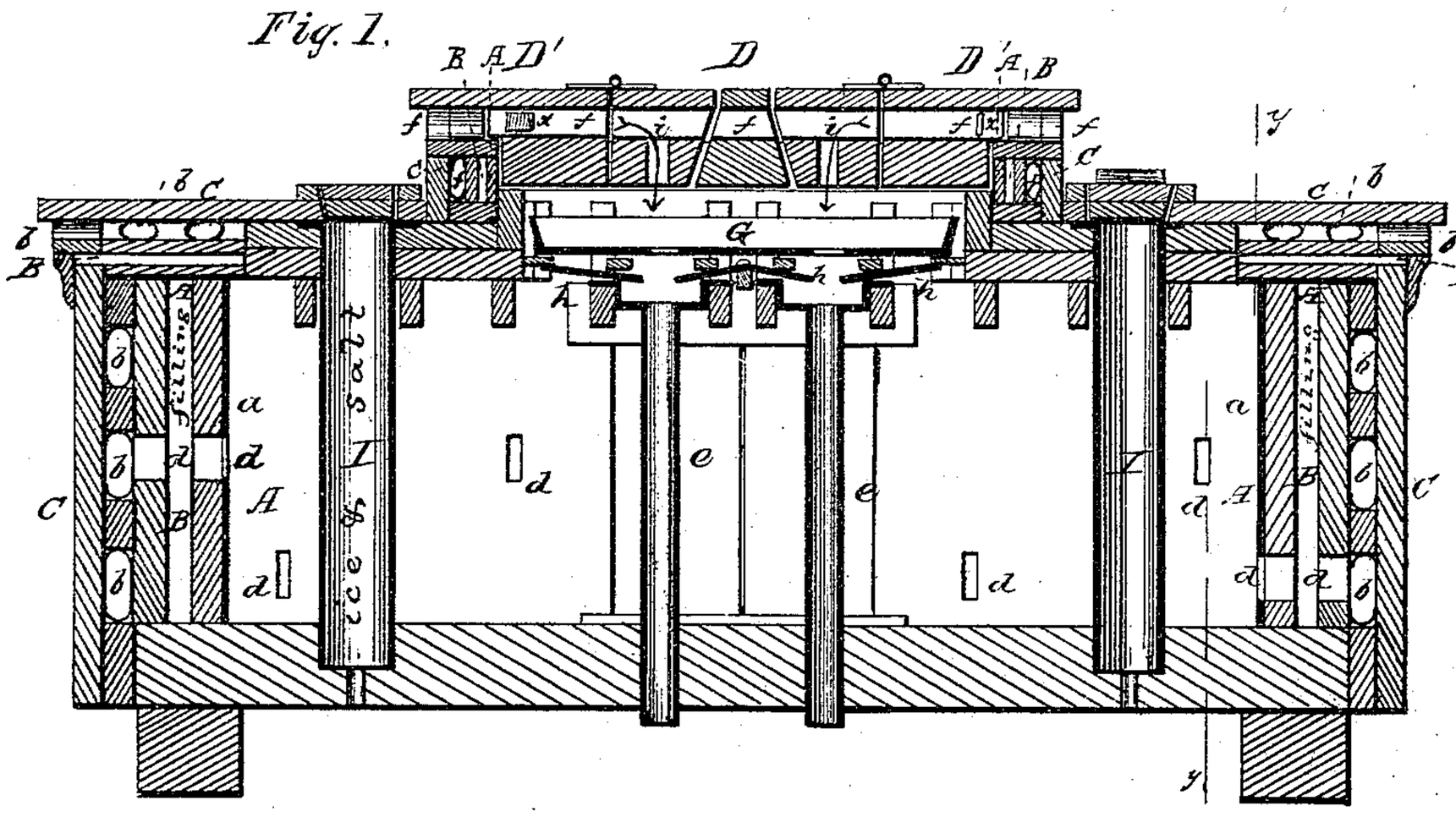


Fig. 2.

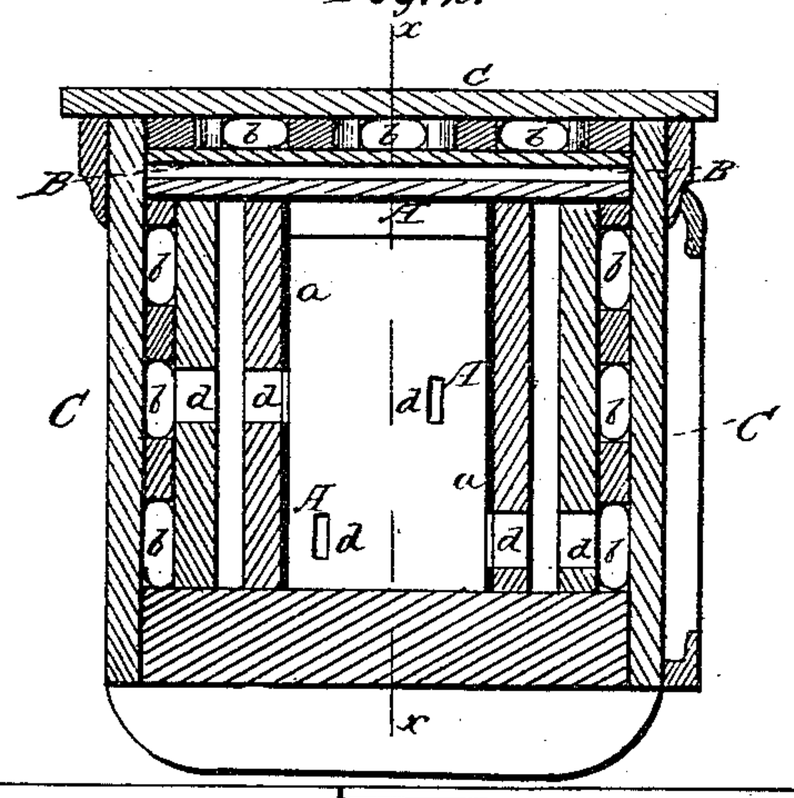
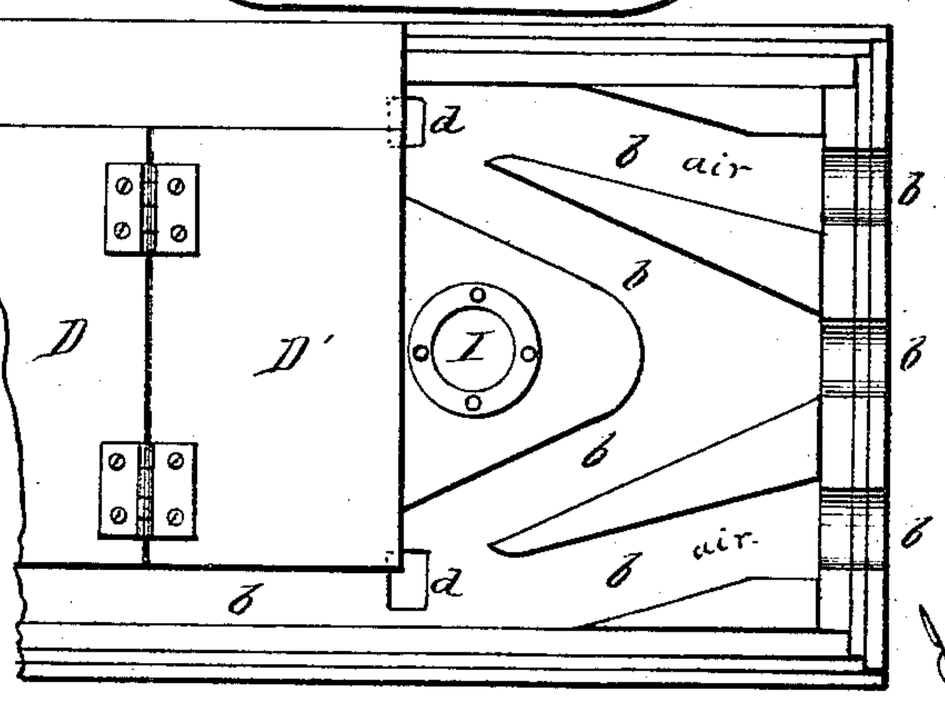


Fig. 3.



WITNESSES:
P. C. Dieterich
H. B. McArthur

INVENTOR.
J. H. Canfield
per J. H. Alexander
ATTORNEY

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH H. CANFIELD, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN REFRIGERATOR-CARS.

Specification forming part of Letters Patent No. **166,341**, dated August 3, 1875; application filed July 17, 1875.

To all whom it may concern:

Be it known that I, J. H. CANFIELD, of St. Louis, in the county of St. Louis and State of Missouri, have invented certain new and useful Improvements in Car-Refrigerators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

The nature of my invention consists in the construction and arrangement of a refrigerating-car for the transportation of perishable articles, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a central vertical section on line *x x*, Fig. 2. Fig. 2 is a cross-section on line *y y*, Fig. 1. Fig. 3 is a portion of a plan view, with the top part removed.

The body of my refrigerating-car is composed of three shells, A, B, and C, suitably connected, and the inner shell A lined on the inside with zinc, *a*, or other suitable metal. The space or chamber formed between the two inner shells A B is packed with charcoal or other non-conducting material, and the space between the middle shell B and outer shell C is provided with horizontal cleats, forming a series of air-passages, *b b*, which extend through the outer shell C at the corners, and each of said passages, at any suitable point, communicates with the interior of the car by means of draft-openings *d*, in which valves may be placed to admit or shut off the outside air, as required. The top of the car is constructed in precisely the same manner. In the sides of the car are double doors, E, as shown. In the top of the car is the ice-box D, also constructed of three shells, with air-passages between the two outer ones. The bottom *h* of this ice-box is made inclined or zigzag, as shown in the drawing, to form a series of inclines leading to vertical waste-pipes E E, passing down through the car. The ice-pan G within the ice-box is arranged to have free circulation of air all around it, and the space between said pan and the bottom *h* forms a condensing-chamber, all the moisture condensing on the bottom of the pan, and dropping down on the inclined bottom to pass out of the waste-pipes. The waste-water from the ice-pan passes out through suitable openings in the bottom of the pan, and out through the waste-pipes. The top of the ice-box is formed with lids D′ D′, and on the under side of said top is formed an air-passage, *f*, extending the entire length thereof, and through the ends of the box, said air-passage communicating near each end by openings *i* with the interior of the ice-box. At or near each end of the air-passage *f* is a valve, *x*, the object being to open the front valve and close the rear valve, according to which direction the car moves, and thus admit a steady current of air into the ice-box, where it is cooled, and then passes down into the interior of the car. I I represent hollow tubes or cylinders, arranged vertically in the car, to be filled with ice and salt, said tubes or cylinders being provided with suitable waste-pipes at the bottom, and their upper ends passing through the top of the car, and provided with suitable lids for filling.

The interior of the car may be arranged in any convenient manner to receive the articles intended for shipment.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A refrigerating-car composed of three shells, A B C, the space between the two inner shells being filled with non-conducting material, and the space between the two outer ones forming air-passages *b*, communicating with the interior of the car through ports *d*, and with the air outside through ports *e*, at both ends and both sides of the car, all constructed and arranged to operate substantially as herein described.

2. The ice-box D, provided with the air-passage *f* longitudinally through its top, and said passage having ports *i* and valves *x*, substantially as and for the purposes herein set forth.

3. The ice-pan G, inclined bottom *h*, and

pipes e' e', combined with ice-box D, having air-valved passages f and openings i i, all constructed and arranged to operate substantially as and for the purposes set forth.

4. The car A B C, packed between A and B, and having air-passages b, with ports d e, communicating with the inner and outer air, as described, the ice-box D, with inclined bottom h, air-valved passages f, ice-pan G, and cylinder I, all arranged to operate substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOSEPH H. CANFIELD.

Witnesses:

W. C. McARTHUR,

T. H. ALEXANDER.