(No Model.) 2 Sheets—Sheet 1.

H. M. SEXTON.

REFRIGERATOR CAR.

No. 290,805. Patented Dec. 25, 1883.

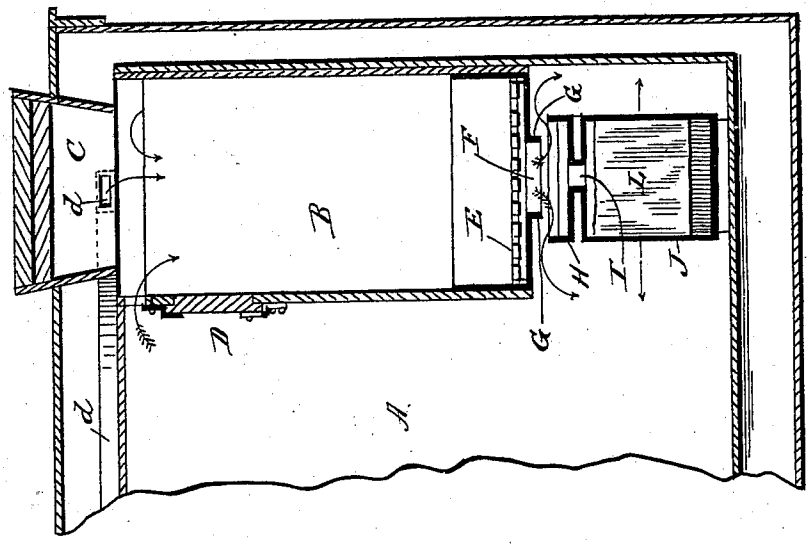


Fig. 2.

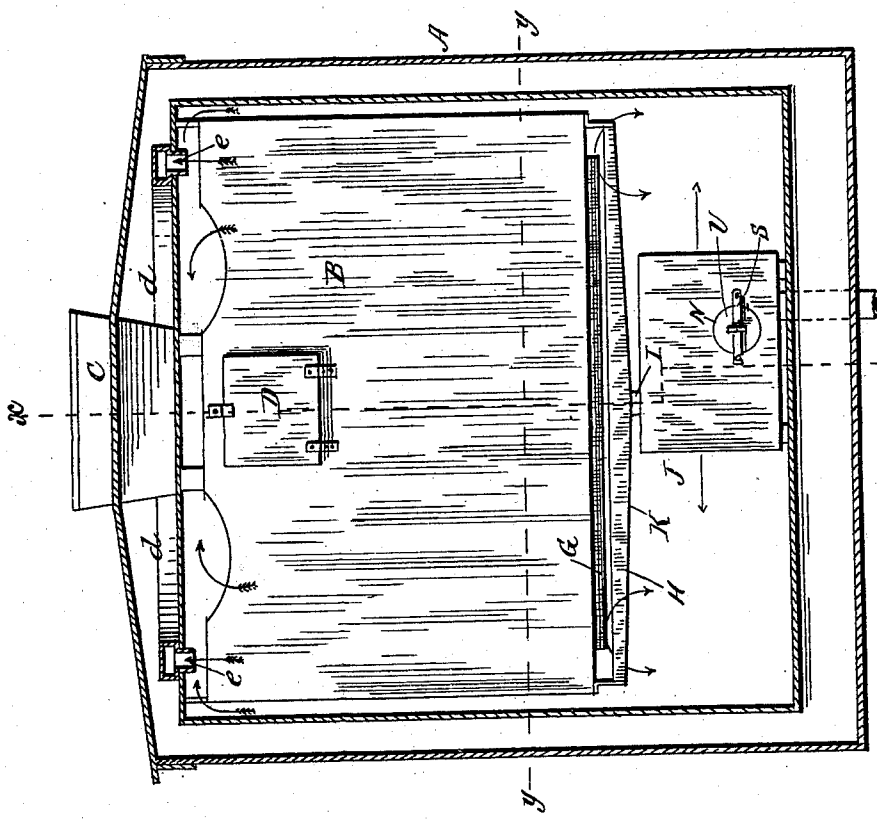


Fig. 1.

Witnesses
H. C. Corlies
A. M. Best.

Inventor
Henry M. Sexton
By Coburn & Thacher
Attorneys

N. PETERS. Photo-Lithographer. Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

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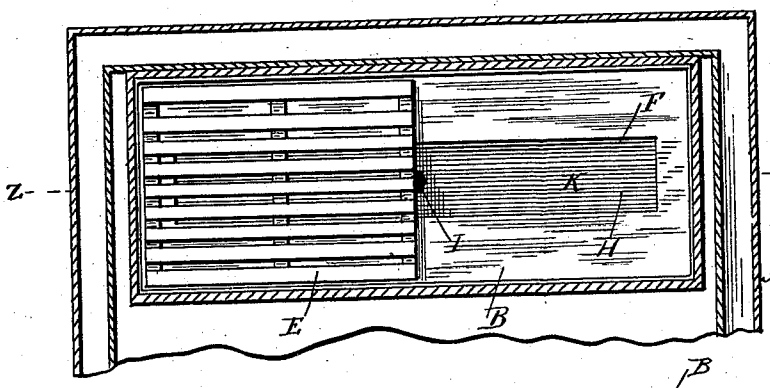


Fig 3

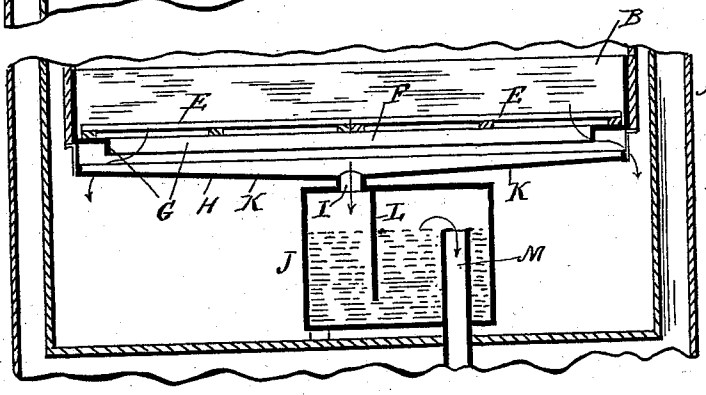


Fig 4

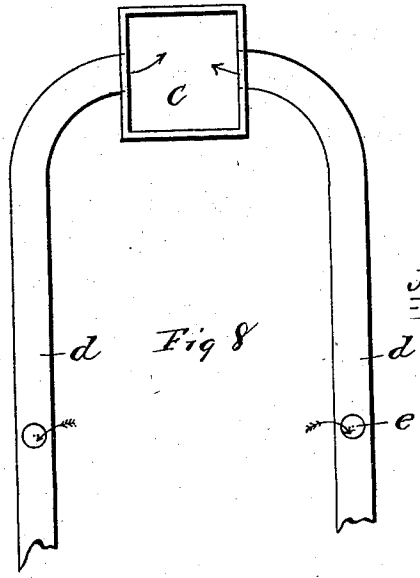


Fig 8

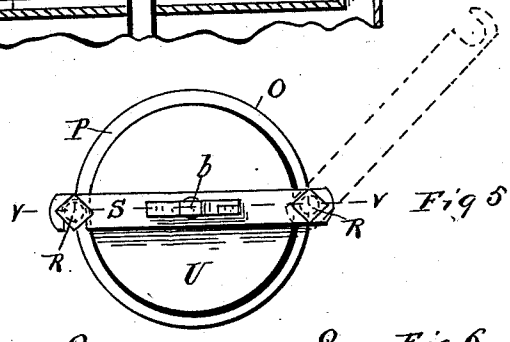


Fig 5

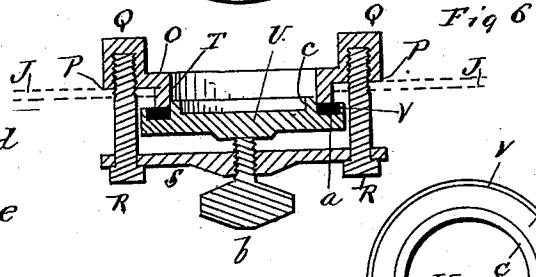


Fig 6

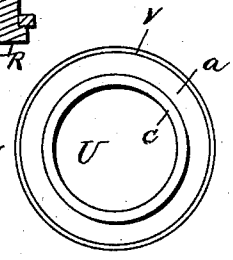


Fig 7

Witnesses
W. C. Corlies
A. M. Best.

Inventor
Henry M. Sexton
By Coburn & Thacher
Attorneys

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

HENRY M. SEXTON, OF CHICAGO, ILLINOIS.

REFRIGERATOR-CAR.

SPECIFICATION forming part of Letters Patent No. 290,805, dated December 25, 1883.

Application filed July 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. SEXTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Refrigerator-Cars, which is fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical cross-section of the railway-car, showing the location of the ice-tank and interior of one end of the same. Fig. 2 is a vertical section taken at the line *x x*, Fig. 1. Fig. 3 is a horizontal section taken at the line *y y*, Fig. 1. Fig. 4 is a vertical section taken at the line *z z*, Fig. 3. Fig. 5 is a side elevation of the man-hole cover at the top of the car. Fig. 6 is a section of the same, taken at the line *v v*, Fig. 5. Fig. 7 is a detached view of the inside of the cover. Fig. 8 is a plan view of the air-ducts placed in the top of the car, showing their connection with the man-hole.

My invention relates to an improvement in refrigerator-cars in which a quantity of ice is stored in such manner that the air in the car is cooled by the ice, and passes therefrom into the cooling-chamber, where the articles being transported are kept, and from thence back to the ice to be again cooled; and it consists in the devices arranged as hereinafter described, whereby, first, the cold drip-water is received and retained in a reservoir, presenting a large surface in the cooling-chamber, whereby it is utilized to cool the surrounding body of air after the cold drip-water has passed out of direct contact with the air; second, the water reservoir and receiver are made easily accessible for cleaning without removing from the car.

By my invention I have been able to make a refrigerator-car which will keep its cooling-room and contents therein of a uniform low temperature and dry, and at the same time free from odors, clean, and sweet.

In the accompanying drawings, A represents an ordinary car constructed in any of the approved styles.

B is the ice-reservoir.

C is the man-hole through the top of the car, through which the ice chamber or reservoir is filled with ice.

D is the door on the side of the ice chamber or reservoir, through which the ice-chamber can be reached from the inside of the car.

E are two racks placed in the bottom of the ice reservoir or chamber, on which the ice rests. These racks rest upon ledges at the bottom of the ice reservoir or chamber, as shown in the drawings. The bottom of the ice reservoir or chamber B is flat, and has an opening, F, around which there is a downwardly-turned lip or flange, G. The cold water or drip from the ice striking upon the bottom of the reservoir is held thereon until there is sufficient to flow, when it runs through the opening F; but the turned-down lip G prevents it from flowing back on the under surface of the bottom of the reservoir or chamber, and causes it to fall directly into the drip-pan H. The drip-pan H is larger than the opening F, and sets under it in such position that the water falls through the opening F into the drip-pan under it, and there is also a space between the top rim of the drip-pan and the bottom of the ice reservoir or chamber, through which the bottom of the drip-pan can be reached to be cleaned. The bottom of the drip-pan, excepting the central portion, is horizontal, but, extending its entire length, the central portion of the bottom of the drip-pan inclines toward its center to the tube I, through which the water runs from the drip-pan H into the reservoir-trap J. This central slanting portion of the bottom of the drip-pan I designate by the letter K. By this construction of the bottom of the drip-pan the water rests upon the horizontal portion of its bottom and keeps it cold. The motion of the car causes it to flow off onto the inclined central portion, K, and flow down through the tube I into the reservoir-trap J. By this construction of the parts I keep all of the surfaces cold, so as to cool the air that comes in contact therewith, and make my refrigerator effective and efficient in cooling the air.

The water reservoir and trap J has a vertical partition, L, between the inlet-pipe I and the outlet or discharge pipe M, so that the water stands in said reservoir J at a level with the discharge-pipe M, and the air coming in through the discharge-pipe, if any, cannot pass up the tube or opening I. The water is dis-

charged from the reservoir-trap J through the pipe M, from its top or surface, or warmest portion. By this device I have a large quantity of cold water, making a large cooling-surface for cooling the air in the car, which is entirely lost when the water runs immediately from the ice out of the car. I make a man-hole, N, on the side of this reservoir-trap, through which I can take the water from said reservoir, and use it to clean my car, and in case there is sediment in the bottom of said reservoir, I can clean it out through said man-hole. It is desired that said man-hole should be perfectly water-tight when the car is in use. My reservoir-trap is preferably constructed of galvanized iron.

O is a ring which fits into the opening made in the side of the reservoir-trap J. Said ring is provided with a flange, P, which rests upon the inside of the reservoir-trap J.

Q are lugs cast upon the flange P, and are fitted to receive the ends of the screws R, which hold the ring O in place, and also hold the cross-bar S. The ring O is also provided with an annular flange, T, that passes out through the opening in the side of the reservoir-trap J.

U is a cap or cover, having an annular recess, V, near its periphery, into which I place a flexible leather strip, *a*.

b is a thumb-screw, which passes through the cross-bar S and rests upon the cover U, to hold it in place. The flexible leather strip *a*, which is held in the annular recess V, is pressed against the flange T of the ring O. The annular flange *c*, which is cast upon the cap U, fits within the annular flange T, and prevents the cap U from moving laterally, and, in connection with the leather packing *a*, makes a perfectly water-tight joint between the cap U and the ring O. The screws R are screwed into the lugs Q, but not through them, and securely hold the parts, making a water-tight joint between the ring O and the side of the reservoir-trap J, but the screws do not come in contact with the water, as clearly shown in Fig. 6. When it is desired to open the reservoir-trap to let the water out, the set-screw *b* is turned, when the cross-bar S can be thrown back, as shown in dotted lines in Fig. 5, and the cap U removed. The leather packing *a* is kept swelled or expanded by moisture, and makes a perfectly-secure tight joint.

d are air-ducts placed in the top of the car, and lead to the man-hole above the ice at each end of the car. These air pipes or ducts *d* have openings *e* into the top of the cooling-chamber of the car. The warm air passing into these openings is drawn to the cold and falling atmosphere in the man-hole and comes in contact with the ice, making a circulation of air through said air-ducts. The air also passes from the car in contact with the surfaces of the ice reservoir or chamber, and also over the front side of the ice reservoir or chamber in contact with the ice, passing down through the ice, through the bottom of the ice-chamber, coming in contact with the cold water upon the surfaces of the bottom of the ice-chamber, and also in the drip-pan, and passes out between the bottom of the ice reservoir or chamber and the top of the drip-pan, as indicated by arrows, into the car, and thence back to the cooling-chamber. This circulation of air is constantly kept up, so as to keep the contents of the cooling-chamber at a uniform and low temperature, and any gases and impurities of the atmosphere in the cooling-chamber are condensed by the air coming in contact with the ice and pass down into the drip-reservoir and off.

The door D in the side of the ice-reservoir can be opened for filling it with ice, or the ice can be supplied through the man-hole C in the top of the car. The cover of the man-hole C is made of two thicknesses of plank or board, and I place a rubber strip between those two thicknesses, projecting out a short distance from between the two thicknesses clear around its entire periphery, so that when the cover is put in place that rubber strip makes a packing between the cover of the man-hole and the man-hole, so as to make it air-tight, to exclude the exterior atmosphere from passing into the car.

I aim to make my car as near air-tight as possible, excluding all external atmosphere when the car is in use, and by so doing I keep the air within the car purified, as above stated, and only use sufficient ice to keep that atmosphere at a low temperature.

When it is desired to clean the interior of the ice-reservoir, the racks E E, or either of them, may be removed, as shown in Fig. 3, and a person can reach the bottom of the ice-reservoir to remove any sediment or wash it out. The ice-reservoir is sufficiently large for a person to enter it through the man-hole C.

I make a refrigerating-car with all of the parts accessible. I utilize all the cooling properties of the ice by having the air come in contact with the ice, and the cold surfaces kept cold by the ice as well as the surfaces kept cold by the water as it passes from the ice, thus making an economy in ice and in cleanliness, and making a car that is kept clean, and the atmosphere kept sweet and pure. I am able to make long journeys with refrigerating-cars, keeping the contents in good condition without waste of ice.

Having thus explained the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The horizontal bottom drip-pan, H, beneath the ice-reservoir, provided with the longitudinal slit F, combined with the cold-water trap-tank J, provided with the partition L, extending downward from the top, or its equivalent, and the small overflow-pipe M, to cool the air surrounding it in a refrigerator-car.

2. The trap reservoir or tank J, provided

with the partition L, and overflow-pipe M, combined with the hand-hole cover, composed of the ring O, provided with the flange T, lugs Q, screws R, cover U, latch clamp-bar S, and binding-screw *b*, whereby access to the sealed chamber of said tank J may be gained for the purpose of cleansing it.

3. A refrigerator-car constructed with a double roof and an ice-reservoir, through which air may circulate to dry and cool the car, and combined with said roof and reservoir, the pipes *d*, laid in the space between the outer and inner shells of the roof, said pipes being in communication with the cooling-chamber by openings *e*, and with the ice-reservoir at the ends of said pipe, whereby the air of the cooling-chamber may pass through the roof-space to the ice-reservoir without contact with the outer shell of the roof.

HENRY M. SEXTON.

Witnesses:
W. C. CORLIES,
G. F. FAULKNER.