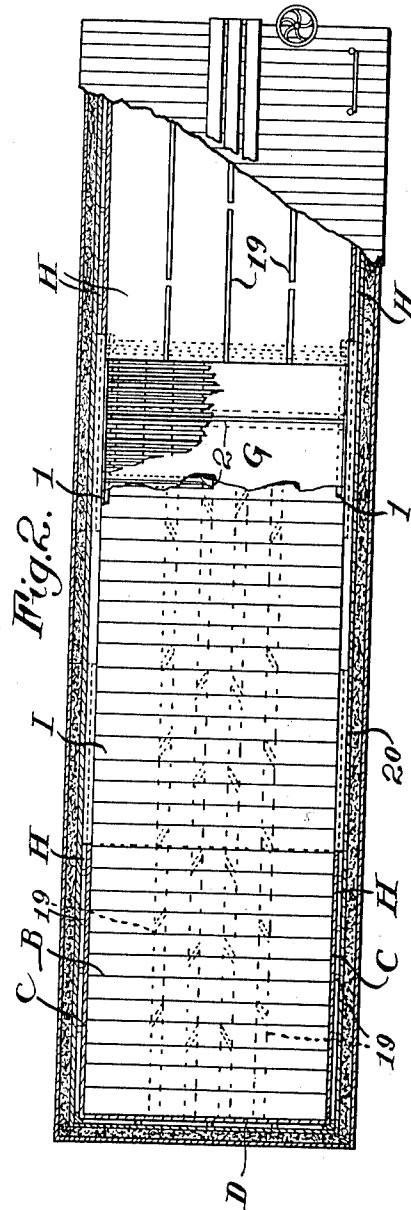
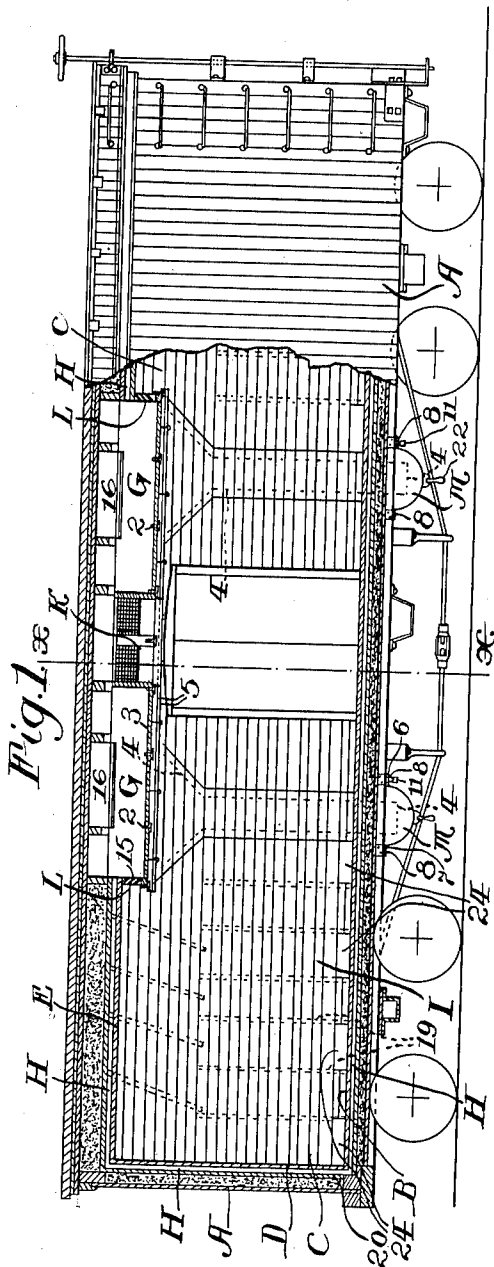


J. P. ELMER.
REFRIGERATOR CAR.
APPLICATION FILED NOV. 30, 1909.

1,061,680.

Patented May 13, 1913.

2 SHEETS—SHEET 1.



Witnesses:

Julie Donovan.

H. L. Fischer

Inventor:

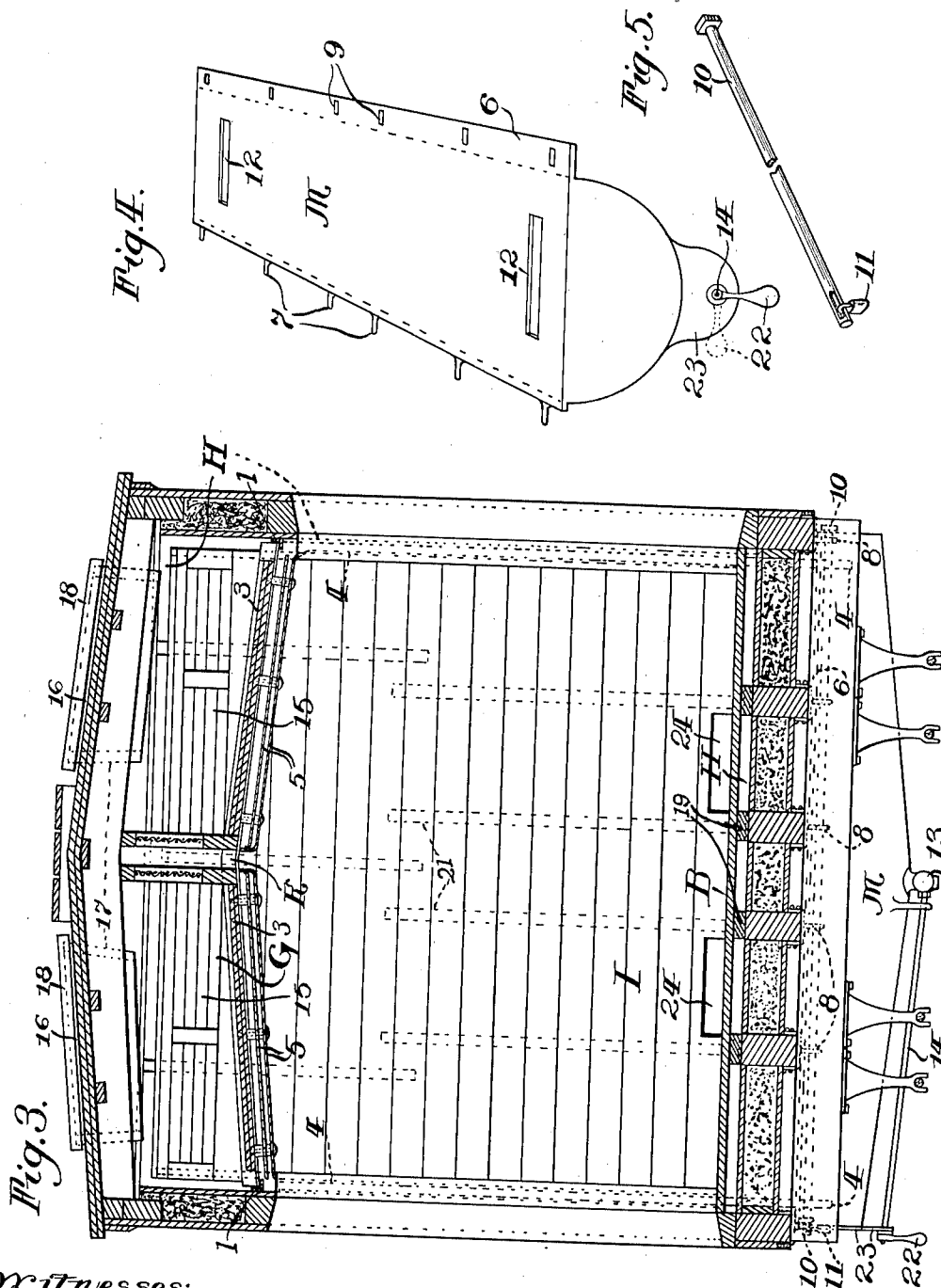
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

JAMES P. ELMER, OF ST. PAUL, MINNESOTA, ASSIGNOR TO MOORE PATENT CAR COMPANY, A CORPORATION OF SOUTH DAKOTA.

REFRIGERATOR-CAR.

1,061,680.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed November 30, 1909. Serial No. 530,634.

To all whom it may concern:

Be it known that I, JAMES P. ELMER, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Refrigerator-Cars, of which the following is a specification.

An object of this invention is to provide an improved refrigerator car wherein the brine and drip from salted ice in the ice bunker is caught and retained below the car body.

Further objects are the production of improved features of construction and combinations of parts, in a refrigerator car, which will be hereinafter described in the specification and pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a side elevation partly in section of a refrigerator car embodying my invention; Fig. 2 is a plan view, portions of the car being broken away and shown in section to more clearly illustrate the interior construction thereof; Fig. 3 is a transverse section of the car body taken upon the line X—X of Fig. 1; Fig. 4 is a perspective view of one of the drip pans and Fig. 5 is a perspective view of one of the lock bolts removed from the drip pan.

Speaking generally the car body A having floor B, sides C, ends D and ceiling or roof E is provided with an ice bunker G, air space passageways H and a provision or lading chamber I. The roof, walls and floor of the car should be filled with any suitable material that will serve to insulate the interior of the car properly in conformity with the best practice of modern refrigerator car building. The circulating air space passageways H surrounding the provision or lading chamber I in the car are open and not filled with material of any kind and are connected with the lading or provision chamber and ice bunker G. The ice bunker G is located substantially midway between and remote or isolated from the ends of the car and extends horizontally along its roof and below the line of the ceiling. It is provided with a longitudinal opening or port K in its center which opens down into the provision or lading chamber I. The ice bunker has open ends L which assist in permitting the free circulation of air from the ice bunker into the provision or lading chamber. It is to be understood that the

ends and sides of said bunker are of similar construction.

The ice bunker construction is as follows:—The angle irons 1 are securely fastened in a longitudinal and horizontal position in each side of the car on the walls outside the air space passageways H. To these angle irons are fastened transverse T beams 2 having their apexes pointing upward and rising above the floor 3 of the ice bunker so as to prevent the ice in the bunker shifting longitudinally by the motion of the car. The floor 3 may be of any desirable material and need not be necessarily watertight because the water dripping from the ice passes from the floor of the bunker into drain pipes 4 in the side walls of the car discharging below the floor of the car body. Immediately below the ice bunker and attached to its bottom are two drip pans 5 sloping toward the sides of the car and serving to catch any moisture or water falling from the ice bunker and carrying it to the drain pipes 4.

The ice bunker construction allows the use of salt with the ice and will when the ice is salted, reduce the temperature in the car in less than substantially one-quarter of the time required by any end ice bunker car. To prevent damage to bridges, tracks, etc., by dripping brine from the salted ice, I have designed a drip tank M shown in Fig. 4 which is of sufficient capacity to hold all of the drip between icing stations. This drip trap tank M is formed with an outwardly extending flange 6 along the upper portion of one of its sides and with a plurality of pins 7 along the upper portion of its opposite side. Depending from the car body are a number of eye pieces 8 with part of which the pins are adapted to engage, the remaining pieces projecting through perforations 9 in the flange 6. A bolt 10 is passed through the eye pieces which project below the flange 6 and assists in supporting said tank on the car body. One end of the bolt is provided with a lock 11 which prevents its removal from the eye pieces except by an authorized person. The top of the drip trap tank is closed except for openings 12 which admit the lower ends of the drains 4, the drip trap tank being arranged across the car to receive the drains on opposite sides thereof constituting a pair. Two pairs of drains lead from the ice bunker one of each

pair being located on one side of the car and two drip trap tanks are shown, one for each pair of drains. The lower portion of the drip trap tank M slopes inwardly toward the center line between the sides of the car. At the junction of the inwardly sloping portions is a drain valve 13 which is provided with an operating stem 14 extending to one side so that said valve may be operated by an attendant to empty the tank without reaching under the car. The outer end of the stem is freely held by a depending support 23 from the car body and is provided with a weighted handle 22. The weighting of the handle 22 causes it to drop automatically by the force of gravity from open position, indicated by broken lines in Fig. 4 to closed position indicated by full lines, by jolting of the car, should the attendant fail to close the valve after draining the tank.

The open ends L of the ice bunker are provided with proper screens 15 to allow the ingress and egress of air and prevent the ice from passing into the provision or lading chamber. This construction gives additional strength and durability to the car body as usually constructed. It is understood that both ends of the ice bunker are of similar construction. In the roof of the car immediately above the ice bunker are hatchways 16 through which ice may be placed in the bunker. These hatchways are closed by means of stoppers 17 and covers 18. The air space passageways H as shown in Figs. 1, 2 and 3 are formed with the parting strips 19 separating the lining 20 from the walls and ends of the car and forming air space passageways under the floor B as shown in Fig. 2 directed longitudinally and transversely or diagonally.

In the side walls and ends of the car the air space passageways on reaching the floor of the car connect alternately with the corresponding passageways under the floor and the provision or lading chamber I above the floor through ports 24, the lower parting strips 21 being of sufficient length to reach from the floor to above the usual load line of grain. By this arrangement of passageways the air is kept constantly circulating by natural gravitational means, through and completely encircling the provision or lading chamber. The upper parting strips in the walls and ceiling of the car body are arranged and disposed longitudinally in the path of the current of air returning to the ice bunker so that the passageways formed by them expand as they approach the top of the side walls and ends thus allowing the air to flow freely into the ceiling passageways and thence into the ice bunker. To cool the car the ice bunker is filled with ice and immediately as the chilled air falls from the open ends L of the ice bunker G,

and the central port K, the warm air in the air space passageways H and in the provision or lading chamber commences to move toward and into the ice bunker and continues to circulate throughout the entire interior of the car as long as ice remains in the ice bunker.

In accordance with the patent statutes I have described the principles of operation of my invention together with the apparatus which I now consider to represent the best embodiment thereof but I desire to have it understood that the construction shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:—

1. A refrigerator car, comprising, in combination, a suitable car body having a provision or lading chamber, an ice bunker substantially midway between its ends extending longitudinally and horizontally below the roof the entire inside width of said body at that point and occupying substantially the central one-third of said car body, said ice bunker being provided with upright ends having horizontal openings into said provision or lading chamber and with a central longitudinal down draft port opening into said provision or lading chamber and remote from the ends of said bunker, a plurality of drip pans fastened directly under said ice bunker and each other, drain pipes from said pans leading downward in the walls of the car, a drain trap tank below the floor of the car into which said drain pipes lead, and hatchways entering said ice bunker through the roof of said car.

2. In a refrigerator car, a car body, an ice bunker therein, a drip pan for said bunker, a drain tank beneath the car and connected with said drip pan and ice bunker, a valve for draining said tank and means for automatically closing said valve due to the motion of the car.

3. A refrigerator car, comprising, in combination, a suitable car body having a provision or lading chamber, an ice bunker substantially midway between its ends, extending horizontally along the roof of said body and the entire inside width of the car at that point, said ice bunker being provided with openings into said provision or lading chamber, hatchways entering said ice bunker through the roof of the car, circulating air space passageways through the ceiling, walls, and under the floor of said car body and connecting said provision or lading chamber with said ice bunker, and drain pipes leading from said ice bunker downward through the side walls and inside of the side sills to the outside of said car

body, and a brine tank fastened below the floor of said car body and extending the entire width of said body into which the drain pipes on either side of the car drip, substantially as set forth.

4. A refrigerator car, comprising, in combination, a car body having a lading chamber extending completely to both extremities thereof, an ice bunker remote from both ends of the car body and extending along the ceiling thereof with its floor positioned overhead and sloping down toward both sides of the car body from near the center thereof and formed with a longitudinal air port near the center thereof opening down into the lading chamber, and with upright ends having horizontal openings into the lading chamber, drains leading down below the car body from the floor of the bunker, a brine tank into which said drains empty, a valve to drain said tank and means for causing said valve to close by the motion of said car.

5. In a refrigerator car, a car body, an ice bunker therein, a drip pan for said bunker, a drip trap tank beneath the car and connected with said drip pan, said tank consisting of a metal shell extending across the width of the car and having a drain, a valve in said drain adapted to close automatically, and means for operating said valve.

6. A refrigerator car, comprising, in combination, a car body having a lading chamber extending to both ends thereof, an ice bunker remote from the ends of said body below and over head along the ceiling and having a floor sloping down toward both sides of the car, a plurality of drains leading down below the car body from the lower

ends of said floor, a brine trap tank extending across the car body below the floor thereof into which the drains from the opposite lower ends of the floor of said bunker open and connect, and means for separably connecting said tank to said car body.

7. A refrigerator car, comprising, in combination, a car body having a lading chamber extending to both ends thereof, an ice bunker remote from the ends of said body extending along the ceiling thereof with its floor positioned over head and sloping down toward both sides of the car body from near the center thereof, drains leading down below the car body from the lower ends of the floor of said bunker, a brine tank into which said drains empty, a drain valve for said tank and means remote from said valve for operating the same at one side of the car body.

8. A refrigerator car, comprising, in combination, a car body having a lading chamber extending to both ends thereof, an ice bunker remote from the ends of said body extending along the ceiling thereof with its floor positioned over head and sloping down toward both sides of the car body from near the center thereof, drains leading down below the car body from the lower ends of the floor of said bunker, a brine tank into which said drains empty, a drain valve for said tank and means for causing said valve to close by the motion of said car.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JAMES P. ELMER.

Witnesses:

H. L. TISCHER,

JULE DONOVAN.