

J. THORNTON & E. HEYMANSON.

REFRIGERATOR CAR.

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952,382.

Patented Mar. 15, 1910.

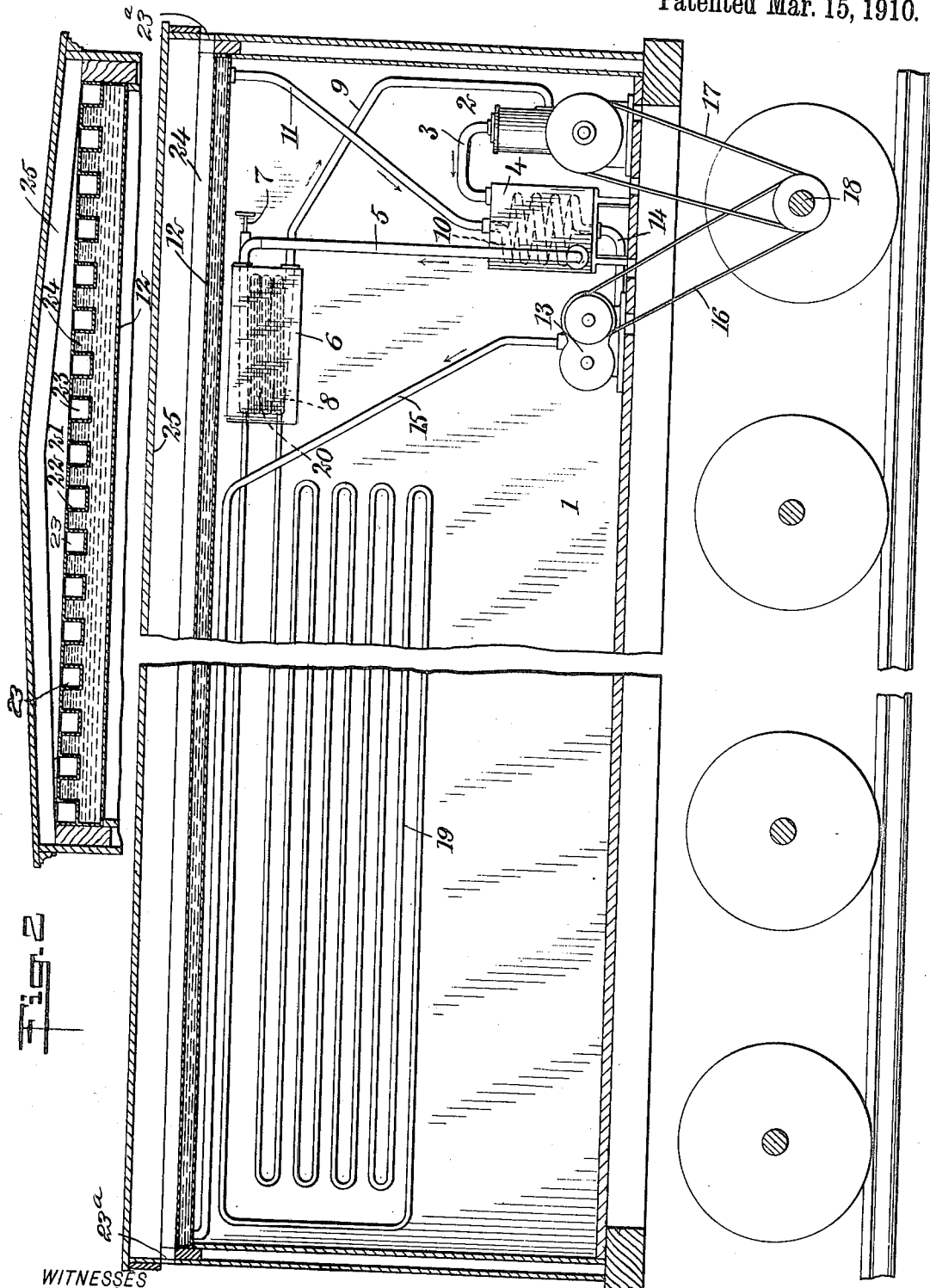


Fig. 2

WITNESSES

F. D. Sweet

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Fig. 1

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REFRIGERATOR-CAR.

952,382.

Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed November 13, 1908. Serial No. 462,426.

To all whom it may concern:

Be it known that we, JEROME THORNTON and EDWARD HEYMANSON, citizens of the United States, and residents of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Refrigerator-Car, of which the following is a full, clear, and exact description.

This invention relates to refrigerator cars such as are used for shipping perishable provisions.

The object of the invention is to produce a refrigerating system which will not involve the use of ice and which will enable the car to be kept refrigerated while on the road.

The invention contemplates the use of refrigerating apparatus, such as ammonia machinery, in which the cooling water for the condenser is kept at a sufficiently reduced temperature to do this work, by a special construction and arrangement of the tank in which it is normally held, so that the surface of the tank is exposed to the rush of air developed by the motion of the car.

The invention consists in the construction and arrangement of the parts to be hereinafter more fully described and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both figures.

Figure 1 is a vertical section through a car provided with our cooling apparatus, the middle portion of the car being broken away and certain parts of the running gear being omitted; and Fig. 2 is a cross section taken through the upper portion and roof of the car.

Referring more particularly to the parts 1 represents the body of the car, which may be of ordinary form. At a convenient point this car is provided with a compressor 2 for ammonia or a similar cooling agent. The delivery pipe 3 of this compressor leads over to a condenser 4 and this condenser is connected by a pipe 5 with a congealer 6. The ammonia or similar substance is admitted to the congealer through an expansion valve 7. Within the congealer 6 the ammonia passes through an expansion coil 8, and this coil connects with a return pipe

9 which leads back to the compressor. The water for condensing the ammonia gas passes through a condenser coil or worm 10 which is disposed within the condenser, as indicated, water being supplied to this coil by a supply pipe 11, which leads down from one end of the condenser water tank 12, which is preferably located at the roof of the car as shown. Near the condenser 4 a pump 13 is provided, which receives water by a pipe 14 connected with the coil 10, and this pump forces the water by a delivery pipe 15 to the end of the tank 12 opposite to the pipe 11. The pump 13 and the compressor 2 may be driven by belts 16, 17 from an axle 18 of the car, as indicated. On the side wall of the car, a refrigerating pipe coil 19 is provided, and this coil forms a loop or inner coil 20 which passes through the interior of the expansion coil 8 in the interior of the congealer 6, as indicated. In this coil 19 brine or a similar substance may circulate, the said brine being cooled in the inner coil 20.

The construction of the tank 12 will now be described, referring especially to Fig. 2. This tank is adapted to be formed of sheet metal or similar material, the upper wall or cover 21 of the tank being formed with offsets or deep corrugations 22. This has the effect of producing a plurality of channels 23 which extend continuously from end to end of the tank. These channels 23 communicate at their ends with openings 23^a in the ends of the car so that as the car advances the air passes completely through them. Passing through in this way the air tends to cool the water, which finds its way up into inverted channels 24, which are formed on the under side of the cover 21. In this way the water which is standing in the tank is cooled down sufficiently to enable it to be used effectively in the condenser 4.

With the apparatus described, a car may be refrigerated to a sufficiently low temperature for ordinary purposes without the use of ice.

The tank 12 is covered by a car roof 25 of any suitable construction such as that shown. The bottom of the tank 12 is exposed to the interior of the car and this tends also to reduce the temperature of the condenser water, making it more effective in the condenser.

Having thus described our invention, we

claim as new and desire to secure by Letters Patent:

1. A car having a refrigerating system including a condenser in combination with a
5 condenser water system including a tank disposed in the upper portion of the car, said tank having a deeply corrugated cover presenting a plurality of air channels extending longitudinally of the car and
10 through which the air may pass as the car advances, and means for circulating water from said tank through said condenser.

2. A car having an ammonia refrigerating apparatus including a condenser and a
15 congealer, a refrigerating pipe connecting

the same, a cooling pipe exposed to the interior of said car and having a loop passing through said congealer, a condenser water tank having an area exposed to the rush of air developed by the car, and means for circulating the condenser water from said tank through said condenser. 20

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JEROME THORNTON.
EDWARD HEYMANSON.

Witnesses:

F. D. AMMEN,
JOHN P. DAVIS.