T. L. RANKIN.
Refrigerator-Car.

No. 220,422. Patented Oct. 7, 1879.

Fig. 1.

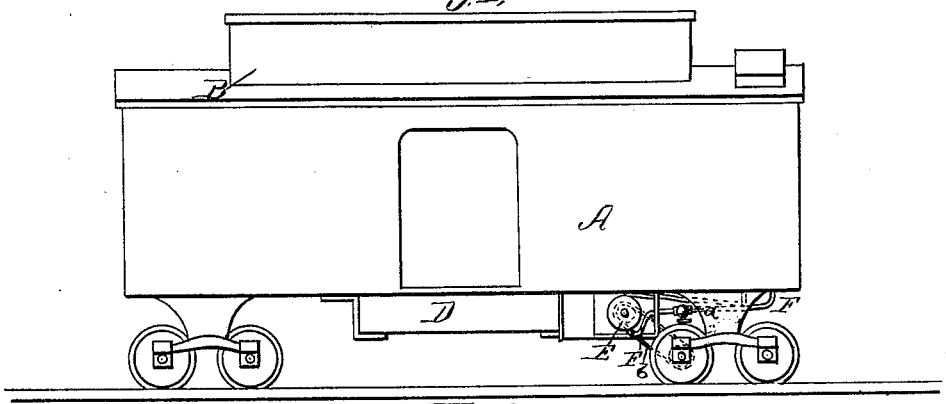


Fig. 2.

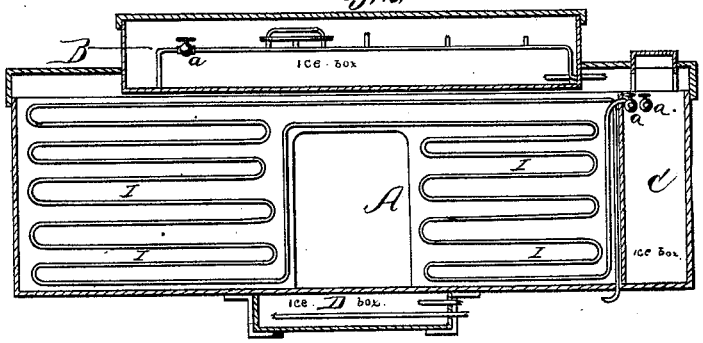
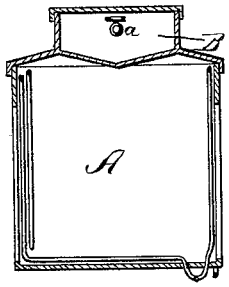


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

THOMAS L. RANKIN, OF LYNDON, KANSAS.

IMPROVEMENT IN REFRIGERATOR-CARS.

Specification forming part of Letters Patent No. **220,422**, dated October 7, 1879; application filed June 12, 1879.

To all whom it may concern:

Be it known that I, THOMAS L. RANKIN, of Lyndon, in the county of Osage and State of Kansas, have invented certain new and useful Improvements in Refrigerating-Cars; 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.

My invention relates to refrigerating-cars, and consists in providing ice-boxes at either end and laterally of the car, and connecting a coil of pipe, which is arranged in the chamber to be cooled, with either or both of these receptacles, whereby the cool water may be drawn by a force-pump at the other end, all as hereinafter 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 drawings, in which—

Figure 1 is a side elevation of a railroad-car embodying my invention. Fig. 2 is a longitudinal vertical section; and Fig. 3 is a transverse vertical section of the same.

A represents a railroad-car of any suitable construction.

I have shown this car provided with three separate boxes or chambers for containing ice—one, B, in the roof of the car, another, C, at the end, and still another, D, underneath.

It will thus be seen that I may call into requisition any one or all of the ice-chambers, as circumstances may require.

On the inside of the car, around all sides, is arranged a continuous coil of pipe, I, running in any desired manner, and the various parts as close together as convenient. One end of the coiled pipe I opens at the top of the ice-chamber, wherever the same may be located, while the other end communicates with a rotary pump, E, located under the bottom of the car. This pump also communicates by a pipe, F, with the bottom of the ice-chamber.

The pump E is to be run by a belt, *b*, from a pulley on one of the car-axles, so that the pump will be run continuously as long as the car is in motion.

The ice-box or ice-chamber being filled with ice, to which salt may be added if it is desired to melt the ice more rapidly, the waste water is drawn off by the pump and forced through the coil I and back on top of the ice, when it passes down to the bottom of the ice-chamber, and is again drawn off.

During the passage of the cold water through the coil I it absorbs the heat in the car, so that when the water is discharged on top of the ice in the ice-chamber it is warmer than when drawn off. During its passage through the ice down to the bottom it becomes cold again, and when then drawn off and forced through the coil by the pump, it is again ice-cold, so as to absorb more heat. A continuous circulation of cold water is thus established through the coil in the car, whereby uniform low temperature is established and maintained in the car.

I am aware it is not new to provide a chamber to be cooled with a coiled pipe arranged along the sides thereof, one end of which is connected with a pump and the other with an ice-receptacle, the object being to force cold water through the pipe; but I believe myself the first to have provided a car with lateral and end receptacles, whereby the cooling may be graduated by the use of one or more of these chambers.

Suitable stop-cocks *a a* will be arranged in the discharge end of the coil I as well as in the pipe F, to regulate the flow of the water.

Instead of ice, any suitable freezing-mixture may be used and circulated continuously through the coil in the same manner as described for the waste water.

During stoppages of the car the pump may be operated by hand by means of a crank applied to the end of the journal of the pump.

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

In a refrigerating-car, the combination, with lateral and end ice-chambers, of a continuous coil of pipe and a force-pump, substantially as and for the purposes set forth.

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

THOMAS L. RANKIN.

Witnesses:

W. C. MCARTHUR,

F. M. BERRY.