

J. H. WICKES.
REFRIGERATOR CAR.

No. 174,882.

Patented March 14, 1876.

Fig.1.

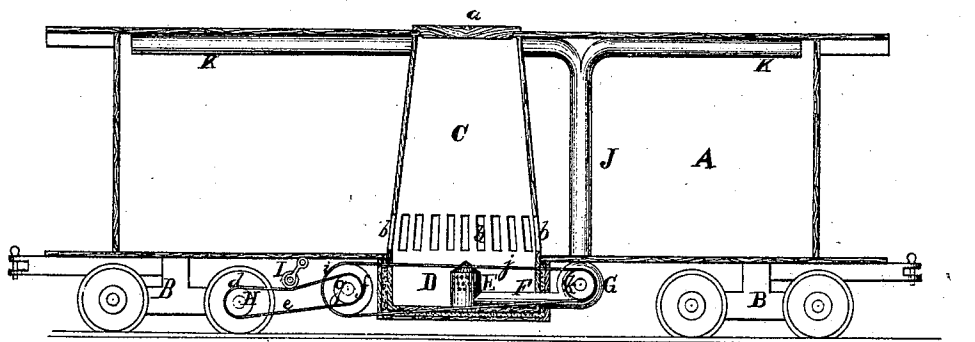
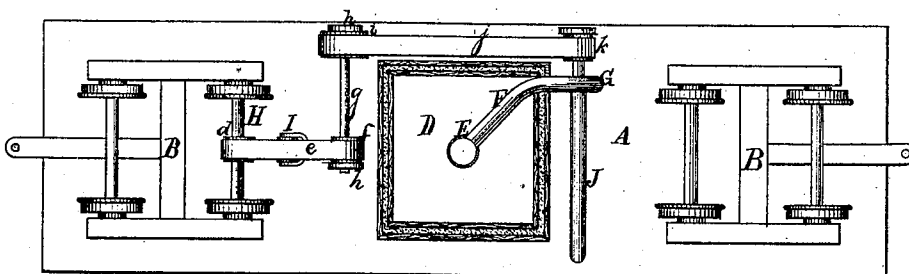


Fig.2.



Witnesses.

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JAMES H. WICKES, OF NEW YORK, N. Y.

IMPROVEMENT IN REFRIGERATOR-CARS.

Specification forming part of Letters Patent No. **174,882**, dated March 14, 1876; application filed February 4, 1876.

To all whom it may concern:

Be it known that I, JAMES H. WICKES, of the city, county, and State of New York, have invented a new and useful Improvement in Refrigerator-Cars, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a longitudinal vertical section. Fig. 2 is an inverted plan, partly in section.

Similar letters indicate corresponding parts.

This invention consists in the combination of an air-distributor, situated in an ice-chamber below the bottom of a railroad-car, with an ice-feeder extending up through the interior of the car, and with an air-forcing and suction blower situated below the bottom of the car, and driven from one of the car-axes, all of which will be fully hereinafter described.

In the drawing, the letter A designates the body of a railroad-car, which rests upon trucks B of the ordinary construction. Said body is constructed in the best possible manner, so as to transform its interior into a provision-chamber from which the external air can be excluded. In the top of the provision-chamber is an aperture, *a*, which communicates with the ice-feeder C. The ice-feeder is, by preference, made in the shape of a truncated cone or pyramid, so that the ice is not liable to clog in its descent, and it is provided with a series of apertures, *b*, on two or more sides, near its junction with the bottom of the provision-chamber. Below the ice-feeder is situated the ice-chamber D, which extends below the bottom of the provision-chamber, and which communicates freely with the ice-feeder, so that the ice contained in said feeder will descend into the ice-chamber as fast it is required. The sides of the ice-chamber are constructed of insulating material, so that they protect the ice against the influence of the external atmosphere. In the interior of the ice-chamber is situated an air-distributor, E, which consists of a foraminous box of sheet metal, or other suitable material, and which communicates by a pipe, F, with a fan-blower, G, or with any other suitable air forcing and suction apparatus. This fan-

blower is situated below the bottom of the provision-chamber, and it receives its motion from one of the axes H of the car. For this purpose a pulley, *d*, is mounted on this axle, from which extends a belt, *e*, over a pulley, *f*, mounted on a counter-shaft, *g*, which has its bearings in hangers *h*, secured to the bottom of the car. On said counter-shaft is also mounted a pulley, *i*, from which extends a belt, *j*, over a pulley, *k*, mounted on the blower-shaft. The several pulleys are so proportioned that the fan-blower is driven with the required velocity, and the pulleys *i* and *k* are so situated that the belt *j* passes on one side of the ice-chamber. A suitable tension device, I, serves to equalize the tension of the belt *e*, and to render the same independent of the rising and falling motion of the body of the car. When the motion of the car is reversed, the belt *j* is crossed.

The fan-blower takes its air by suction through a pipe, J, and branch pipes K from the interior of the provision-chamber, and when said fan-blower is in motion, the air drawn from the interior of the provision-chamber is injected through the air-distributor E into the body of the ice contained in the ice-chamber, and by the air-distributor the current of air is spread into a number of fine jets, which, on passing through the ice, are rapidly cooled to a low temperature, when they pass through the perforations near the bottom of the edges of the ice-feeder into the provision-chamber. After the cold air has permeated and cooled the articles contained in said provision-chamber, it is again sucked in by the blower, and passed through the ice back into the provision-chamber. By this operation the articles in the car can be kept at a low temperature with a comparatively small expenditure of ice. A waste-pipe can be arranged so as to carry off the ice-water from the ice-chamber.

The principal advantage of this arrangement is that the ice-chamber, as well as the mechanism for producing the circulation of air through the provision-chamber and through the ice, are situated entirely outside of and below the bottom of the car, and the interior space of the body of the car, with the sole exception of the room occupied by the ice-

feeder, is entirely available for the storage of provisions. Furthermore, the mechanism for imparting motion to the blower is so placed that it can be easily covered and protected from dust and dirt rising from the track.

What I claim as new, and desire to secure by Letters Patent, is—

The combination of an air-distributor, situated in the ice-chamber below the bottom of a railroad-car, with an ice-feeder extending up through the interior of the car, and with

an air-forcing and suction blower situated below the bottom of the car, and driven from one of the car-axles, all constructed and operating substantially as set forth.

In testimony that I claim the foregoing, I have hereunto set my hand and seal this 24th day of January, 1876.

JAMES H. WICKES. [L. S.]

Witnesses:

W. HAUFF,

JNO. D. PATTEN.