J. E. LEEPER.

Construction of Railway-Cars.

No. 158,505. Patented Jan. 5, 1875.

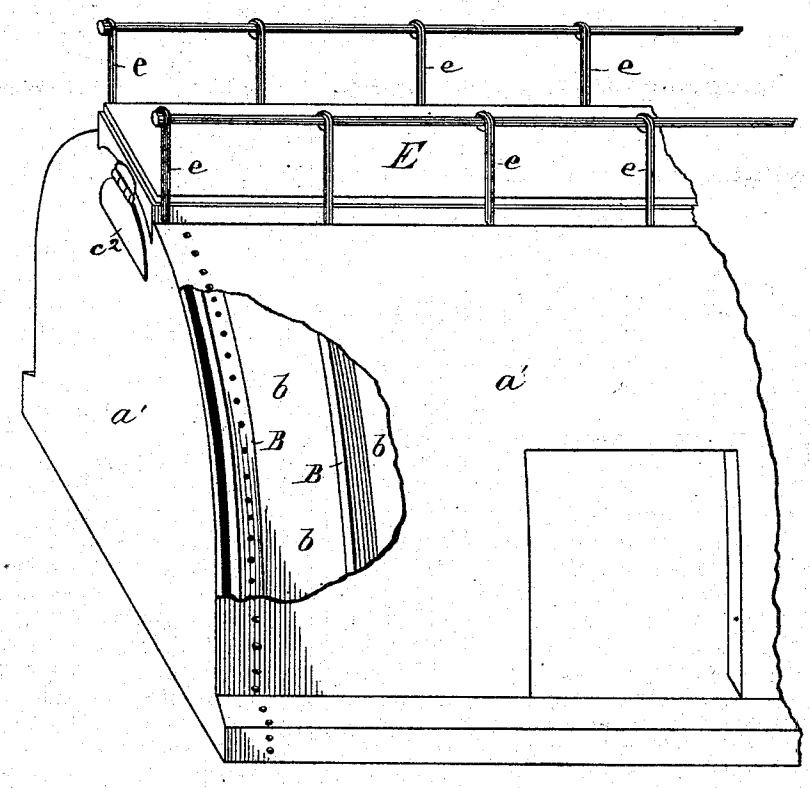

Fig. 1.

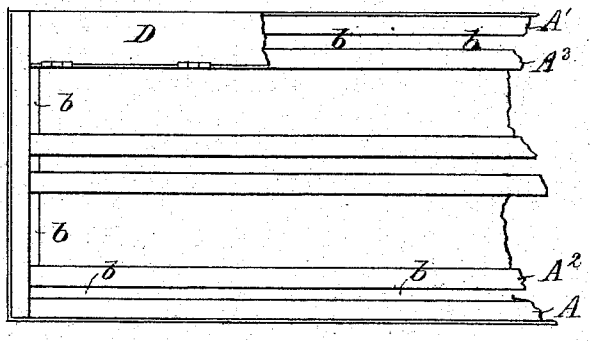

Fig. 3.

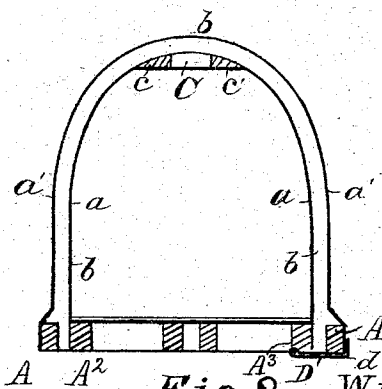

Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN E. LEEPER, OF GODFREY, ILLINOIS.

IMPROVEMENT IN THE CONSTRUCTION OF RAILWAY-CARS.

Specification forming part of Letters Patent No. **158,505**, dated January 5, 1875; application filed June 8, 1874.

To all whom it may concern:

Be it known that I, JOHN E. LEEPER, of Godfrey, Madison county, State of Illinois, have invented an Improvement in Construction of Railroad-Cars, of which the following is a specification.

This invention presents certain improvements relating to the patent granted to me of date February 24, 1874, No. 147,777. The improvement here presented consists in the peculiar formation of an air-passage at the top of the car between the inner and outer shell, so that the air which rises from the bottom of the car between the ribs and the said inner and outer shell from all sides of car can pass into said top air-passage and pass out of either end thereof. My further improvement relates in confining dead air (air that cannot escape) between the inner and outer shell that compose the body of the car, to act as a non-conductor of heat for refrigeration purposes.

Of the drawings, Figure 1 is a perspective view of the car with parts broken away. Fig. 2 is a transverse sectional elevation, showing air-chamber at top, and also showing section through air-door at bottom, the latter feature for refrigerator-cars. Fig. 3 is a bottom plan of part of the car, showing air-passages at bottom and hinged air-tight doors, in part, to close the entire open bottom.

The platform and body of the car are similarly constructed, as described in my patent aforesaid. Hence A A^1 A^2 A^3 are the bottom sills; B, the ribs; *a*, the inner shell; *a'*, the outer shell, arranged in the tubular form, as indicated in Figs. 1 and 2, the object of retaining this shape and constructing the bottom and body of the car as aforesaid being that the same air-passages *b*, Figs. 1, 2, 3, at bottom and ends of the car may permit the air from bottom to pass up and between the ribs B and inner and outer shells *a a'*, the same as described in my patent aforesaid. A car, the body of which is thus constructed to permit the free escape of the heated air that accumulates within the inner and outer shells, and to prevent the absorption of said heat on part of the metallic shell, and otherwise keep the entire interior of the car cool, is the object of my present improvement. To accomplish said object I provide the inner top of the car with an air-passage or chamber, C. (See Fig. 2.) I form the air-passage C by means of lintels *c* c^1 horizontally secured to the under side of the ribs B, and extending from end to end of car. (See Fig. 2.) The inner shell, *a*, is secured to the bottom of the lintels *c* c^1, so as to form the bottom for the air-passage C. (See Fig. 2.) Communicating with the air-passage C at both ends of the car are registers or hinged doors c^2 to control the openings and the inlet of air. The air-passage C, when open at both ends of car, creates a suction which causes the air entering from bottom of the car to be drawn into the said air-passage, out of which said air alone can escape. A continued circulation of air is thus achieved from the bottom of car, between its two shells and out of air-passage C, which prevents any accumulation of heated air or air from being confined in the body of car, and thus is produced that cooling effect which the metallic body of the car requires.

As shown in Figs. 2 and 3, the open air-passages *b*, or the open spaces between the two outer sills at sides and ends of the car, I further provide with hinged air-tight doors D, the object of the doors D closing said open spaces or open bottom of the car being for refrigerating purposes. By means of said doors I can confine the air in the air-passages *b*, or between the inner and outer shell of the car, and prevent the escape of said air. This non-escaping or dead air I rely upon as a non-conductor to the heated air from outside affecting the interior of the refrigerator-car. The doors D are made air-tight by being faced with rubber *d*, as indicated in Fig. 2.

Besides being a non-conductor, as aforesaid, the confined air in the body of the car does not add weight, retains the lightness of the car, and in this respect is far better adapted for metallic cars than the ordinary and well-known non-conductors used for refrigerating purposes.

E is a running-board, top of car, and has side railings *e*, as shown in Fig. 1.

The construction, manner of securing and providing the top of the car with the running-board E and railing are apparent.

What I claim is—

1. The air-passage C and lintels c c^1, in combination with the body composed of the inner and outer shells a a', ribs B, and bottom sills A A^1 A^2 A^3, substantially as and for the purpose set forth.

2. The air-tight doors D, having rubber facing d, in combination with a car having open bottom air-spaces b, and the body of which is composed of ribs B and inner and outer shells a a', substantially as shown and described.

In testimony of said invention I have hereunto set my hand.

JOHN E. LEEPER.

Witnesses:

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