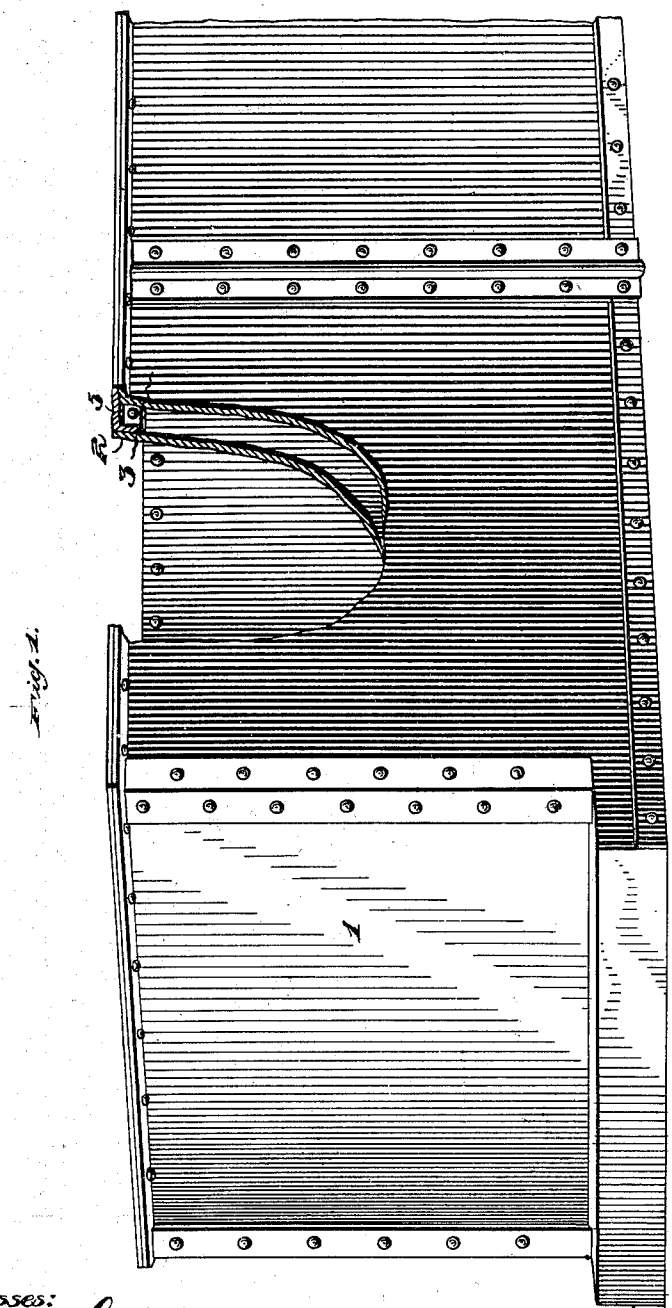
No. 731,672. PATENTED JUNE 23, 1903.

E. S. EBERLEIN.

STEEL FREIGHT CAR.

APPLICATION FILED OCT. 9, 1902.

NO MODEL. 3 SHEETS—SHEET 1.



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By John Mc Laud
Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.

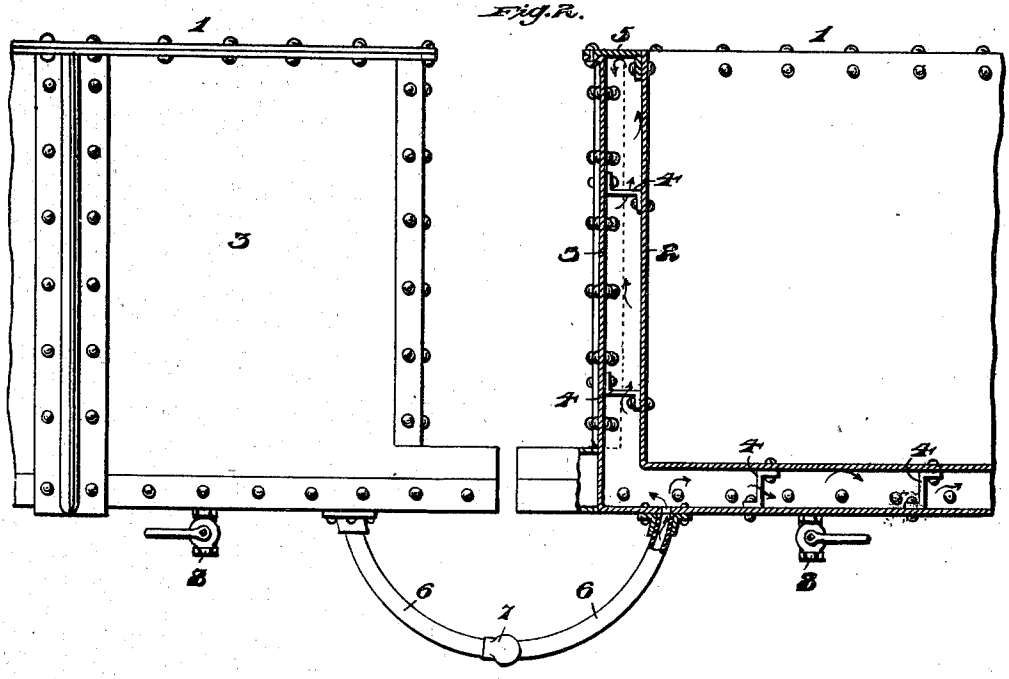
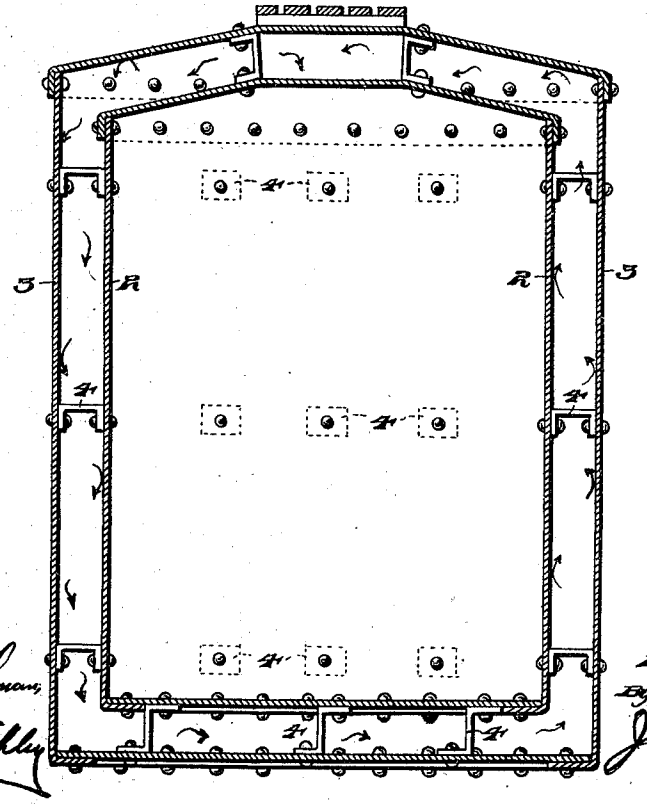


Fig. 3.



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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 4.

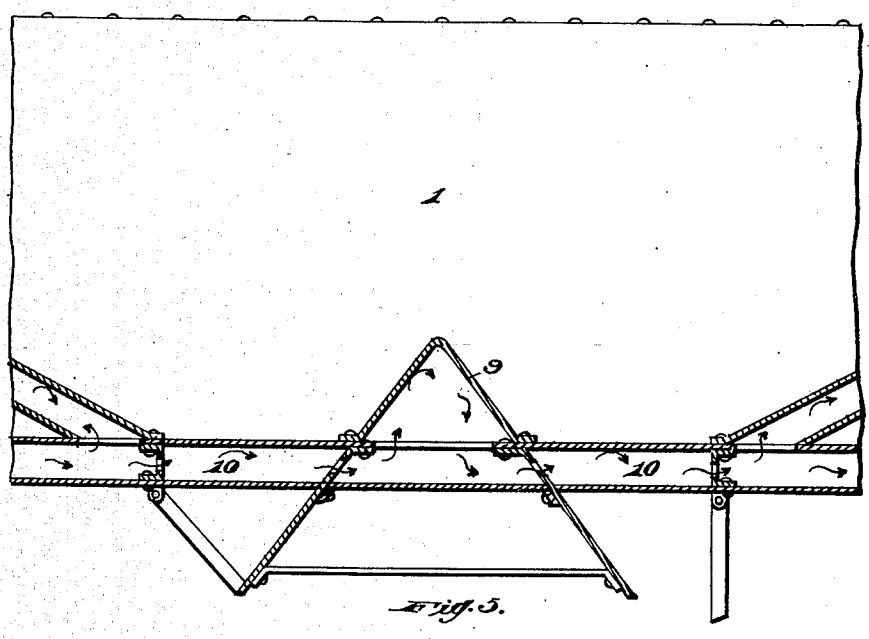
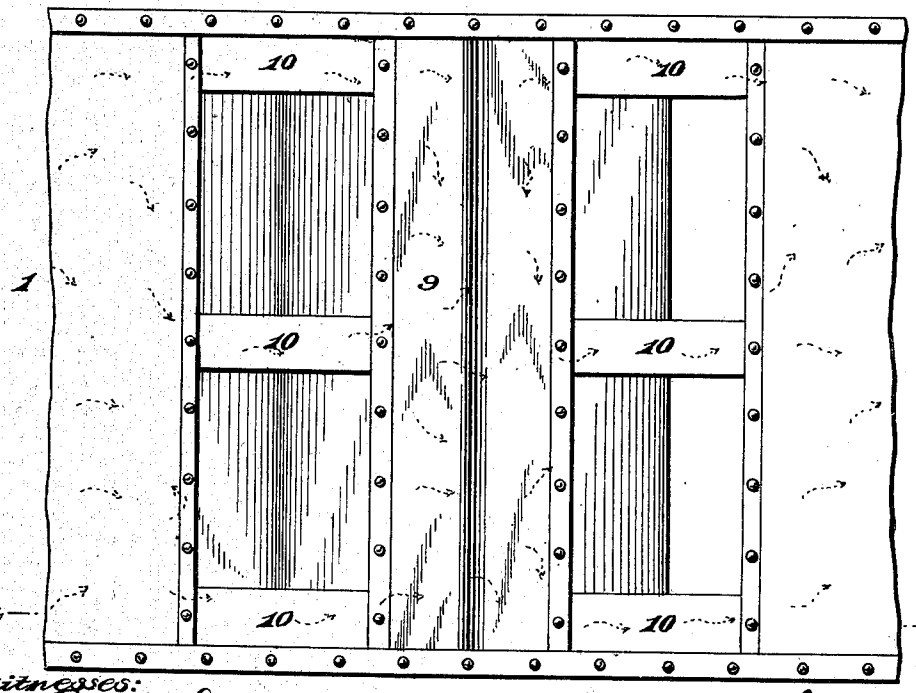


Fig. 5.



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No. 731,672. Patented June 23, 1903.

UNITED STATES PATENT OFFICE.

EDWIN S. EBERLEIN, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO CHARLES HOOVER, OF ALLEGHENY, PENNSYLVANIA.

STEEL FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 731,672, dated June 23, 1903.

Application filed October 9, 1902. Serial No. 126,633. (No model.)

To all whom it may concern:

Be it known that I, EDWIN S. EBERLEIN, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Steel Freight-Cars, of which the following is a specification.

My invention relates to an improvement in freight-cars, and more especially to those known as "metallic" freight-cars.

It is a well-known fact that during the transportation of fruit, vegetables, and various kinds of ore, &c., through cold climates the above-mentioned products freeze, and thereby become unmarketable, and in the case of ores the expense of thawing out the same is considerable and the result is not always satisfactory. Ore is shipped from the mines to mills in freight-cars, generally of the open box-car or gondola type, which leaves the contents exposed to the action of the atmosphere, and consequently the ore being moist freezes. The ore freezes so hard in the car that it cannot be broken up with a pick. This makes the use of dynamite or other high explosive, necessary, which expedient is quite expensive and dangerous, as after the ore has been shot the car is often found to be considerably damaged, and sometimes when an extra large charge is required much damage is done to surrounding property and often the loss of life is occasioned.

Now with a car constructed on the lines of my invention, which consists in entirely covering the walls and bottom of the car with a steam-jacket, the above-mentioned difficulty is obviated. With a car of the type just described the ore may be placed in the car at the mines and the car may travel any distance through the coldest climate, freezing solid from top to bottom, and when it reaches its destination may be thawed out in a few minutes by simply attaching a hose-pipe from a boiler to the steam-jacket, thereby filling the latter with steam and accomplishing in a few minutes that which now takes hours. It now requires from twelve to twenty-four hours to unload a car in cold weather. With my improvement applied to the car the ore will be thawed out and the car unloaded in an hour. The advantage is self-evident. The cars might be connected with the boiler of the locomotive and steam maintained in the steam-jackets throughout the entire journey of the train at a sufficient pressure to prevent the contents of the cars from freezing. This expedient is of especial advantage in connection with fruit-trains and the like. The interior of the steam-jacket is not more than three inches in breadth, and its walls are braced and connected with the walls of the car by angle-irons, which are so arranged as to allow the steam to circulate around the jacket.

I have laid especial stress on the use of steam, as it is the most desirable fluid for the purpose. Hot water would not accomplish the purpose and would be very objectionable, for the reason that it would add vast weight to the car and would have to be introduced into the jacket from the top and would either have to be exhausted from the bottom or allowed to settle therein, where it would cool and freeze. Means for conveying the hot water to and from the car would also have to be provided, which would tend to complicate the apparatus and add to the expense. Steam being very light and having a tendency to rise can be introduced at one end of the train, through which it would flow, thoroughly heating all parts of the cars, and be exhausted at the other end. Another advantage possessed by steam lies in the fact that no heating apparatus is required in or on the cars.

Finally, my invention consists in providing a metallic car of the character described that will be strong, durable, and efficient in its purposes and one that will be comparatively easy to produce and inexpensive to construct.

Furthermore, the invention consists in the novel details of construction and operation, a preferable embodiment of which is described in the specification and illustrated in the drawings, wherein—

Figure 1 is a perspective view of a portion of a metallic gondola car constructed in accordance with my invention. Fig. 2 is a side elevation view of the adjoining ends of two cars, showing a way of connecting the steam-jackets. Fig. 3 is a transverse sectional view

of a box-car. Fig. 4 is a side elevation view of a portion of a hopper-bottom car with my invention applied, and Fig. 5 is a top plan view of the car shown in Fig. 4.

In the drawings, 1 designates the metallic car, which may be of any suitable type and shape. I have shown my invention applied to a gondola car, a box-car, and a hopper-bottom car; but, as I have said before, I may apply it to any style of car. In constructing the car I provide an inner casing 2 and an outer casing 3, which are connected and secured together by angle-irons 4 and in the case of an open-top car by a flanged strip 5, that is riveted to the casings. The angle-irons 4 are shown as U-shaped and as Z-shaped; but they may be of any suitable shape so that they can be riveted to the casings, in order to brace and secure the same together. The joints formed around the casings must be steam-tight, and some kind of a packing is inserted between the joints, although it might be dispensed with. The angle-irons 4 are riveted to the walls of the car or inner casing 2 and to the walls of the jacket or outer casing 3 at intervals, so as to allow an unobstructed circulation of the steam in the jacket. A suitable hose-pipe 6, provided with a coupling 7, is secured to each of the cars in order that the steam may pass from one car to the other, and so on. Steam may be introduced at the end of the car through a cock 8, secured to the bottom of the jacket. This cock 8 may also be used for exhausting the water of condensation from the jacket. I preferably provide one of these cocks 8 at each end of the car, although more might be used, if desired.

In Fig. 3 I have shown a box-car constructed in accordance with my invention in which the steam-jacket completely surrounds the car.

In Figs. 4 and 5 I have shown my invention applied to a hopper-bottom car. In the center of the car a steam-dome 9 is provided, which is connected with the body of the car by closed channels 10, through which the steam passes.

When it is desired to thaw out the contents of the cars after they have reached their destination, it is only necessary to connect the cars with the steam-boilers of the mills and fill the jackets with steam. The cocks 8 may be opened from time to time to let off the water of condensation. When it is desired to keep the cars heated during their journey, they are coupled together, as shown in Fig. 2, and placed in communication with the boiler of the locomotive and steam maintained in the jackets at a sufficient pressure to prevent the contents of the car from freezing.

From the above it will be seen that I have invented a novel means which will accomplish an advantageous function and one that has not been heretofore conceived by any one.

I do not care to limit myself to the exact details of construction and operation herein set forth, as I may make various changes in the same within the scope of my claim and without departing from the spirit of my invention.

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

The combination with a metallic car, of a steam-jacket, angle-irons secured in the jacket, a steam-dome arranged in the central part of the car, closed channels for connecting the steam-dome with the jacket, and means for applying and circulating steam in the jacket and the dome; substantially as described.

In testimony whereof I affix my signature, in the presence of two witnesses, this 29th day of September, 1902.

EDWIN S. EBERLEIN.

Witnesses:
JOHN NOLAND,
M. B. SCHLEY.