

No. 810,472.

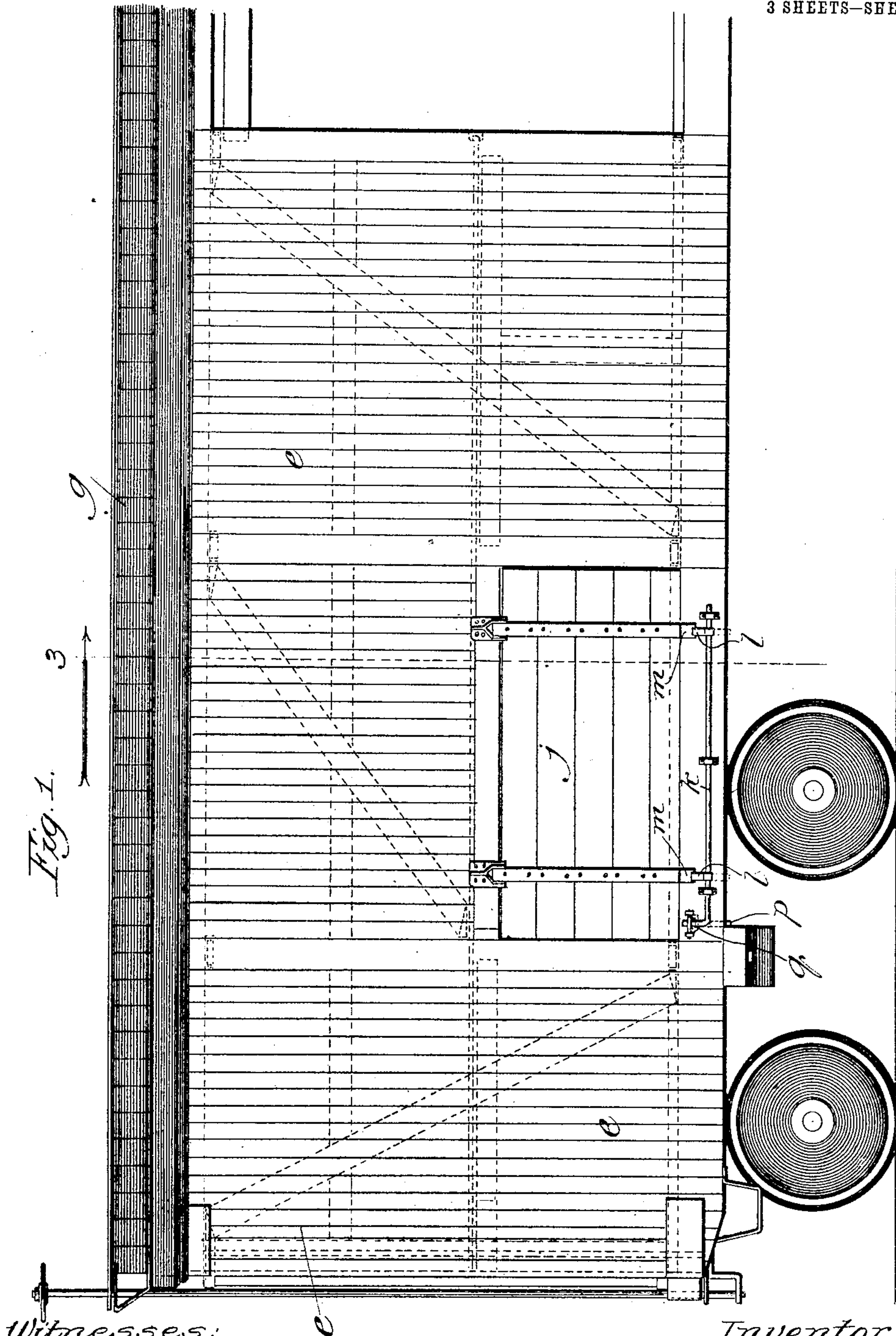
PATENTED JAN. 23, 1906.

F. A. DELANO.

BOX CAR.

APPLICATION FILED MAR. 28, 1903.

3 SHEETS—SHEET 1.



Witnesses:  
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*John Enders Jr.*

Inventor:  
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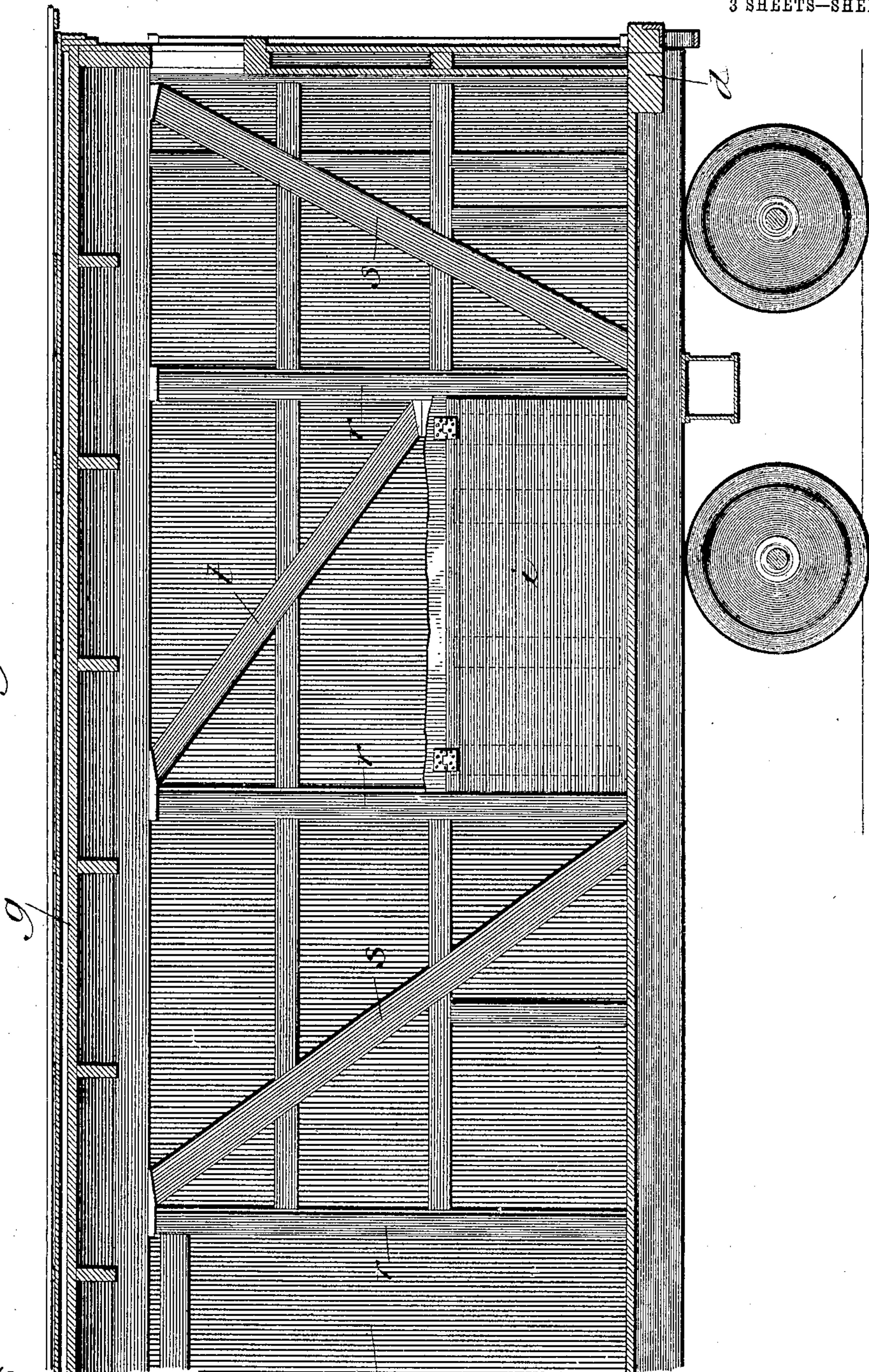
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3 SHEETS—SHEET 2.

Fig. 2.



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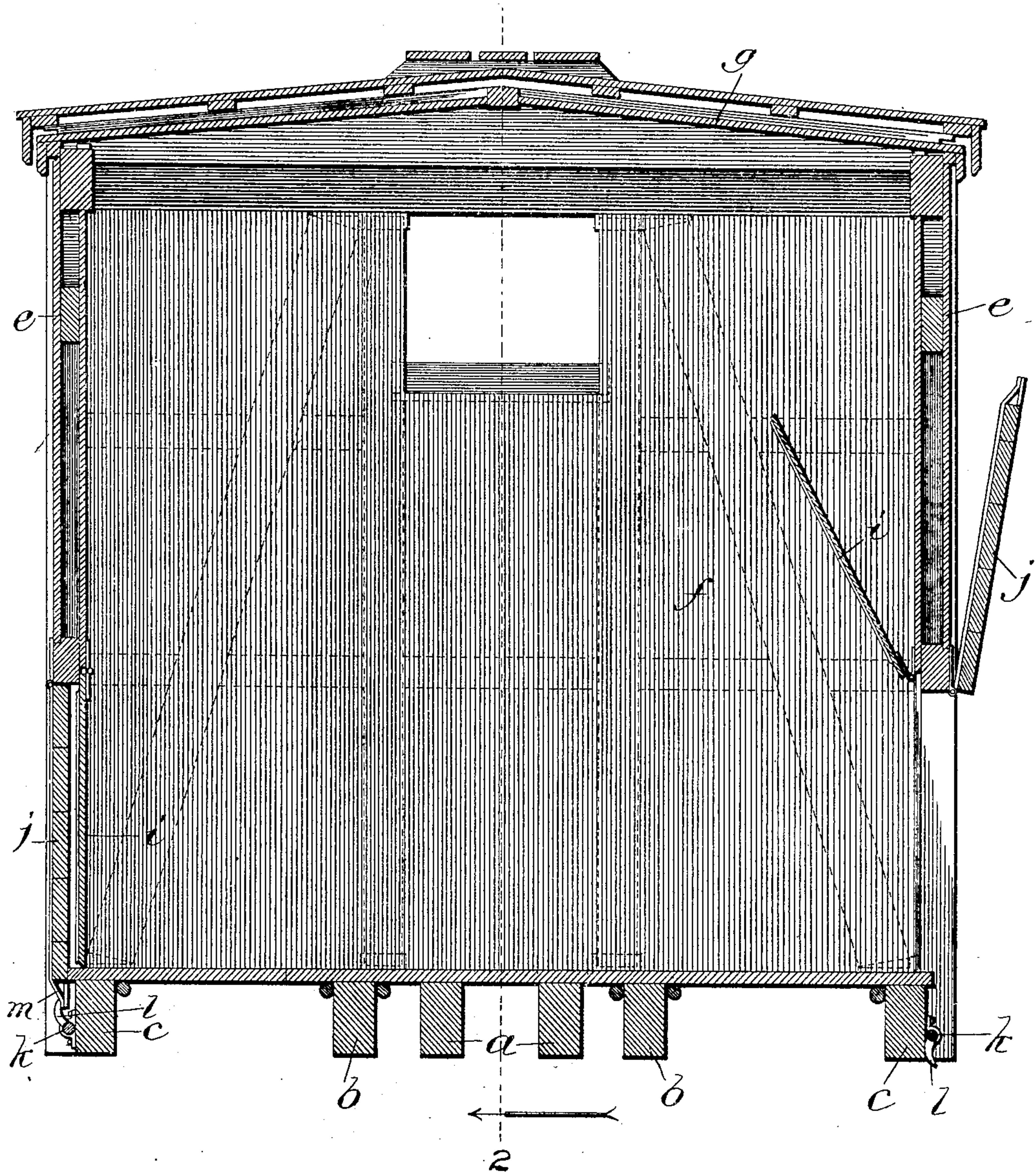
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3 SHEETS—SHEET 3.

*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

FREDERIC A. DELANO, OF CHICAGO, ILLINOIS.

## BOX-CAR.

No. 810,472.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed March 28, 1903. Serial No. 150,027.

*To all whom it may concern:*

Be it known that I, FREDERIC A. DELANO, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Box-Cars, of which the following is a specification.

This invention relates to that class of cars known as "box-cars," and particularly to the arrangement by which such cars may be used for the purpose of discharging a portion of the load and to facilitate the discharge of the remainder, as will more fully hereinafter appear.

The principal object of the invention is to provide a simple, economical, and efficient box-car with means for facilitating the discharge of certain kinds of freight.

Further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists principally in a box-car in which there are combined a supporting-framework, side boards, end boards, and a roof portion, a main central door in each side portion, and supplementary dumping-doors arranged in each side of the car between each end and the main-door openings to automatically discharge a portion of the load and facilitate the discharge of the remainder.

The invention consists, further and finally, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of one end of a box-car as it appears when constructed in accordance with these improvements; Fig. 2, a similar view of the other end of the car with the side boarding stripped therefrom, so as to show the trussed framework; and Fig. 3 an enlarged cross-sectional view of the car, taken on line 3 of Fig. 1, looking in the direction of the arrow.

In illustrating and describing these improvements I have only illustrated and described that which I consider to be new, taken in connection with so much as is old as will properly disclose the invention to others and enable those skilled in the art to practice the same, leaving out of consideration other and well-known elements, which, if set forth herein, would only tend to confusion, prolixity, and ambiguity.

In the art to which this invention relates it is well known that it is very desirable to pro-

vide a box-car of such construction and arrangement that coal, coke, ore, and similar loose bulky freight may be economically and efficiently carried therein. It is also well known that when such material is carried in an ordinary box-car it is very difficult to discharge the load therein, although it may be quite convenient on account of the many appliances therefor to load such freight in the car.

The principal object of this invention is to provide a box-car in which loose bulky freight, as above set forth, may be transported to the desired destination, a large part of the same automatically discharged therefrom, and the discharge of the remainder facilitated, all in an economical and efficient manner, as will more fully hereinafter appear.

In constructing a car in accordance with these improvements I provide a supporting-framework, which may be provided with the usual center sills *a*, intermediate sills *b*, side sills *c*, and end sills *d*, all constructed and arranged in any usual manner. This type of box-car is also provided with side boards *e* and end boards *f*, extending upwardly therefrom and having the usual roof portion *g* for inclosing the same. The side portions of the car are provided with central main doors, the openings *h* of which only are shown.

To provide for the automatic discharge of a portion of the load and facilitate the discharge of the remainder, each of the side portions of the car is provided with supplementary double swinging doors *i* and *j*, which are of a width equal to about one-half the height of the car and are pivoted at their upper edges to the side portions. One of such doors *i* is arranged on the inside, so as to swing upwardly therein, while the other *j* is arranged on the outside, so as to swing upwardly against the outer portion thereof. The car is provided with a pair of these doors in each side portion between each end and the main central door, so that any freight, such as coal and the like, which may be therein will bear against the door *j*. When this door is opened—that is, swung upwardly and outwardly—it will be seen that a large portion of the freight will be automatically discharged through the sides of the car and that the remainder may be easily discharged by hand. When material, such as wheat or other grain, is to be transported, it is necessary to provide a flush inner side for the car, and for this purpose the doors *i* are provided



and dropped down into the position shown to the left of Fig. 3, which prevents the grain from leaking or falling out. In other words, a discharging box-car with a smooth inner surface for the carrying of the same is provided.

To lock the outer doors in closed position—that is to prevent their swinging outwardly until the desired time—locking rock-shafts  $k$  are provided having projections  $l$  thereon adapted to contact lower depending metal portions  $m$ , projecting below the lower edges of the door. These rock-shafts may be provided with a lever portion  $p$ , by which it can be swung into or out of position and held in locking position by any desired means, preferably a link  $q$ , as shown particularly in Fig. 1.

It is well known in this art that the usual side portions of a car have a skeleton frame formed of a plurality of posts and diagonal braces, which diagonal braces extend substantially from the upper plate portions of the car to the lower side sills thereof. It will be seen, however, that in this type of car where supplemental discharging-doors are used a weakening thereof would take place unless some different arrangement and construction be adopted. To provide for the side strengthening or trussing of the same and permit of the use of supplemental discharging-doors, as hereinabove described, a plurality of side posts  $r$  are provided extending substantially from the upper plate to the lower side sills of the car. Between these side posts are arranged a plurality of diagonal braces  $s$ , some of which extend the entire distance from the upper to the lower portion of the sides of the car and some of which are shorter, as  $t$ , and extend from the upper portion of the car to a point about midway therebetween and are secured in position in any desired manner, so that the double swinging discharging-doors above described may be arranged therebelow and without any weakening of the structure, all of which will be understood and appreciated by those skilled in the art.

I claim—

1. In a box-car of the class described, the combination of a supporting-framework, side frames, end frames and a roof portion, a main central door in each side portion, and supplementary dumping-doors arranged on

the inside and outside of each side frame between each end thereof and the main-door apertures depending metallic projections on the lower side of the outer dumping-doors, a rock-shaft on the car having projections engaging the depending metallic portions to lock the door, and means for holding the rock-shaft in locking position, substantially as described.

2. In a car of the class described, the combination of a supporting-framework, side frames and end frames extending upwardly therefrom and provided with a roof portion, main door at each side of the car at or near the central portion thereof, and swinging doors arranged in pairs on the inside and outside of each side frame extending downward to the floor-level when in closed position and adapted to be swung upwardly on the inside and outside depending metallic projections on the lower side of the outer dumping-doors, a rock-shaft on the car having projections engaging the depending metallic portions to lock the door, and means for holding the rock-shaft in locking position, respectively, substantially as described.

3. In a box-car of the class described, the combination of a supporting-framework, a rigid floor, rigid end boards, a roof, side frames having rigid portions extending from such roof to the floor, a main central door in each of such side frames extending substantially from the roof to the floor, supplementary vertical dumping-doors arranged in each side of the car between each end thereof and the main door swinging outward for automatically discharging a portion of the load and facilitating the discharge of the remainder thereof, depending metallic projections on the lower side of the outer dumping-doors, a rock-shaft on the car having projections engaging the depending metallic portions, to lock the door, and means for holding the rock-shaft in locking position and inner doors mounted adjacent to such dumping-doors swinging inward and resting against the rigid portion of the side frames when in closed position, substantially as described.

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Witnesses:

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