P. BROWN.

CAR.

APPLICATION FILED AUG. 4, 1917.

1,275,376.

Patented Aug. 13, 1918.

2 SHEETS—SHEET 1.

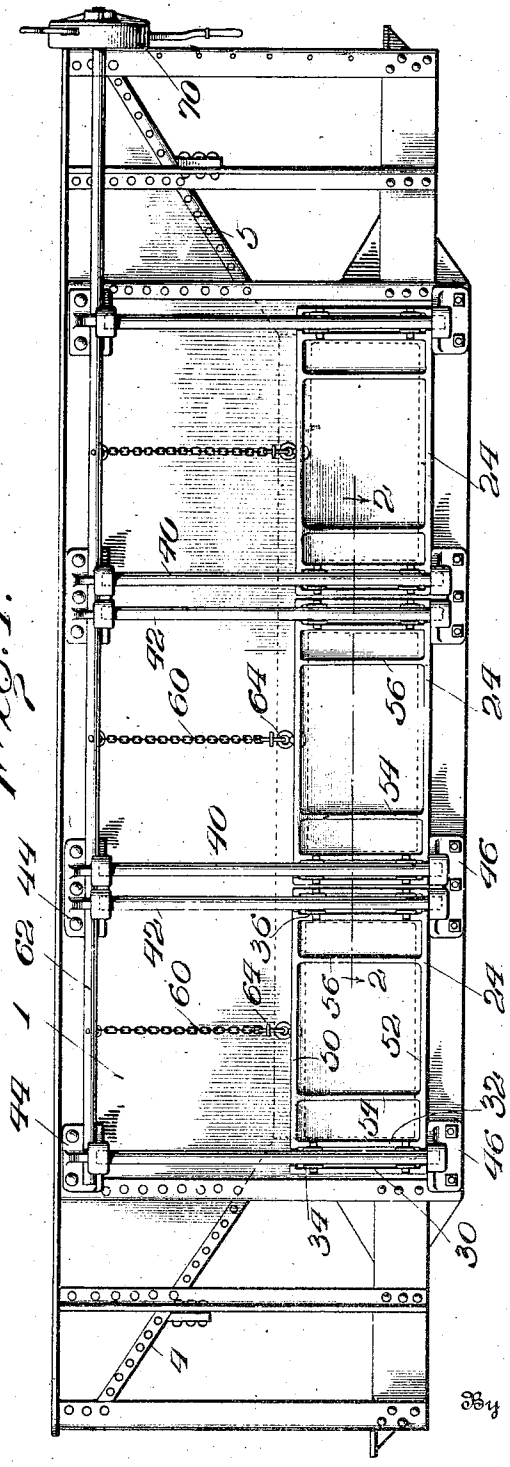


Fig. 1.

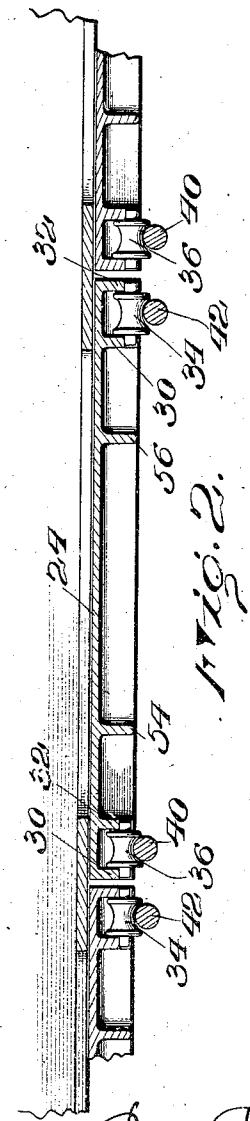


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

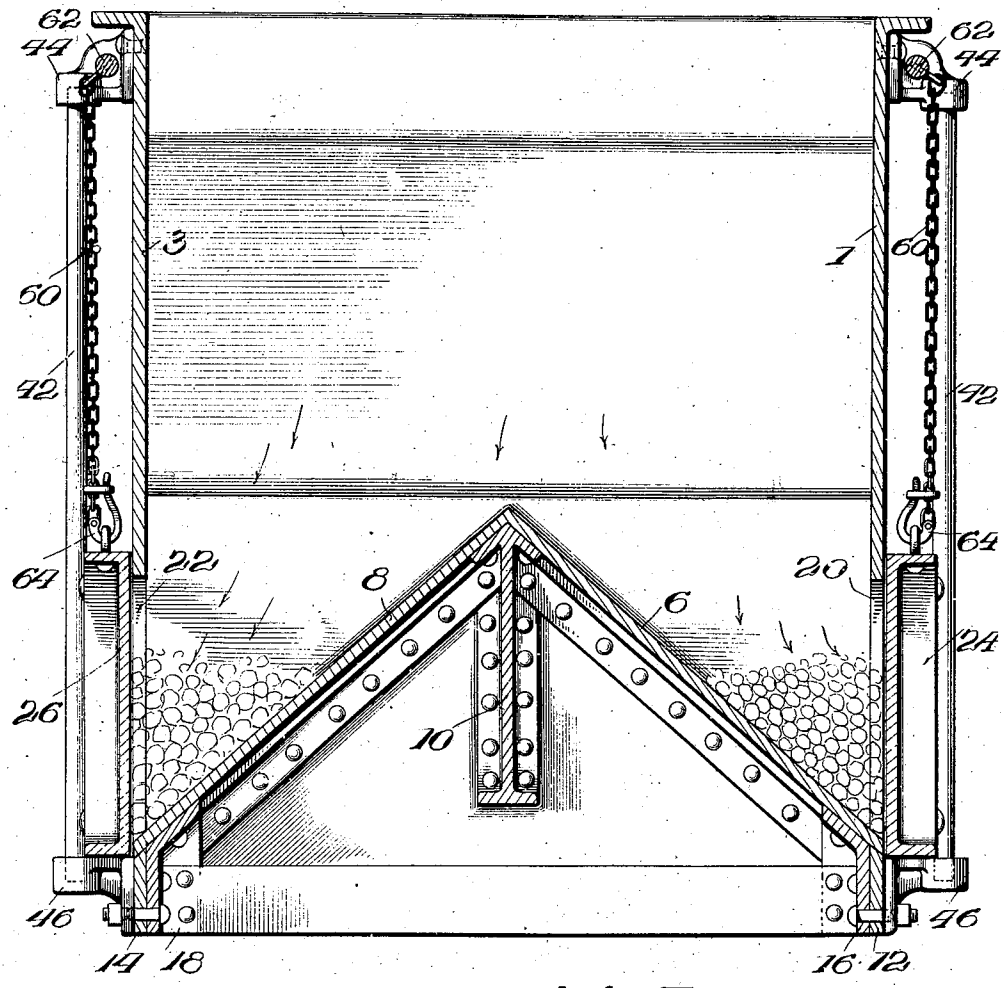
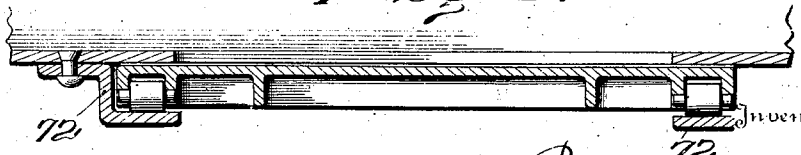


Fig. 4.



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UNITED STATES PATENT OFFICE.

PERRY BROWN, OF CORAOPOLIS, PENNSYLVANIA.

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1,275,376. Specification of Letters Patent. Patented Aug. 13, 1918.

Application filed August 4, 1917. Serial No. 184,524.

To all whom it may concern:

Be it known that I, PERRY BROWN, a citizen of the United States, and a resident of Coraopolis, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Cars, of which the following is a specification.

This invention relates to improvements in railway cars and more particularly to the construction of the side doors and to the discharge openings. One of the objects of my invention is to provide a door and door structure wherein the door will slide over or in front of the edge of the wall forming the bottom of the discharge opening so that no coal can lodge between the bottom of the door and the bottom of said opening. Another object of my invention is to provide a door structure in which the door will operate in the easiest possible manner and this is attained by having antifriction rollers located between the face of the door and heavy supporting rods.

The invention consists in the arrangement and combination of parts hereinafter more particularly described and then definitely claimed.

In the drawings accompanying and forming part hereof:

Figure 1 is a side elevation of part of a car made in accordance with my invention.

Fig. 2 is an enlarged horizontal section through the line 2—2 of Fig. 1.

Fig. 3 is a transverse vertical section.

Fig. 4 is a horizontal section of a modified form.

Referring now to the details of the drawings by numerals: 1 and 3 designate the sides of a car preferably having the usual inclined ends 4 and 5. Between these ends the bottom is made of inverted V-shaped form by the two slanting members 6 and 8. These members are preferably supported by means of a central longitudinal beam 10 as illustrated in Fig. 3. The lower portions of the slanting bottom members 6 and 8 are supported by sub-sills 12 and 14 braced by longitudinal angle irons 16 and 18. The sides 1 and 3 are provided with discharge openings 20 and 22. It will be observed that the inclined members 6 and 8 forming the inverted V-shaped bottom extend out to the very edge of the discharge openings 20 and 22. The said discharge openings 20 and 22 are closed by doors 24 and 26 made preferably of the construction shown in my drawings. As there shown, each of these doors is provided with vertical ribs 30 and 32 on each side and near the top and bottom of these vertical ribs 30 and 32 are formed recesses to receive antifriction rollers 34 and 36. The trunnions of the rollers are supported by the aforesaid ribs 30 and 32. As the door is raised or lowered the aforesaid anti-friction rollers 34 and 36 bear against heavy vertical bars 40 and 42 which are sustained by brackets 44 secured to the upper part of the sides 1 and 3 and by similar brackets 46 bolted or otherwise secured to the sub-sill 14 at the bottom of the sides of the car. This construction makes an exceedingly strong one with a sliding door having an anti-friction roller between its face, on each of its corners and the heavy rod, to sustain the entire weight of the coal or other load bearing against the inside of the door. One point that I wish to emphasize is that the lower part of each door, as it closes, projects down over the vertical edges of the wall forming the discharge openings 20 and 22 so that a piece of coal or stone cannot lodge or be caught underneath the door and prevent the door from closing. This is an important point of the reason that doors of this kind as they have been previously made, have had their bottom walls resting upon the bottom of the discharge opening so that a piece of coal or stone could lodge between the bottom of the door and the bottom of the discharge opening and thus permit serious waste. This is especially important in transporting either coal or sand. It will also be observed that in elevating the doors of my car to discharge the load, the load presses the anti-friction rollers of the door against the heavy vertical supports 40 and 42 so that there is absolutely no friction between the door and the side of the car. In addition to the vertical ribs 30 and 32, the door is provided with horizontal ribs 50 and 52, as well as additional strengthening ribs 54 and 56 so that the door is exceedingly strong and cannot give under the most excessive loads.

In order to elevate the doors I connect to each door a chain as 60, the chains of all the doors being connected to a horizontal shaft 62 provided with bearings in the brackets 44 which support the vertical rods 40 and 42. Thus the brackets 44 serve the double function of providing bearings for the rotating shaft 62 and for the vertical supporting rods

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40 and 42. The chains are each provided with a detachable fastening means as 64 for connecting it with the doors in order that if it is desired that only one door be open at a time the other chains may be disconnected. The aforesaid rotatable shaft 62 is provided with any winding means, such as that shown in conventional form and designated by the numeral 70.

Instead of the vertical rods 40 and 42 I may employ supports for the doors, formed of structural iron, as illustrated at 72 in Fig. 4. However, I prefer the heavy vertical rods 40 and 42, illustrated in Fig. 1 as superior to the structural iron shown in Fig. 4. In either case, it will be understood that the doors project over the vertical edges of the sides of the discharge openings 20 and 22 as hereinbefore referred to, and that the anti-friction rollers are located between the face of the doors and said vertical rods 40 and 42.

I am aware that it is old to provide vertical sliding doors with and without anti-friction rollers. But I believe that I am the first to provide a door and door structure wherein the bottom of the door passes over the vertical edge of the bottom wall of the discharge opening so as to prevent the lodgment of a piece of coal or stone between the bottom of the door and the bottom of the opening. I also believe that I am the first to provide a car with a sliding door having rollers interposed between the face of the door and strong vertical supports.

What I claim as my invention is:

1. The combination in a car of a side wall having a discharge opening, and a vertically slidable door closing said opening by having its lower portion sliding over the outside edge forming the bottom of said discharge opening without having any part resting thereon, whereby nothing can lodge between the bottom of the door and the bottom of the opening.

2. The combination in a car having an inverted V-shaped bottom, of a side wall having a discharge opening, the lower edge of said opening being formed by the edge of the inverted V-shaped bottom, and a vertically slidable door closing said opening by having its lower portion sliding over the outside edge of said inverted V-shaped bottom whereby nothing can lodge between the bottom of the door and the bottom of the opening.

3. The combination in a car of a side wall having a discharge opening, a vertically slidable door closing said opening and having vertical ribs near each end of the door projecting from the face thereof, and anti-friction rollers carried by said ribs and located between the face of said door and vertical supports carried by said side wall.

4. The combination in a car of a side wall having a discharge opening, brackets secured to said side wall above and below said discharge openings, bars carried by said brackets, a vertically slidable door closing the aforesaid opening, and anti-friction rollers carried by and located between the face of said door and bearing against said vertical bars.

5. The combination in a car of a side wall having a plurality of discharge openings, vertically slidable doors closing said openings, brackets secured to said side wall above and below said openings, bars secured in said brackets, anti-friction rollers carried by and located between the face of said doors and said bars, said brackets also carrying a shaft, and chains connecting said shaft with said doors.

In testimony whereof I affix my signature in presence of two witnesses.

PERRY BROWN.

Witnesses:

THOMAS E. ROBERTSON,

JOHN L. FLETCHER.