No. 758,135. PATENTED APR. 26, 1904.

A. D. HARRISON.

DUMPING CAR.

APPLICATION FILED SEPT. 12, 1903.

NO MODEL.

Fig. 1.

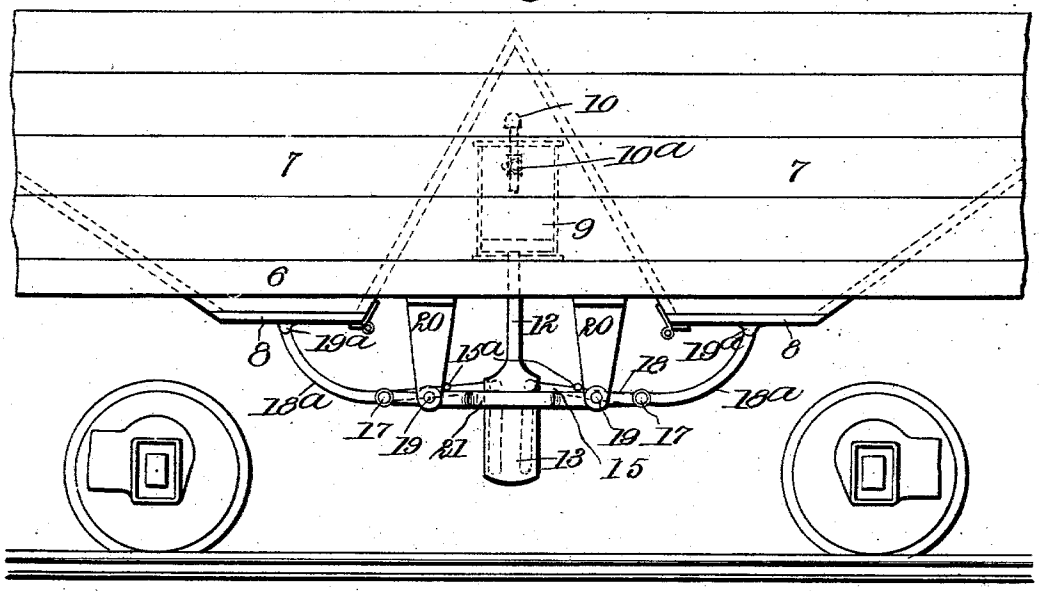
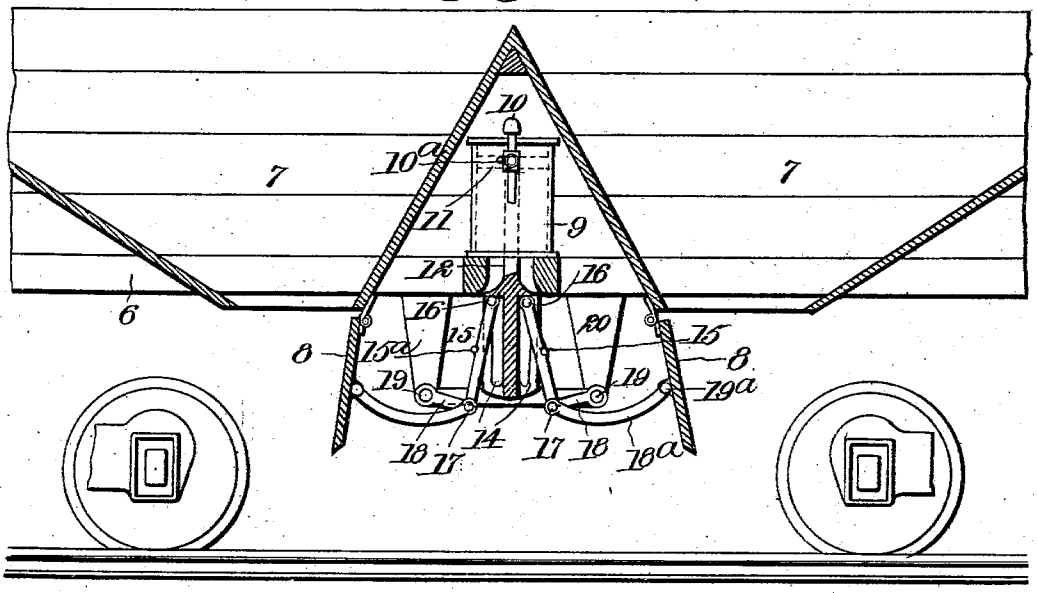


Fig. 2.



WITNESSES:

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No. 758,135. Patented April 26, 1904.

UNITED STATES PATENT OFFICE.

ALBERT D. HARRISON, OF DETROIT, MICHIGAN.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 758,135, dated April 26, 1904.

Application filed September 12, 1903. Serial No. 172,902. (No model.)

To all whom it may concern:

Be it known that I, ALBERT D. HARRISON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Dumping-Cars, of which the following is a specification.

This invention relates particularly to dumping-cars having hoppers, and has for its object to provide improved means for closing the swinging discharge-doors thereof. Air-pressure is utilized to lift the doors, the air being conveniently supplied from the air-brake apparatus, the air acting in a cylinder having a piston the rod of which is connected to the doors by means of a lever and toggle.

An important feature of the invention is a construction whereby either door may be opened.

In the accompanying drawings, Figure 1 is a side elevation of a part of a car with my invention applied thereto in one position, and Fig. 2 is a longitudinal vertical section showing the invention in the other position.

Referring specifically to the drawings, 6 indicates the car-sills or bottom frame, which supports the hoppers 7, the bottoms of which are opened or closed by swinging doors 8, which drop to dump the contents of the car.

At 9 a cylinder is indicated which is conveniently supported on the car-sills under the ridge between the hoppers. Air is supplied to the upper end of the cylinder by a pipe 10, which may be connected to any part of the air-brake system and is controlled by a suitable cock, as indicated at 10^a. The cylinder stands vertically and has a piston 11 and piston-rod 12 working therein. The lower end of the piston-rod is flattened, as at 13, and this flattened portion has a vertical slot 14 in each edge thereof.

At 15 bars are indicated which have in one position the function of levers and in the other positions the function of simple thrust-bars, as hereinafter explained. Each of these bars is connected at one end to the piston by a pin 16, extending through the slot. The other end thereof is pivoted to the joint 17 of a toggle, one member, 18, of which is pivoted at 19 to the lower end of a strut 20, fixed to the car-frame, and the other member, 18^a, of which is pivoted at 19^a to the door 8. The member 18^a is curved to give the proper direction of motion and is considerably longer than the member 18. The struts are connected and braced by a horizontal bar 21, extending between the ends thereof directly under the cylinder, and this bar has a looped or elongated eye through which the flattened portion 13 of the piston-rod works and is guided.

At 15^a is a laterally-extending stud or projection on the bar 15, which strikes and rests on the brace 21 when the doors are closed.

In operation, the doors being open, as shown in Fig. 2, air is admitted behind the piston, driving it down, and with it the bars 15, which straighten the toggles and close the doors in an evident manner. The short member of the toggle describes a half-circle around its pivot and the long members are thrown out and up with the doors, which after being closed are kept closed with separate locking devices. To open the doors, the air is exhausted from the cylinder and the weight of the doors or the matter within the car will flex the toggles and lift the piston and its rod and allow the doors to drop. When the doors start to open, the bars 15 act as levers to start the piston up. At such time the studs or projections 15^a rest on the brace, and when the doors are unlocked and the weight comes on the joint 17 its downward movement turns the bar 15 on the fulcrum 15^a as a lever, which has the effect of starting the lift of the piston and giving a purchase sufficient to continue said movement and prevent binding. If it be desired to open only one door, the slot 14 permits the other side to remain in closed position. As the piston lifts the pin 16 on the closed side will travel in the slot.

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

1. The combination with a car having a discharge-door, of a compressed-air cylinder and its piston, a toggle one arm of which is connected to the door and the other arm of which has a fixed pivot on the car-frame, and a rigid connection between the elbow of the toggle and the piston-rod.

2. The combination with a car having a dis-

charge-door, of a pressure-cylinder and its piston, a toggle connected to the door, and a thrust-bar pivoted to the toggle and having a sliding connection with the piston-rod.

3. The combination with a car having discharge-doors, of a pressure-cylinder and its piston between the same, struts projecting from the car between the cylinder and the doors, a brace between the struts, under the cylinder, having a guide for the piston-rod, toggles connected at their ends to the struts and the doors, and levers connecting the piston-rod and the toggles and having fulcrum projections resting on the brace when the doors are closed.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT D. HARRISON.

Witnesses:

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