No. 732,348. PATENTED JUNE 30, 1903.

A. D. HARRISON.

DUMPING CAR.

APPLICATION FILED MAR. 26, 1903.

NO MODEL.

Fig. 1.

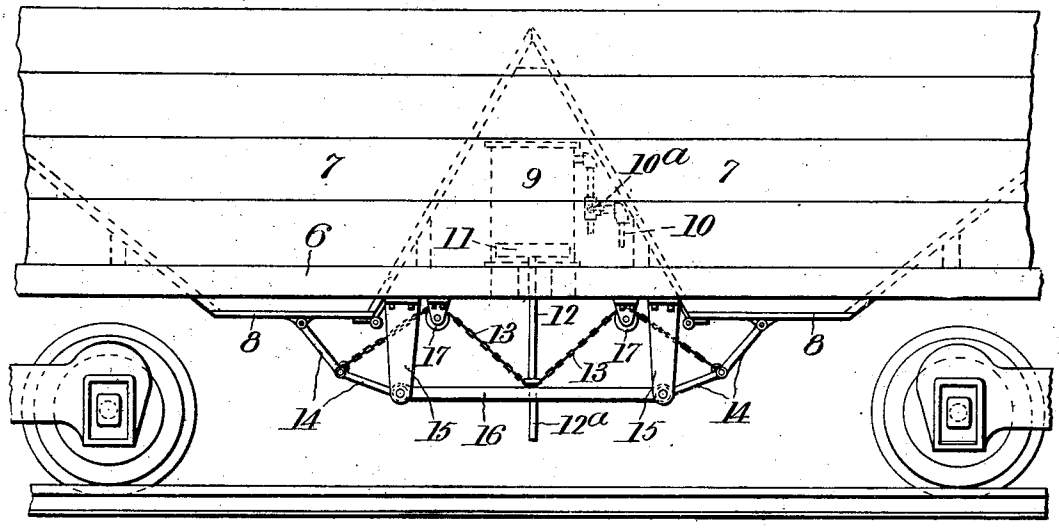
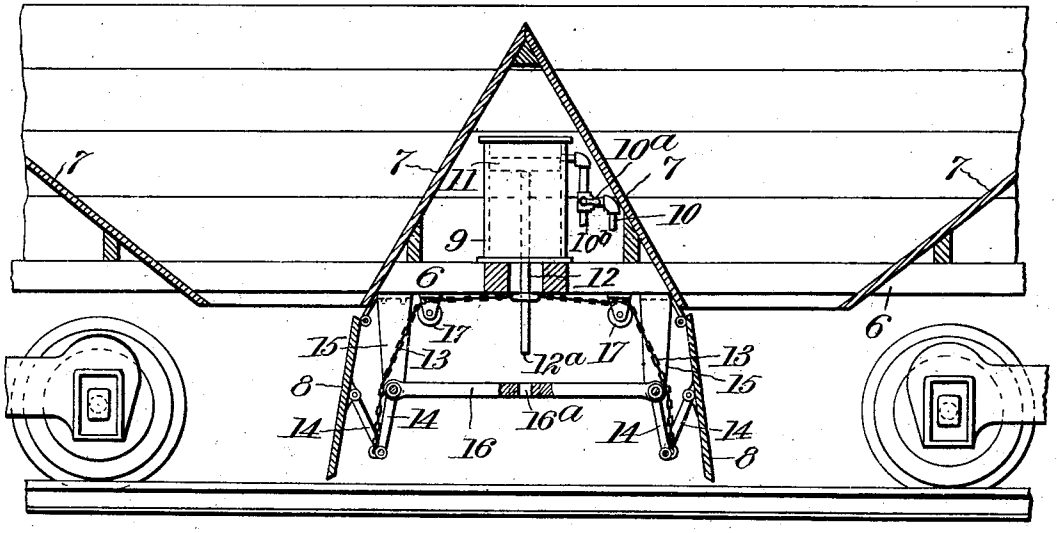


Fig. 2.



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Witnesses

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No. 732,348. Patented June 30, 1903.

UNITED STATES PATENT OFFICE.

ALBERT D. HARRISON, OF DETROIT, MICHIGAN.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 732,348, dated June 30, 1903.

Application filed March 26, 1903. Serial No. 149,709. (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 certain new and useful Improvements in Dumping-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to dumping-cars having hoppers, and comprises means for closing the swinging doors at the bottom of the hoppers.

The object of the invention is to produce an improved device whereby air-pressure is utilized to do the work of lifting the doors, the air being conveniently supplied from the air-brake apparatus.

In the accompanying drawings a double-hopper car is illustrated; but the invention is not limited in its useful application to that kind of car, but may be applied to other kinds, as found advisable or necessary.

In the accompanying drawings, Figure 1 is a side elevation of a part of a car, illustrating my invention. Fig. 2 is a longitudinal vertical section.

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

The invented means to close the doors include a cylinder 9, which is conveniently supported on the car-sills under the ridge between the hoppers. Air is supplied to the upper end of this cylinder by a pipe 10, which may be connected to any proper 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 piston-rod is connected by chains 13 to the elbows of toggles, the arms 14 of which are respectively hinged to the under side of the door and to supports or castings 15, which project downwardly from the car-sills. These castings are connected and braced by a horizontal longitudinal strut 16. The chains extend over pulleys 17, fixed to the car-sills, to give proper direction of movement to straighten the toggles. Beyond the point of connection to the chains the piston-rod is extended, as at 12^a, and this extension works through a guide-hole 16^a, made in the strut. This insures rectilinear motion of the piston-rod and also serves to prevent bending thereof, the hole being in line with the axis of the cylinder.

The operation is evident. When the air is off and the doors dropped, the piston is forced to the top of the cylinder. When it is desired to close the doors, air is admitted to the cylinder by proper manipulation of the valve 10^a, which forces the piston out and causes a pull on the chains, which straightens the toggles and closes the doors. The cock is conveniently a three-way cock operating to open the exhaust 10^b to let the air out of the cylinder when the pressure-air is turned off.

The apparatus may be applied to existing cars, and it is believed that it will be found very useful and convenient for the purpose intended.

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, a toggle connected to the door, and a chain connecting the piston-rod of the cylinder and the toggle, substantially as described.

2. The combination with a car having a discharge-door, of a compressed-air cylinder, mechanism connecting the piston-rod of the cylinder to the door, to operate the latter, and a support and guide for the piston-rod beyond its connection with said mechanism.

3. The combination with a car having a pair of hoppers and swinging doors at the bottom of the hoppers, of a compressed-air cylinder between the hoppers, levers engaging the doors and acting to close the same, chains connecting the piston-rod of the cylinder and the levers, to operate the latter, and a guide and support for the piston-rod beyond the connection of the chains therewith.

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

ALBERT D. HARRISON.

Witnesses:

ELIZABETH J. PRICE,

JESSIE A. GORDON.