No. 814,141. PATENTED MAR. 6, 1906.

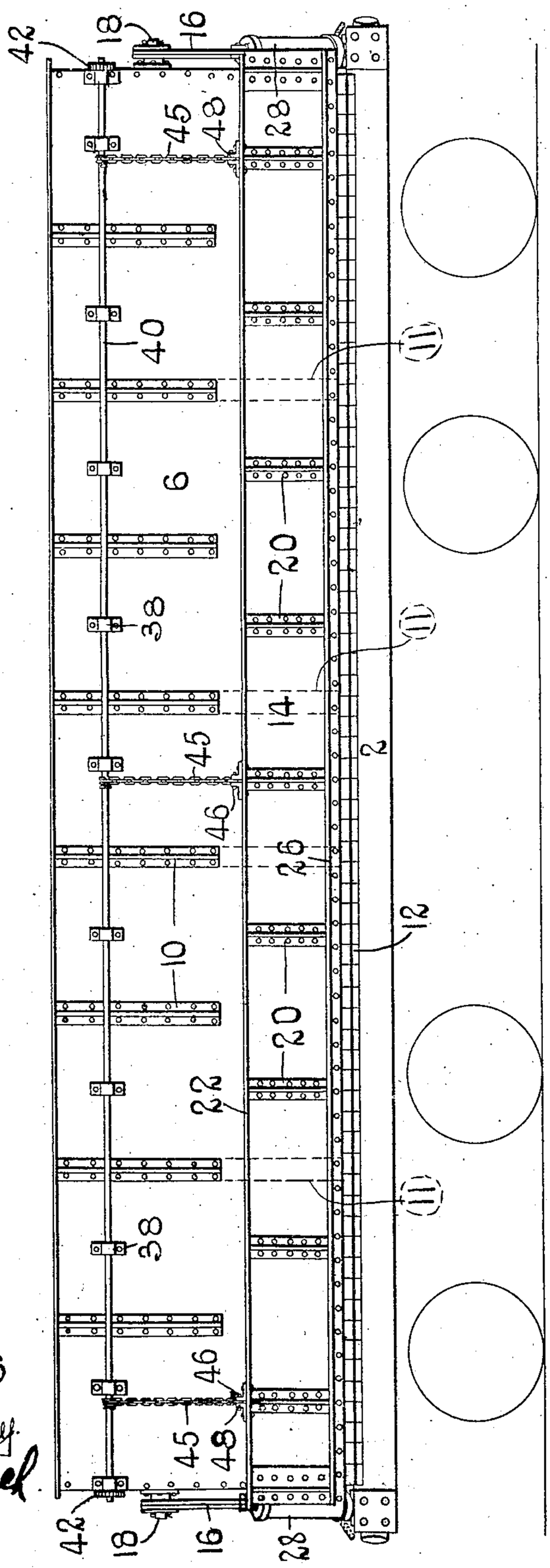
G. I. KING.

DUMP CAR.

APPLICATION FILED NOV. 24, 1905.

3 SHEETS—SHEET 1.

Fig. 1.




Witnesses

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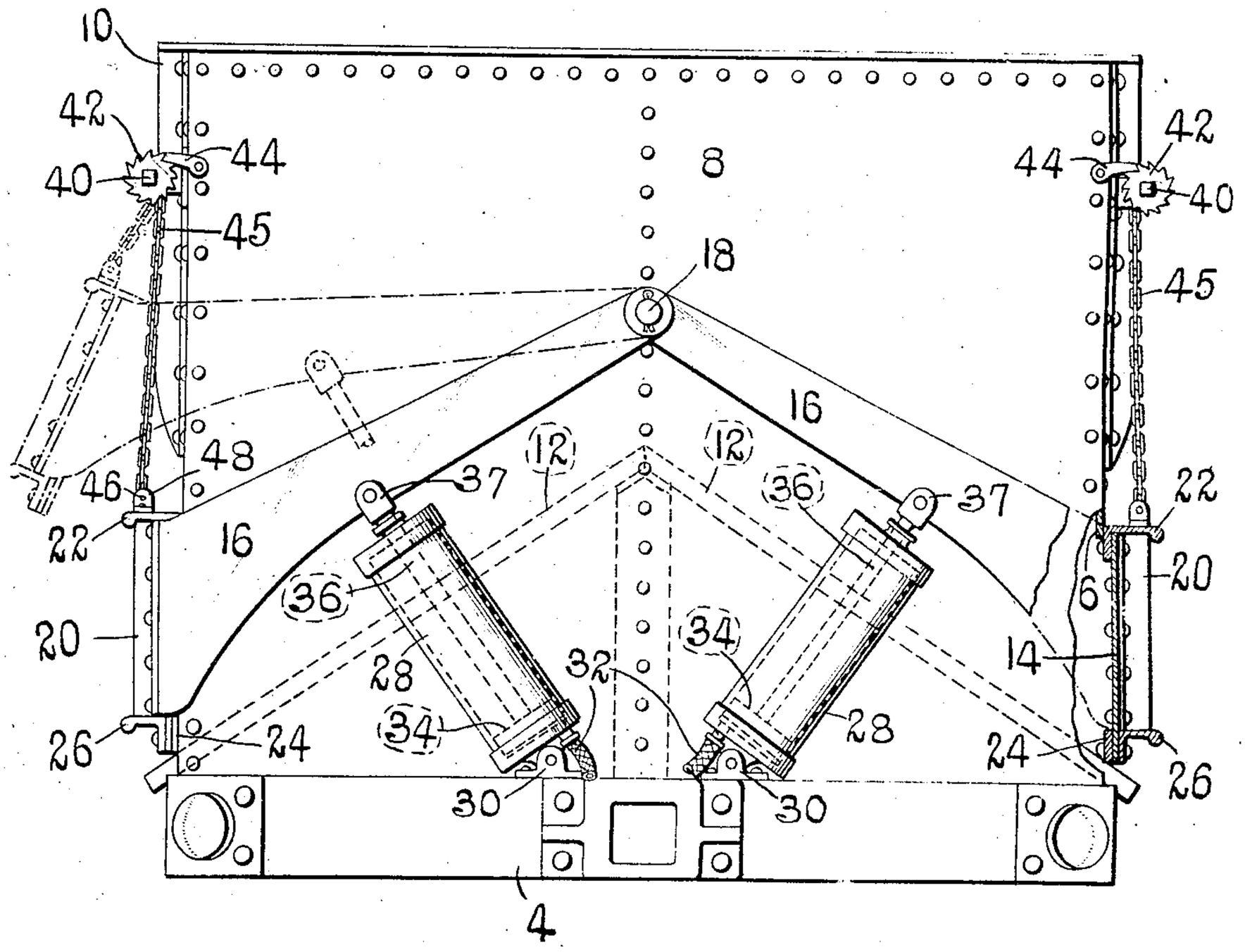
3 SHEETS—SHEET 2.

Fig. 2.

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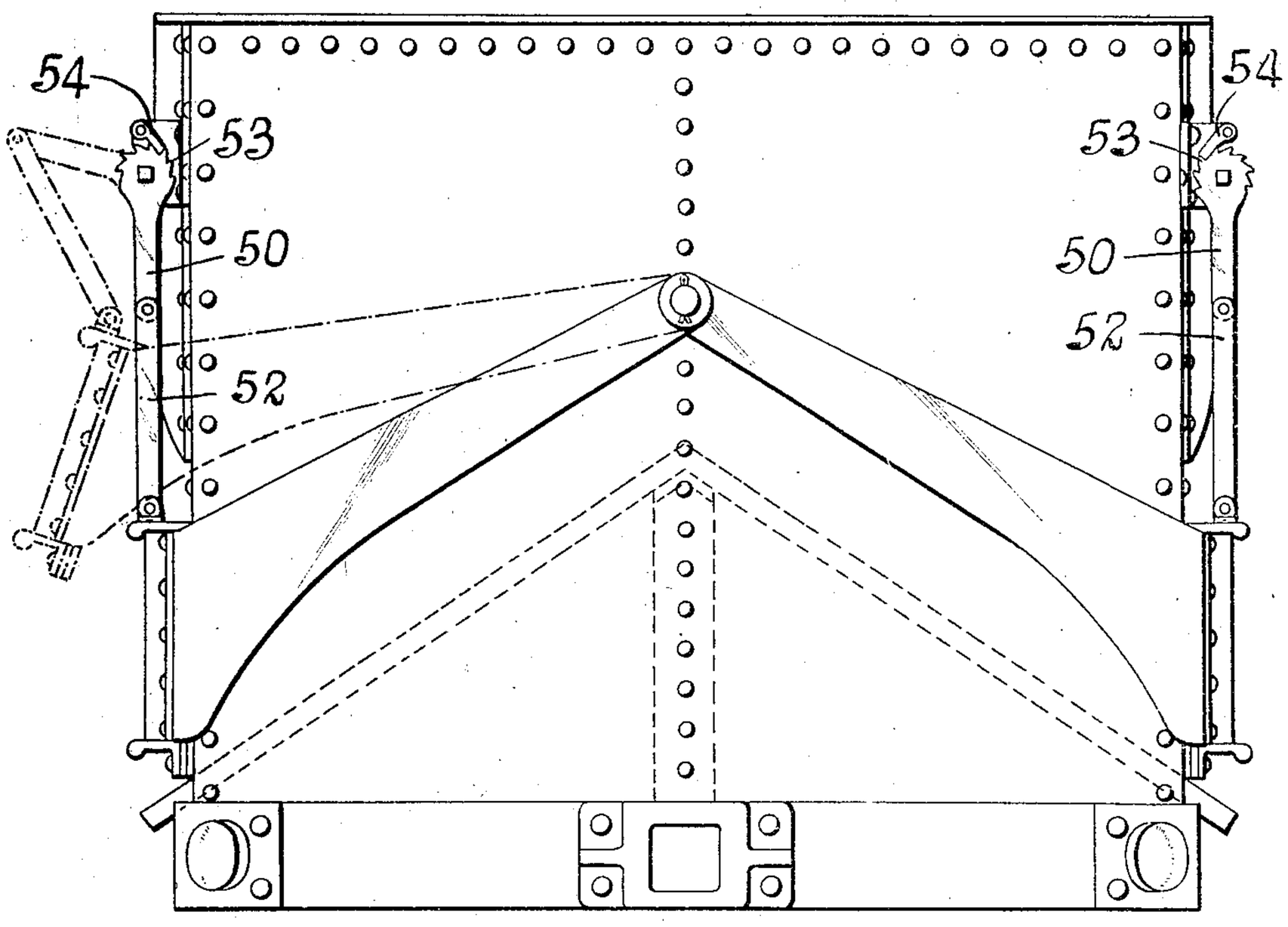
3 SHEETS—SHEET 3.

Fig 3.

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# UNITED STATES PATENT OFFICE.

GEORGE I. KING, OF MIDDLETOWN, PENNSYLVANIA.

## DUMP-CAR.

No. 814,141. Specification of Letters Patent. Patented March 6, 1906.

Application filed November 24, 1905. Serial No. 288,944.

*To all whom it may concern:*

Be it known that I, GEORGE I. KING, a citizen of the United States, residing at Middletown, Pennsylvania, have invented a certain new and useful Improvement in Dump-Cars, of which the following is a full, clear, and exact description, 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, forming part of this specification, in which—

Figure 1 is a side elevation of a car embodying the features of my invention. Fig. 2 is an end elevation of the car shown in Fig. 1, a portion of this figure being broken away to more clearly show the construction of the side doors with which the car is provided; and Fig. 3 is a view similar to Fig. 2, showing a modified form of door-operating mechanism.

This invention relates to cars for carrying coke, coal, earth, rock, and similar material; and the object of my invention is to provide a car which can be unloaded quickly.

Other desirable features of my improved car will be hereinafter pointed out.

I have herein shown the preferred form of my invention as embodied in a dump-car provided at each of its sides with a continuous door extending the full length of the car and located adjacent to the floor of the car. Preferably the doors have no connection with the sides of the car, but are carried by arms pivotally connected to the ends of the car, the weight of the doors holding them in their operative positions, so that locking devices are unnecessary to hold the doors closed; but they may be provided, if desired.

The car herein shown is provided with both air-controlled apertures and mechanical devices for opening the doors; but it should be understood that only one kind of door-operating mechanism is necessary.

Referring to the drawings, 2 designates the side sills of the car; 4, the end sills; 6, the sides of the car, and 8 the ends of the car. The sides and ends are preferably formed of steel plates, and the sides are strengthened by a plurality of vertically-extending shapes 10, riveted thereto. The car is preferably provided with a rigid floor 12, which extends the full length of the car.

As shown in Fig. 2, the sides of the car do not extend down to the floor 12, but are supported by interior posts 11, (shown in dotted lines in Fig. 1,) so that openings are provided at each side of the car for its full length, through which the contents of the car can be discharged. These openings are closed by continuous doors, which are carried by arms 16, oscillatingly mounted on studs 18 in the ends of the car. The doors are preferably of plate-girder construction, comprising a steel plate 14, strengthened by vertically-extending shapes 20, riveted thereto and having compression and tension flanges, consisting, respectively, of bulb-angles 22 and 26, connected to the upper and lower edge portions of the plate 14 by rivets, the upper edge of said plate resting in the angle formed by the junction of the legs of the bulb-angle 22, as shown in Fig. 2. Connected to the lower inner edge portion of the door-plate is a longitudinally-extending wear-strip 24. It will be apparent that a door constructed in this manner cannot bulge, possesses great rigidity, and is of sufficient weight and is so hinged as to cause it to tend to remain in its closed position without the employment of any locking devices, although locking devices may be employed, if desired.

Preferably the means for opening the doors comprises compressed-air-operated apparatus, to which air is supplied from the air-brake supply, said apparatus comprising a plurality of cylinders 28, pivotally connected to lugs 30, secured to the end sills. A pipe 32 supplies air to each cylinder for actuating its piston 34, provided with a piston-rod 36, having a bifurcated end 37, that is connected to one of the arms 16. As the pistons of the cylinders are actuated the door-carrying arms 16, to which they are connected, will be moved into the dotted-line position shown in Fig. 2, so that one-half the contents of the car will be discharged through the opening in the side of the car. As the opening extends the full length of the car and is closed by a single door, it is obvious that the contents of the car can be discharged quickly. The other half of the contents of the car will be discharged through the opening at the other side of the car when the pistons connected to the other door-carrying arms are actuated.

In case the air-controlled apparatus is out of order or cut off from the supply of air the doors can be opened by mechanism constructed as follows: Rotatably mounted in bearings 38 on each side of the car are longitudinally-extending shafts 40, having their ends squared for engagement with a lever,

crank, or other suitable actuating devices for imparting rotary movement thereto, said shafts also being provided at each end with ratchets 42, which coöperate with pivotally-mounted pawls 44, that prevent retrograde movement of said shafts. Fastened to each shaft are a plurality of chains 45, which are connected to the doors, preferably as shown in Fig. 1, in which the lower link of each chain receives a pin 46, carried by two angles 48, placed back to back and connected to the bulb-angle 22 of the door. Accordingly whenever one of the shafts is rotated the chains connected thereto will be wound upon said shaft and the arms carrying the door connected to said chains will be moved upwardly, as shown in dotted lines in Fig. 2, to open the door.

In Fig. 3 I have shown a slightly-modified form of door-operating mechanism wherein the longitudinally-extending shafts are provided with arms 50, which are connected to the upper bulb-angles of the doors by links 52. The upper ends of said arms are provided with ratchet-teeth 53, which coöperate with pivotally-mounted pawls 54, that prevent retrograde movement of the shafts.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A car comprising sides, ends, openings in the sides of the car adjacent to the floor and extending the full length of the car, a continuous door covering each opening, movable arms carrying said doors, and means for actuating said arms to open the doors; substantially as described.

2. A car having ends, sides, continuous doors extending the full length of the car and covering openings in the sides of the car adjacent to the floor, pivotally-mounted arms carrying said doors, and air-controlled apparatus for actuating said arms to open the doors; substantially as described.

3. A car having sides, ends, continuous doors extending the full length of the car and covering openings in the sides of the car adjacent to the floor, pivotally-mounted arms carrying said doors; rotatable shafts carried by the sides of the car, and connections between said shafts and doors; substantially as described.

4. A car having sides, ends, continuous doors extending the full length of the car and covering openings in the sides of the car adjacent to the floor, arms secured to the opposite ends of each door and pivotally connected to the ends of the car, a compressed-air-operated piston connected to each arm, longitudinally-extending shafts rotatably mounted in bearings on the sides of the car, and connections between said shafts and said doors; substantially as described.

5. A car having sides, ends, continuous doors extending the full length of the car to cover openings in the sides of the car adjacent to the floor, the weight of said doors retaining them in their closed positions, a rotating shaft for each door, a chain connected to said shaft and to the door whereby rotary movement of the shaft winds the chain thereon and opens the door; substantially as described.

6. A car comprising side sills, end sills, plate sides and ends connected to said sills, a ridged floor, continuous doors extending the full length of the car to cover openings in the sides of the car adjacent to the floor, pivotally-mounted arms carrying said doors, cylinders pivotally connected to the end sills, air-supply pipes for said cylinders, and pistons in said cylinders provided with piston-rods that are pivotally connected to the door-carrying arms; substantially as described.

7. A car having ends, sides formed of metal plates and a door extending the full length of the car to cover an opening in the side of the car adjacent to the floor, said door comprising a plate, a continuous bulb-angle having its vertical leg interposed between the side plate of the car and the door-plate and being riveted to said door-plate, a continuous wear-strip secured to the lower inner edge portion of the door-plate, and a continuous bulb-angle connected to the lower outer edge portion of the door-plate; substantially as described.

8. A car having sides, ends, continuous doors of plate-girder construction extending the full length of the car to cover openings in the sides of the car, and arms pivotally connected to the outside ends of the car and carrying said doors; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 17th day of November, 1905.

GEORGE I. KING.

Witnesses:
JOHN H. FRANK,
MYRA M. LAVERTY.