No. 707,342. Patented Aug. 19, 1902.

E. J. MÜLLER.

CAR DOOR MECHANISM.

(Application filed Apr. 16, 1902.)

(No Model.) 2 Sheets—Sheet 1.

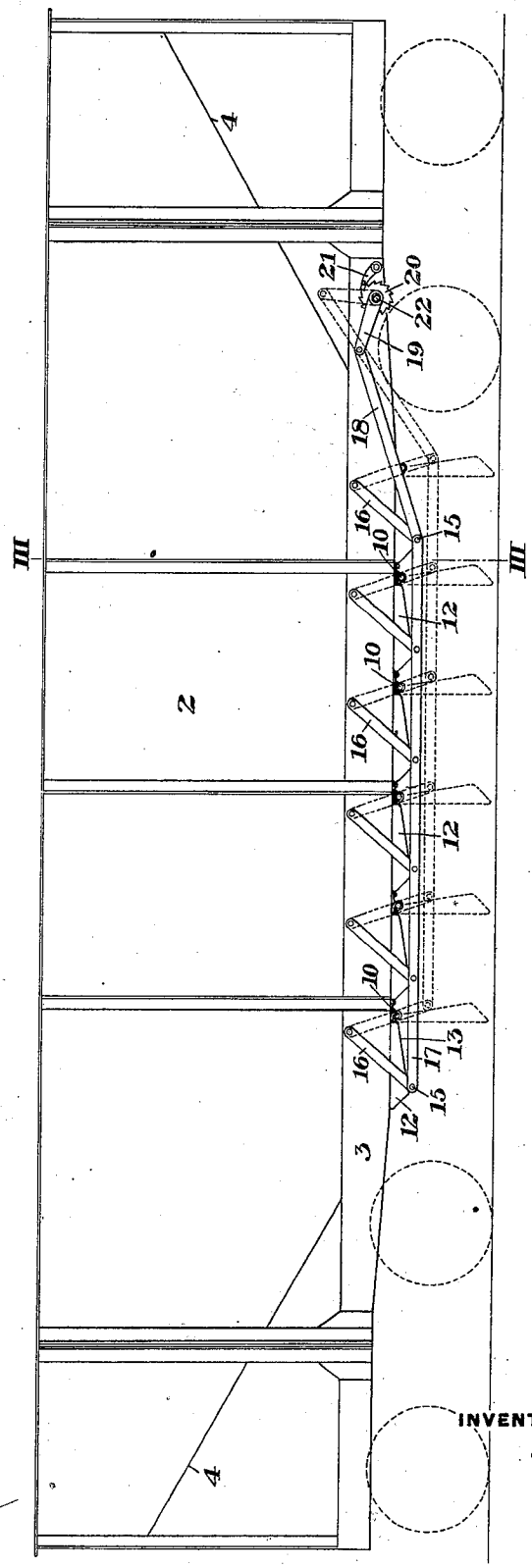


Fig. 1.

WITNESSES

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Fig. 3.

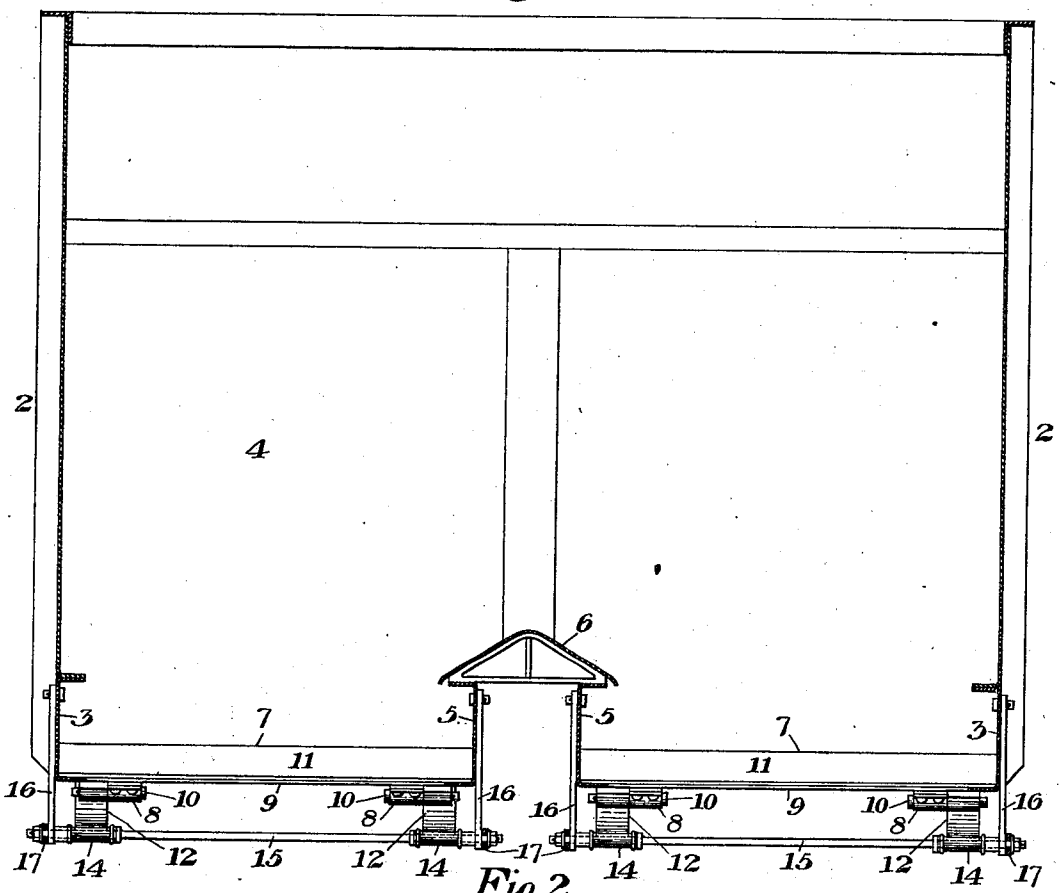
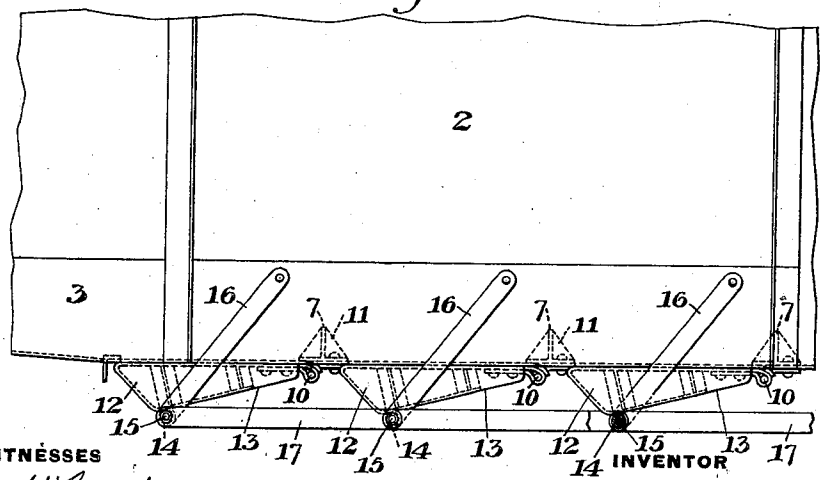


Fig. 2.



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UNITED STATES PATENT OFFICE.

EJNAR J. MÜLLER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO PRESSED STEEL CAR COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CAR-DOOR MECHANISM.

SPECIFICATION forming part of Letters Patent No. 707,342, dated August 19, 1902.

Application filed April 16, 1902. Serial No. 103,175. (No model.)

To all whom it may concern:

Be it known that I, EJNAR J. MÜLLER, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Car-Door Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of a hopper-car provided with my improved door mechanism. Fig. 2 is a partial side elevation of the same on a larger scale, and Fig. 3 is a vertical cross-section on the line III III of Fig. 1.

My invention relates to the bottom discharge-doors of railway-cars for transporting granular or lump material, and is designed to provide an improved system for opening and closing such doors.

In the drawings, in which I show the invention as applied to a hopper-car, 2 2 represent the car sides, 3 3 the side sills, and 4 4 the sloping ends of the body. I have shown the car as having a center sill consisting of two channel-sections 5 5, with a longitudinal covering-ridge 6. 7 7 are the transverse T irons or angles, which are riveted to the lower flanges of the center-sill channels and the side sills, and to each T-bar are riveted brackets 8, to which the doors 9 are pivoted by means of hinge-pins 10. These doors extend between the center sill and the side sills and form the floor between the transverse T-bars, which are preferably provided with triangular wooden fillers 11 to deflect the material. Each door is preferably provided at each side with downwardly-projecting bracket portions 12, having inclined faces 13. The doors are opened and closed by means of short rollers 14, contacting with the inclined faces 13 of the brackets and carried on transverse shafts 15. Each shaft 15 is hung upon links 16, which are pivoted at their upper ends to the center sill and side sills, respectively. Each of the shafts 15 projects at its outer end through the link, and these projecting portions engage holes in a connecting-bar 17. These connecting-bars extend longitudinally of the car sides throughout the door system and are connected at one end to long links 18, pivotally connected with levers 19. The levers 19 are secured to stub-shafts having ratchet-wheels 20, engaged by pawls 21. The shafts 22 are formed with squared ends, on which handles are applied to operate the doors. When the doors are closed, the links 16 are preferably in an inclined position, as shown in Figs. 1 and 2, the rollers 14 being preferably near the apices of the inclines on the brackets. To open the doors on either side, the pawl 21 is knocked out of engagement with ratchet-teeth, and the weight of the material will at once force the doors down into open position, the parts then assuming the position shown by dotted lines in Fig. 1. To close the doors, the shafts 22 are rocked by the handles, thus pushing the rollers 14 along the inclines of the doors and raising them into closed position, where they are held by the pawls engaging the ratchets.

The advantages of my invention result from the simplicity and effectiveness of the door-operating system. The doors are all operated simultaneously along either side of the car-bottom and the mechanism is not liable to get out of order.

The rollers may be mounted on horizontal slides instead of on the links, as shown. The doors may extend entirely across the bottom instead of between the center and side sills, as shown, and may be used on a gondola or other type of car, and the parts may be otherwise varied in construction and arrangement within the scope of my invention.

I claim—

1. A car having a hinged downwardly-swinging door at its bottom, an incline upon the door, and a roller device arranged to act upon the incline to raise or lower the door; substantially as described.

2. A car having a series of downwardly-swinging transversely-extending doors, inclines upon the doors, rollers bearing upon the inclines, and connections for simultaneously moving the rollers to open or close the doors; substantially as described.

3. A car having a series of downwardly-swinging doors hinged to transverse pintles, inclines upon the doors, moving elements contacting with the inclines, and connections for moving said elements simultaneously to

open or close the doors; substantially as described.

4. A car having a series of transverse downwardly-swinging doors with transversely-extending hinges, inclines on said doors, rollers bearing upon the inclines, swinging links carrying the rollers, and a connection for swinging the links simultaneously; substantially as described.

5. A car having downwardly-swinging doors in its bottom mounted on transverse pintles, inclines on the bottom portions of the doors, depending links pivoted to the car and provided with rollers bearing upon the inclines, connections between the links on at least one side, and mechanism for swinging the links to open or close the doors; substantially as described.

6. A car having transverse downwardly-swinging doors hinged to transverse supporting shapes in a car-bottom and arranged end to end longitudinally of the car, said doors having inclines, rollers contacting with the inclines, and connections for simultaneously actuating the rollers to open or close the doors; substantially as described.

7. A car having a series of downwardly-swinging transverse doors extending longitudinally of the body, inclines on said doors, rollers contacting with the inclines, and a rock-shaft having connections arranged to move the rollers simultaneously to open or close the doors; substantially as described.

8. A car having a center sill, two series of doors arranged longitudinally between the center sill and the car sides, said doors swinging downwardly on transverse axes, depending links having rollers bearing upon inclines on the doors, and rock-shafts having connections with the links, each shaft being arranged to swing the links of one set of doors simultaneously; substantially as described.

In testimony whereof I have hereunto set my hand.

EJNAR J. MÜLLER.

Witnesses:
H. M. CORWIN,
L. M. REDMAN.