A. CAMPBELL.

DUMP CAR.

APPLICATION FILED DEC. 16, 1910.

992,753.

Patented May 23, 1911.

2 SHEETS—SHEET 1.

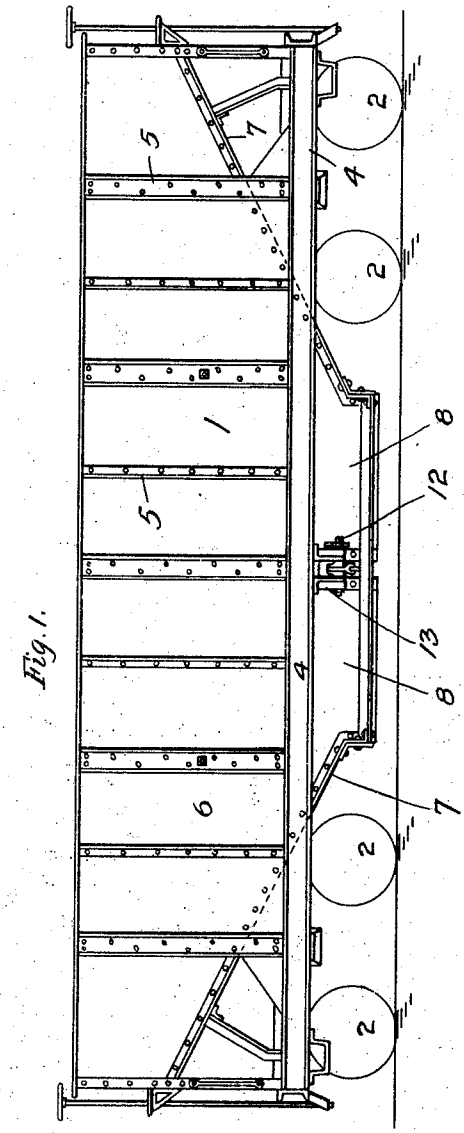


Fig. 1.

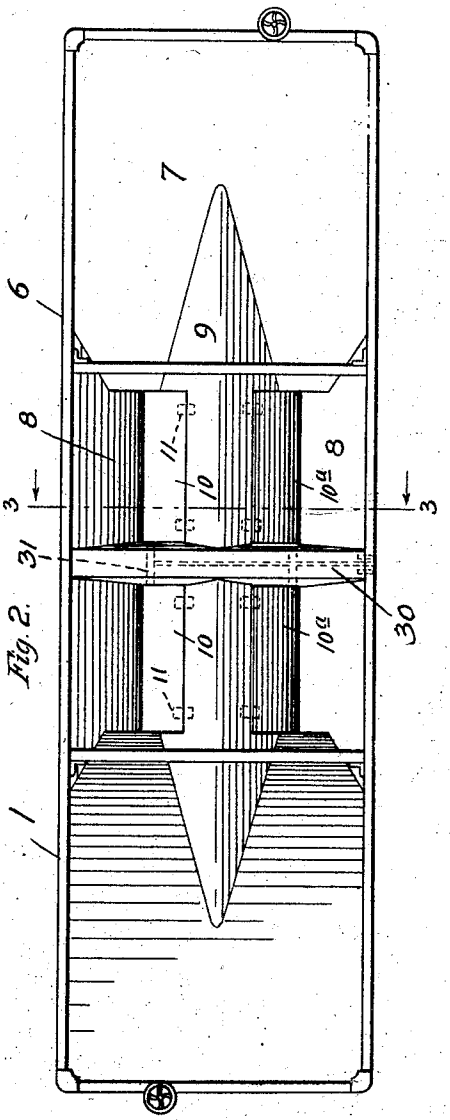


Fig. 2.

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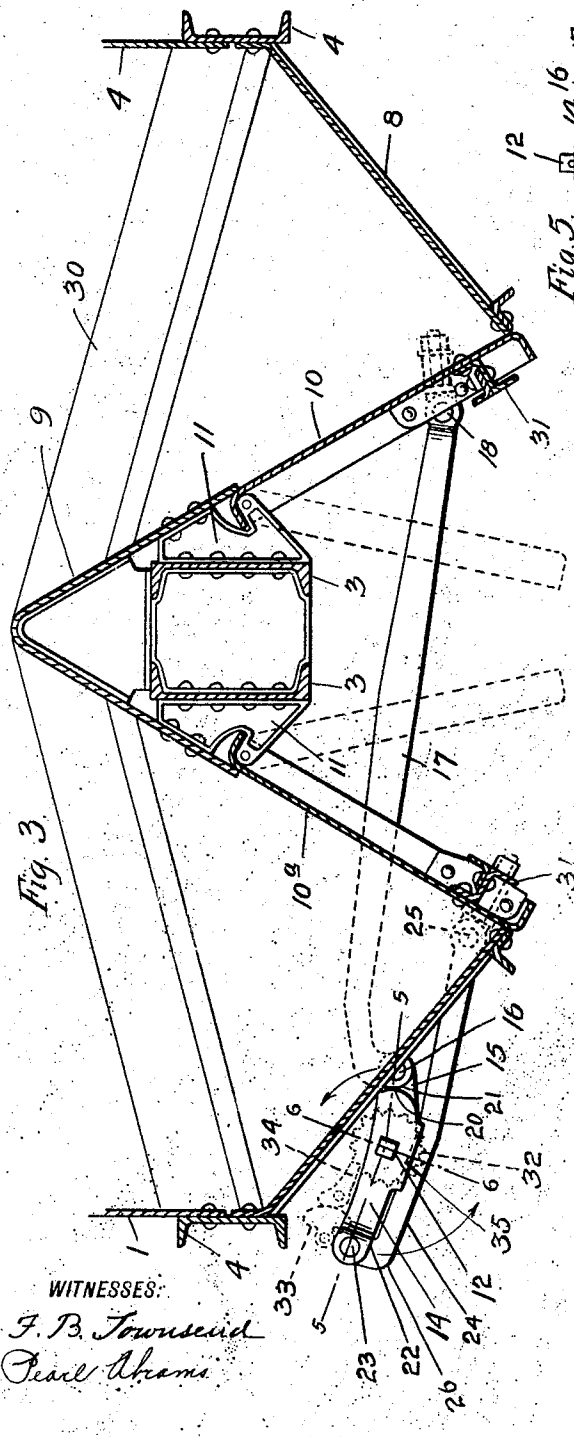


Fig. 3.

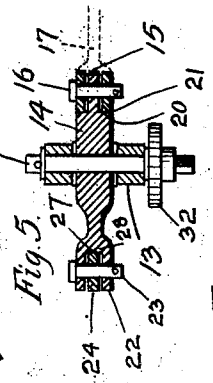


Fig. 5.

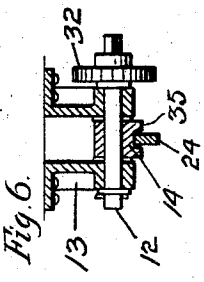


Fig. 6.

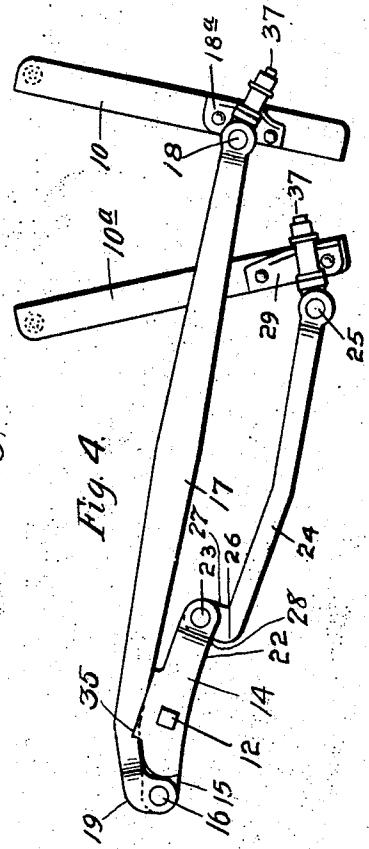


Fig. 4.

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UNITED STATES PATENT OFFICE.

ARGYLE CAMPBELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO ENTERPRISE RAILWAY EQUIPMENT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DUMP-CAR.

992,753. Specification of Letters Patent. Patented May 23, 1911.

Application filed December 16, 1910. Serial No. 597,637.

To all whom it may concern:

Be it known that I, ARGYLE CAMPBELL, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Dump-Cars, of which the following is a specification.

My invention relates to improvements in dump cars.

The object of my invention is to provide a hopper bottom dump car of a simple, efficient and durable construction, having a plurality of doors, both of which may be simultaneously opened and closed by a single operating shaft located at either side of both doors or upon one side of the car.

My invention consists in connection with a hopper bottom dump car, of two doors hinged to open in opposite directions, both, for example, toward the center of the car, and a single operating shaft arranged at one side of both doors, for example, at one side of the car, and connections between said operating shaft and both doors operating to simultaneously close or open the doors, one of the doors closing under a push or compression movement of its connection and the other under a pulling or tension strain of its connection.

My invention further consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described and more particularly specified in the claims.

In the accompanying drawing forming a part of this specification, Figure 1 is a side elevation of a dump car embodying my invention. Fig. 2 is a plan view. Fig. 3 is an enlarged detail, cross section on line 3—3 of Fig. 2. Fig. 4 is an elevation of the operating mechanism similar to Fig. 3, showing the parts in a different position. Fig. 5 is a detail section on line 5—5 of Fig. 3. Fig 6 is a detail section on line 6—6 of Fig. 3.

In the drawing, 1 represents the body of a dump car of any suitable construction, 2 the wheels, 3 the center sills, 4 the side sills, 5 the upright stakes or frame-members of the body, 6 the upright sides of the body, 7 hopper bottom members extending longitudinally from the ends of the car toward the dump doors and 8 hopper bottom members extending transversely of the car body from each side toward the dump doors and 9 a center hopper sheet extending longitudinally over the center sills, the car illustrated in the drawing being designed for center dumping in the particular embodiment of my invention illustrated in the drawing.

10, 10ª are the dump doors, the same being hinged to hinge members or brackets 11 secured under the central hopper sheet 9 and to the center sills. The doors 10, 10ª are represented as being hinged longitudinally of the car and adapted to open in opposite directions or toward each other for central dumping, as will be readily understood from Fig. 3 of the drawing.

12 is a single operating shaft for both doors, the same being preferably mounted under one side of the car and journaled in a suitable bracket or frame member 13. The operating shaft 12 is furnished with a double armed operating member or lever 14, one arm 15 of which is pivotally connected by a pin 16 with a push or compression link 17, which is pivotally connected at its other end by a pin 18 to one of the doors 10, and which operates to close by a push or compression movement one of the oppositely swinging doors 10. The compression link 17 is furnished with a bend 19 at its operating shaft end to adapt it to hook over or around the arm 15 when the door 10 is opened, thus enabling the member 14 to be turned through a complete arc of 180 degrees, and thereby giving a fuller opening movement to the door. The arm 15 of the operating member 14 and the compression link 17 are provided with interengaging shoulders 20, 21, which abut directly together when the door 10 is in its closed position, at this time the pivot pin 16 being directly in line with the operating shaft 12 and pivot pin 18 which connects the link 17 with the door 10, thus locking the door in its closed position. The other arm 22 of the operating member or lever 14 is connected by a pivot pin 23 with a pull or tension link 24, which is connected at its other end by a pin 25 with the other door 10ª, and which operates to close and hold closed the other door 10ª by a pull or tension movement or strain.

The pull link 24 is provided with a bend 26 at its outer end, having a shoulder 27 adapted to engage or abut against a corresponding shoulder 28 on the operating arm 22 when the door 10ª is closed, thus re-

lieving the pivot pin 23 from the strain of the load. When the door 10^a is closed, the pivot pin 23 of the pull link 24 is directly in line with the operating shaft 12 and the pivoted connection 25 of the link 24 with the door 10^a, thus locking the door in its closed position, as all the pivots are on a dead center or in the same straight line. The pivot pin 18 is secured to the door 10 by a bracket 18^a, and the pivot pin 25 is secured to the door 10^a by a similar bracket 29 and eye bolts 37.

The operating arms 22 and 15 of the operating member or lever 14 on the operating shaft 12 are of unequal length, the arm 22 being materially longer than the arm 15. This enables the doors 10 and 10^a to have equal opening movements, notwithstanding the fact that the oppositely swinging doors are located at different distances from the operating shaft and make different angles with the links 17 and 24 when the doors are in their closed positions, and also when the doors are in their open positions, and notwithstanding the fact that the longer and uppermost link 17 is connected to the door 10 somewhat nearer its hinge than is the link 24 to the door 10^a.

In the drawing, the car is represented as having two pairs of oppositely opening doors 10, 10^a and 10, 10^a, separated from each other by the transverse member or plate 30 of the car body under which the short operating shaft 12 is mounted, two doors 10, 10 on one side being connected together by a bridge member 31 and thus operated as one door. The operating shaft is furnished with a ratchet 32 and locking dogs 33, 34 are provided for locking the shaft in position when the doors are closed. The operating shaft is turned in the usual way by a lever having the customary wrench claw to fit on the squared end of the operating shaft.

The operating lever 14 is furnished with guide flanges 35 forming a channel between them to receive the pull link 24 when the doors are closed and between which the compression link 17 fits when the doors are open, as will be readily understood from Figs. 3, 4 and 6.

I claim:—

1. In a dump car, the combination with oppositely swinging doors, of an operating shaft at one side of both doors for simultaneously operating the same, an operating member on said shaft having arms of unequal length, a connecting link extending from one of said arms to one of said doors and a connecting link extending from the other of said arms to the other of said doors, substantially as specified.

2. In a dump car, the combination with oppositely swinging doors, of an operating shaft at one side of both doors for simultaneously operating the same, an operating member on said shaft having arms of unequal length, a connecting link extending from one of said arms to one of said doors, and a connecting link extending from the other of said arms to the other of said doors, the pivots of each of said links being directly in line with the operating shaft when the doors are closed, substantially as specified.

3. In a dump car, the combination with oppositely swinging doors, of an operating shaft at one side of both doors for simultaneously operating the same, an operating member on said shaft having arms of unequal length, a connecting link extending from one of said arms to one of said doors, and a connecting link extending from the other of said arms to the other of said doors, the pivots of each of said links being directly in line with the operating shaft when the doors are closed, and said links and arms having interengaging abutment shoulders when the doors are closed, substantially as specified.

4. In a dump car, the combination with oppositely swinging doors, of an operating shaft at one side of both doors for simultaneously operating the same, an operating member on said shaft having arms of unequal length, a connecting link extending from one of said arms to one of said doors and a connecting link extending from the other of said arms to the other of said doors, said operating member having guide flanges to receive said links, substantially as specified.

5. In a dump car, the combination with oppositely swinging doors, of an operating shaft at one side of both doors for simultaneously operating the same, an operating member on said shaft having arms of unequal length, a connecting link extending from one of said arms to one of said doors and a connecting link extending from the other of said arms to the other of said doors, said links having bent ends, substantially as specified.

6. In a dump car, the combination with a car body having transversely inclined hopper bottom sheets, of a pair of oppositely swinging longitudinally hinged doors, a single operating shaft for both said doors mounted at one side of the car under one of said hopper sheets, an operating member on said shaft having two arms, a push link connecting one of said arms with one of said doors and a pull link connecting the other of said arms with the other of said doors, substantially as specified.

7. In a dump car, the combination with a car body having transversely inclined hopper bottom sheets, of a pair of oppositely swinging longitudinally hinged doors, a single operating shaft for both said doors

mounted at one side of the car under one of said hopper sheets, an operating member on said shaft having two arms, a push link connecting one of said arms with one of said doors and a pull link connecting the other of said arms with the other of said doors, said links and arms having interengaging abutment shoulders when the doors are closed, substantially as specified.

8. In a dump car, the combination with a car body having transversely inclined hopper bottom sheets, of a pair of oppositely swinging longitudinally hinged doors, a single operating shaft for both said doors mounted at one side of the car under one of said hopper sheets, an operating member on said shaft having two arms, a push link connecting one of said arms with one of said doors and a pull link connecting the other of said arms with the other of said doors, said links having bent ends hinged to the arms of said operating member on said shaft, substantially as specified.

9. In a dump car, the combination with a car body having transversely inclined hopper bottom sheets, of a pair of oppositely swinging longitudinally hinged doors, a single operating shaft for both said doors mounted at one side of the car under one of said hopper sheets, an operating member on said shaft having two arms, a push link connecting one of said arms with one of said doors and a pull link connecting the other of said arms with the other of said doors, said connecting links having bent ends hinged to the arms of said operating member on said shaft, said operating arms and said bent ends of said links having interengaging shoulders, substantially as specified.

10. In a dump car, the combination with a car body having transversely inclined hopper bottom sheets, of a pair of oppositely swinging longitudinally hinged doors, a single operating shaft for both said doors mounted at one side of the car under one of said hopper sheets, an operating member on said shaft having two arms, a push link connecting one of said arms with one of said doors and a pull link connecting the other of said arms with the other of said doors, said links having pivotal connections with the arms of said operating member, and said doors and the pivots of said links being directly in line with the operating shaft when the doors are closed, substantially as specified.

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Witnesses:
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F. B. TOWNSEND.