

O. W. MEISSNER.
DUMP DOOR OPERATING MECHANISM.
APPLICATION FILED JUNE 27, 1908.

951,884.

Patented Mar. 15, 1910.

2 SHEETS—SHEET 1.

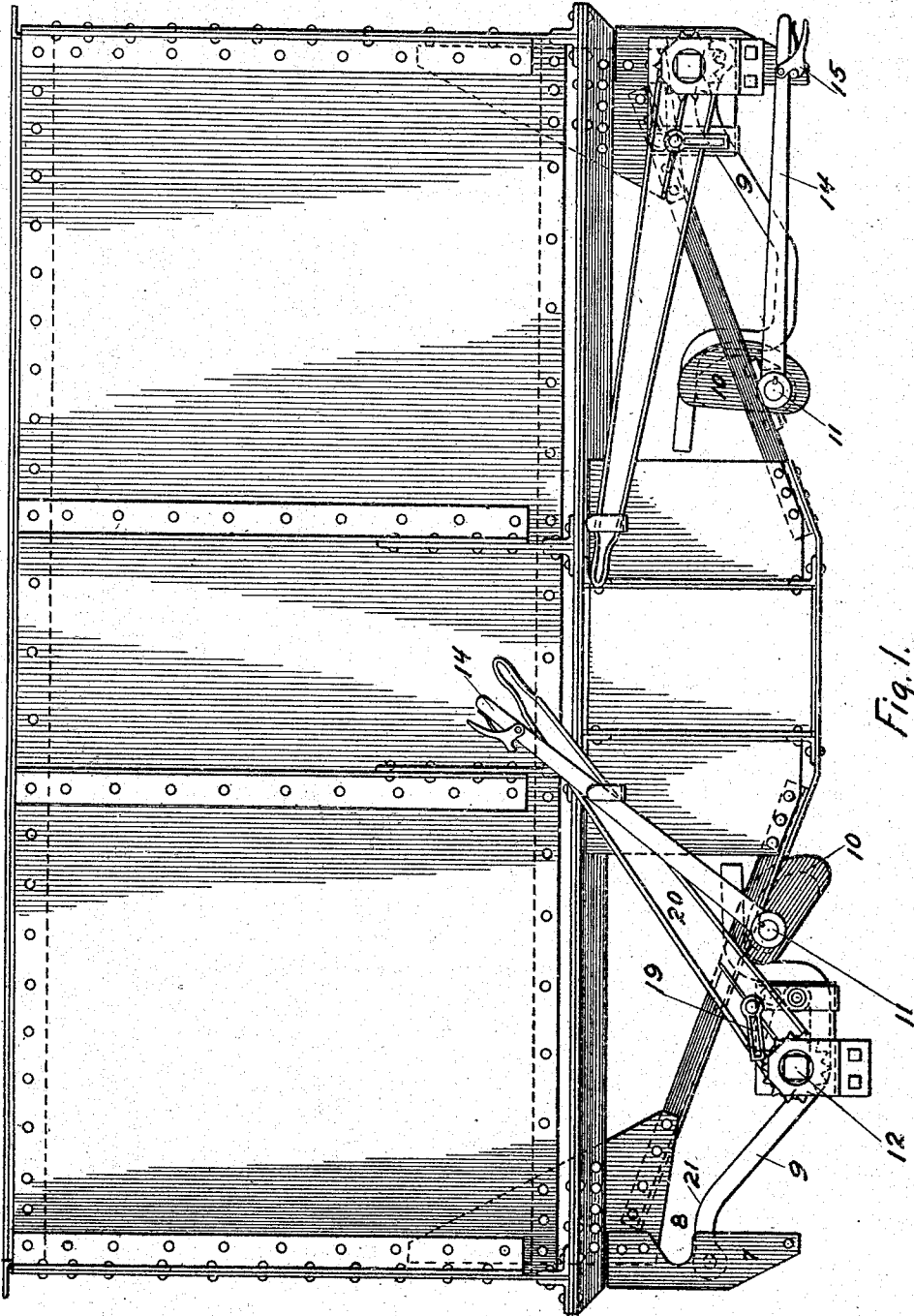


Fig. 1.

Witnesses:

Anna L. Savie
Edythe M. Anderson.

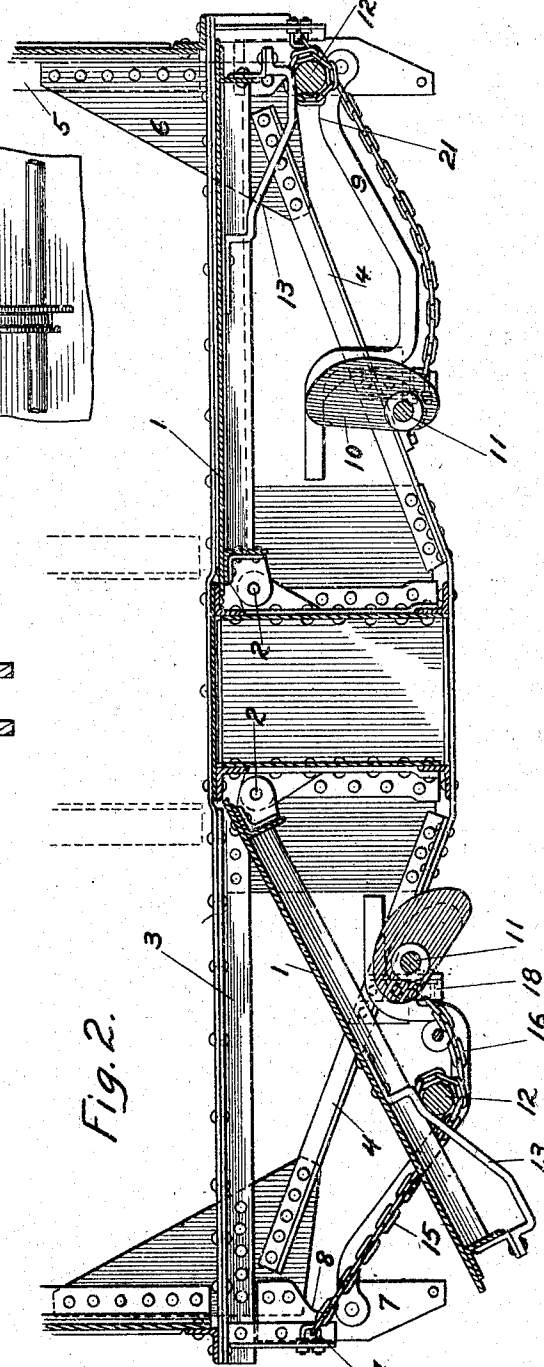
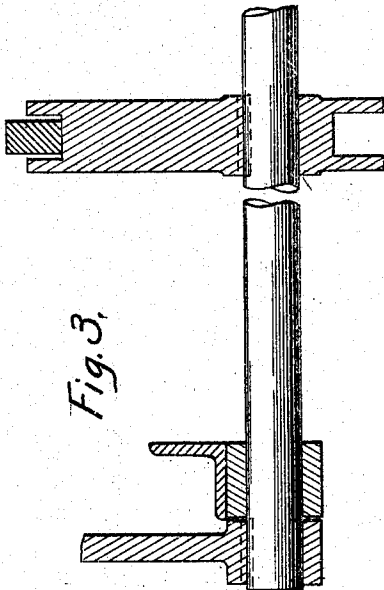
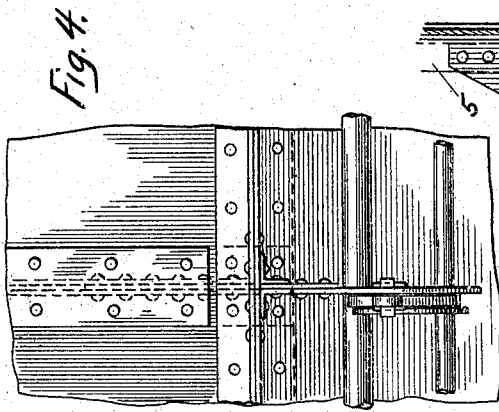
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2 SHEETS—SHEET 2.



Witnesses:

Anna L. Savois
Edythe M. Anderson.

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UNITED STATES PATENT OFFICE.

OTTO WILLIAM MEISSNER, OF MONTREAL, QUEBEC, CANADA, ASSIGNOR TO NATIONAL DUMP CAR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF MAINE.

DUMP-DOOR-OPERATING MECHANISM.

951,884.

Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed June 27, 1908. Serial No. 440,635.

To all whom it may concern:

Be it known that I, OTTO W. MEISSNER, a citizen of the United States, residing at Montreal, in the county of Hochelaga, Province of Quebec, Canada, have invented certain new and useful Improvements in Dump-Door-Operating Mechanism, of which the following is a specification.

The object of my invention is to provide means for holding the door operating shaft against displacement when the doors are closed in that type of cars wherein the doors are operated by means of a reciprocating shaft coöperating with the under side of the door and with a rail beneath the door.

My invention further relates to other details of construction.

In the drawings—Figure 1 is an end view of a car body embodying my invention. Fig. 2 is a cross section of the lower part of a car body showing certain details of the invention. Fig. 3 is a detail view of the cam shaft, its bearings and the cam and door rail. Fig. 4 is a fragmentary elevation showing the side stake, together with part of the door operating mechanism.

My invention is an improvement in that class of cars wherein the floor is composed of dump doors hinged near the center of the car and having their free edges lying adjacent the side walls of the car.

As illustrated in the drawings, the dump doors 1 are pivoted at 2 to the center sill. The transverse girders of the car illustrated consist of upper compression members 3 and lower tension members 4 passing above and below the center sill. The usual side stakes 5 extend upwardly from the transverse girders and are connected by means of gusset plates 6 with the tension members 4, the gusset plates being riveted to the side stakes and tension members. Extending downwardly from and secured to the gusset plates 6 are plates 7 notched at 8, as illustrated, the notches being designed to afford support for the door operating shafts when in their outer position. Pivoted to the plates 8 are door rails 9 supported at their inner free ends upon cams 10 secured to shafts 11. Door operating shafts 12 co-act with rails 9 and with the under surfaces of the dump doors in the manner usual in the type of car illustrated, the doors being provided on their under surfaces with inclines 13 adapted to rest upon the shafts 12. The inner

ends of the rails 9 may be raised to elevated position, shown at the right of Figs. 1 and 2, by means of the cams 10 and may be permitted to drop to the position shown at the left-hand of those views by rotating the cams. Any convenient means may be adopted for rotating the cam shaft 11. In the present instance I have shown levers 14 mounted upon the cam shafts 11 at the ends of the car and provided with any convenient spring catches, such as 15, for the purpose of holding them in the position assumed when the rails are raised.

The door operating shafts 12 may be moved from the position shown at the left of Figs. 1 and 2 to that shown at the right by any suitable form of mechanism. In the present instance I have illustrated a mechanism now commonly used and consisting of chains 15 and 16 each secured at one end to the shaft 12. The outer end of the chain 15 is secured to the frame of the car at 17 and the inner end of the chain 16 is attached to the frame of the car at 18. The shaft 12 is rotated by means of the pawl 19 upon the lever 20, the latter being loosely pivoted upon the shaft 12. The pawl 19 is reversible and may be used for rotating the shaft in either direction. Upon rotating the shaft 12 in one direction, one of the chains will be caused to wind thereon and the other unwind, thereby imparting to the shaft a movement of translation in either direction corresponding to its direction of rotation.

Assuming that the parts are as illustrated in Figs. 1 and 2 and that it is desired to close the door 1, the shaft 12 will be rotated in a counter clockwise direction, thus causing the chain 15 to wind on the shaft 12, and unwinding the chain 16 therefrom. The shaft will thus be carried up the rail 9 causing the door to close. At its upper limit of movement the shaft 12 enters the notch 8 in the depending plate 7, and the weight of the door and superimposed load will be borne upon this plate. In order to insure against accidental displacement of the shaft from the notch 8 in the depending plate 7, I have pivoted the track 9 to the plate 7 and provided the cam mechanism above described. After the door has been closed and the shaft 12 rests in the notch 8, the cam shaft 11 and attached cam 10 are rotated by means of the hand lever 14 from the position shown at the left of Figs. 1 and 2 to

the position shown at the right thereof, thus raising the rail 9 to the position shown at the right-hand of Figs. 1 and 2. The rail 9 is so formed, and the co-acting parts are so proportioned and related, that when said rail is raised the upper surface thereof adjacent its pivot at the point designated 21 will lie slightly above the lower edge of the notch 8 upon which the shaft 12 rests when the door is closed. By this means the shaft is effectually prevented from moving out of the notch 8 and down the rail 9. It will, therefore, be apparent that when the doors are closed and the rails 9 are elevated, the weight of the doors and load will be transmitted through the shafts 12 to the fixed plates 7, and the shafts will be held firmly against displacement by the projecting parts 21 of the rails 9. The parts are so designed that when the rails 9 are lowered the projecting parts 21 thereof will lie on a level with, or if desired, below the lower face of the notches 8, thus permitting the operating shafts 12 to move freely out of the notches when said shafts are rotated in a clockwise direction for the purpose of opening the doors.

While I have described one specific embodiment of my improved means for securing the door operating shafts against displacement, I do not consider that my invention is restricted to such specific means, but resides in the broad idea of providing means for so positioning the rail upon which the door operating shaft rests that the latter when moved to a position to close the doors may be secured against accidental displacement.

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In a dump car, a hinged door, a pivoted door rail beneath said door, a shaft co-operating with said rail and door, means to move said shaft along said rail, and means whereby the free end of said rail may be raised and lowered.

2. In a dump car, a hinged door, a pivoted door rail beneath said door, a shaft co-acting with said rail and door, means for moving the shaft transversely of its axis between said rail and door, and a cam in operative relation to the free end of said pivoted rail.

3. In a dump car, a hinged door, a door rail pivoted beneath the door and adjacent the free edge thereof, means whereby the free end of said pivoted rail may be raised and lowered, a shaft movable transversely of its axis between said rail and door, and means for moving said shaft, said rail being so formed that when in its elevated position

the part adjacent its pivoted end will lie above the pivot.

4. A dump car provided with a door opening extending from its central portion to the side thereof, a dump door hinged at the inner edge of said opening, a fixed member extending downwardly from the car floor adjacent the outer edge of said opening, a door rail pivoted to said fixed member and extending inwardly transversely of the car, a notch in said fixed member above the pivot of said rail, means for raising and lowering the free end of said rail, and a rolling shaft coöperating with said rail and door, said shaft being adapted to lie in said notch when moved to its outer position and said rail being so formed that when elevated the part thereof adjacent its pivot will lie above the base of said notch.

5. In a dump car, a hinged dump door, a door rail pivoted beneath and adjacent the outer edge of said door and extending transversely thereof, a shaft coöperating with said door and rail, means for actuating said shaft, and means for raising and lowering the free end of said rail, said rail being so formed that when elevated the part of its upper surface adjacent the pivot will slope downwardly toward the pivot.

6. In a dump car, a hinged door, a fixed member extending downwardly adjacent the free edge of said door, a door rail pivoted to said fixed member, said fixed member being notched, a rolling shaft coöperating with said door and rail and adapted to lie in said notch when in its outer position, means for actuating said shaft, and means for raising and lowering the free end of said rail, said rail being so formed that when elevated its upper surface adjacent the pivot will lie above the base of said notch.

7. In a dump car, a hinged door, a notched plate extending downwardly adjacent the free edge of said door, a door rail pivoted to said plate, a shaft adapted to be moved transversely of its axis between said rail and door and to lie in said notch when in its outer position, means for actuating said shaft, a shaft mounted adjacent the free end of said rail, a cam secured to said shaft, and means for rotating said shaft and cam, said rail being so formed that when in its raised position its upper surface adjacent its pivot will lie above the base of said notch.

In testimony whereof, I have subscribed my name.

OTTO WILLIAM MEISSNER.

Witnesses:

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ROBERT M. ZIMMERMAN.