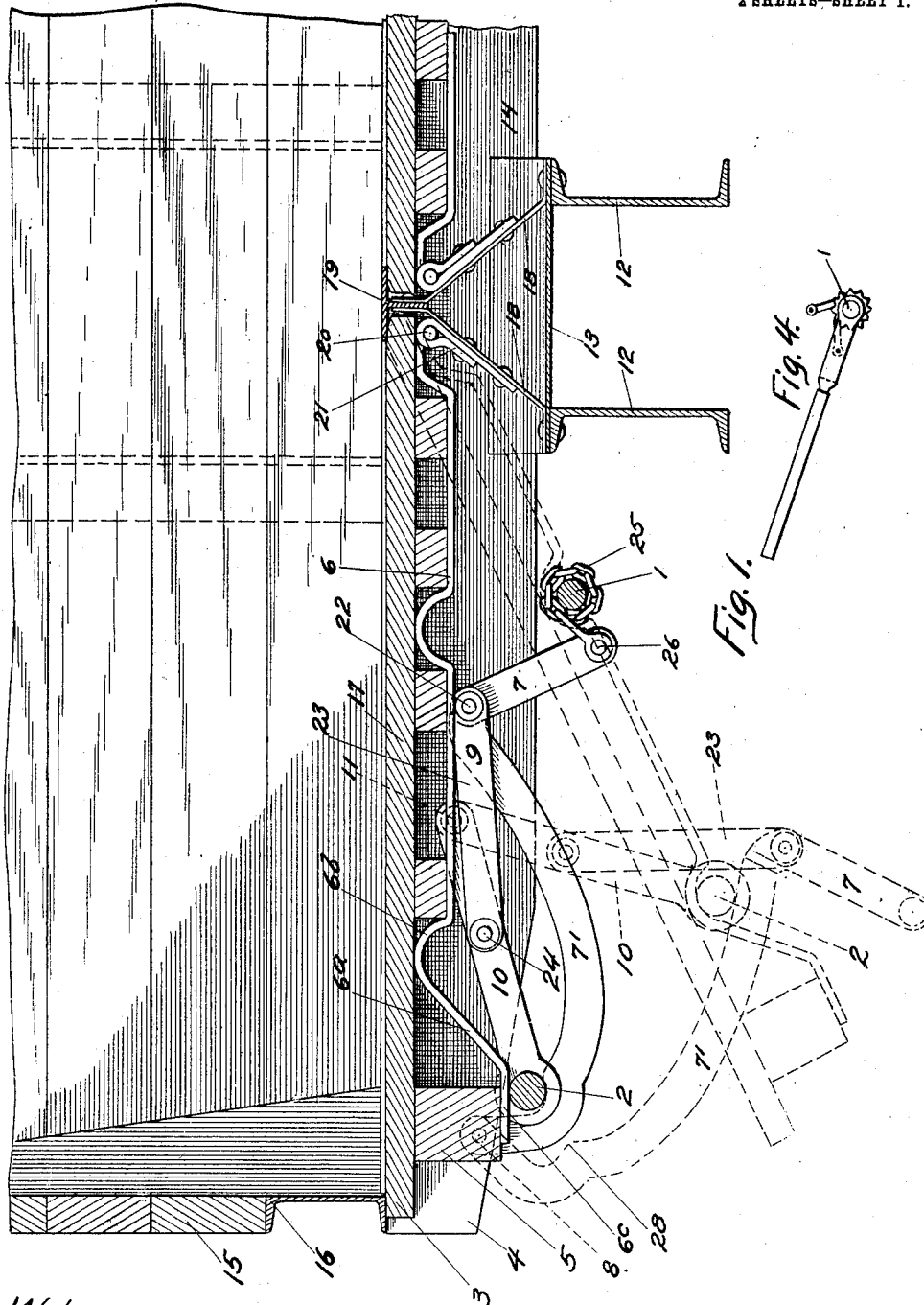


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DUMP DOOR OPERATING MECHANISM.
APPLICATION FILED FEB. 6, 1909.

965,023.

Patented July 19, 1910.

2 SHEETS—SHEET 1.



Witnesses:

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Henry A. Parks

Inventor:
Frederick Seaberg
By *Sheidan, Wilkinson & Co.*
Attys

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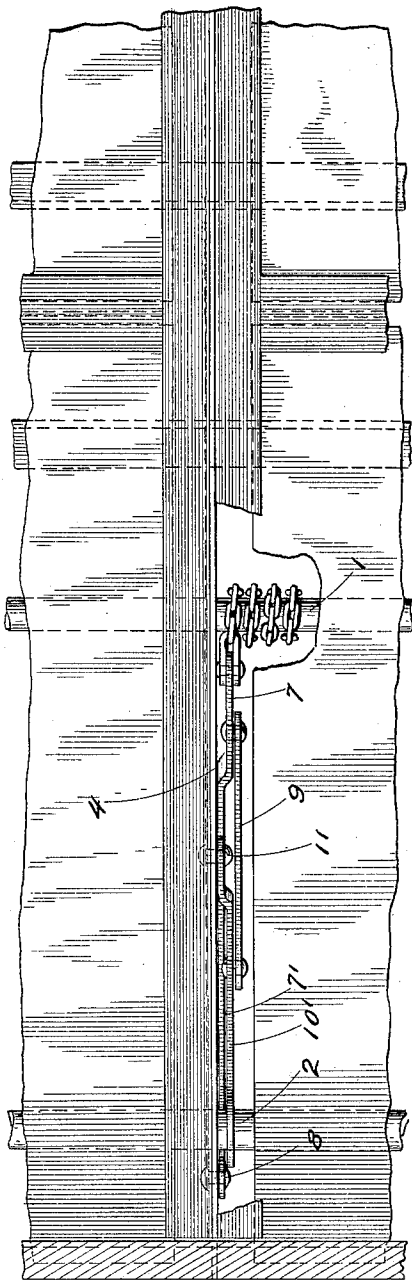


Fig. 2.

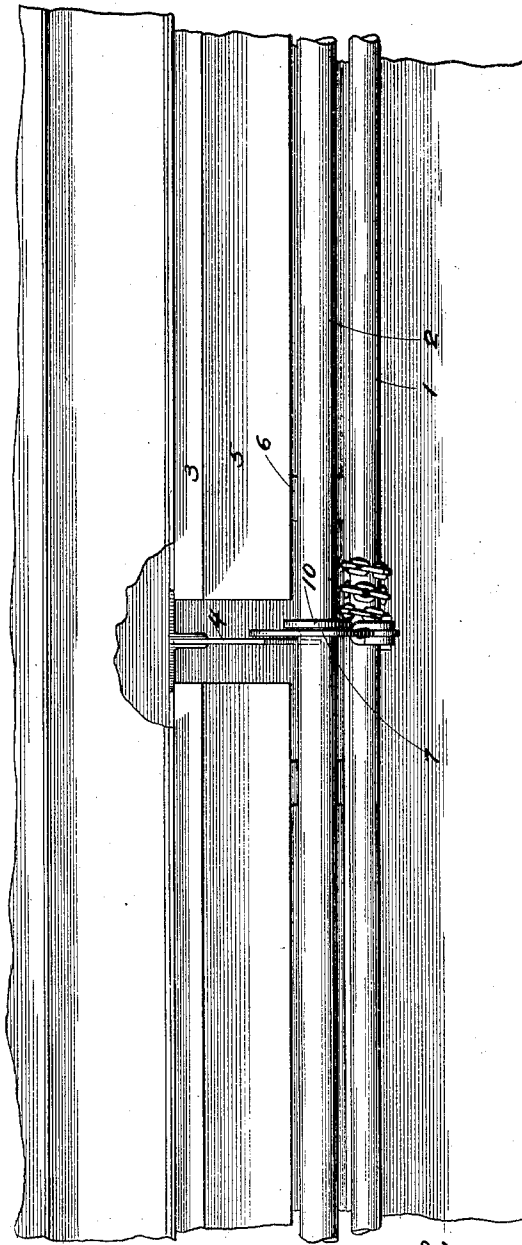


Fig. 3.

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UNITED STATES PATENT OFFICE.

FREDERICK SEABERG, OF CHICAGO, ILLINOIS, ASSIGNOR TO NATIONAL DUMP CAR DOOR COMPANY, A CORPORATION OF MAINE.

DUMP-DOOR-OPERATING MECHANISM.

965,023.

Specification of Letters Patent.

Patented July 19, 1910.

Application filed February 6, 1909. Serial No. 476,521.

To all whom it may concern:

Be it known that I, FREDERICK SEABERG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, 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 a simple and efficient operating mechanism especially adapted for use in connection with the floor doors of dump cars, among the advantages of my improved construction being the fact that the operating mechanism is drawn up close to the car body when the doors are closed and the car in transit.

Furthermore, my improved construction comprises few parts, so arranged as to be positive in their action and to impose the minimum weight upon the operating gear when the doors are in closed position.

Other and further advantages of my invention appear from the following description and claims, taken in connection with the accompanying drawings, in which—

Figure 1 is a transverse sectional view of part of a car embodying one form of my invention. Fig. 2 is a horizontal section showing the operating mechanism in connection with part of the car. Fig. 3 is a fragmentary side view of the car illustrated in the other views, and Fig. 4 is a detail view of mechanism for rotating the winding shaft.

The particular car to which I have shown my invention applied comprises a center sill structure consisting of two channel beams 12, 12 connected at the top by the member 13. Supported upon the center sill are transverse girders 14, which at their outer ends carry the sides 15. In the present instance the lower member of each side is a channel beam 16 supported above the transverse girders and serving as a reinforcing structural member of the car frame. The dump doors 17 are hinged to diagonal brackets 18 sloping inwardly from the sides of the center sill and secured at their upper edges to a T-bar 19 which forms a narrow stationary center section of the car floor. The doors are illustrated as constructed of wood reinforced upon their under sides by metal

straps 6, which at their inner ends are bent to form hinge members engaging the pintles 20 which also engage the coacting hinge members 21 which are riveted to the diagonal braces 18. At their outer ends, the straps 6 incline away from the plane of the door, as illustrated at 6^a. At the inner end of the inclined portion of the strap a curved shoulder 6^b is formed, and the extreme outer end of each strap comprises a section 6^c which is substantially parallel with the plane of the door, and adapted to lie in a horizontal plane when the door is closed.

Hangers 10 are pivoted at 11 upon the transverse beams 14 adjacent the sides of the dump doors, and the free ends of the hangers 10 support a door operating shaft 2, which lies beneath and coacts with the metal strap or bearing surfaces upon the under sides of the doors. Also pivoted to the cross girders 14 adjacent the edges of the dump doors are transverse actuating supports for the longitudinal shafts 2. In the present instance, I have illustrated these transverse supports 7—7' as pivoted at 8 and having an offset or angular part 22, at which point link 23 is pivoted. The opposite end of link 23 is pivoted at 24 to the hanger link 10 intermediate its ends. The transverse support 7—7' is raised from the dotted line position shown in Fig. 1 to the position shown in solid lines, by means of a winding shaft 1 to which one end of a chain 25 is connected, the other end being connected at 26 to the free end of the transverse support or lever 7—7'.

Preferably, the doors of the car are arranged in four sections, each section consisting of half the doors upon one side of the longitudinal center of the car, and when so arranged the winding shaft 1 and the longitudinal supporting shaft 2 will extend inward from the ends of the car half the length thereof.

Upon observing the disposition of the parts when the dump door 17 is open, as shown in dotted lines in Fig. 1, it will be observed that the effect of raising the free end of the support 7—7' will be to cause the longitudinal shaft 2 to move in an arcuate path having at its center the pivots 11 of the hangers 10, wherein said shaft 2 is

mounted. Inasmuch as the hanger 10 lies almost normal to the contacting surface of the lever 7-7', and almost in line with the direction of movement thereof when the door is open, I have formed the link 7-7' in the angular shape shown, and provide the link 23 for the purpose of compelling the shaft 2 to move outwardly without binding when the free end of the lever 7-7' is raised from the dotted line position of Fig. 1. The link 23 being connected to the lever 7-7' at a point nearer the longitudinal center of the car than the point of contact between the shaft 2 and the lever 7-7', the thrust upon said link 23 will have the effect of moving the link 10 outwardly upon its pivot, thereby effectually preventing any binding action between the shaft 2 and the lever 7-7'. While the upper surface of the lever 7-7', where it contacts with the shaft 2, might be so formed, and the parts so disposed as to obviate the necessity of employing the link 23, I have shown such link in the preferred embodiment of my invention, but do not consider that my invention in its broadest aspect is limited to the use of such a link.

Adjacent its outer pivoted end, the upper surface of the lever 7-7' is formed with a projection 28, and the part of said upper surface outside of said projection 28 is so formed as to lie in a substantially horizontal line when said lever 7-7' has been raised to the upward limit of its movement, at which time the shaft 2 will rest upon said horizontal part of the lever 7-7', and the horizontal part 6^a of the bearing surface upon the door will rest upon the upper surface of said shaft. By this arrangement the weight of the door when closed and its superposed load has no tendency to force the shaft 2 downwardly and inwardly along the supporting levers 7-7', and when the parts are in closed position the shaft 2 lies adjacent the fulcrum 8 of the lever 7-7', whereby the chain 25 is relieved of all but an inconsiderable portion of the weight of the door and load. Any suitable means, such as illustrated in Fig. 4, may be employed for rotating the shaft 1 to close the doors. When the detent which restrains the shaft 1 against reverse rotation is released, the weight of the doors and their load will cause the doors to drop to the dotted line position shown in Fig. 1, and excess movement of the shaft 2 in an inward direction will be prevented by its engagement with the curved shoulders 6^b upon the under side of the doors.

I will have it understood that I do not desire to limit myself to the precise construction and arrangement of parts shown in the drawings and herein described, as various modifications or alterations may be

made without departing from my original invention as defined in the appended claims.

I claim:

1. In a car, dump doors, hangers pivoted to the car frame, a longitudinal shaft mounted in said hangers beneath said doors, transverse supports for said shaft pivoted to the car frame adjacent the free edges of said doors, and means for moving said transverse supports upon their pivots.

2. In a car, dump doors, hangers pivoted to the car frame, a longitudinal shaft mounted in said hangers beneath said doors, transverse supports for said shaft pivoted to the car frame adjacent the free edges of said doors, and a winding shaft and chains connected to the free ends of said supports.

3. In a car, dump doors, hangers pivoted to the car frame, a longitudinal shaft mounted in said hangers beneath said doors, transverse supports for said shaft pivoted to the car frame adjacent the free edges of said doors, means for moving said transverse supports on their pivots, and links pivoted to said transverse supports and to said hangers.

4. In a car, dump doors, hangers pivoted to the car frame, a longitudinal shaft mounted in said hangers beneath said doors, transverse supports for said shaft pivoted to the car frame adjacent the free edges of said doors, means for moving said transverse supports on their pivots, and links pivoted to said transverse supports and to said hangers, the upper surface of said transverse supports being so formed adjacent their pivots as to lie in a substantially horizontal plane beneath said shaft when said transverse supports are raised to close said doors.

5. In a car, dump doors, hangers pivoted to the car frame, a longitudinal shaft mounted in said hangers beneath said doors, transverse supports for said shaft pivoted to the car frame adjacent the free edges of said doors, means for moving said transverse supports on their pivots, links pivoted to said transverse supports and to said hangers, the upper surface of said transverse supports being so formed adjacent their pivots as to lie in a substantially horizontal plane beneath said shaft when said transverse supports are raised to close said doors, and bearing rails on said doors, each of said rails having a central inclined part, a stop at the inner end and a part at the outer end adapted to lie in a substantially horizontal plane above said shaft when the door is in closed position.

6. In a car, dump doors, hangers pivoted to the car frame, a longitudinal shaft mounted in said hangers beneath said doors, transverse supports for said shaft pivoted to the car frame adjacent the free edges of said

doors, and means for raising the free ends of said supports and thereby turning said shaft upon the pivots of its hangers.

5 7. In a car, dump doors, hangers pivoted to the car frame, a longitudinal shaft mounted in said hangers beneath said doors, transverse pivoted supports for said shaft, means for raising the free ends of said supports, each of said supports having an offset part

intermediate its length, and a link extending 10 from each of said offset parts to the coacting hanger.

In testimony whereof, I have subscribed my name.

FREDERICK SEABERG.

Witnesses:

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HENRY A. PARKS.