

J. O. NEIKIRK.

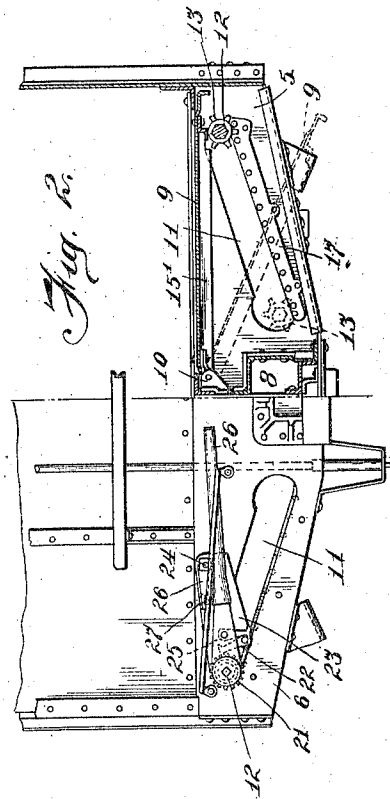
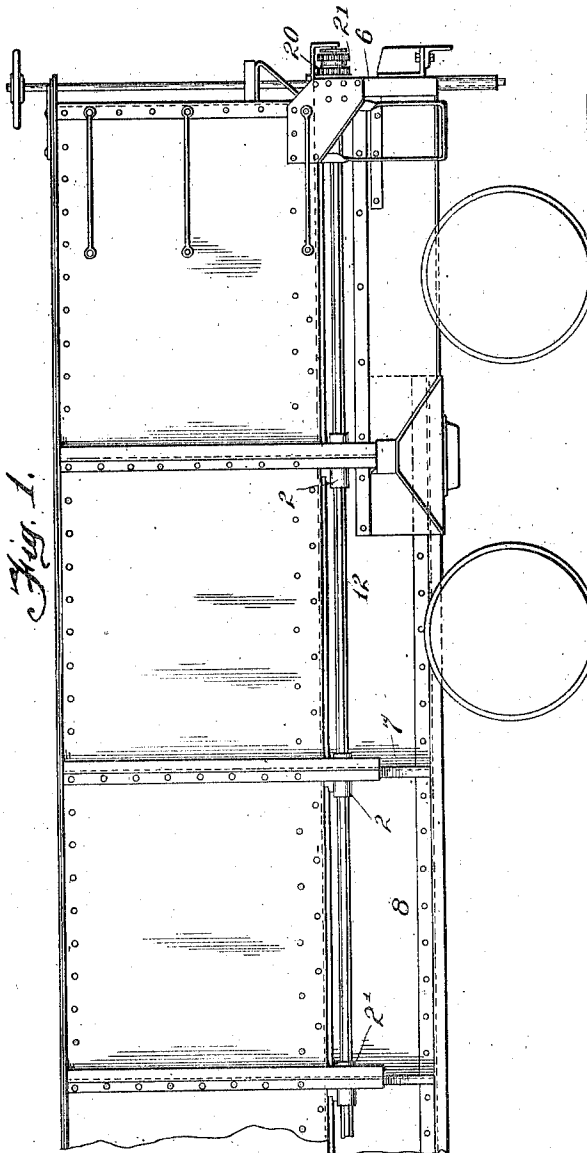
DUMP CAR.

APPLICATION FILED DEC. 28, 1909.

1,060,356.

Patented Apr. 29, 1913.

2 SHEETS—SHEET 1.



Witnesses:

Henry A. Parks
Edythe M. Anderson.

Inventor

John O. Neikirk
By *Meranda, Wilkinson, Scott*
Attorneys.

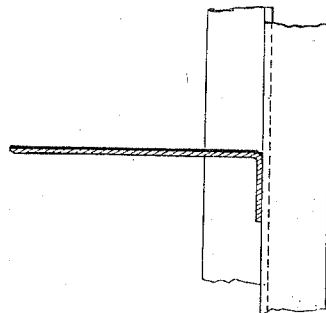
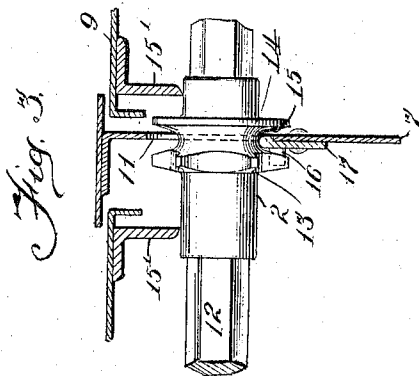
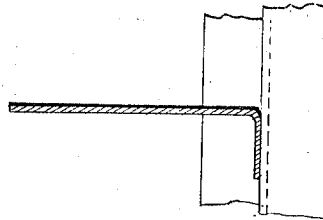
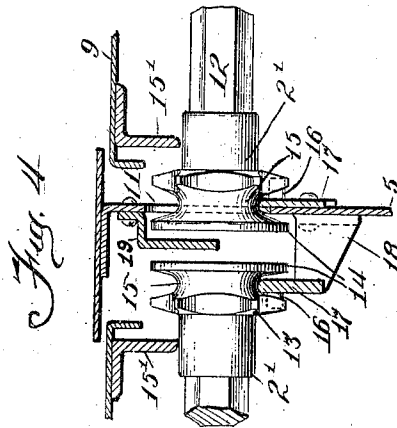
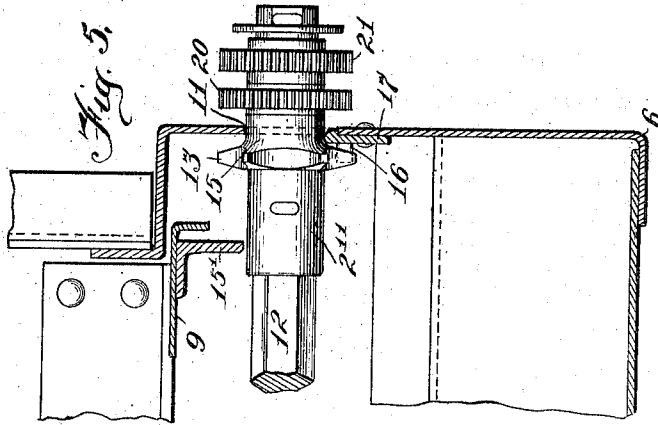
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2 SHEETS-SHEET 2.



Witnesses

Henry A. Parks

Edythe M. Anderson

Inventor,

By

John O. Neikirk

Meridian, William Scott

Attorney

UNITED STATES PATENT OFFICE.

JOHN O. NEIKIRK, OF CHICAGO, ILLINOIS, ASSIGNOR TO NATIONAL DUMP CAR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF MAINE.

DUMP-CAR.

1,060,356.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed December 28, 1909. Serial No. 535,355.

To all whom it may concern:

Be it known that I, JOHN O. NEIKIRK, 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-Cars, of which the following is a specification.

The object of my invention is to improve the construction of cars of the "National" type in which dump doors are operated by a reciprocable shaft which moves transversely of the hinge axis of the doors. Cars of this type are illustrated in reissued Letters Patent 12,447, granted to W. A. Caswell February 6, 1906, and in the patent to Otis 858,013, granted June 25, 1907. This type of car is familiar to those conversant with the railway art, and a detailed description thereof is therefore unnecessary.

I have illustrated my invention as applied to a car in which the door supporting means is given its transverse movement by the engagement of gears thereon with racks upon a stationary part of the car underframe. The broad principle of the invention, however, might be applied to cars in which the door supports are given their transverse movement by other means.

In the drawings—Figure 1 is a side elevation of one end of a car to which my invention is applied. Fig. 2 is a fragmentary view partially in end elevation and partially in section. Fig. 3 is a detail sectional elevation showing the relation of the door supporting means to one of the intermediate cross members. Fig. 4 is a view similar to Fig. 3 showing the parts adjacent the middle cross member of the car. Fig. 5 is a view similar to Figs. 3 and 4 showing the relation of the operating means to the end sill.

The car to which my invention is applied comprises an underframe of any suitable design comprising a center sill 8 and an end sill and cross members 6, 5 and 7. Hinged adjacent the center of the car and at each side thereof are a series of dump doors 9, these being shown in the present instance as hinged to brackets 10 secured to the center sill adjacent the top thereof. Ordinarily there will be 8 such doors upon each side of the car, one between each bolster and end sill, and the remainder between the bolsters. The openings in which these doors operate are framed by the center sill, the cross members and the car side, and half of

the doors upon each side are operated from each end of the car, there being four sets of operating mechanism in a car. The principle of my invention is of course not dependent upon the precise disposition of the doors nor the precise arrangement of the operating mechanism. Each of the cross members in the specific form of car illustrated is provided with a slot 11 and upon each side of the car a shaft 12 projects inwardly to the middle of the car through said slots from a point outside of the end sill 6. It has been customary in cars of this type to provide means for moving this shaft transversely of the car in the slots mentioned and to carry the doors and the load thereon directly upon said shaft. In my improved car, however, I relieve the shaft 12 of the larger part of the weight of the doors and superimposed load and carry the doors and load upon door supports or rollers designated generally by the reference numerals 2 in Fig. 1 of the drawing.

Referring to Fig. 3, the door support 2 comprises a sleeve having a non-circular longitudinal opening, in the present instance hexagonal, which opening is non-rotatably engaged by the shaft 12 which is also of hexagonal form. The sleeve which constitutes the main body of the door support 2 carries a gear wheel 13, preferably formed integral therewith, and also a circular shoulder 14. Between the gear wheel 13 and the shoulder 14 is an annular groove 15 which engages and rests upon the cross member 7 of the underframe. The doors 9 rest upon the sleeve forming the main body of the door support 2, the doors in the present instance being provided with angle irons 15' fixed to the under side thereof adjacent their edges, the lower flanges of which angle irons contact directly with the door supporting member 2. The cross member 7 is provided with a series of teeth 16, similar to those upon the cross member 5 illustrated in Fig. 2. These teeth project from the side of a reinforcing plate 17 which is riveted along the lower edge of the slot 11 in the member 7 and form a rack. The door support 2 rests upon the reinforcing member 17, which as shown in the drawings, projects over the lower edge of the slot 11 in the member 7, and the rack formed of the teeth 16 meshes with the gear 13 upon the member 2.

It will be apparent that when the shaft 12 is rotated by any suitable means at the end of the car such rotation will be imparted to the door support 2 and through the coaction of the gear 13 with the teeth 16 transverse movement will be imparted to both the shaft and the door support 2. The weight of the doors and load in this construction rests directly upon the door support 2 and is transmitted therefrom to the cross member 7, thus relieving the shaft 12 from the weight of the load, except such small part thereof as may be transmitted to the shaft by reason of the force acting upon the opposite ends of the sleeve 2 not being precisely equal. To all intents and purposes, however, the shaft 12 in the construction described serves the function merely of imparting rotation to the door supports 2 and is relieved of the load resting upon the doors.

In Fig. 4 I have illustrated the construction at the center of the car where the shafts leading from the opposite ends meet. The door support 2' shown at the right of this view coacts with mechanism upon the cross member 5 similar to that described in connection with the structure shown in Fig. 3. The door support 2' at the left of Fig. 4 is carried upon a rail 17 bracketed upon the cross member 5 and carrying rack teeth 16, which coact with gear 13. In the construction illustrated in Fig. 4 the rail 17 is formed integrally with a bracket 18 which is riveted to the cross member 5. Between the ends of the shafts 12 leading from opposite ends of the car is a plate 19 formed as illustrated and riveted to the cross member 5 above the slot 11 therein, the member 19 serving to limit endwise movement of the shafts 12.

In Fig. 5 I have illustrated the construction at the end of the car. This construction is similar to that already described except that the shoulder 14 is omitted, and upon the shaft 12 beyond the end sill ratchet wheels 20—21 are non-rotatably mounted.

One of the valuable features of my improved structure lies in the fact that the gears 13 and rack teeth 16 are held in mesh by the engagement of the grooves 15 with the cross members.

In case the cross members or any of them become displaced longitudinally of the car when subjected to some unusual strain the door supports with their gears will be carried with the cross members thus retaining the engagement between the gears and the rack teeth.

It will be apparent from the foregoing that I have provided a car of the "National" type in which the reciprocable operating shaft is relieved of the weight of the doors and load and is required to perform merely the service of transmitting rotation to the actual door supporting members.

While I have described a specific mode of carrying out this idea it will be apparent that my invention is not limited thereto and that the principle can be embodied in other forms of mechanism.

I claim:

1. In a car of the class described, an underframe comprising a cross member, separate series of dump doors at either side of said cross member, rotatable and reciprocable door supports for said doors, one of said door supports under one of said series resting upon said cross member, and a supporting rail bracketed to said cross member for carrying the other of said supports for the adjacent series.

2. In a car of the class described, an underframe comprising a cross member, dump doors at either side of said cross member, rotatable and reciprocable supports for said doors, separate operating shafts non-rotatably engaging said supports, and a single means bracketed to said cross member for limiting the endwise movement of said shafts.

3. In a car of the class described, an underframe, dump doors, rotatable and reciprocable supports for said doors carried by said underframe, an operating shaft non-rotatably engaging said supports, and means bracketed to said underframe for limiting the endwise movement of said shaft.

In testimony whereof, I have subscribed my name.

JOHN O. NEIKIRK.

Witnesses:

W. J. RYAN,
G. A. McHUGH.