No. 616,663.

Patented Dec. 27, 1898.

P. R. GRABILL.

DUMPING CAR.

(Application filed Feb. 26, 1898.)

(No Model.)

2 Sheets—Sheet 1.

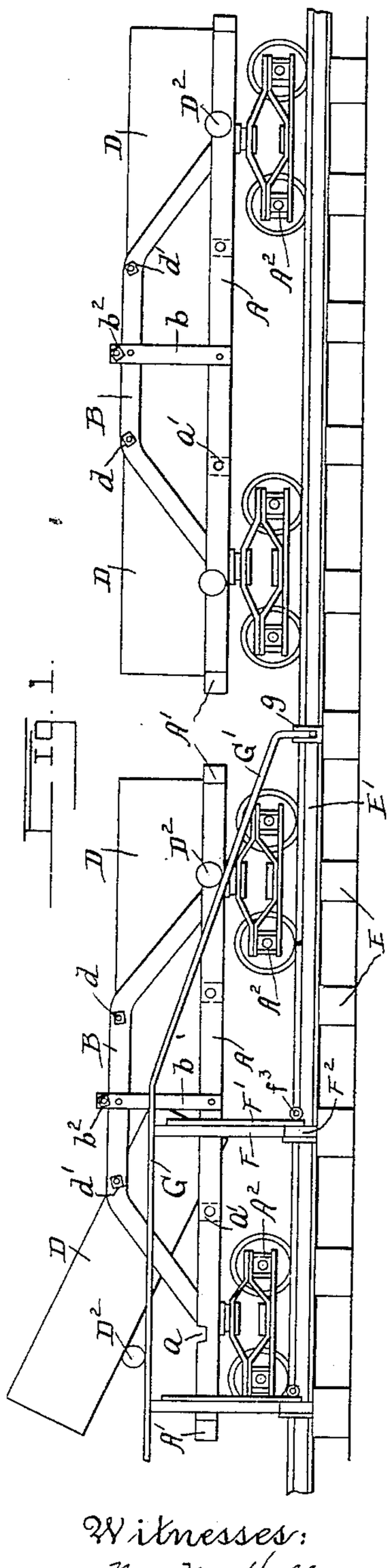

Fig. 1.

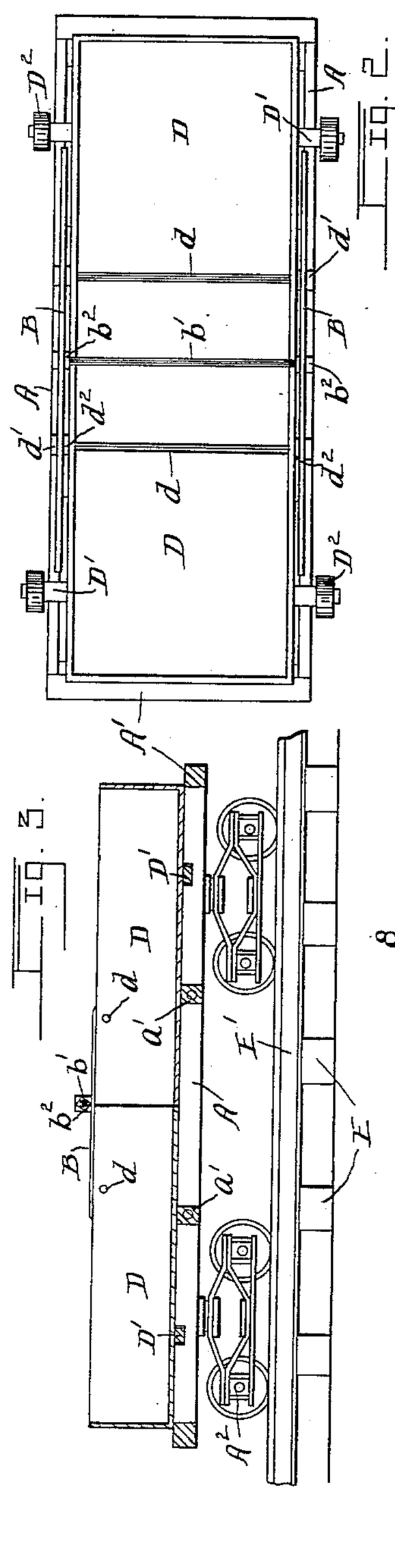

Fig. 2.

Fig. 3.

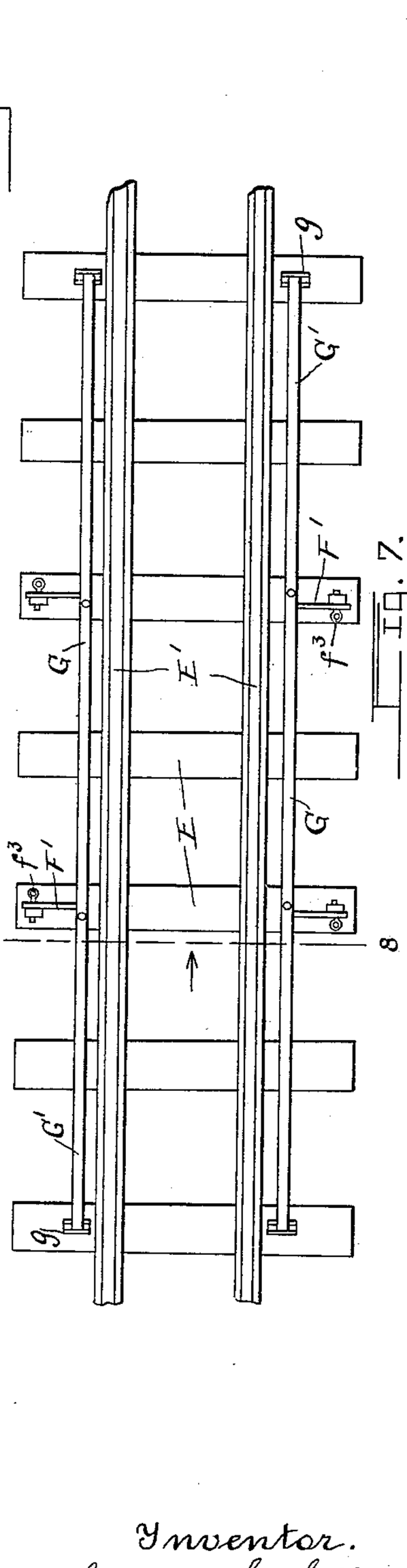

Fig. 7.

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2 Sheets—Sheet 2.

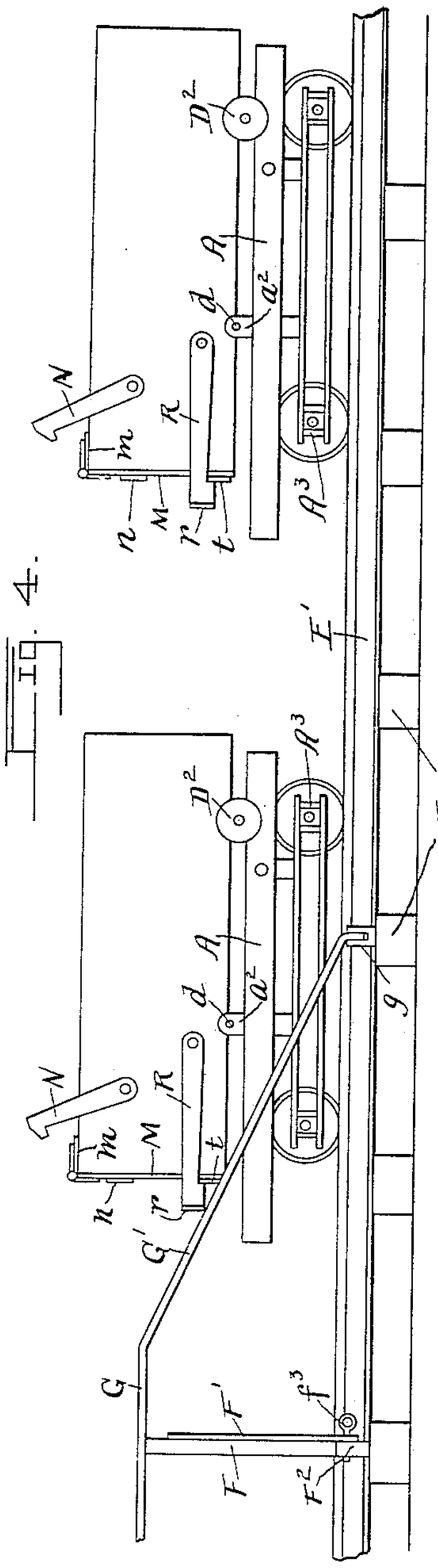

Fig. 4.

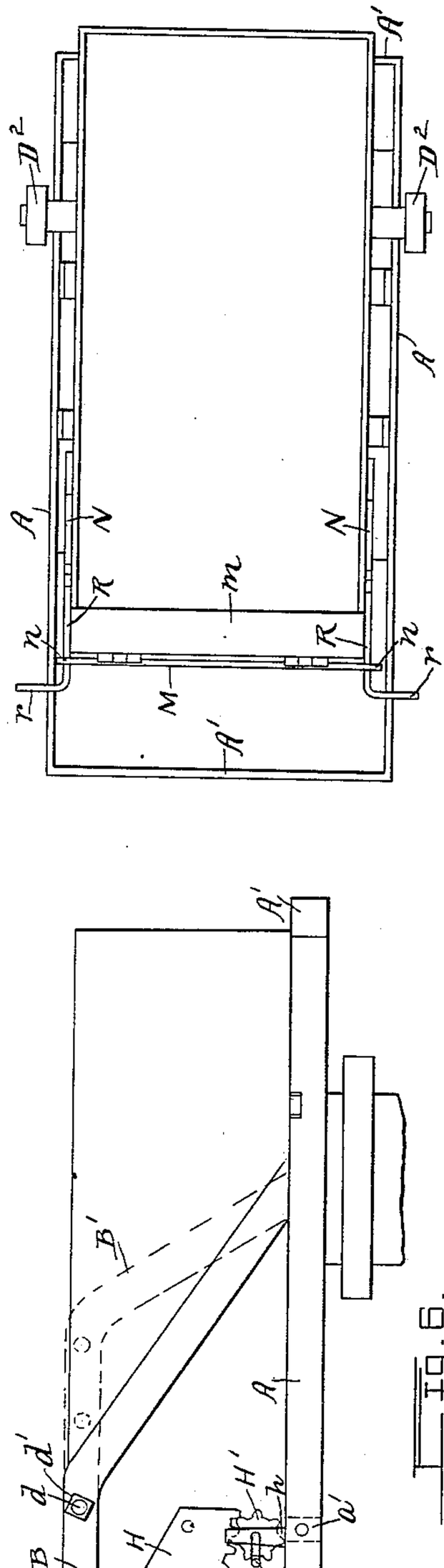

Fig. 5.

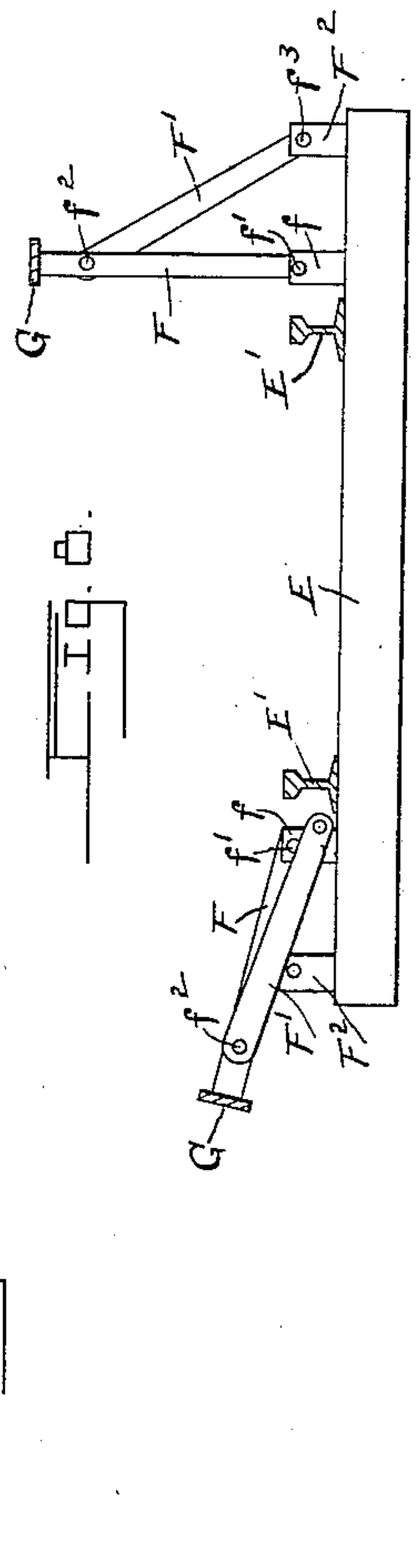

Fig. 7.

Fig. 6.

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UNITED STATES PATENT OFFICE.

PHARES R. GRABILL, OF LANCASTER, PENNSYLVANIA.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 616,663, dated December 27, 1898.

Application filed February 26, 1898. Serial No. 671,754. (No model.)

To all whom it may concern:

Be it known that I, PHARES R. GRABILL, a citizen of the United States, residing at Lancaster, in the county of Lancaster, State of Pennsylvania, have invented certain Improvements in Dumping-Cars, of which the following is a specification.

My invention relates to improvements in that class of cars in which the loads are automatically dumped therefrom; and the objects of my invention are, first, to automatically open the door that closes the opening through which the load is discharged, and, second, to automatically tilt the car-box.

The invention consists in the construction and combination of the various parts, as hereinafter fully described, and then pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation of two eight-wheeled cars embodying my invention, one of which is shown in the position occupied thereby as the load is being dumped from the forward end. Fig. 2 is a top plan view of one of said cars, shown in its normal position; and Fig. 3, a longitudinal section of the car-box and the car-frame. Fig. 4 is a side elevation of two four-wheeled cars, the manner of releasing the door closing the discharge-opening being shown. Fig. 5 is a top plan view of a single car; Fig. 6, a side view of a modified construction of an eight-wheeled car; Fig. 7, a top plan view of a portion of a railway-track and the dumping-rails; and Fig. 8, a transverse section thereof on broken line 8 8, Fig. 7, one of the dumping-rails being shown in a lowered position.

Similar letters indicate like parts throughout the several views.

Referring to the details of the drawings, A indicates the longitudinal outside sills of the car-frame, and A′ the cross-pieces connecting the sills at the ends, the frame being mounted in the eight-wheeled cars on two trucks A^2 and on one truck A^3 in the four-wheeled car, as is usual.

On each of the sills A of the eight-wheeled car is a truss having a post *b*, supporting the center of the straining-beam B. Posts *b* extend above the straining-beam and the car-box and are connected by a tie-rod *b*′, which firmly supports said posts by means of nuts b^2, screwed up tightly against both faces of each post. The car-box is divided transversely into sections D, and each section is hinged on a rod *d*, passing through the upper edge of said section and supported by straining-beams B, near the ends thereof, being secured in said beams by nuts *d*′, washers *d* being disposed between the straining-beams and the outer faces of the car-box sections. Under and attached to the bottom of each car-box section, midway between the outer end thereof and the rod on which said car-box is hinged, is an axle D′, the ends of which extend beyond the outside sills of the car-frame and have on their ends low broad wheels or rollers D^2, for a purpose to be described. When the car-box sections are in their normal positions, axles D′ rest in recesses *a* of sills A.

In Figs. 7 and 8 is illustrated a section of a railway-track and of the means employed by me to elevate the end of a car so that the load may be dumped. E indicates the cross-ties of a railway-track, and E′ the rails. To certain of the cross-ties, outside of the rails and at a sufficient distance therefrom to clear the sides of the cars, are located posts F. The lower end of each post F engages between two jaws *f*, connected by a plate through which they are secured to the cross-tie, and said post is hinged between these jaws on a pin *f*′ in position to have its free end swing in a plane at right angles with the direction of the rails. Near the upper end of each post at f^2 is hinged a strut F′, which extends outward and is detachably secured by a key f^3 to a stud F^2 on the outer end of the cross-tie. Posts F support and are connected by rails G, termed, for the purpose of this specification, "dumping-rails." Rails G slope downward from the end posts F to the ends of adjoining cross-ties, thus forming inclines G′, which are in position to engage rollers D^2, thus raising the ends of the cars or of the car-sections to which they are attached as said rollers travel up the inclines. The lower ends of inclines G′ are hinged between jaws *g*, so that the

dumping-rails can be lowered, as shown on the left of Fig. 8.

In operating as the car passes between the dumping-rails rollers D^2 of the first car-box section engage inclines G′ and travel up the same, raising the outer end thereof until said section is fully tilted, by which time said rollers have reached the horizontal parts of rails G, as shown on the left of Fig. 1. These horizontal parts of rails G are sufficiently long to permit the entire load of the car-section to be discharged before the rollers D^2 thereof begin the descent of the inclines at the other end of the dumping-rails. After the same manner the rollers D^2 of the second car-box section in their turn also ascend the inclines G′ at one end of the dumping-rails and descend those at the other. The extent to which the car-box sections can be tilted is limited by intermediate cross-pieces *a′*, connecting sills A somewhat outside of hinge-rods *d*.

In Fig. 6 is shown a portion of an eight-wheeled car having the car-box divided into sections and in which the sections are constructed to be tilted by hand. For this purpose there is fixed to each side of the inner end of each car-box section a toothed segment H, having a pinion H′ meshing therewith. The pinions have their arbors engaging openings in posts *h*, secured to sills A, and on the outer ends of said arbors are cranks *h′*. In cars of this construction the straining-beams B can be lengthened and the car-box sections have their hinge-rods located nearer their outer ends, as shown by broken lines B′, Fig. 6.

In Figs. 4 and 5 are illustrated four-wheeled cars embodying my invention. The car-boxes of these have the hinge-rods passing beneath them and journaled in vertically-disposed bearings a^2, secured to sills A. The discharge-openings of these cars are closed by doors M, which are hinged horizontally by their upper edges to a cross-bar *m*, connecting the side walls of the car-box above said opening. These doors may be secured by hooks N, adapted to take over short arms *n*, projecting from the edges of the doors, which hooks are engaged with or disengaged from arms *n* by hand, or said doors may be secured by hooks R, adapted to take over arms *t*, projecting outward from the edges of the doors. Said hooks R have on their free ends outward lateral projections *r*, constructed to engage inclines G′, whereby hooks R are raised, leaving door M free to be pushed open by the load as the other end of the car-box is raised by the engagement of rollers D^2 with said inclines G′. In the drawings these cars are shown as having doors at only one end; but they may have them at both.

It will be observed that in both classes of cars the hinges or pivots about which the car-boxes or the sections of car-boxes turn are located between the centers of said boxes or sections and the discharge ends thereof, so that the ends of said car-boxes or of the sections to which rollers D^2 are attached are heavier than the discharge ends of the same, whereby after the discharge of the loads the car-boxes and said sections are automatically restored to their normal positions.

I do not restrict myself to the details of construction herein shown and described, as it is obvious that many alterations might be made therein without departing from the principle and scope of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a dumping-car, of a truss on each side of the car-frame, a car-box divided transversely into two sections, open at their adjoining ends, a hinge connection between each of said sections and the trusses, whereby each of said sections may be bodily tilted independently of the other, projections on the sides of each car-box section and located outside of said hinge connections, dumping-rails at the sides of the track, and rollers on said projections and adapted to engage the dumping-rails, for the purpose specified.

2. The combination, in a dumping-car, of a truss on each side of the car-frame, a post supporting the center of the straining-beam of each truss and extending above the same, a tie-rod connecting the upper ends of said posts, a car-box divided transversely through the center into sections, open at their adjoining ends, hinge-rods having their ends supported by the straining-beams and located inside of the centers of the car-box sections, said car-box sections being hinged on the hinge-rods, axles on the car-box sections and outside of the hinge-rods and normally adapted to rest on the longitudinal sills of the car-frame, dumping-rails at the side of the track, rollers on the axles and adapted to engage the dumping-rails, and means for limiting the movement of said sections, substantially as and for the purpose specified.

3. The combination, in a dumping-car, of a car-box having a hinged support, an elevated rail by the side of the track and having downwardly-inclined ends, and a projection from the car-box and adapted to engage the elevated rail, for the purpose specified.

4. The combination, in a dumping-car, of a car-box divided transversely into sections, open at their adjoining ends, a hinged support for each of said sections and located inside of the outer ends thereof, an elevated rail on each side of the track and having downwardly-inclined ends, and projections from the outer ends of said sections and constructed to engage the inclined rails, for the purpose specified.

5. The combination, with a car-track, of posts pivoted to supports by the side of the track, a rail secured to the top of said posts and having downwardly-inclined ends, a piv-

oted connection between the lower extremities of the inclined ends and their supports, struts pivoted to the posts and having a detachable connection between their lower ends and the supports thereof, a car, a hinged support for the car-box, and a projection from the end of the car-box opposite the discharge-opening and adapted to engage said rail, substantially as and for the purpose specified.

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