

W. E. MOREY & J. H. GAETJE.
DUMP CAR.

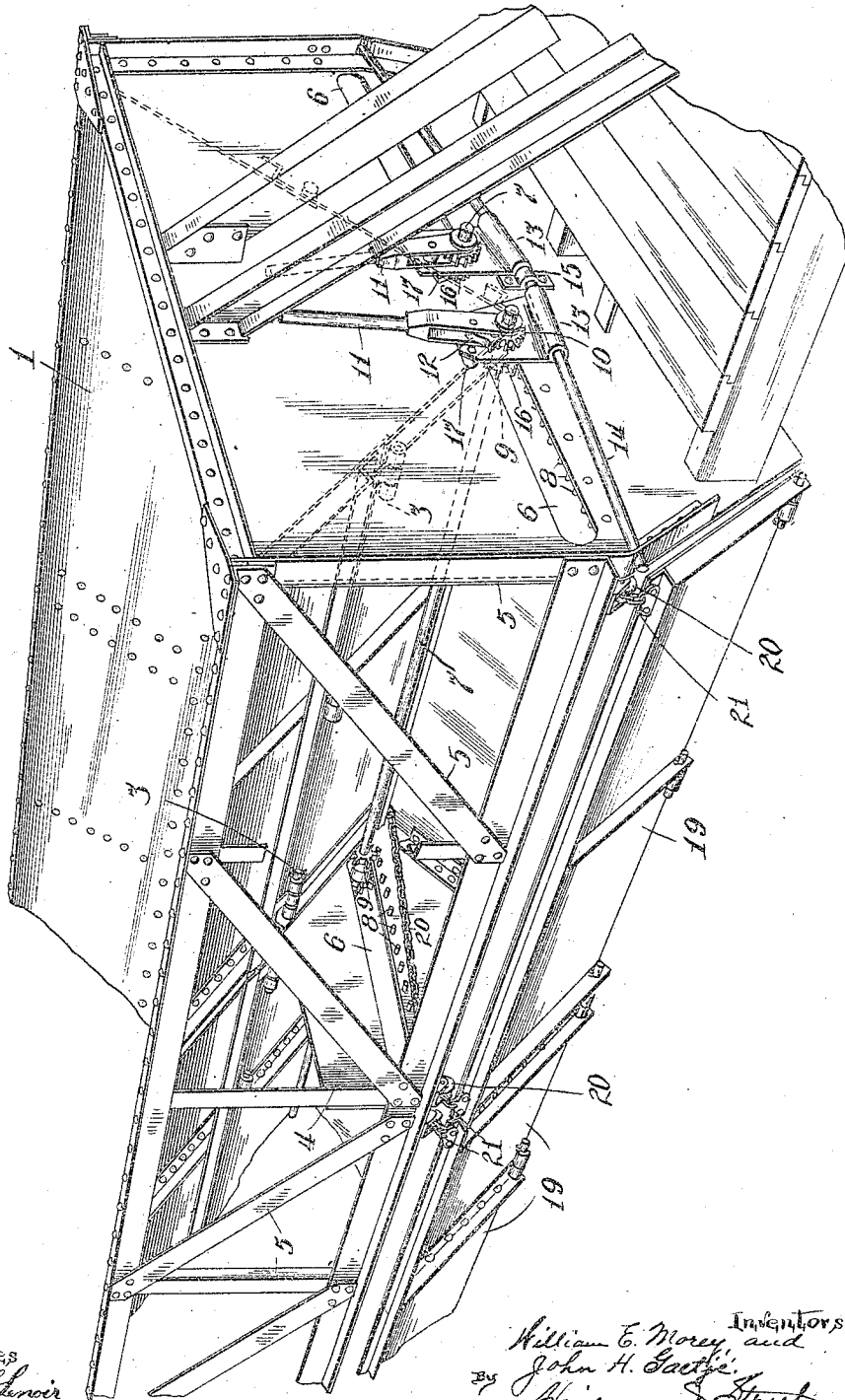
APPLICATION FILED MAR. 31, 1910.

1,050,975.

Patented Jan. 21, 1913.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses
Milton L. Lenoir
E. N. Kernwein

Inventors
William E. Morey and
John H. Gaetje.
By *Heideman & Street*
Attorneys.

W. E. MOREY & J. H. GAETJÉ.

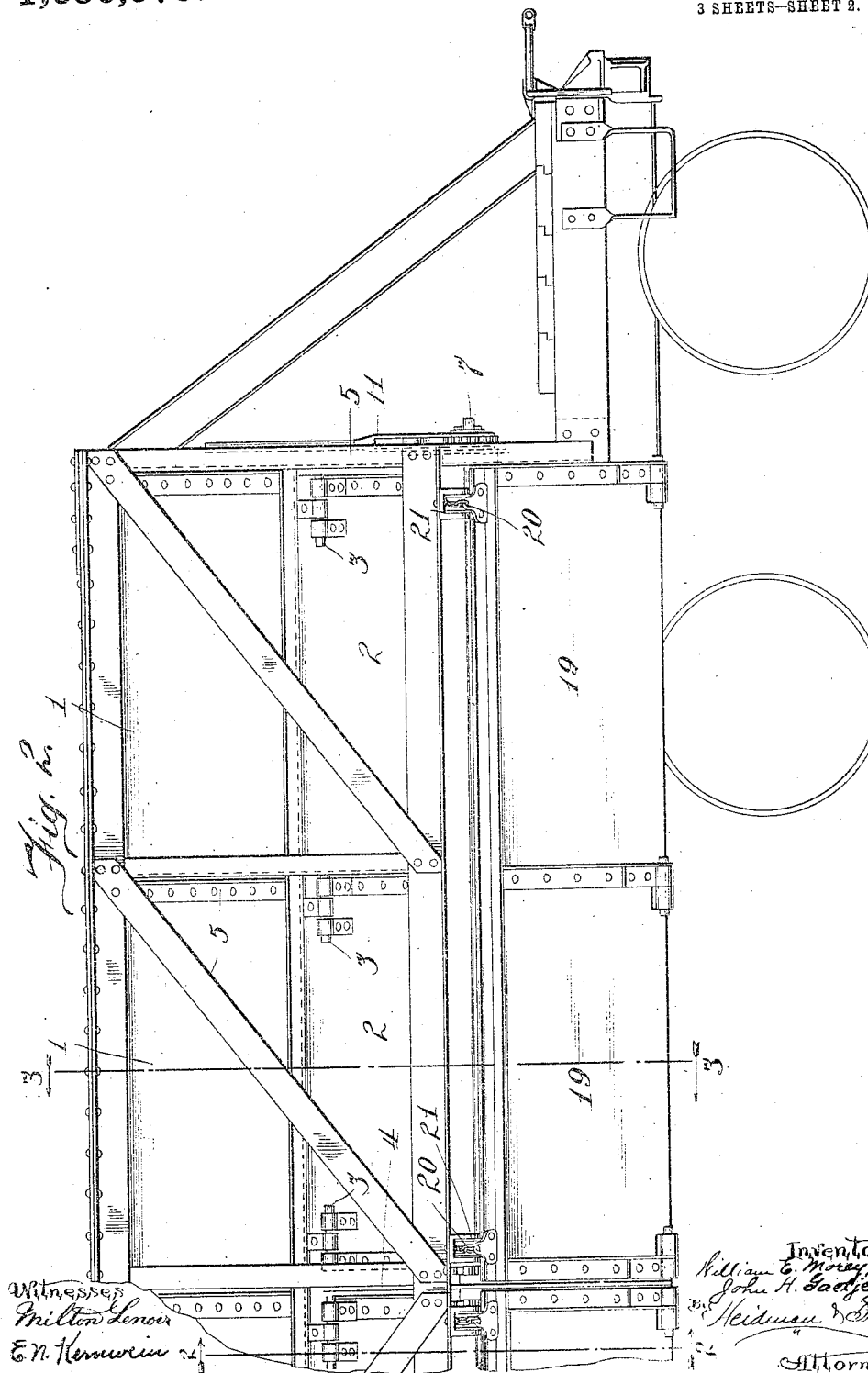
DUMP CAR.

APPLICATION FILED MAR. 31, 1910.

Patented Jan. 21, 1913.

3 SHEETS—SHEET 2.

1,050,975.



W. E. MOREY & J. H. GAETJÉ.

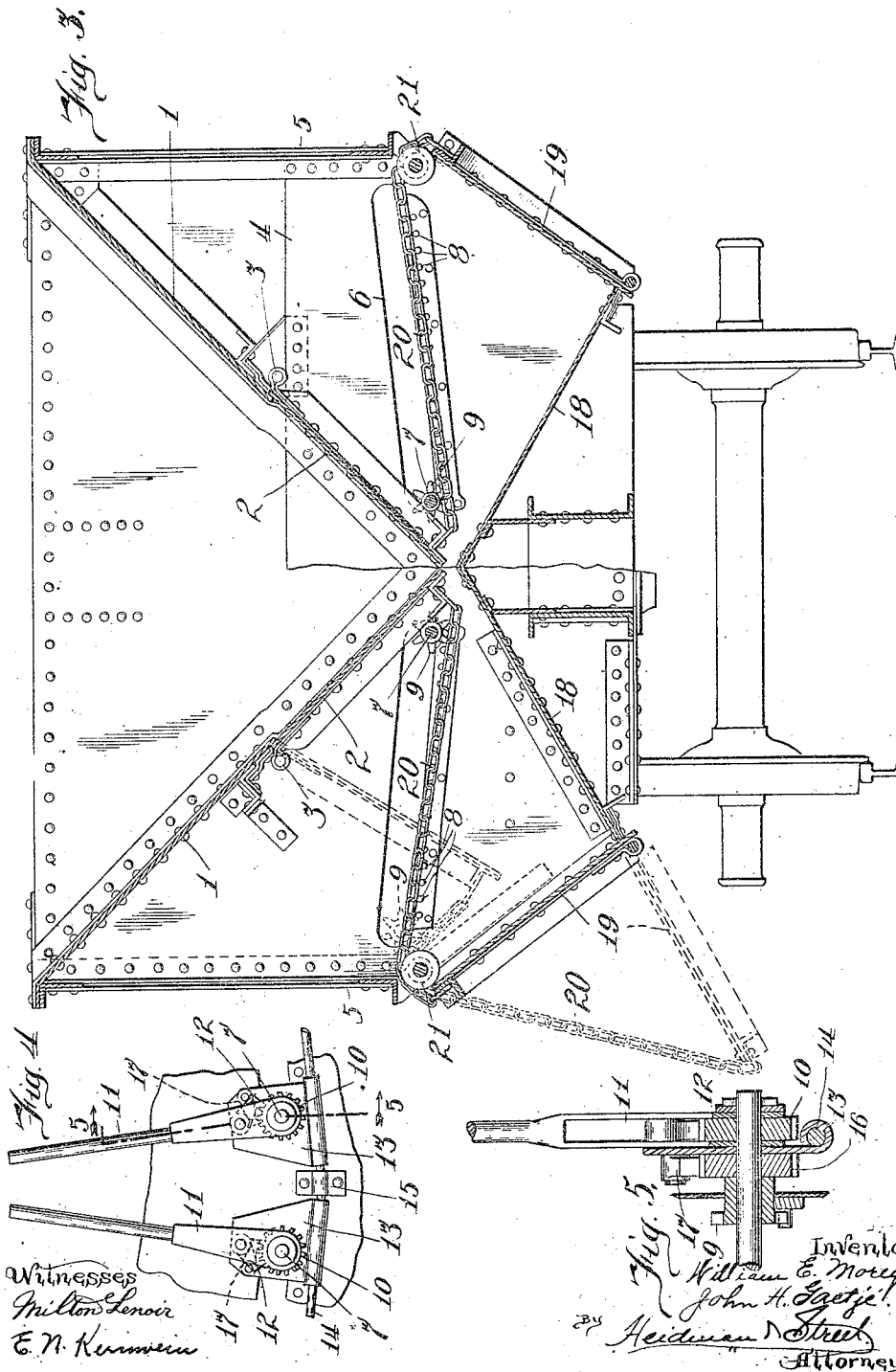
DUMP CAR.

APPLICATION FILED MAR. 31, 1910.

1,050,975.

Patented Jan. 21, 1913.

3 SHEETS-SHEET 3.



Witnesses
Milton Lenoir
E. N. Kummert

Inventors
William E. Morey, Jr.
John H. Gaetje
By Heideman & Street
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM E. MOREY AND JOHN H. GAETJÉ, OF CHICAGO, ILLINOIS, ASSIGNORS TO
NATIONAL DUMP CAR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF
MAINE.

DUMP-CAR.

1,050,975.

Specification of Letters Patent.

Patented Jan. 21, 1913.

Application filed March 31, 1910. Serial No. 552,501.

To all whom it may concern:

Be it known that we, WILLIAM E. MOREY and JOHN H. GAETJÉ, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Dump-Cars, of which the following is a specification, reference being had to the accompanying drawings, which form a part of our specification.

Our invention relates more especially to that type of car known as ore or slag car, and which is preferably V-shaped in horizontal cross section, wherein the dumping sections or doors form the bottom portion or apex of the V.

The object of the invention is to provide improved mechanism for operating the swinging sections; and also to provide means that will operate with the doors, and, in addition to assisting the doors to open to their fullest extent, will throw or dump the entire load beyond the perpendicular plane of the car sides, that is, to the outside of the track, as will more fully appear from the following detailed description.

In the drawings:—Figure 1 is a perspective view of a portion of our improved car, showing the operating mechanism located at one end of the car. Fig. 2 is a side elevation of one end of the car. Fig. 3 is a cross sectional view looking toward the right; the right hand side of the figure being taken on the line 2—2 of Fig. 2 with a portion broken away, while the left hand side is taken on the line 3—3 of Fig. 2. Fig. 4 is a detail view of the operating mechanism. Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

Our invention relates more especially to dump cars of a type adapted to carry ore or slag, wherein the side walls 1, 1, and the swinging sections or doors 2, 2, are arranged in the sloping manner more clearly shown in Fig. 3, forming a V-shaped hopper in horizontal cross section.

The doors, which form the lower portion of the hopper, are pivoted in a suitable manner at 3, to the end walls of the car and to the transversely extending plate or member 4, located at the center of the car when more than two doors are arranged on the same side of the car; or, when desired, the doors may be pivoted on the side walls 1, 1. The sides of the car are suitably braced by

the reinforcing members 5; while the cross members at each end of the car and the transversely extending plate 4 are provided with slots or slideways 6, through which the door-supporting members 7, 7 take. These members or shafts 7—one on each side of the median line of the car—extend lengthwise of the car and bear against the free or swinging ends of the doors, normally maintaining the doors in closed position as shown in the drawings. The inner faces of the end walls, and also plate 4, are shown provided with the horizontally extending studs or pins 8, which form racks for the pinions 9, mounted on the members 7. The racks and pinions will prevent the members 7 from sliding along in the slots, holding the members against movement until they have been rotated by the operating mechanism hereinafter to be described.

Secured to the outer end of each member or shaft 7, is a star wheel or ratchet 10; the ratchet being securely fastened so as to compel the shaft to rotate therewith. Loosely mounted on each of the members 7, and preferably bifurcated as shown in the drawings, is an oscillating device or lever 11, with the pawl 12 pivotally mounted between the bifurcations. The pawls 12 engage with the ratchets 10, so that when the levers 11 are oscillated the shafts will be rotated and compelled to move bodily along in the slots by means of the rack and pinion connection. Preferably mounted intermediate of the oscillating levers 11 and the body of the car, are the slidably mounted members 13. In the construction illustrated, the bottoms of these members 13 are bent around upon themselves to take about the rod 14 which extends transversely of the end of the car and is suitably mounted in the bracket 15 while its ends take through the lower ends of the corner channel irons or frame 5, as is more clearly shown in Fig. 1. The rod 14 is bowed or bent at the center so as to have it conform with the direction of slots 6; and this bend in the rod will prevent its longitudinal movement. Of course any other method of mounting the rod may be employed.

The shafts 7 take through the plates 13, so that the latter are compelled to move along on rod 14 when the shafts are rotated and travel in the slots 6. Mounted on each of the shafts 7, between the plates 13 and

the body of the car, is a ratchet 16, with which a pawl 17, mounted on each of the plates, engages. The ratchet 16 and pawl 17 prevent the rotation of the shafts in one direction and lock the members or shafts 7 in place.

Mounted on the center sill and under-frame of the car and beneath the hopper, and sloping downward from both sides of the longitudinal center are members 18, to the lower ends of which are hinged the members 19. Members 18 form an inverted V-shaped portion, with its apex at the longitudinal center of the car immediately beneath the abutting ends of the doors 2, see Fig. 3. The members 18 form a chute for the dumped contents of the hopper when the doors 2, 2 are opened, and will direct the contents toward the sides of the track on which the car is located. As a permanently fixed chute is necessarily limited in length by the side line of the car, it is apparent that the material will not be thrown a sufficient distance from the track to prevent it rolling onto the track. We therefore provide the upwardly folding members 19, on each side of the median line of the car, the position of these members 19 being controlled by connecting members preferably consisting of the chains 20, shown, one at each end of the folding section or member 19. The chains 20 are secured to the bottoms or free ends of doors 2, 2, and to the free ends of members 19, and take over the pulleys 21, which are suitably mounted at the car sides. The chains 20 are of a length to correspond with the distance between the bottoms of the doors 2 and the free ends of members 19 when they are in normal position.

It is apparent from this construction, that when the doors 2, 2, are opened, the swinging sections 19 will immediately be permitted to drop. If, for any reason, the sections 19 should fail through their own weight, to drop down to their fullest extent, they would be forced down, when the doors are opened, by the material that has been dumped from the hopper and traveled down the permanently fixed chute 18.

In order to dump the load it is merely necessary to disengage pawl 17 from ratchet 16, when the pressure of the load on the doors 2, 2, will compel the shafts 7 to rotate along in the slots 6. The opening of the doors 2, 2, will permit the load to fall onto the chute 18 and force the swinging sections 19 of the chute downward to the limit of their downward movement and thereby, through the pull on the connections or chains 20, compel the doors 2, 2, to swing open to the fullest extent as shown in dotted lines in Fig. 3. It is apparent that with our improved construction the load will be thrown a considerable distance away from the track; and in view of the fact that the

doors at opposite sides of the longitudinal center of the car are separately operated, it is evident that the load may be dumped to either side or to both sides of the track as desired. In order to bring the doors and the swinging sections of the diverting member or chute back to closed or normal position, the pawl 17 is thrown into engagement with the locking or holding ratchet 16, and the lever 11 oscillated. One stroke in the oscillation of the lever will compel the ratchet 10, and with it shaft 7, to rotate through the engagement of pawl 12 with star wheel or ratchet 10; and the sprocket 9 on the shaft meshing with the rack 8 will compel the shaft to travel toward the longitudinal center of the car. The locking pawl and ratchet (17 and 16) will hold the shaft against rotation—which would be caused by the weight of the doors 2 and swinging sections 19—during the return stroke of the lever for a new "bite" on the ratchet. This pawl and ratchet 17 and 16, will—by reason of the rack and pinion connection with the shafts—maintain the shafts and doors in closed position against the pressure of the load on the doors.

We have shown the members or shafts 7 extending the full length of the car; the same shaft constituting a supporting member for all the doors on the same side of the car, so that the operation of the one operating device will affect all of the doors thereby supported.

The specific embodiment of our invention as illustrated and described may be altered in certain details without departing from the spirit of our invention.

What we claim is:—

1. A car provided with hopper doors, load directing members mounted beneath the doors and arranged to swing upwardly when the doors are closed, means whereby the members are controllably connected with said doors and the members maintained in upward position when the doors are closed, and means for supporting the doors to maintain them in closed position.

2. A car provided with hopper doors, mechanism mounted beneath said doors adapted to direct the load to the side of the track, a portion of said mechanism being pivotally mounted and arranged to fold upward when the doors are moved to closed position, a flexible connection between said pivotally mounted portions and the doors, and means whereby the doors are controlled.

3. A car provided with hopper doors, mechanism mounted beneath the doors whereby the dumped load will be directed to the side of the track, members pivotally mounted on said mechanism and arranged to fold upwardly against the body of the car, and means intermediate of said members and the free ends of the doors whereby

the position of the doors will control said members.

4. In a car provided with hopper doors, the door-operating mechanism comprising a rotatable member mounted on each side of the longitudinal center line of the car, having positive engagement with the car-body and bearing against the free ends of the doors, mechanism slidably mounted on the car-body and movable with said members whereby the latter are held in their rotated positions, and movable members pivoted beneath the doors and adapted to move with the doors.

5. Door operating mechanism for a car of the class described, comprising members mounted in the frame of the car and supporting the free ends of the doors, said members being adapted to move intermediate of the car sides and the longitudinal center of the car, means whereby positive relation between the members and the car-frame is had, an operating device mounted on and movable with said members, whereby the latter are rotated and moved in a direction transversely of the car, and mechanism slidably mounted on the car and movable with the operating device whereby the members are held against rotation.

6. A car provided with hopper doors, means taking beneath the doors and movable transversely of the car whereby the positions of the doors are controlled, load directing mechanism mounted beneath the doors and terminating in pivoted portions arranged to fold upward, and means connecting the pivoted portions with the free ends of the doors, whereby said portions are permitted to drop downward, as the doors are opened, and are held in proper position.

7. A car provided with hopper doors, a member on each side of the median line of the car and supporting the free ends of the doors, said members being mounted in the frame of the car and adapted to move in a transverse direction intermediate of the sides and the longitudinal center of the car, an operating device on said members arranged to move with the members, in combination with directing members pivotally mounted beneath the doors and connected with the doors so that when the doors are opened said members will swing downwardly and direct the dumped load to the side of the track.

8. A car provided with hopper doors, members arranged beneath the doors to direct the load when the doors are opened, said members being pivotally mounted so as to fold upwardly, and a flexible connection between the doors and said members and pass-

ing about points located at the sides of the car whereby the position of the latter is controlled by the doors.

9. A car provided with hopper doors, deflecting means mounted beneath the doors whereby the dumped load will be thrown to the side of the track, a portion of said means being arranged to swing and be under the control of the doors, mechanism mounted in the car-frame adjacent the free ends of the doors to hold the doors in closed position, and means slidably mounted on the end of the car and operatively connected with said mechanism whereby the latter is moved bodily in a direction transversely of the car.

10. A car provided with doors arranged to open at the longitudinal center of the car, transversely movable members mounted in the car-frame and supporting the free ends of the doors, and operating devices at the ends of said members and movable therewith, in combination with deflecting means arranged beneath the car-body, a portion of said means being pivoted and connected with the doors whereby the position of the doors will control said portion.

11. A car provided with hopper-doors, members rotatably mounted in the end walls of the car for supporting the free ends of the doors, mechanism whereby said members are held in their adjusted positions, means whereby said mechanism is slidably secured on the end of the car, and means mounted beneath the car-body and controllably connected with the doors whereby, upon the opening of the doors, the discharged load will be deflected beyond the sides of the track.

12. A car provided with hopper-doors, members mounted adjacent said doors and supporting the same and having positive engagement with the frame of the car whereby the members are held against a sliding movement, said members being adapted to move transversely intermediate of the longitudinal center line and sides of the car, oscillatory members slidably mounted on the end of the car and operatively connected with said first-mentioned members whereby the latter are rotated, and a folding chute mounted beneath the doors and normally folded up beneath the car, said chute being connected with the doors so that when the doors are opened the chute will drop into position.

WILLIAM E. MOREY.
JOHN H. GAETJÉ.

Witnesses:

HUGH B. HATCH,
F. C. CAMERON.