

F. SEABERG.

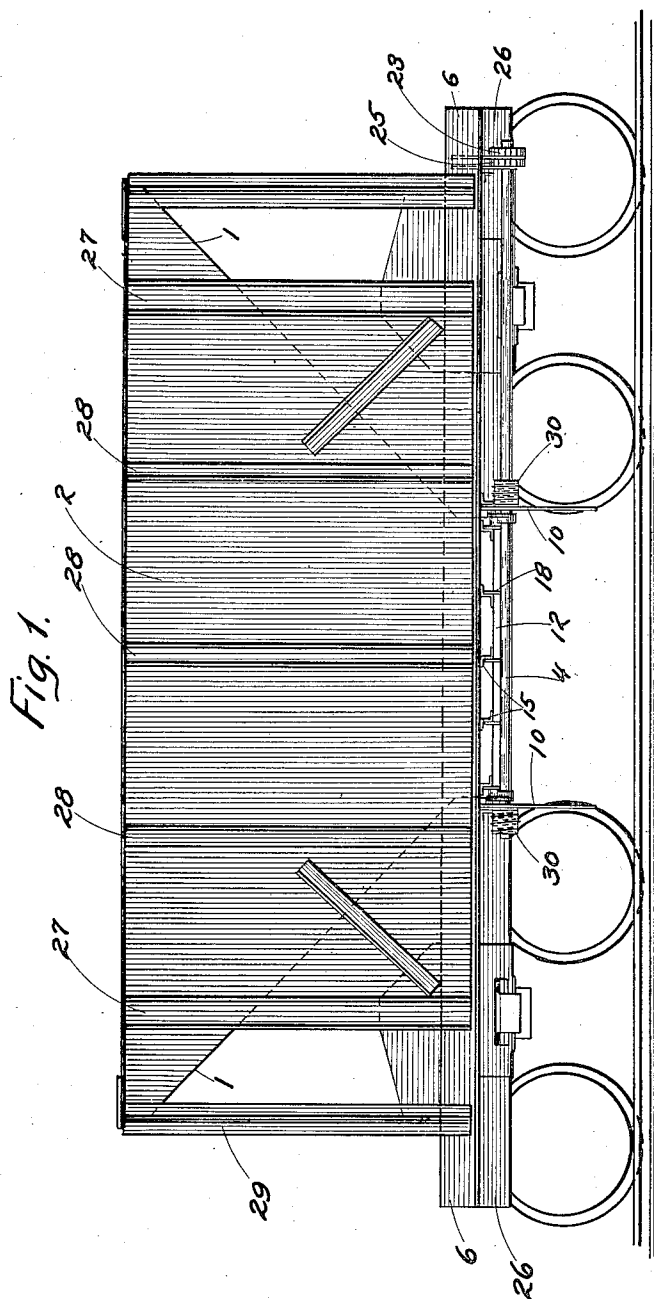
DUMP CAR.

APPLICATION FILED JUNE 7, 1909.

Patented Jan. 14, 1913.

6 SHEETS—SHEET 1.

1,050,240.



Witnesses:

C. Durnap

Henry A. Parks

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6 SHEETS—SHEET 2.

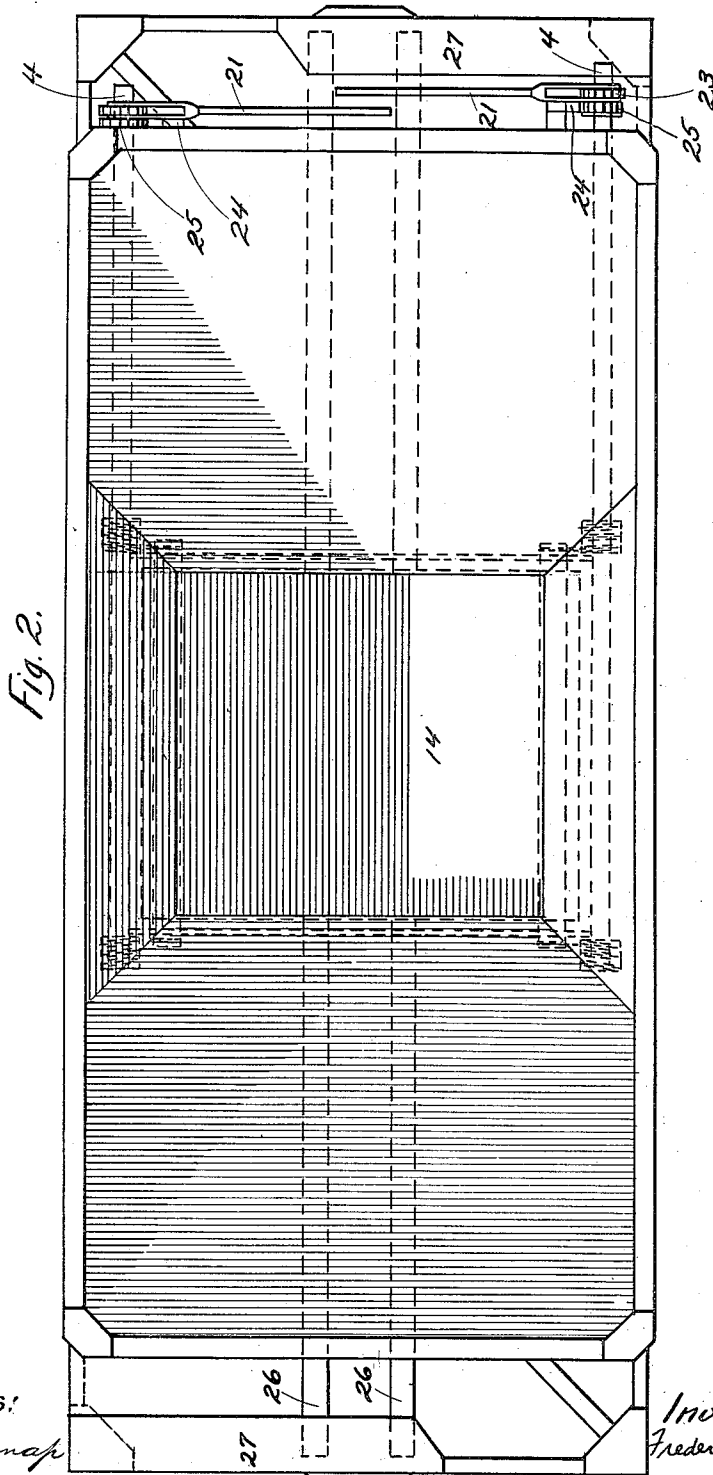


Fig. 2.

Witnesses:

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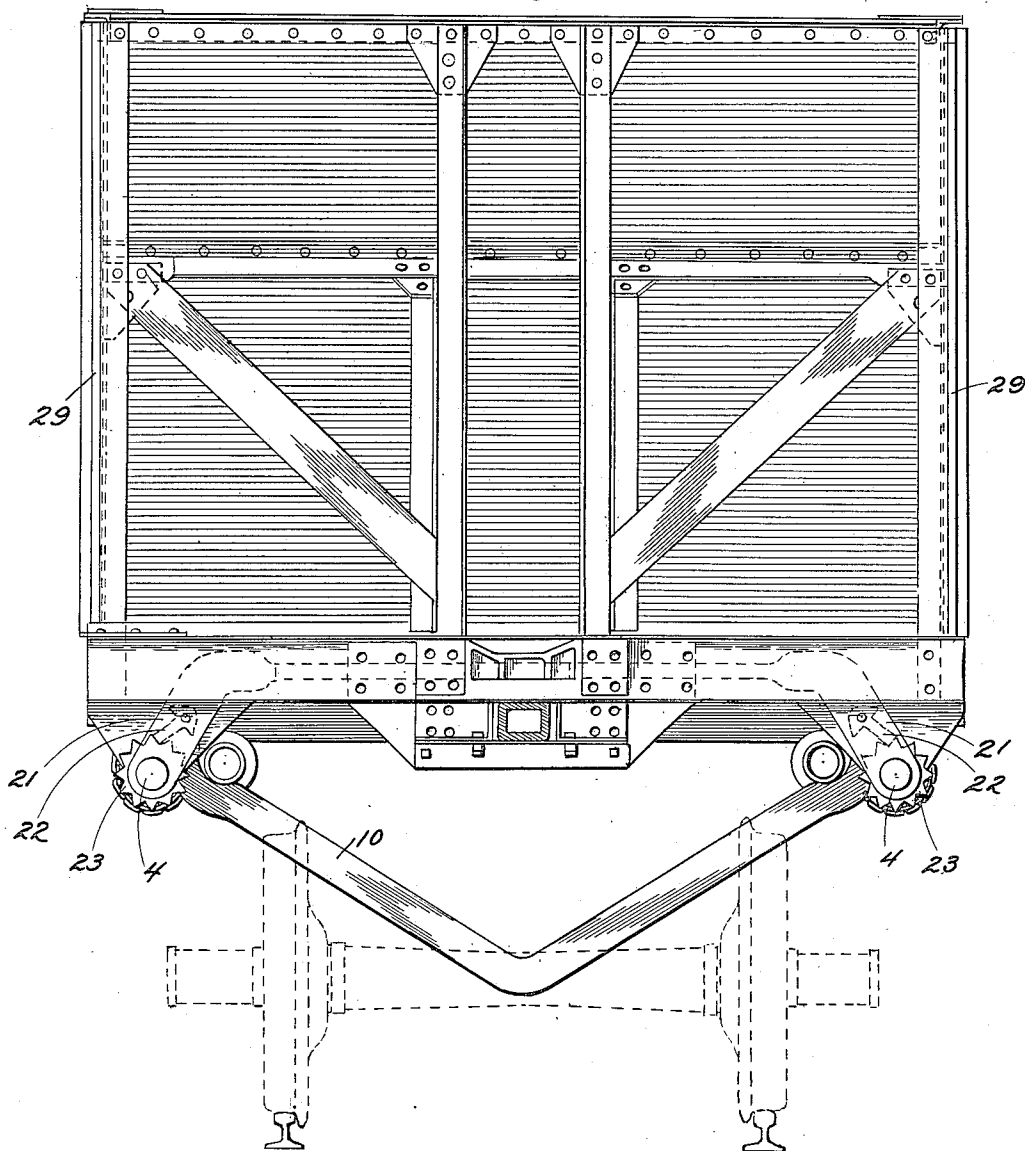
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6 SHEETS—SHEET 3.

1,050,240.

Fig. 3.



Witnesses:

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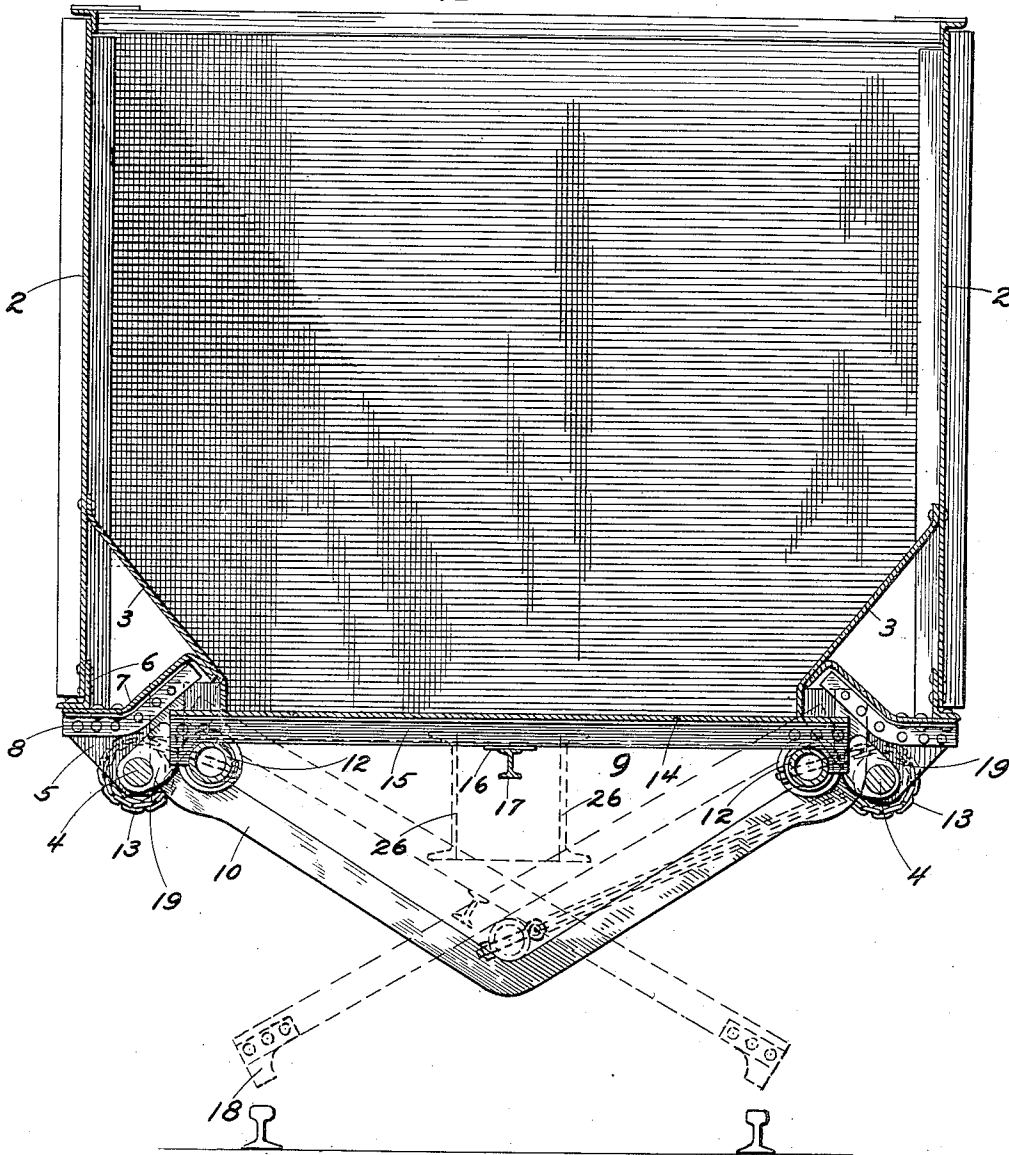
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6 SHEETS—SHEET 4.

Fig. 4.



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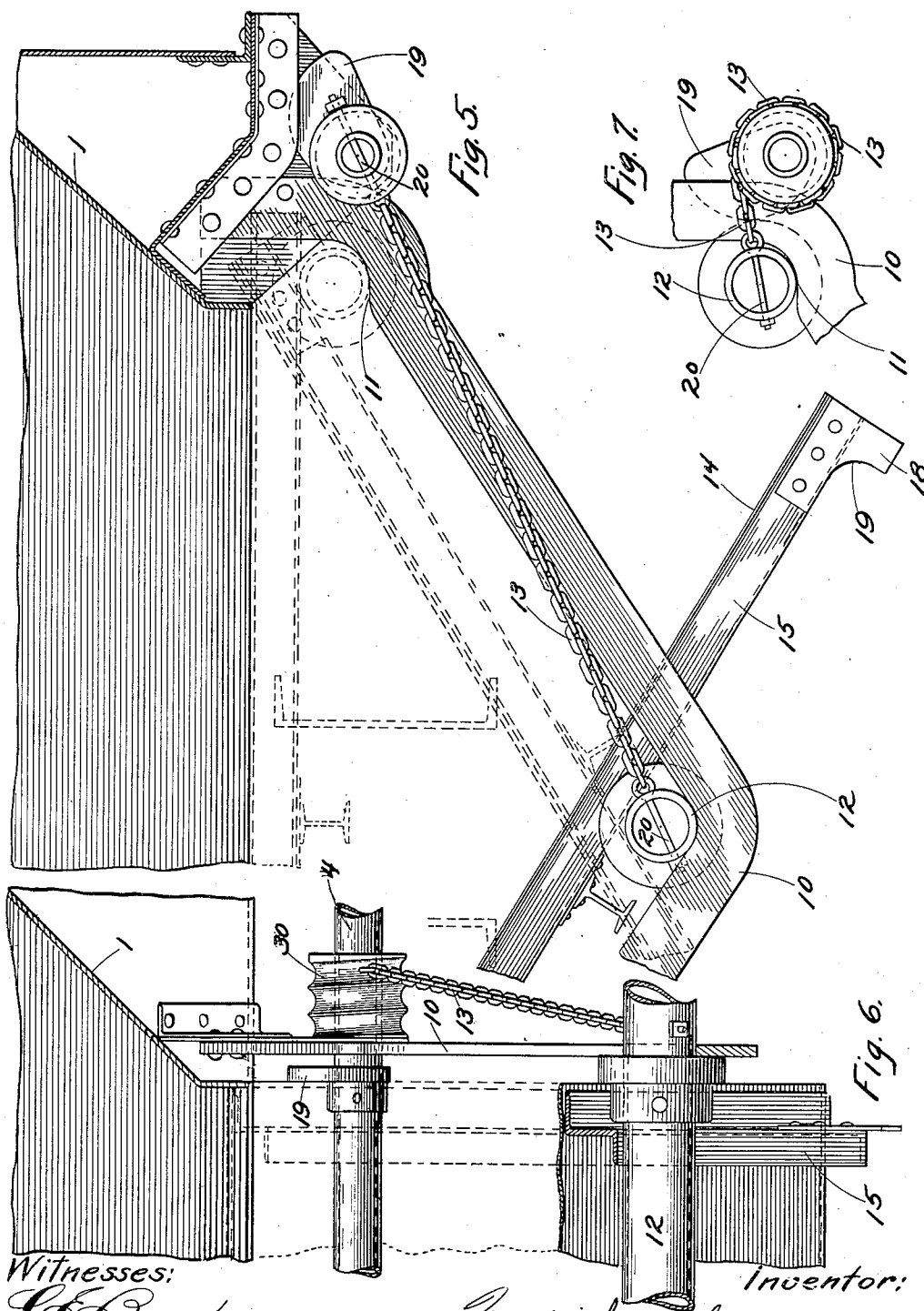
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6 SHEETS—SHEET 5.

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Witnesses:

C. D. Burnap

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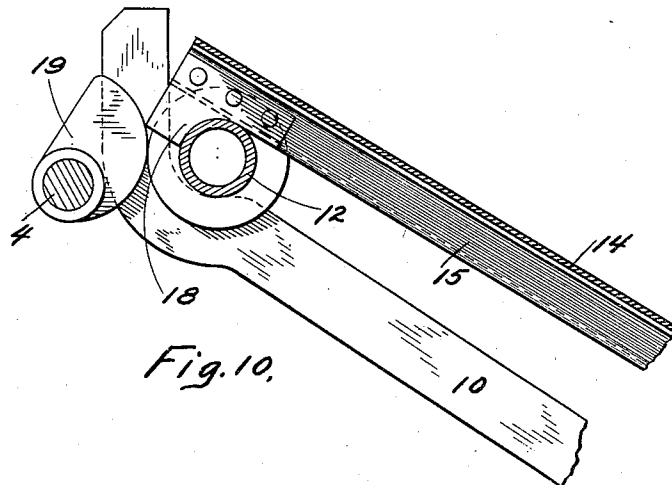
DUMP CAR.

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6 SHEETS—SHEET 6.

Fig. 8. This is a side cross-sectional view of a mechanical assembly. A large, thick horizontal plate is at the top. Below it, a horizontal shaft or tube is shown. On the left, a vertical rod passes through the shaft, with a series of interlocking links or a chain segment attached to it. The shaft is supported by several vertical brackets or supports, some of which are labeled with the number '18'. The entire assembly is shown in a perspective view.

Fig. 9. This is a detailed side cross-sectional view of a component, likely a part of the shaft or support system. It shows a horizontal rod or shaft passing through a series of nested, stepped components. The components are shown in a perspective view, with some parts having a hatched or cross-hatched texture. The drawing is labeled 'Fig. 9.' in the center.



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UNITED STATES PATENT OFFICE.

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

DUMP-CAR.

1,050,240.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed June 7, 1909. Serial No. 500,836.

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-Cars, of which the following is a specification.

The object of my invention is to provide a dump car capable of discharging its contents at either side of the track without introducing complicated or expensive mechanism. I accomplish this object by means of a freely movable door either side of which may be raised and lowered upon the opposite side as a center of movement.

In the embodiment of my invention illustrated in the drawings and described below, the actuating mechanism for the door, or movable floor sections, comprises rails adjacent the end of the door opening and sloping downwardly toward the center thereof, together with reciprocating shafts supported upon said rails and in turn supporting the door, these shafts being reciprocated by chains and winding shafts. It will be obvious, however, that the broad principle of my invention may be applied in connection with other forms of mechanism for raising, lowering and supporting the opposite edges of the movable floor sections or door. In the more specific aspect of my invention, however, I consider the operating mechanism illustrated and described as well adapted for the purpose intended.

In the drawings—Figure 1 is a side view of a car embodying my invention. Fig. 2 is a plan view. Fig. 3 is an end view. Fig. 4 is a central transverse section. Fig. 5 is a fragmentary view in transverse section corresponding to part of Fig. 4. Fig. 6 is a fragmentary view in longitudinal section showing the door open. Fig. 7 is a detail view of part of the supporting rail and operating mechanism. Fig. 8 is a fragmentary side view of the central part of the car showing the door closed. Fig. 9 is a fragmentary view in longitudinal section through the door and part of the sloping end wall. Fig. 10 is a fragmentary view of the door in open position, the illustration being confined to the elevated side of the door

which acts as a center of movement while the opposite side is being lowered.

While my invention may be employed in various connections, it is especially adapted for use in connection with cars of the type illustrated, the same being commonly used for transporting ore and like material. The car illustrated comprises a floor having end sections 1 sloping downwardly toward the center of the car and vertical side walls 2 between which a door opening is framed at the center of the car. Side wall sections 3 incline inwardly from the vertical side walls 2 adjacent their lower edges, thus restricting to some extent the discharge opening, and in connection with the lower part of the side walls 2 forming a housing for the operating winding shafts 4. The winding shafts 4 are supported in bearing plates 5 which extend between the lower part of the vertical side walls and the inwardly inclined side wall sections 3. Angle irons 6 are secured to the lower edges of the vertical side walls and plates 7 extend between and are secured to the vertical side walls and inwardly inclining sections 3. The bearing plates 5 are secured by means of angles 8 which are riveted thereto and to the plates 7. It is obvious, however, that any suitable means may be adopted for supporting the winding shafts. Preferably, the lower edges of the inclined ends 1 and of the inwardly inclining side wall sections 3 are bent downwardly to a vertical position at their lower edges to coact with the movable floor section or door 9.

Extending across the car just outside of the ends of the central opening are rails 10 secured at their ends to the bearing plates 5 and angles 8, and inclining downwardly to the longitudinal center of the car. The upper surfaces of the rails 10 are formed with short horizontal sections 11 adjacent their ends. Shafts 12 rest upon the rails 10 and support the door 9. Winding chains 13 are secured at their ends to the reciprocating shafts 12 and winding shafts 4, respectively, and through the rotation of the winding shafts 4 the shafts 12 may be drawn upward to the position illustrated in Fig. 4, in which position the shafts 12 rest upon

the horizontal sections 11. of the rails 10. In this position the weight imposed upon the door 9 has no tendency to cause the shafts 12 to travel downward upon the rails 10, and hence in this position the winding chains 13 are relieved of all strain.

The doors 9 comprise an upper plate 14 reinforced by transverse Z-bars 15 and by a longitudinal plate and I-beam 16 and 17, respectively, located at the center of the door and secured to said Z-bars. Downwardly projecting bearing plates 18 are secured to the Z-bars 15 adjacent their ends, said projections 18 being rounded upon their inner surfaces 19 to conform to the curvature of the shafts 12 and when said shafts 12 are raised to the position shown in Fig. 4 the bearing plates 18 rest outside of and engage said shafts.

When either edge of the door is lowered by permitting the shaft 12 to travel down the rail 10 to the center of the car the projections 18 at the opposite edge of the door will remain in engagement with the shaft 12 at that edge thus forming a hinge connection about which the door may open, as illustrated in Fig. 10. The action of the door when lowered at either side is illustrated in dotted lines in Fig. 4. In order to start the shaft 12 upon its downward movement on the rail 10 cams 19 are secured to the shafts 4. Upon reference to Fig. 4, it will be obvious that when either shaft 4 is rotated in direction to unwind its chains the cam 19 will contact with the corresponding shaft 12 and forcibly move it from the horizontal part 11 of the rail 10, after which the weight of the door and superimposed load will carry the shaft 12 downward along the rail 10, thus unwinding the chain from the shaft 4. The chains 13 may be attached to the winding shafts and reciprocating shafts by any suitable means. In the present instance I have shown the chains attached to I-bolts 20 extending through said shafts.

For the purpose of operating the winding shaft 4 any suitable mechanism may be employed. In the present instance I have shown levers 21 pivoted upon the winding shafts and carrying reversible pawls 22 which coact with star wheels 23 secured to the shafts 4. In order to prevent reverse rotation of the winding shafts when the reciprocating shafts are being drawn upwardly to close the doors, I provide detents 24 coacting with pinions 25 secured to the shafts 4.

The underframe of the car illustrated comprises center sills or draft sills 26 extending inwardly from the end sills 27 to the central door opening, the load being carried from the center part of the car to the ends by the plate sides 2. The sides 2 may be reinforced by channels and angles

27 and 28, and the ends of the car are supported by struts 29 extending upwardly from the angles 6 to the upper ends of the inclined ends 1. Preferably the shafts 4 are provided with spiral sheaves 30 upon which the chains 13 wind.

From the foregoing description it will be apparent that I have provided a car having a dump door, either edge of which in connection with the coacting parts may act as a hinge while the opposite edge is being raised and lowered, the connection of the opposite edges of the door with the operating mechanism and car structure being such as to permit movement about either edge as a center. By means of this construction the contents of the car may be dumped at either side without the employment of a plurality of doors, and without raising either edge of the door to accomplish the desired object.

I would have it understood that I do not desire to limit myself to the precise construction 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, a movable floor section, and reciprocating shafts for raising and lowering said floor section at either side.
2. In a car, an unattached floor section, reciprocating shafts for supporting opposite sides of said floor section, said shafts being also adapted for raising and lowering said opposite sides.
3. In a car, a floor provided with an opening, a floor section normally closing said opening, and reciprocating shafts for raising and lowering either side of said section.
4. In a car, a door, and reciprocating shafts for operating said door upon either of two opposite edges as the center of movement.
5. In a car, a floor provided with a door opening, a door normally closing said opening, reciprocating shafts supporting opposite sides of said door, and means for raising and lowering either of said shafts to raise or lower either edge of said door upon the other edge as a center of movement.
6. In a car, a floor provided with an opening extending substantially from side to side of the car, a floor section normally closing said opening, and reciprocating shafts for raising and lowering either side of said section to cause the same to incline toward and dump the contents of the car at either side of the car.
7. In a car, end floor sections inclining downwardly from the ends toward the center of the car, a normally horizontal central floor section between said end sections, and reciprocating shafts for raising and lowering either side of said central section to

dump the contents of the car at either side thereof.

8. In a car, end floor sections inclining downwardly from the ends toward the center of the car, side walls having an inwardly sloping part adjacent their lower edges and between said end floor sections, a horizontal central floor section normally closing the opening between said end floor sections and side walls, reciprocating shafts for supporting said floor section, one at either side, and operating mechanism for raising and lowering either of said shafts, said operating mechanism comprising a winding shaft mounted beneath said inwardly sloping part of said side walls.

9. In a car, a floor having a door opening, rails adjacent the ends of said opening, and inclining downwardly from the sides toward the center thereof, reciprocating shafts mounted on said rails, a movable floor section resting on said shafts, and means for reciprocating said shafts on said rails.

10. In a car, a floor having a door opening, rails adjacent the ends of said opening and inclining downwardly from the sides toward the center thereof, a movable floor section, downwardly extending projections upon said movable floor section, reciprocating shafts mounted on said rails, said shafts when raised engaging said projections, and means for raising and lowering said shafts.

11. In a car, a floor having a door opening, rails adjacent the ends of said opening and inclining downwardly from the sides toward the center thereof, winding shafts adjacent the upper ends of said rails, reciprocating shafts mounted on said rails, chains secured to said winding shafts and reciprocating shafts, means for rotating said winding shafts, and a movable floor section or door resting on said reciprocating shafts.

12. In a car, a floor having a door opening, rails adjacent the ends of said opening and inclining downwardly from the sides toward the center thereof, winding shafts adjacent the upper ends of said rails, reciprocating shafts mounted on said rails, chains secured to said winding shafts and reciprocating shafts, means for rotating said winding shafts, and a movable floor section or door resting on said reciprocating shafts, said movable floor section or door having downwardly extending projections adapted to engage said reciprocating shafts.

13. In a car, inclined end floor sections, vertical side walls, inwardly inclining side wall sections extending from the lower part of said side walls, supports extending between and secured to the lower parts of said vertical side walls and said inwardly inclining side wall sections, winding shafts mounted in said supports, a movable floor section adapted to close the space between said end floor sections and inwardly inclining

side wall sections, rails adjacent the ends of said space and inclining downwardly from the sides toward the center thereof, reciprocating shafts mounted on said supports, and chains secured to said winding shafts and reciprocating shafts.

14. In a car, a floor having a door opening, inclined supporting rails adjacent the ends of said opening, each of said rails having a horizontal part at its upper end, reciprocating shafts mounted on said rails, winding shafts, chains connecting said winding and reciprocating shafts, and cams secured to said winding shafts and adapted to contact with said reciprocating shafts when the latter are upon the horizontal parts of said rails.

15. In a car, a winding shaft, a reciprocating shaft, a movable floor section operated thereby, a chain connecting said shafts, and a cam upon said winding shaft adapted to actuate said reciprocating shaft in a direction opposite to the movement communicated thereto by said chain.

16. In a car, a floor having a door opening, rails adjacent the ends of said opening and inclining downwardly from the sides toward the center thereof, a movable floor section, downwardly extending projections upon said movable floor section, reciprocating shafts mounted on said rails under said floor section, and means for raising and lowering said shafts.

17. In a car, a floor having an opening, a floor section normally closing said opening, reciprocating shafts for supporting opposite edges of said section, an operating shaft for moving each of said shafts, means on said operating shafts for displacing said reciprocating shafts from their normal positions, and means on said operating shafts for replacing them in their normal positions.

18. In a car, a floor having an opening, a floor section normally closing said opening, separate movable means for supporting opposite edges of said section, means for supporting each of said movable means in its normal position and guiding it to a lower position, and means adapted to displace said movable means from its normal position and to replace it therein.

19. In a car, a floor having an opening, a floor section normally closing said opening, separate movable means for supporting opposite edges of said section, and for serving as hinges for said section at either edge when the opposite edge is lowered, means for displacing either of said movable means from its normal position and for replacing it therein, and rails adapted to support said movable means in its normal position and to guide it to a lower position.

20. In a car, a floor having an opening, a floor section normally closing said opening, movable means for supporting opposite

edges of said section, and for serving as
hinges for said section at either edge when
the opposite edge is lowered, rails adapted
to support said movable means in their sup-
5 porting positions under the edges of the sec-
tion and to guide said means to a lower
position, operating shafts for said movable
means, cams on said shafts for dis-
placing said movable means from their

supporting positions, and chains adapted to 10
wind on said shafts for replacing them in
their supporting positions.

In testimony whereof, I have subscribed
my name.

FREDERICK SEABERG.

Witnesses:

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