J. PEARSON.

CAR CONSTRUCTION.

APPLICATION FILED FEB. 5, 1915.

1,297,004.

Patented Mar. 11, 1919.

5 SHEETS—SHEET 1.

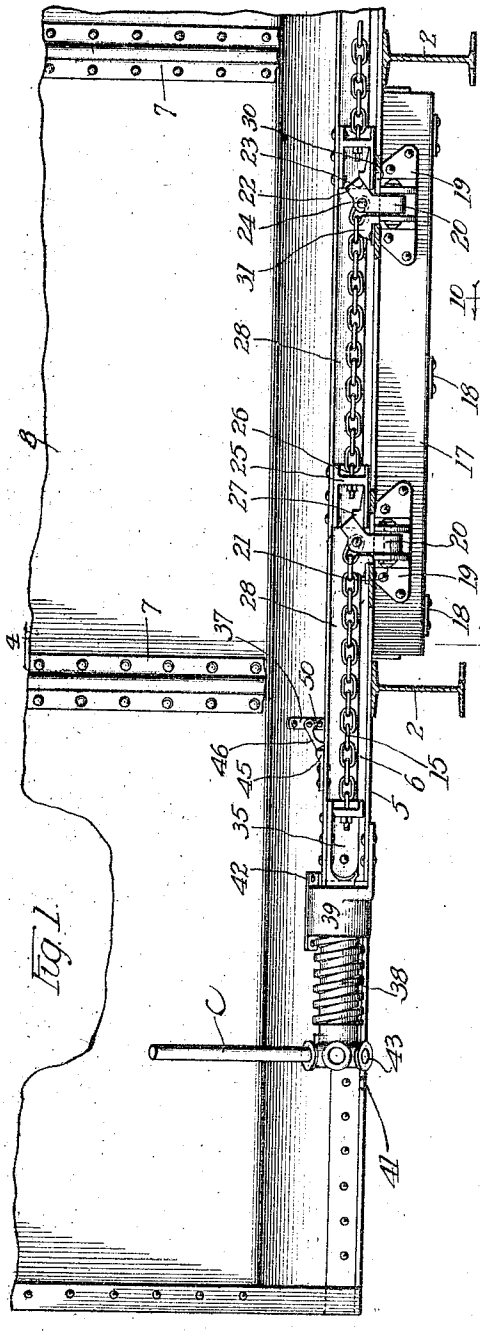


Fig. 1.

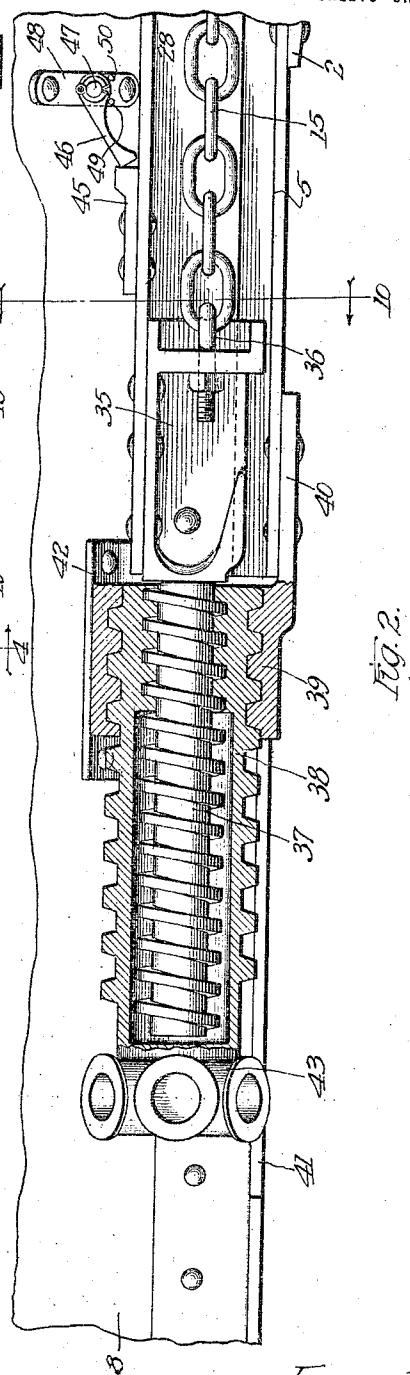


Fig. 2.

Witnesses:

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John Pearson

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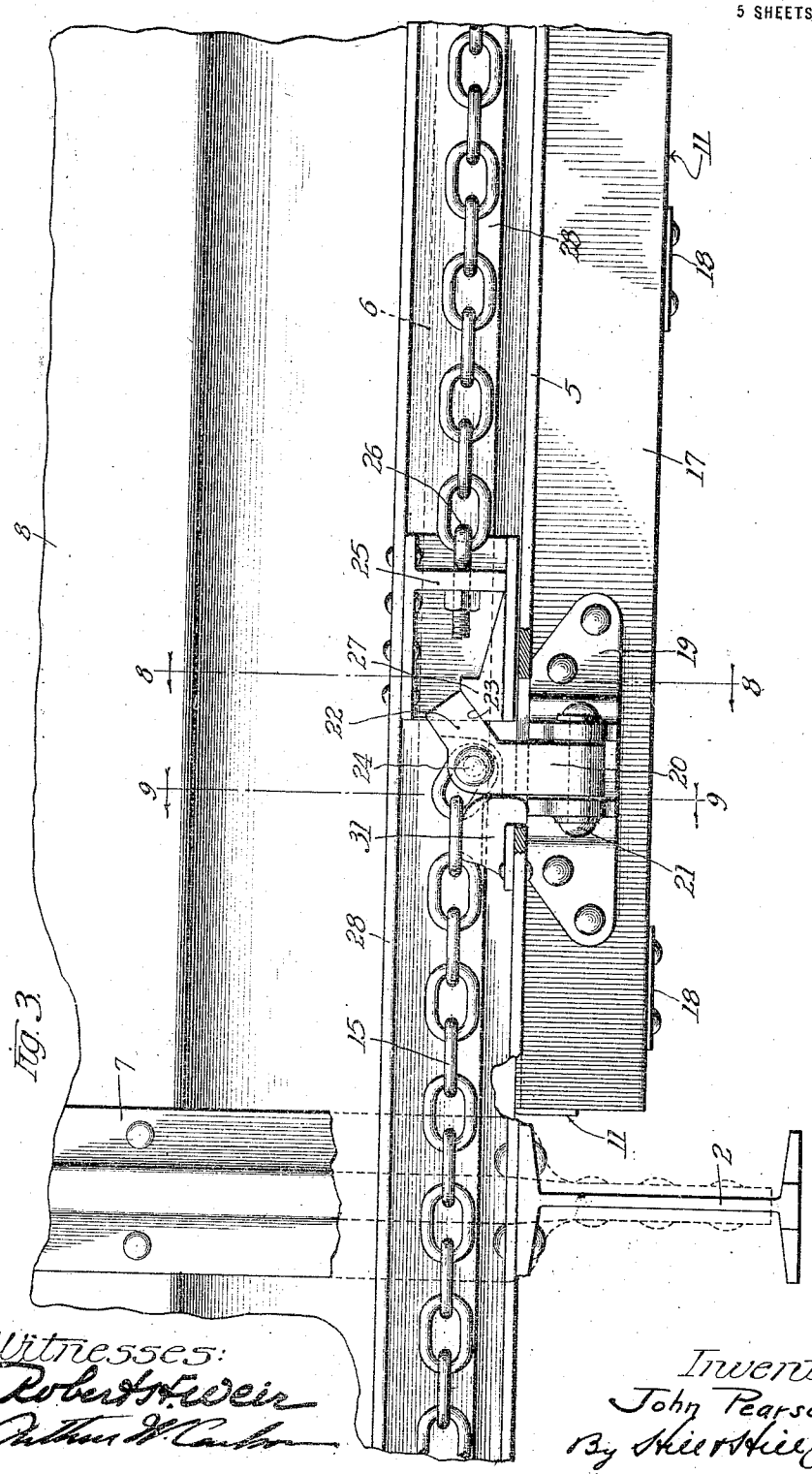


Fig. 3.

Witnesses:
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5 SHEETS—SHEET 3.

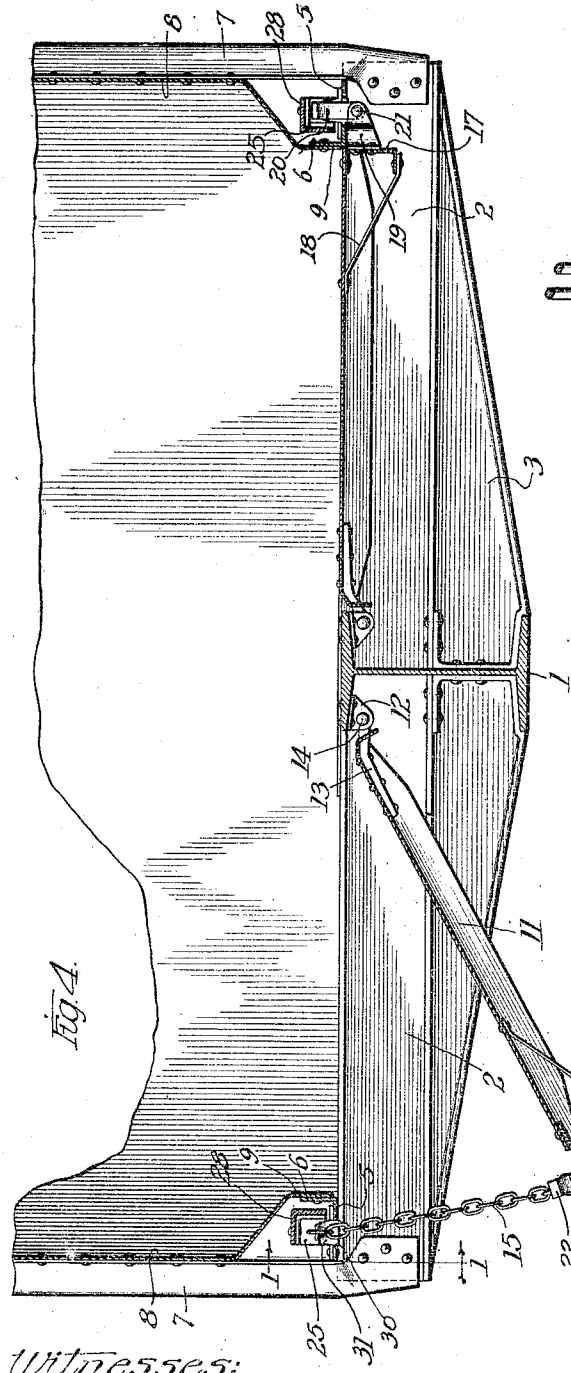


Fig. 4.

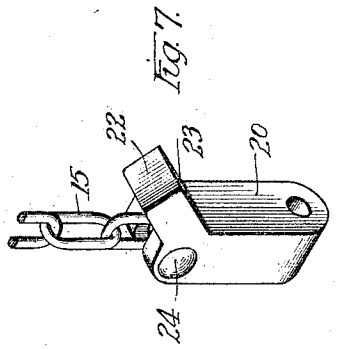


Fig. 7.

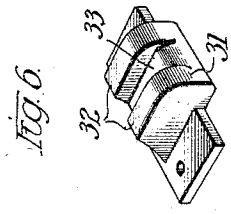


Fig. 6.

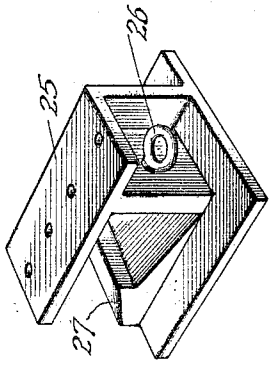


Fig. 5.

Witnesses:

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5 SHEETS—SHEET 4.

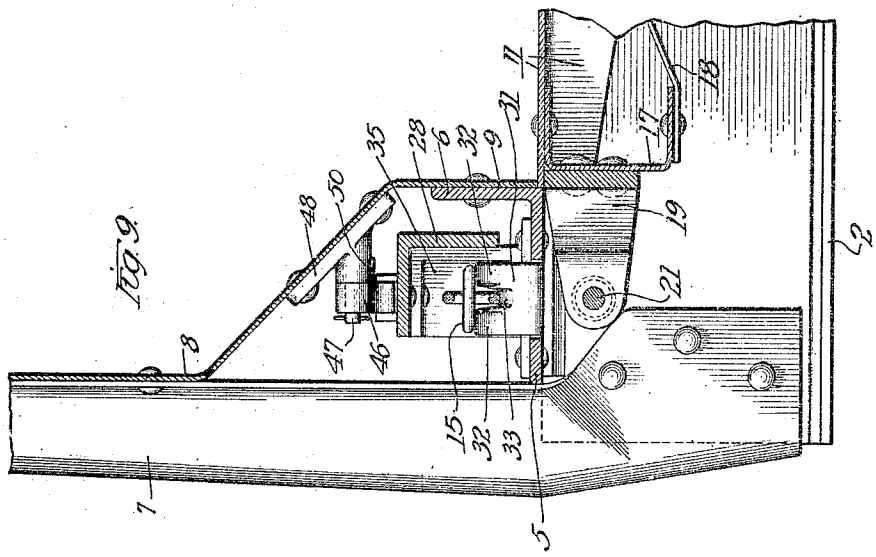


Fig. 9.

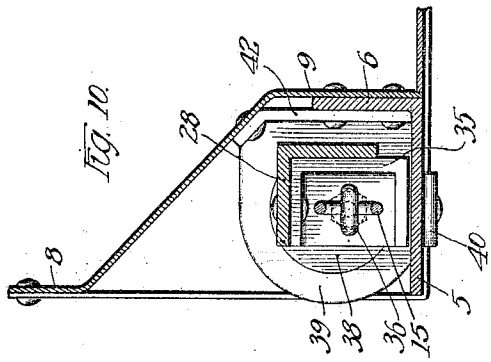


Fig. 10.

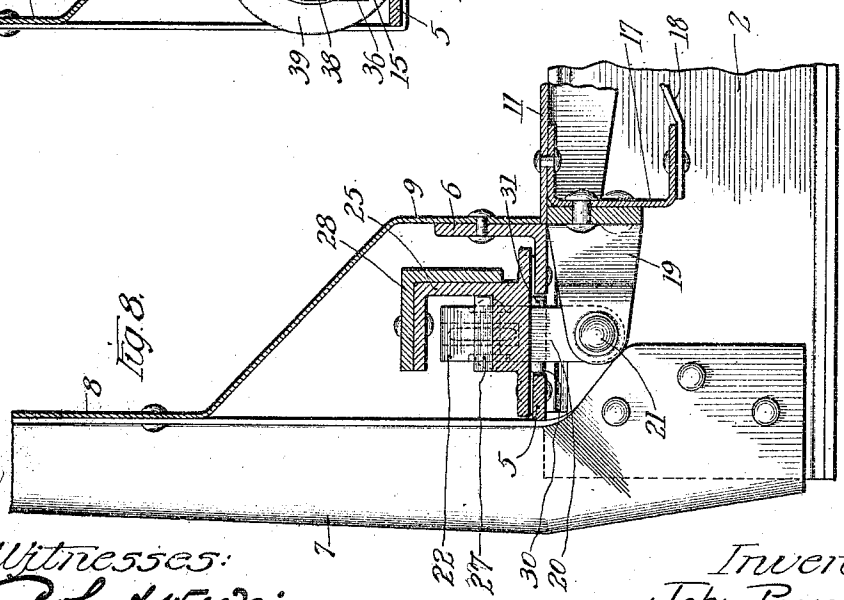


Fig. 8.

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CAR CONSTRUCTION.

APPLICATION FILED FEB. 5, 1915.

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5 SHEETS—SHEET 5.

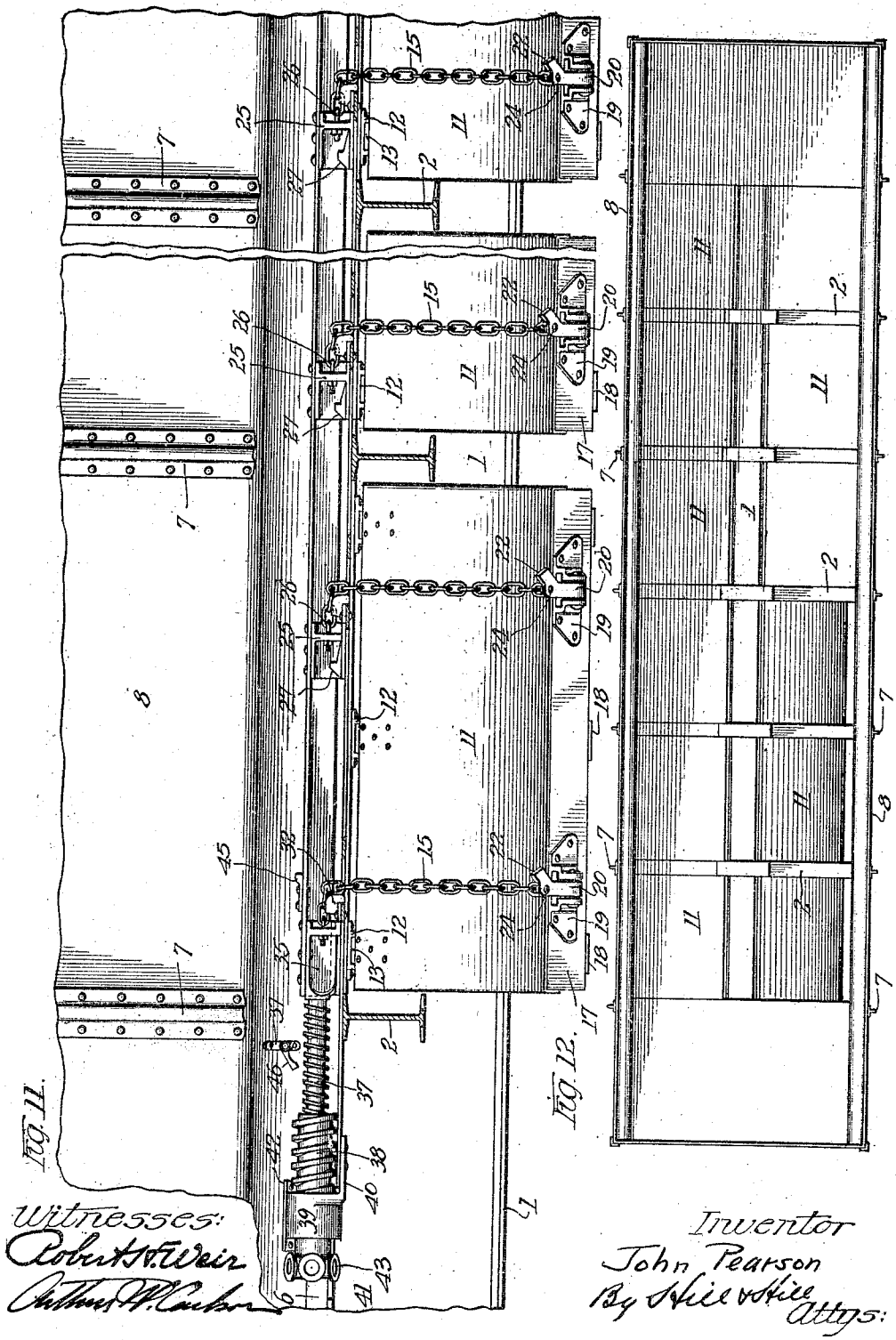


Fig. 11.

Fig. 12.

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UNITED STATES PATENT OFFICE.

JOHN PEARSON, OF CHICAGO, ILLINOIS.

CAR CONSTRUCTION.

1,297,004. Specification of Letters Patent. Patented Mar. 11, 1919.

Application filed February 5, 1915. Serial No. 6,237.

To all whom it may concern:

Be it known that I, JOHN PEARSON, 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 Car Constructions, of which the following is a description.

My invention belongs to that general class of devices known as car constructions, and relates particularly to an improved dump car construction. The invention has among its objects the production of a device of the kind described that is simple, convenient, efficient, durable and satisfactory. The invention has particularly among its objects the production of an improved dumping mechanism for controlling the lowering and raising of the dump doors, and locking the same in position. Other objects and advantages will appear to those skilled in the art from the disclosure herein given.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts,

Figure 1 is a side elevation and partial sectional view of a portion of the car looking from line 1, 1 of Fig. 4;

Fig. 2 is an enlarged view of a portion of the same, a part shown in section;

Fig. 3 is a side elevation similar to a portion of Fig. 1, the same enlarged to more clearly show the construction;

Fig. 4 is a cross sectional view of the car, taken substantially on line 4, 4 of Fig. 1, the doors at one side of the car closed and at the other side opened;

Fig. 5 is a perspective view of a detail part;

Fig. 6 is a perspective view of another part 31;

Fig. 7 is a similar view of another detail part 20;

Fig. 8 is a sectional view taken substantially on line 8, 8 of Fig. 3;

Fig. 9 is a sectional view taken substantially on line 9, 9 of Fig. 3;

Fig. 10 is a sectional view taken substantially on line 10, 10 of Fig. 2;

Fig. 11 is a view of a portion of a car similar to Fig. 1, the dump doors dropped, and

Fig. 12 is a plan view of the car body.

It may be mentioned that the running gear or trucks, brake mechanism, etc., are not shown in the drawings, inasmuch as the same is not required for the purpose of illustrating or describing the present invention, and further since the same may be of any preferred or standard construction. The main frame of the car body may also be considerably modified from that shown without departing from the invention, although the construction illustrated is preferred, since it is particularly desirable and is in itself new and novel. In the preferred construction a center beam, preferably of I form, is extended lengthwise the car, the draft rigging being ordinarily secured thereto at each end. Carried by the center beam 1 are the body bolsters 2, the body frame being carried by the body truck bolsters 3. These several parts are secured to the center beam in any desired manner. It is, of course, obvious that two channels arranged back to back would be the full equivalent of the I beam 1 shown. Carried by the bolsters 2 at each side of the car and extending preferably from end to end of the car are angle beams 5—6. The bolsters also carry the side stakes 7. The form of stake shown is formed at its lower end to embrace the beams 2, and is secured thereto in any desired manner. It will be noted by securing the stakes in place, as shown, all brackets, gusset plates and the like for securing stakes in place are done away with, and greater clearance obtained. Secured to the stakes are the side walls 8, which are offset, as most clearly shown in Fig. 4, at 8 and 9, and secured to the sides 6 of the angle bars.

There may be any number of doors arranged as desired. In the construction shown they are pivotally supported on axes extending lengthwise the car, the pivotal support being shown at the center of the car. As shown, each door 11 is formed with a hinge 13, which is pivotally secured at 14 to brackets 12 carried by the center beam 1. When the doors are raised the same forms the floor of the car, and, as will be noted, the doors when closed are substantially flush with the top of the I beam. The raising and lowering of the doors is controlled by chains 15, or by cables or the equivalent suitably secured to and extended from the edge of the door. The chains 15, or their

equivalents, may be attached to the doors in any desired manner. As most clearly shown in Figs. 8 and 9, I secure a bar or plate 17 at the free edge of each door, the same preferably being stiffened or braced by the brace members 18. To the part 17 are secured one or more suitable brackets 19, one for each chain. The chain is connected to the brackets 19 by a substantially L-shaped member 20 and pin 21. (See Fig. 7.) The L-shaped members 20 are each substantially in the form of a hook, the same being provided with an extension 22, the parts 20 and 22 form substantially the letter L having a face 23 formed to engage a supporting and locking member hereafter described. The chains may be secured to 20 by a pin 24 passing through a hole in 20, or equivalent means for the purpose.

Slidably arranged on the angle 5—6 are members 25 (see Fig. 5) for the several doors, which are secured to bars 28. In the preferred construction I control a portion of the doors on each side from one end of the car, and the remaining doors adjacent the other end from the other end. This, however, is a matter of preference, as the doors, or the raising and lowering of the same, may be controlled, for example, from one end only, if so desired. The chains or flexible raising members are secured through the memebrs 25 to a bar 28, as mentioned, which is provided with means for moving the same longitudinally. As most clearly shown in Figs. 1, 3, 8, 9 and 11, the beam 5 is formed with a series of openings or apertures therethrough. Arranged at each opening through the beam 5 is a member 31 (see Fig. 3) which is formed with the lugs 32 having a space 33 between them. (See Fig. 6). These members slidably support the chains 15 between their ends, that is, where they are attached to the hooks 20 and the members 25. (See Figs. 3, 6, 9 and 11). Each of the members 25, when drawn back to the position where the doors are closed, is arranged to form a lock for an adjacent hook 20. (See Figs. 1 and 3). Each of the members 25 is formed with a cam or locking face 27, which engages on the face 23 of the extension 22 of the hook or member when the doors are closed, as shown in Fig. 1. The last hook of the end door, however, may be connected to the bar in a little different manner, as most clearly shown in Fig. 2. As shown, bar 28 is secured to a member 35, which is formed with a threaded portion 37, which is in threaded engagement with an internally threaded member or mandrel 38. The member or mandrel 38 is externally threaded, but in the opposite direction, and arranged to engage a bracket or drum 39, suitably secured to the car. As shown, bracket or drum 39 is extended as at 40 (see Fig. 2) and as at 42 (see Fig. 10) and secured to the angle 5, 6, and the side wall of the car. It may be mentioned that the angle bar 6 is preferably cut away as at 41, so as to allow room for the parts. The threaded member or mandrel 38 is formed as at 43, substantially similar to a capstan head, so that it may be engaged by an operating bar C, so as to shift the same or rotate it in one direction or the other. The chain connecting the last door with the bar 28 is secured by an eyebolt 36 to bracket 35. The other chains are secured to members 25 by the eyebolts 26, it being understood that any equivalent construction may be employed.

I have illustrated a latch or locking member 46 arranged to engage an abutment 45. The member 46 is pivotally secured at 47 to a bracket 48, secured to the car, pins 49 and 50 limiting the movement of the same. While 46 is substantially a locking member, it is intended primarily as an indicator to indicate to the operator and call his attention to the fact that the doors have been drawn to closed positions and that they are fully locked.

The operation of the device may be briefly described as follows: Assuming that the doors are in the position shown in Figs. 1, 2, 3, and the right hand side of Fig. 4, the latch 46 being down, as most clearly shown in Fig. 2: To drop the doors the operator throws catch 46 over, so that it is supported by pin 50, or the equivalent. The capstan bar or operating rod C shown in Fig. 1 may then be engaged in one of the holes in the capstan head and the same rotated. Because of the threaded engagement the same will move through the bracket, as illustrated toward the right. The threaded rod 37, in engagement therewith on the interior being oppositely threaded, and prevented from rotating by the bar 28, will also move lengthwise to the right in relation to member 38, and as shown in Fig. 11. It will be particularly noted that by constructing the rod 37 and member 38 as shown, the same are double acting, that is, as member 38 is rotated it moves lengthwise, and at the same time, owing to the threaded engagement with rod 37, that is moved lengthwise, not only with movement of member 38 lengthwise, but owing to the threaded engagement, 37 is also advanced relative to member 38. As the parts move the part 28 is, of course, moved, carrying the members 26. As they move they tend to release the hooks 20, and the chains slide over the brackets or members 31, permitting the doors to drop to open position, as shown in Fig. 11. To raise the doors the reverse operation takes place, the members 25 engaging the hooks and positively locking the doors shut. It will be noted that at this time there is no strain whatever on the chains in so far as supporting the doors is concerned. Neither is

there any direct transverse strain on the bar 28, as the brackets 25 are supported from the angle side 5 of the bar 5—6. It should be particularly noted that the threaded or screw construction for operating the bar, in itself forms a very simple and efficient locking mechanism, and that by means of it the doors may be supported at any point intermediate their extreme positions of up or down. The chains being adjustably secured to the brackets 25, adjustments for wear, stretching, or other causes may be easily and promptly made. By this construction the well known type of winding shaft so generally employed in dump car constructions is entirely done away with.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement or combination of parts herein shown and described, or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:—

1. In a dump car, a door hinged at one edge thereof to the car, and means for controlling the raising and locking and the lowering of the opposite edge of the door, comprising a flexible member secured to the door edge and slidably supported intermediate its ends, a slidable bar, means for securing said flexible member to said bar, and means in threaded engagement with said bar, and in threaded engagement with a portion of the car structure for controlling the movement thereof.

2. In a dump car, dump door controlling mechanism comprising a bar slidably carried by the car body frame, actuating means for said bar and a plurality of flexible door closing members secured to said bar and to the dump doors, said flexible members including means for engaging the bar when the doors are closed.

3. In a dump car, dump door controlling mechanism comprising a slidable bar, a plurality of flexible members secured to said bar and to the dump doors, and means for slidably carrying said flexible members intermediate the ends thereof, said bar provided with means for positively locking the doors in closed position independently of the flexible members.

4. In a dump car, dump door controlling mechanism comprising a slidable bar carried by the car body and operatively connected with the dump doors, hooks connected with said doors and means for controlling said bar and longitudinally moving the same, said bar arranged to engage the said hooks, and positively lock the doors in closed position.

5. In a dump car, dump door controlling mechanism comprising a slidable bar carried by the car body and operatively connected with the dump doors, and means for controlling said bar and longitudinally moving the same, comprising a rotatable threaded member, a threaded part rigidly connected with said bar and in threaded engagement with said member and a bracket carried by the car structure, and in threaded engagement with said threaded member.

6. In a dump car, having a suitable frame and including a beam running lengthwise the car on each side thereof, the combination of a plurality of dump doors hinged at the center of the car, and means carried by said side beams for controlling said dump doors, comprising flexible members for each door, having one end secured thereto, each of said flexible members extending through a suitably formed aperture in said side beams, a slidable bar arranged on each side of the car, means for securing said flexible members to said bars, and means for controlling the movement of said slidable bars.

7. In a dump car and in combination, dump door controlling mechanism comprising a slidable bar operatively connected with the dump doors, and means for controlling said bar, comprising a rotatable member threaded to engage a suitable part carried by the car, and movable lengthwise said slidable bar, said member internally threaded, a threaded member arranged to engage the internal thread of said first mentioned member and operatively connected with said member.

8. In a dump car, dump door controlling mechanism comprising a slidable bar operatively connected with the dump doors, and means for controlling the longitudinal movement of said bar, comprising a rotatable member threaded to engage a suitable part carried by the car and movable lengthwise said slidable bar, said member internally threaded, a second threaded member arranged to telescope within and engage the internal thread of said first mentioned member and operatively connected with said slidable bar, said second member and the interior of said first mentioned member threaded oppositely to the thread on the exterior of said first mentioned member, whereby when said first member is rotated the same is moved lengthwise the slidable bar, and said slidable bar and second mentioned threaded member are simultaneously advanced relative the first mentioned rotatable member.

9. In a dump car of the kind described, dump door controlling mechanism including a rotatable tubular member internally and externally threaded in opposite directions, a non-rotatable threaded member carried by the car body and arranged to engage said external thread, a non-rotatable

slidable member provided with an external thread at one end arranged to engage the internal thread of said first mentioned member, and means for operatively connecting said slidable member and dump doors.

10. In a dump car provided with a series of dump doors, each hinged at one edge thereof to the car, means for simultaneously controlling the raising and lowering of the opposite edge of each of said doors, a portion of the controlling means for the edge at one side of one door arranged to lock the edge at the other side, and a portion of the controlling means arranged to lock the edge of the proximate side of an adjacent door on the same side of the car when the doors are in raised position.

11. In a car, dump controlling mechanism including a slidable bar, flexible means operatively connected with the dump doors and bar, and means carried by said bar for positively locking the doors in closed position independently of said flexible means after a predetermined movement of the bar in a direction to close the doors.

12. In a dump car, a door hinged at one edge thereof to the car, and means for controlling the raising and lowering of the free edge of the door, comprising a slidable bar, a plurality of flexible members, each having one end fastened to said bar, means for securing the other ends of said flexible members to the free edge of the door, means for supporting said flexible members intermediate the ends thereof, and means carried by said bar for positively engaging said securing means when the door is in closed position.

13. In a car construction, a plurality of dump doors, each pivotally supported at one edge from the car body, and means for controlling the raising and lowering of the opposite free edge of each of said doors, comprising a slidable bar, and means in threaded engagement with said bar for positively controlling the movement thereof, a plurality of chains for each door, each having one end secured to said free edge of the door, and the opposite end connected with said bar, means carried by the car body for slidably supporting said chains intermediate their ends, and means for supporting the doors in closed positions independently of said chains.

14. In a dump-car of the kind described, a series of dump-doors, each hinged at one edge to the car, a sliding bar carried by the car structure, a series of flexible chains connecting said slidable bar and free edges of said doors, said sliding bar and chains adapted to coöperate with the car structure and move said doors into closed position, and means carried by said bar for locking said doors in closed position.

15. In a dump-car of the kind described, a series of dump-doors, each hinged at one edge to the car, a sliding bar carried by the car and located adjacent the free edges of said doors, and actuating means for said bar, a series of flexible chains connecting said sliding bar and free edges of said doors, said sliding bar and chains arranged to control the movement of said doors into open positions, and means carried by said bar and inoperative when the doors are open for locking the doors in closed positions.

16. In a dump-car of the kind described, dump-doors hinged at one edge to the car, and controlling mechanism therefor including a sliding bar located above the free edge of the door, the movement of said sliding bar in either direction being positively controlled by a threaded rotatable member, said member movable along its axis of rotation.

17. In a dump-car of the kind described, dump-doors hinged at one edge to the car, and controlling mechanism therefor including a sliding bar located above the free edge of the doors, an internally threaded drum secured to the body of the car, and a telescoping threaded rotatable member forming a connection between said drum and said slidable bar.

18. In a dump-car a dump door, door-controlling mechanism for said dump door comprising a sliding bar carried by the car and located above the free edge of the door, a drum secured to the car body, a rotatable threaded member connecting said sliding bar and said drum, and flexible chains connecting said sliding bar and free edge of the door.

19. In a dump-car, door-controlling mechanism, including a sliding bar located above the free edge of the door, cam-shaped brackets secured to said sliding bar, flexible chains connected with said cam-shaped brackets and L-shaped hangers, said L-shaped hangers connecting said flexible chains to the free edge of the door.

20. In a dump-car, a door, door-controlling mechanism comprising a sliding bar, L-shaped hangers secured to the free edge of the door, cam-shaped brackets secured to said sliding bar, said cam-shaped brackets arranged to support said L-shaped hangers when the door is in closed position.

21. In a dump-car of the kind described, a door-controlling mechanism, comprising a drum with an internal screw-thread secured to the body of the car, a hollow rotatable mandrel with external and internal screw thread arranged to telescope within said drum, the internal screw thread in said hollow rotatable mandrel threaded in opposite direction from the external thread, a sliding non-rotatable bar operatively connected with the dump door and having a threaded portion arranged to telescope with said rotatable mandrel, whereby movement

of said hollow rotatable mandrel controls the raising and lowering of the free edge of the door.

22. In a dump-car of the kind described, a series of doors, door-controlling mechanism therefor, comprising a drum having an internal screw-thread and secured to the body of the car, a hollow rotatable mandrel having an external and internal screw-thread, and arranged to engage with the internal screw-thread of said drum, said hollow rotatable mandrel internally threaded in the opposite direction from its external thead, a sliding non-rotatable bar operatively connected with the dump doors and having a threaded portion arranged to telescope within said rotatable mandrel, whereby operation of rotation of said hollow rotatable mandrel will control the closing and locking of the free edges of the series of dump doors.

23. A dump-car of the kind described, a series of dump doors, door-controlling mechanism, comprising a drum provided with an internal screw-thread and secured to the body of the car, a tubular rotatable mandrel having an external and internal screw-thread, said hollow rotatable mandrel internally threaded in opposite direction from the external thread, a sliding non-rotatable bar operatively connected with the dump doors and having a threaded portion arranged to telescope within said rotatable mandrel, whereby movement of said hollow rotatable mandrel controls the releasing and positively supports the series of dump doors at any desired position.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN PEARSON.

Witnesses:
ROY W. HILL,
CHARLES I. COBB.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."