

C. A. LINDSTRÖM.
DUMPING CAR.
APPLICATION FILED JUNE 5, 1903.

943,259.

Patented Dec. 14, 1909.

2 SHEETS—SHEET 1.

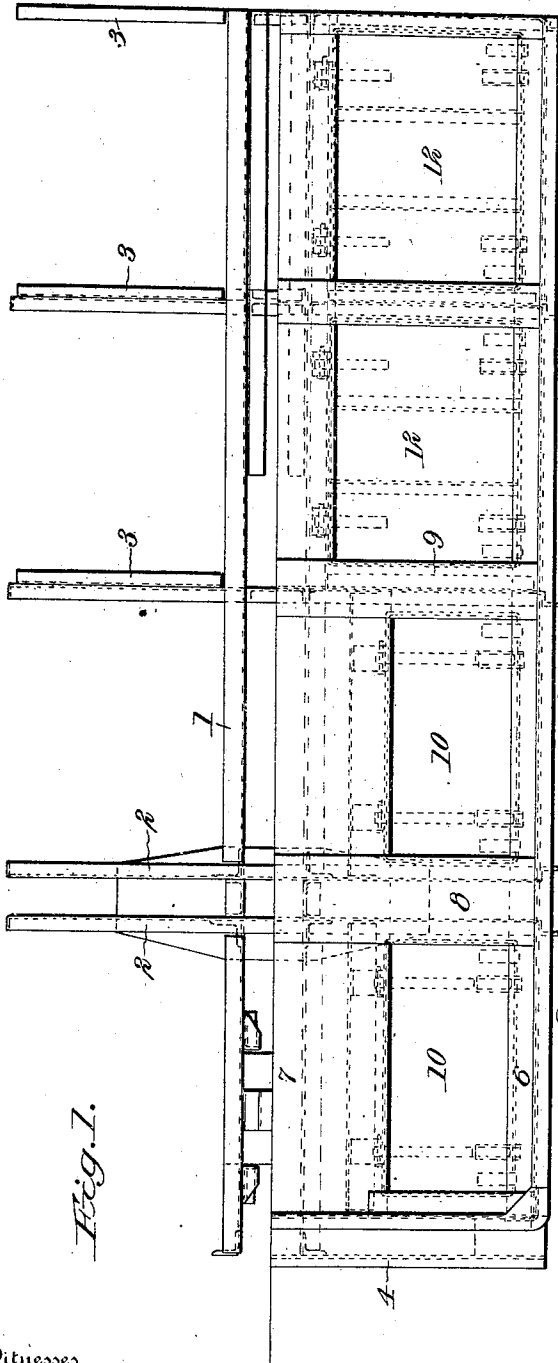


Fig. 1.

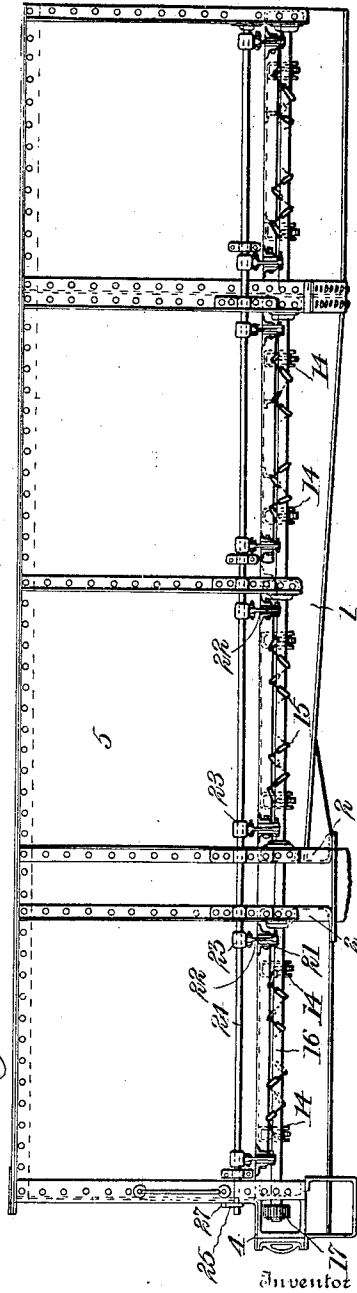


Fig. 2.

Witnesses

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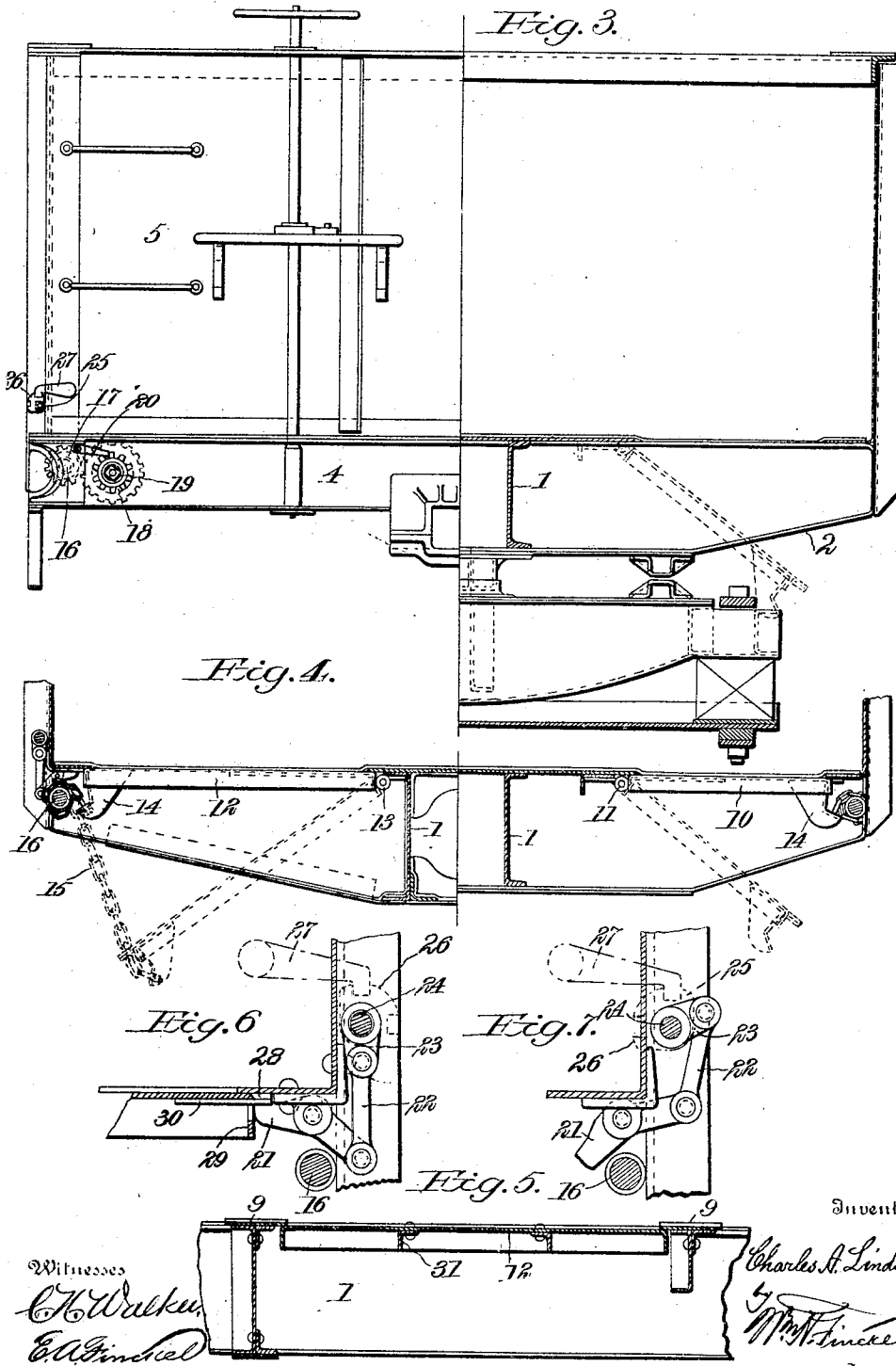
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UNITED STATES PATENT OFFICE.

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DUMPING-CAR.

943,259.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed June 5, 1903. Serial No. 160,240.

To all whom it may concern:

Be it known that I, CHARLES A. LINDSTRÖM, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Dumping-Cars, of which the following is a full, clear, and exact description.

The object of this invention is to provide a flat bottom gondola car with drop doors that close up in the bottom and flush therewith, so that the car may be used not only for dumping lading capable of being so discharged, but also for receiving other kind of freight that must be discharged otherwise.

The invention consists of a car of the character described, wherein the doors are hinged near the longitudinal center of the car and capable of opening outwardly toward opposite sides, combined with chains and winding shafts by which the doors may be closed in series, and locking devices which not only retain the doors in closed position when so lifted by the chains, but which also serve to retain them thus in case the chains should break.

The invention is shown applied to a steel car, there being four doors over each truck, two to a side, and eight doors between trucks, four to a side, the sixteen doors being connected in sets of four, although any number of doors may be arranged for conjoint operation, and they may be applied to wooden or partly wooden cars.

In the accompanying drawings illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a plan view of the left-hand half of a car, the upper portion showing the under-frame exposed, and the lower portion showing the floor plates and doors in position. Fig. 2 is a side elevation. Fig. 3 is a half end view and vertical section, the section being taken just in advance of the bolster. Fig. 4 is a cross section in two planes, the left-hand side showing one of the doors between trucks, and the right-hand side showing a door over the trucks. Fig. 5 is a longitudinal section through one of the doors. Fig. 6 is a detail sectional elevation of the door locking mechanism in locked position, and Fig. 7 is a similar view, with the locking mechanism in unlocked position.

The underframe may be of any approved

construction, and as here shown, comprises center sills 1, bolsters 2, transoms 3, and end sills 4. The body 5 also may be of approved construction.

There are longitudinal floor plates 6 and 7 and transverse floor plates 8 and 9 arranged to form the desired number of doorways or openings in the bottom of the car. Within the openings bounded by the longitudinal and transverse floor plates located over the trucks, are doors 10, four over each truck, or two on each side of the car. These doors are hinged at 11 to any suitable supports, preferably a part of the floor structure at a point away from the sill toward the side of the car and made narrow, so that they may be opened or dropped to the proper angle to discharge freely the load laterally without interference with the trucks, as indicated in Figs. 3 and 4. Between the trucks the door openings are considerably wider than the doors over the trucks, as shown in Figs. 1 and 4, and their doors 12 are hinged at 13 to or in connection with the center sills. The doors between the trucks are arranged four to a side, or eight in all. The several doors 10 and 12 are preferably pressed up of steel plate, and flanged on all four sides, the flanges projecting downwardly, as shown more particularly in Fig. 5; and all of the doors are adapted to close up substantially flush with the floor. Each of these doors is provided with brackets 14, preferably arranged near their opposite ends, and these brackets are connected by chains 15 with a winding shaft 16 mounted in suitable bearings on the outside of the car. The two doors over the truck on one side and the next two adjacent doors between trucks are connected with a single shaft which runs from one end of the car to about the center, and the sixteen doors in all are connected in four sets of four each, each set having a winding shaft and independent mechanism for operating it. The operating mechanism may comprise a pinion 17 on each shaft which meshes with a pinion 18 on a stud shaft 19 arranged adjacent thereto back of and protected by the end sill and corner pocket, and this stud shaft is provided with a square projecting beyond the end sill, as seen in Fig. 3, to receive a wrench or other operating device. In this way the doors may be operated in sets of four, and the unloading of the car may be governed accord-

ingly. Of course all of the doors on a side may be connected with a single operating shaft, and there may be as many doors to a side as desired. The winding shafts may be
 5 connected with pawl-and-ratchet mechanisms 20 to hold each of said shafts in given position, and especially to hold the doors in closed position, but it is preferred to provide independent door locking mechanisms which may take the place of the
 10 winding shafts in that capacity, so that should the chains break, the doors may still be held closed against accidental opening. As here shown, this locking mechanism comprises a lever latch or two of them for each
 15 door, and herein designated 21, suitably supported beneath the floor, each latch being connected by a link 22 with a crank-arm 23 on a shaft 24 which, as shown in Fig. 3, may have a squared end 25 by which it may be rotated. Each shaft 24 carries a notched disk
 20 26 adapted to be engaged by a gravity pawl 27. Each door is provided with as many lips 28 as there are locking latches 21. As shown in Fig. 6, the lips 28 may be formed by bending out a portion of the flange 29 of each door, and reinforcing it by a metal plate or strip 30.

When the door is closed, the shaft 24 is
 30 rotated so as to throw the latches 21 up underneath the lips 28, as shown in Fig. 6, and the pawl 27 then drops into one of the notches in the disk 26 and holds the latches in this locked position, and so holds the door
 35 closed. By releasing the pawl 27 and revolving the shaft 24 by means of a handle or wrench placed on the square 25, the latches 21 will be moved away from underneath the doors, which may then be dropped by means
 40 of the shaft 16 and chains 15, as indicated by dotted lines in Fig. 4. By the provision of two notches in the locking mechanism disk 26, the said mechanism is held positively closed and positively opened so as
 45 to respectively insure the locking of the doors when closed, and to remove the locking mechanism from the path of movement of the doors in closing.

It will be noted from Fig. 6, that the links
 50 22, together with the cranks 23 of the shaft 24, form toggles which are in such relation to each other, when the latches are closed, as to constitute locks which positively prevent the latches from accidentally moving
 55 in case the pawl 27 should not be dropped or should jar out of engagement with the notched disk 26.

As shown in Fig. 5, when the doors are of any considerable width, they may be reinforced by transverse angles 31 riveted thereto.

Of course there may be as many independent sets of door locking mechanisms as there are sets of doors.

65 The doors extend throughout the length of

the car, whereby practically the whole load may be dumped simultaneously, but it is evident that all or any of the doors located over the trucks may be dispensed with if desired without departing from the invention.

By the construction herein set forth, the car may be used not only for receiving granular lading, coal and the like, which may be discharged by dumping, but also
 75 for receiving freight in boxes, cases, and large pieces or structures.

What I claim is:—

1. In a dumping car, a series of drop doors, means for opening and closing the
 80 same, a series of pivoted locking latches for the doors, a cranked shaft, and links connecting the latches with the said shaft, said links, with the cranks of the shaft, forming locking toggles for holding the latches
 85 closed; substantially as described.

2. In a dump car, a drop-door and means for operating same, in combination with a lock for said door independent of said door operating means comprising a pivoted latch,
 90 means for operating said latch and a toggle connection between said latch and its operating means.

3. In a dump car, a drop-door and means for operating same, in combination with a
 95 lock for said door independent of said door operating means comprising a pivoted latch, means for operating same, a toggle connection between said latch and its operating means, and means for locking said latch
 100 operating means.

4. In a dump car, a drop-door and means for operating same, in combination with a lock for said door independent of said door operating means comprising a pivoted latch,
 105 a shaft for operating the same, a toggle connection between said latch and said shaft, and means for locking the said shaft against movement.

5. In a dump car, a central sill, a drop-door pivoted thereto, a floor plate mounted on said sill and projecting laterally beyond same and a drop-door pivoted to the outer edge of said plate over the car truck.

6. In a dump car, a drop door and means
 115 for operating the same, in combination with a lock for said door independent of said door operating means comprising a pivoted latch, a shaft for operating said latch and a toggle connection between said latch and
 120 shaft and comprising a link adapted to assume the dead center when in door locking position.

In testimony whereof I have hereunto set my hand this 4th day of June A. D. 1903. 125

CHARLES A. LINDSTRÖM.

Witnesses:

W. L. CARR,

J. C. LANGFITT.