

A. N. DOUD.

DUMPING CAR.

APPLICATION FILED MAR. 25, 1911.

Patented Sept. 10, 1912.

1,038,318.

2 SHEETS—SHEET 1.

Fig. 1.

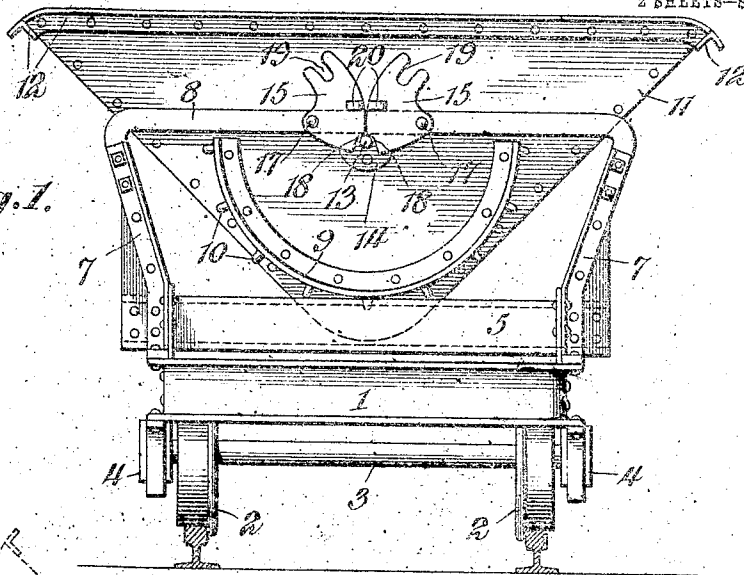
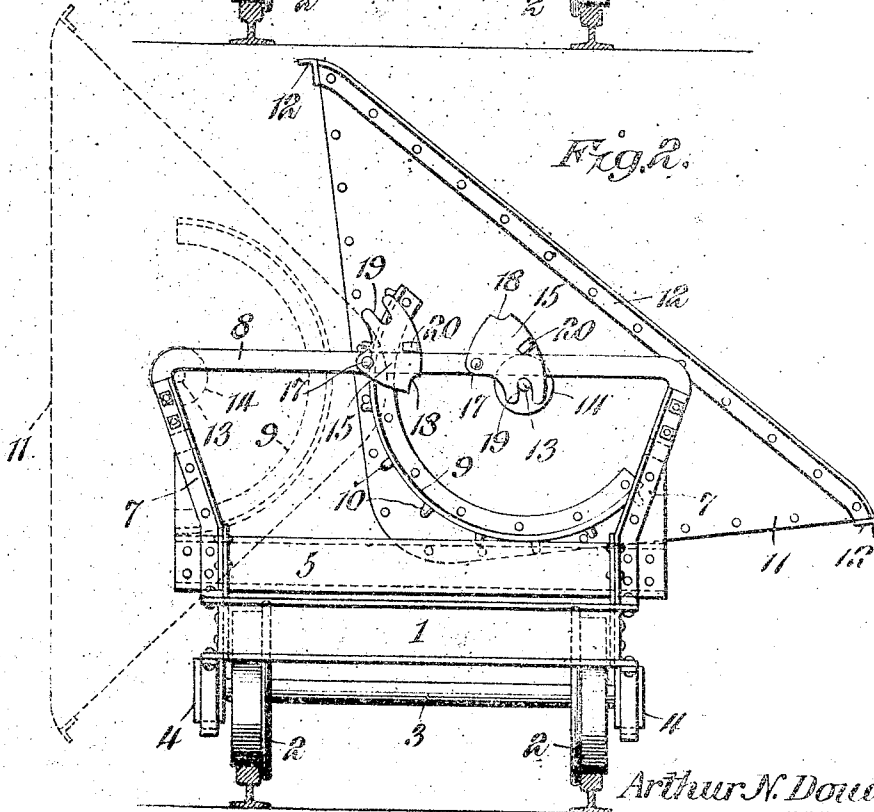


Fig. 2.



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WITNESSES

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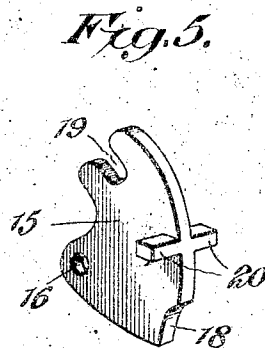
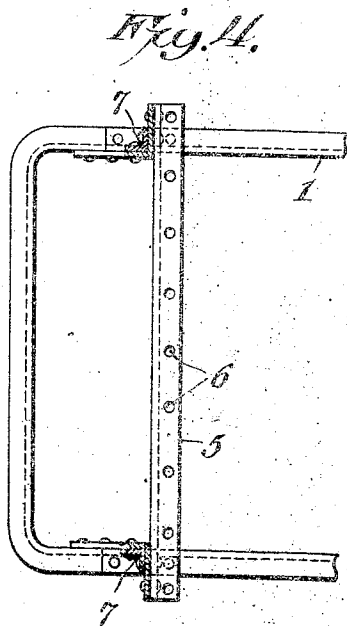
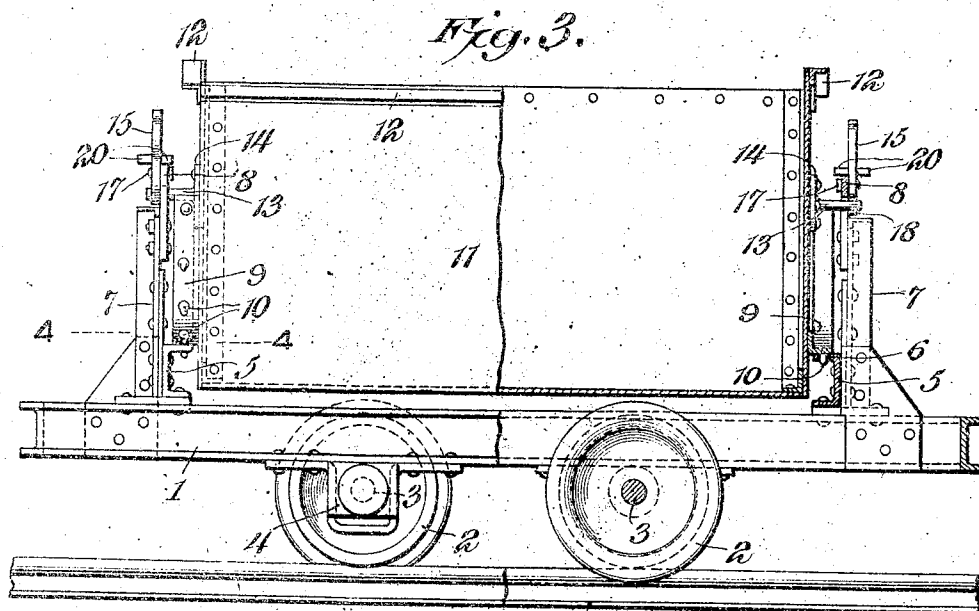
ATTORNEY

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ARTHUR N. DOUD, OF CLEVELAND, OHIO.

DUMPING-CAR.

1,038,318.

Specification of Letters Patent.

Patented Sept. 10, 1912.

Application filed March 25, 1911. Serial No. 613,925.

To all whom it may concern:

Be it known that I, ARTHUR N. DOUD, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Dumping-Car, of which the following is a specification.

This invention has reference to improvements in dumping cars, and more particularly to the type of dump cars known as the V-body rocker dump car, which may be so constructed that after the body of the car is rocked to dump the load the empty body will automatically move back to the righted position, the body being movable to either side of the center line of the car frame to dump the load. Cars of this type are provided with a V-shaped hopper supported at the ends by curved toothed members, each of which may include practically a half circle, and these semi-circular supporting bodies travel on tracks arranged transversely of the length of the car, which tracks are perforated to receive the teeth of the toothed members, so that as the body or hopper is moved toward one side or the other of the car frame, it has imparted to it a rotative movement sufficient to give the hopper a quarter turn, which because of the shape of the hopper will cause a complete discharge of the contents thereof. When the full dumping position has been reached, stop members in the path of other stop members on the hopper prevent further movement of the latter, while the construction of the hopper is such that on the discharge of the load the hopper will return to its normal righted position.

In practice there is a liability of the hopper or the body of the car being lifted or displaced from its track, and it is one of the objects of the present invention to provide means whereby the hopper or body is positively retained in operative relation to the track at all times and under all circumstances.

It is the further object of the invention to provide for the positioning of the hopper or body so that it may be readily loaded without the necessity of elevating material to a height required for filling the car when the hopper or body is in the full righted position.

In order to realize these objects, the hopper is provided at each end with a trunnion

guide and there is provided a guide bar co-acting with the trunnion to hold the rocker supports at the ends of the car in positive engagement with the rocker tracks. Furthermore, there are provided latches at each end of the car body coacting with the trunnion to lock the car body or hopper in the righted position, and, also, to hold the car body in a partially dumped position in which the material may be readily filled into the hopper, thus facilitating the loading of the car under certain circumstances, but the latch mechanism does not interfere with the dumping of the hopper at either side of the track when desired.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming a part of this specification, with the understanding, however, that while the drawings show a practical embodiment of the invention, it may be otherwise embodied, so long as the salient features of the invention are retained.

In the drawings:—Figure 1 is an end elevation of a dump car embodying the present invention, the supporting rails being shown in cross section and the hopper in the righted position. Fig. 2 is a view similar to Fig. 1 with the hopper in the partly dumped position and showing in dotted lines the full dumped position. Fig. 3 is a side view of the car with one end shown in elevation and the other in central longitudinal vertical section. Fig. 4 is a section of the car frame on the line 4—4 of Fig. 3, the hopper being omitted. Fig. 5 is a perspective view of one of the latches.

Referring to the drawings, there is shown a car truck composed of a substantially rectangular frame 1 of structural steel; preferably of channel bar, and this frame 1 is supported by wheels 2 having their axles 3 working in journal boxes 4 after the usual practice in dump cars.

Near each end of the frame 1 there is mounted a cross beam 5 which may also be of channel steel, and in what may be termed the upper flange of each beam 5 is a longitudinal series of spaced perforations 6. Near each end of each beam 5 is an upright 7 suitably braced and united to the beam 5 and frame 1 by rivets and angle plates, as may be necessary. The uprights 7 at the

two ends of each beam 5 are in flaring relation one to the other as they rise from the beam 5 and their upper ends are connected by a guide bar 8 in parallel relation to the beam 5 and at a suitable distance above this beam 5. The perforated flanges of the beams 5 constitute tracks for curved angle trips 9 serving as rockers, each having a curved flange movable on the track flange of the beam 5 in rocking relation thereto. Each rocker 9 has on its convex edge a series of teeth 10 which may be in the form of projecting studs suitably spaced and shaped to engage respective perforations 6. The rockers 9 are fast to the ends of a V hopper 11 made up of steel plates with marginal angle stiffening bars 12, but the particular construction of the hopper itself does not enter into the present invention, except that the V shape is to be desired. The disposition of the rockers with relation to the body or hopper 11 is such that when the intermediate portions of the rockers are central to the track beams 5, the hopper is in the righted position. At each end of the hopper at the center of the arc described by the respective rocker there is secured a trunnion pin or stud 13 projecting from a plate 14 which may be riveted or otherwise secured to the corresponding end of the hopper and the relation of the pin 13 to the bar 8 is such that this pin will always travel immediately underneath the respective bar 8, so that at no time can the hopper move in a direction away from the track bars 5 sufficiently to lift the teeth 10 free from said bar, whereby the hopper may become displaced with reference thereto. Furthermore, the relation of the parts is such that when the hopper has been turned from the normal righted position to the full dumping position by a rotation of about ninety degrees, further rotative movement is arrested by the engagement of the pin 13 with the junction point of the bar 8 and upright 7, or the ends of the bar 8 may be turned partially on themselves to form curved stop members where the pin 13 may seat. Because of the semi-circular form of the rockers 9 and the location of the pin 13 at the center of the arc described by the respective rocker, the travel of the pin is in a right line, since the corresponding track beam 5 is straight, and the pin 13 is at all times in close relation to the corresponding edge of the guide strip 8.

At the central portion of each guide strip 8 there are mounted two latch plates 15 shown as of generally segmental contour, and each formed at the angle of the segment with a perforation 16 for a rivet 17 securing the latch plate 15 to the strip 8, but not so tightly but that the latch plate may be turned on the rivet as a pivot.

At one corner of each plate 15 at a point remote from the pivot perforation 16 there

is a cut away portion 18, and at the other corner of the latch plate remote from the pivot perforation 16 there is a notch 19 curved about the perforation 16 as a center, the plate being somewhat elongated at the corner containing the notch or recess 19. The edge of the plate 15 between the cut away portion 18 and the recess 19 is curved, and projecting from opposite sides of the plate adjacent the outer curved edge are lugs 20.

Each strip or bar 8 carries two latch plates 15 in opposing relation, so that their pivot perforations 16 are distant one from the other, and the curved edge of the plates are in engagement, or approximately so, while the cut away portions 18 match and provide between them a recess for the reception of the corresponding pin or stud 13. Any movement of the hopper toward one side or the other of the car truck is arrested by the corresponding latch plate 15 in its path, and any tendency of the latch plate to turn on its pivot due to a force exerted on the latch plate at the cut away portion 18 by the pin or trunnion 13 is resisted by the engagement of the corresponding lug 20 with the upper edge of the corresponding strip or bar 8. The two latch plates on each end of the car effectually lock the hopper from movement toward dumping position in either direction. However, the latch plate may be readily moved from the locking position to a point out of the path of the pin or trunnion 13, and then the hopper may be propelled to the full dumping position on the side of the car body corresponding to the actuated latch plate. If the latch plate be returned to its ordinary normal position, the pin or trunnion 13 will readily underride the latch plate lifting it out of the path of the pin until the return movement of the hopper is arrested by the engagement of the pin with the wall of the cut away portion 18 of the other latch plate, when the first latch plate will readily gravitate to the locking position. Suppose, however, that it is desirable to hold the hopper in a partially dumped position, so that material may be loaded thereinto from one side, then the hopper is released from the corresponding latch plate and is moved to an intermediate position, and the latch plate is turned until the trunnion 13 is seated in the recess 19 with the corresponding lug 20 resting on top of the bar or strip 8, and the hopper is then effectually locked in the partially dumped position, as indicated in Fig. 2, so that material may be readily loaded into the hopper from the corresponding side and without the necessity of so great an elevation of the material as would occur were the hopper in the full righted position.

The lugs 20 projecting from the faces of the latch plates remote from the bar or strip

8 carrying them may be utilized as grasping members for the manipulation of the latch plates.

What is claimed is:—

- 5 1. A dump car provided with a dumping hopper, arc-shaped rocker supports for the hopper at the ends thereof, a straight track for each rocker, a stop member on each end of the hopper at the center of curvature of the respective rocker support, and a guide bar at each end of the hopper for and in overriding coactive relation to the corresponding stop member on the hopper and in parallel relation to the respective track.
- 10 2. A dump car provided with a substantially V-shaped dumping hopper, arc-shaped rocker supports for the hopper at opposite ends thereof with the terminal portions of the rockers toward the mouth of the hopper and the central portions of the rockers terminating short of the narrow bottom of the hopper, a straight track for each rocker, a stop pin on each end of the hopper at the center of curvature of the respective rocker support, and a straight guide bar for each step pin in parallel relation to the respective track and on the side of the pin remote from the track.
- 15 3. A dump car provided with a substantially V-shaped dumping hopper, arc-shaped rocker supports for the hopper at opposite ends thereof with the terminal portions of the rockers toward the mouth of the hopper and the central portions of the rockers terminating short of the narrow bottom of the hopper, a straight track for each rocker, a stop pin on each end of the hopper at the center of curvature of the respective rocker support, and a straight guide bar for each step pin in parallel relation to the respective track and on the side of the pin remote from the track, each guide bar terminating at each end in an extension constituting a stop member for the stop pin.
- 20 4. A dumping car comprising a suitable truck, straight track members disposed laterally of the car truck near the ends thereof, a hopper on the truck provided at the ends with arc-shaped rocker supports engaging the tracks, a pin or trunnion at each end of the hopper at the center of curvature of the respective rocker support, uprights at each end of the truck at the ends of the respective track, and a straight connecting bar in parallel relation with the corresponding track and located on the side of the pin or trunnion remote from the track, the said guide bar being connected at the ends of the respective uprights to constitute stops for the pins or trunnions to limit the movement of the hopper to one side or the other of the car on the hopper supports.
- 25 5. A dumping car comprising a suitable truck, straight track members disposed laterally of the car truck near the ends thereof,

a hopper on the truck provided at the ends with arc-shaped rocker supports engaging the tracks, a pin or trunnion at each end of the hopper at the center of curvature of the respective rocker support, uprights at each end of the truck at the ends of the respective track, and a straight connecting bar in parallel relation with the corresponding track and located on the side of the pin or trunnion remote from the track, the said guide bar being connected at the ends to the respective uprights to constitute stops for the pins or trunnions to limit the movement of the hopper to one side or the other of the car on the hopper supports, the said rocker supports being provided with radially projecting studs and the tracks with corresponding perforations, and the guide bars carrying retaining members coacting with the corresponding pins located at the center of curvature of the tracks for locking the hopper in different positions.

6. In a dumping car, a rockable hopper, and a latch member having a locking position with reference to the hopper when the latter is in the righted position, and another locking position for the hopper when the latter is intermediate of the righted position and the full dumping position.

7. In a dumping car, a rockable hopper provided with rocker supports, pins or trunnions located centrally with relation to the rocker supports, a guide member at each end of the car coacting with the corresponding pin or trunnion to hold the hopper to the car truck, and companion latch members shaped to embrace the corresponding pin or trunnion when the car is in the righted position.

8. In a dumping car, a rockable hopper provided with rocker supports, pins or trunnions located centrally with relation to the rocker supports, a guide member at each end of the car coacting with the corresponding pin or trunnion to hold the hopper to the car truck, and companion latch members shaped to embrace the corresponding pin or trunnion when the car is in the righted position, said latch members being each provided with means for engaging the pin or trunnion at the corresponding end of the hopper when the latter is in a position intermediate of the righted and full dumping position.

9. In a dumping car, a rockable hopper provided with a projecting member, and a pivoted latch for the hopper having its pivotal point at one side of the center line of the hopper when in the righted position, said latch having separate engaging means for the projecting member to hold the hopper in the righted position and to hold the hopper in a position intermediate of the righted position and the full dumping position.

10. In a dumping car, a rockable hopper provided with a projecting pin or trunnion, and a latch member comprising a plate having a pivot support at one side of the center line of the hopper when in the righted position, said latch member being in the path of the pin when the hopper is in the righted position and the latch member is in one position, and said latch member having means for embracing the pin on the hopper when the latch member is in another position and the hopper is intermediate of the righted position and the full dumping position.
11. In a dumping car, a rockable hopper provided with a projecting pin or trunnion, and a pair of coacting latch members pivoted on opposite sides of the center line of the hopper when in the righted position, each latch member having a cut away portion coacting with the like portion of the other latch member to receive between such latch members the pin or trunnion on the hopper, and each latch member having a recess spaced from its pivot support and adapted to engage the pin or trunnion of the hopper when the latch member is turned on its pivot away from its first position and the hopper is moved to an intermediate point between the righted position and the full dumping position.
12. In a dumping car, a rockable hopper provided with a projecting pin or trunnion, and a pair of coacting latch members pivoted on opposite sides of the center line of the hopper when in the righted position, each latch member having a cut away portion coacting with the like portion of the other latch member to receive between such latch members the pin or trunnion of the hopper, and each latch member having a recess spaced from its pivot support and adapted to engage the pin or trunnion of the hopper when the latch member is turned on its pivot away from its first position and the hopper is moved to an intermediate point between the righted position and the

full dumping position, said latch members being each provided with a stop member for limiting the movement of the latch member to either of the two active positions named.

13. A dumping car comprising a suitable truck, laterally disposed track members thereon near the ends of the truck, each track member being provided with a longitudinal series of perforations, uprights near the end of each track member, a connecting guide strip in the upper ends of the uprights in parallel relation to the corresponding track, a V-shaped hopper provided at each end with a rocker support having radially disposed pins or studs adapted to engage in the perforations in the corresponding tracks, a projecting pin or trunnion at each end of the hopper located centrally with relation to the rocker support, and coacting latch members at each end of the car pivotally mounted on the corresponding guide strip on respectively opposite sides of the central line of the hopper when in the righted position, each latch member having a cut away portion in spaced relation to its pivot coacting with a like part of the mating latch member to receive between the latch members the corresponding pin or trunnion when the hopper is in the righted position, said latch members each having a recess in spaced relation to the cut away portion and to the pivot for receiving the corresponding pin or trunnion when the hopper is in a partially dumped position, and stop members on the latches in coactive relation to the corresponding guide strip for holding the latch members in the active positions.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ARTHUR N. DOUD.

Witnesses:

GEO. J. GRUBER,
P. J. RUTENBECK.