

DUMP CAR.

1,028,116.

A detailed technical drawing of a mechanical device, likely a steam engine component, shown in a cross-sectional or plan view. The central part features a vertical cylinder or piston assembly with internal components labeled \$a^1\$ through \$a^9\$. This central assembly is connected via rods and joints to two large, curved arms extending horizontally outwards, labeled \$B\$ at their ends. These arms are further connected to a lower mechanism involving rollers or guides labeled \$c^1\$ through \$c^6\$. A dashed arc indicates a path of motion for these lower components. Various other labels like \$H\$, \$E\$, \$D\$, and \$F\$ identify specific structural elements. Arrows labeled 1 and 2 indicate directions of movement or force. The entire diagram is enclosed in a rectangular frame with corner fasteners. Below the main drawing, there are two small T-shaped symbols representing rails or guides. The caption "Fig. 1." is centered below the diagram.

Fig. 1.

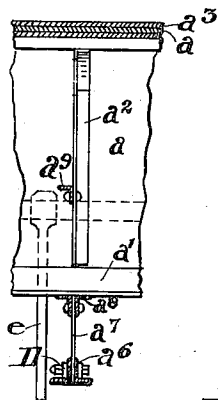


Fig. 2.

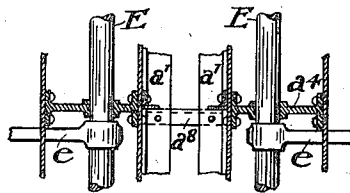


Fig. 3.

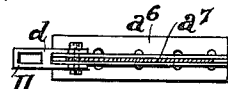


Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

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DUMP-CAR.

1,028,116.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK S. INGOLDSBY, residing at St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Dump-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to dump cars of the type wherein there are bottom doors adapted to sustain the load or to drop to discharge it.

The object of the invention is to increase the capacity of such car without reducing the size of the discharge opening, or, stated conversely, to increase the size of the discharge opening without reducing the carrying capacity. In accomplishing this result, I form a bend in the dumping door which allows its pivot to be raised and placed in such position as to increase the discharge opening. The invention is well adapted for cars of the "Ingoldsby" type, wherein there is a central longitudinal beam,—to the opposite edges of which longitudinal dumping doors are pivoted, which swing downward at their outer edges. With the invention applied to such type of car, the portion of the door between the hinge and the bending point may be in effect a continuation of the shedding surface of the central longitudinal beam.

The invention is hereinafter more fully described and the definite characteristics set out in the claims.

In the drawings, Figure 1 is a cross section of a car embodying my invention. The right hand half of the section shows the bend in the door at an abrupt angle and the left hand half shows the bend in a curve. Fig. 2 is a vertical section on the line 1—2 of Fig. 1, looking to the left; Fig. 3 is a cross section on the line 3—4 of Fig. 1; Fig. 4 is a horizontal section on the line 5—6 of Fig. 1. Referring to the parts by letters, A represents the central longitudinal beam as a whole.

B represents the car sides, and C the

dumping doors pivoted to the central beam and adapted to abut the lower edge of the car sides when in closed position. As shown, the central longitudinal beam is a box girder structure comprising through plates a braced by longitudinal angles a' and vertical angles a'' and surmounted by the inverted V-shaped plate a^3 . Between the ridge plate a^3 and the vertical plates a are castings a^4 , riveted to each of such members as shown.

The doors are pivoted by having hinge eyes c^4 at the inner ends of their floor beams c' , through which eyes pass pins into the castings a^4 . It will be seen that a portion of the door C when closed is horizontal, while another portion c is on an angle thereto. As shown, this angular portion may be of the same angle as the ridge plate and form a continuation thereof when the door is closed. When the door is entirely open, the vertical discharge opening, which is the space between the lower edge of the plate a^3 and the car side, is unrestricted by the door.

When the door falls to a position to discharge outside the rail, as shown in the left hand half of Fig. 1, the discharge space, when measured radially from the inner edge of the car side, is unrestricted by the door. Thus the load may discharge without restriction through the discharge opening when the door is dropped to shed outside the rail, except in the case of a large rock or adhered mass of material, which might possibly pass through the discharge opening and be held between the car side and the face of the door. To allow the release of such occasional mass, I make the door bumper D pivoted, so that it may be knocked up with a sledge hammer out of the way, allowing the door to drop farther into position to necessarily release the load. As shown, this bumper D is a bifurcated member extending onto opposite sides of the angles a^6 on the lower edge of the plate a^7 , which depends from the central structure. At its pivot the bumper is slotted slightly, so as to take the strain off the pivot, bringing the thrust on the end of the plate a^7 and the

angles a^6 , where the cross member d of the bumper bears. The door is shown as provided with my spring c^5 to engage the bumper. The spring and bumper are omitted in the right hand half of Fig. 1, for clearness.

Suitable mechanism is employed to raise the doors. That shown, consists of a pair of shafts E journaled in the castings a^4 and provided with arms e which are adapted to engage on the under side of the doors and raise the doors when the shafts are rocked. The arms bear on rub-plates c^3 secured to the floor beams c' and the longitudinal Z-bars c^2 . The amount of angle at the bend of the door will depend upon circumstances, and this angle may be abrupt, as shown in the right hand half of Fig. 1, or curved, as shown in the left hand half. The raising of the pivots does not interfere with the continuous cross-tying of the car, by means of the floor beams c' , castings a^4 , and the center structure, including the cross plates a^8 and a^9 . It will be seen that by forming the bend in the door, the capacity is increased over what it would be if the door when closed extended horizontally from the pivots c^4 ; while, on the other hand, the discharge opening is greater than if the door were pivoted at the point where its angle is now formed. I thus accomplish in this car the great advantage of increasing the capacity without sacrificing other features or changing the outside dimensions of the car.

Having thus described my invention, I claim:—

1. In a dump car, a central longitudinal beam, doors pivoted thereto and adapted to close against the car sides, said doors being formed with bends in them.

2. In a dump car, the combination of a central longitudinal beam, dump doors hinged to the edges thereof and adapted to close against the car sides, there being bends in the load-supporting surface of such doors.

3. In a dump car, in combination with the car side of a door formed to alone support a portion of the load and having a bend in its surface, and a pivoted floor beam to which said door is secured, said door near the free end of said floor beam being adapted to abut the under edge of the car side.

4. In a dump car, the combination of a central longitudinal beam, bent floor beams pivoted thereto, and bent doors mounted thereon and adapted to close against the car sides.

5. In a dump car, the combination of a central longitudinal beam, doors pivoted at opposite edges thereof and adapted when closed to extend downward and then to bend and extend outward substantially horizontally.

6. In a dump car, the combination of a

downwardly inclined load-supporting and shedding surface, of a pivoted dumping door adapted when closed to extend downward at substantially a continuation of said surface and then to bend and extend substantially horizontally.

7. In a dump car, the combination of a central longitudinal beam having an inverted V-shaped top, a pair of dumping doors pivoted with said beam near its opposite edges and extending downward and then outward.

8. In a dump car, the combination of a central longitudinal beam having its top of inverted V-shape, a pair of dumping doors pivoted to such top, and when closed having their upper surface extending diagonally downward and outward and then substantially horizontally outward.

9. In a dump car, the combination of a central longitudinal beam having its top of inverted V-shape, a pair of dumping doors pivoted to such top, and when closed having their upper surface extending diagonally downward in substantially the same direction as such top and then outward.

10. In a dump car, the combination of a ridge beam, a pair of dumping doors pivoted to the opposite edges thereof, said doors having a load supporting surface adapted to extend diagonally downward and then outward, and raising mechanism for the doors carried by said beam and adapted to engage the under side of the doors.

11. In a dump car, the combination of a ridge beam, a pair of dump doors pivoted to the opposite edges thereof, said doors having a load supporting surface adapted to extend when the door is closed diagonally downward and then outward, and a movable bumper adapted to receive the impact of such door and be moved to allow the door to open farther.

12. The combination of a member having its upper surface in the form of a ridge, and dumping doors hinged to said member and extending outwardly and having bends in their surfaces.

13. The combination of a load-supporting structure whose upper surface is in the form of an inverted V, and a dumping door carried thereby and having a bend in its surface.

14. The combination of a sheet metal ridge, underbracing therefor, and dumping doors hinged to said underbracing and each having a bent surface, the portion of said surface adjacent to the ridge being substantially a continuation of the angle of the ridge when the door is closed and the remaining portion of the surface being substantially horizontal.

15. In a dump car, the combination of a central longitudinal ridge and a pair of

dumping doors hinged thereto and adapted to extend downwardly and then outwardly to the car sides.

16. In a dump car, a longitudinal center member having an inverted V-shaped top, longitudinal plates beneath the same, cross braces between the outer sides of the plates and the over-hanging portion of the top and dumping doors carried by such center struc-

ture and bent so that they extend first downwardly and then outwardly to the side of the car. 10

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

FRANK S. INGOLDSBY.

Witnesses:

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