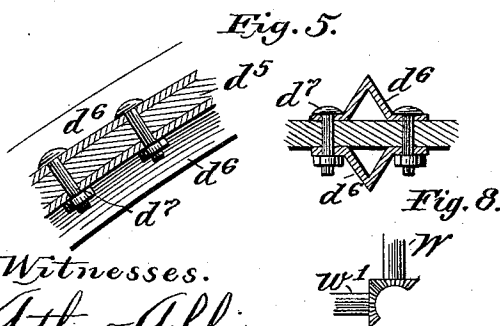
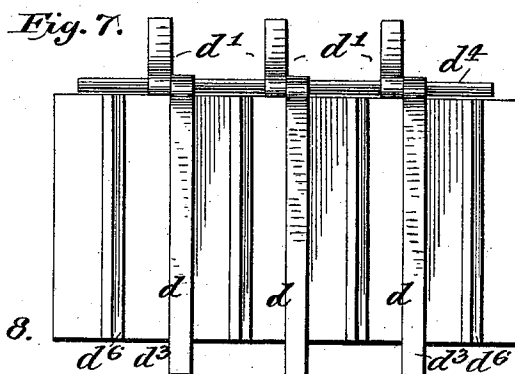
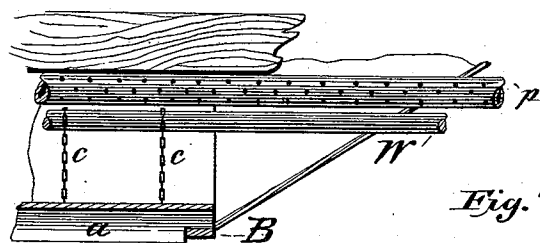
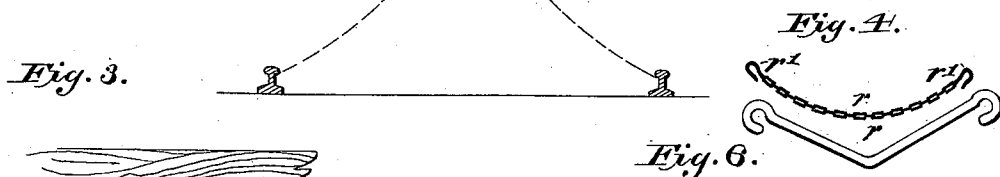
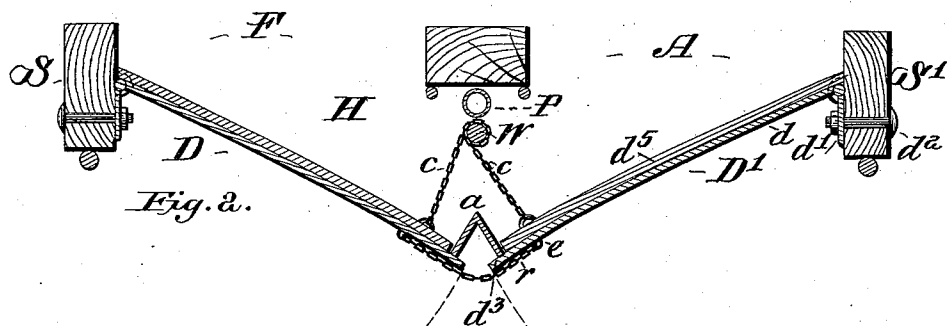
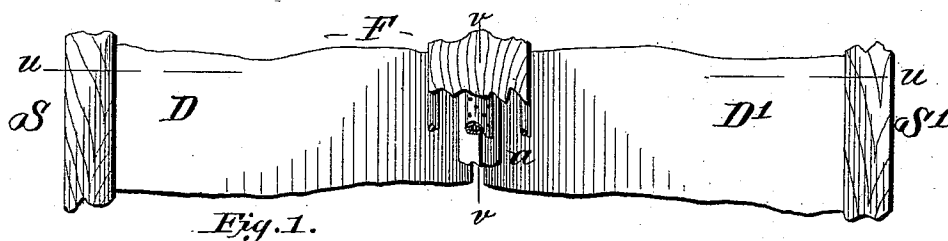


(No Model.)

J. J. SOUDER.
DUMPING CAR.

No. 464,086.

Patented Dec. 1, 1891.



Witnesses.
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UNITED STATES PATENT OFFICE.

JACOB J. SOUDER, OF WASHINGTON, DISTRICT OF COLUMBIA.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 464,086, dated December 1, 1891.

Application filed January 28, 1890. Renewed March 17, 1891. Serial No. 385,346. (No model.)

To all whom it may concern:

Be it known that I, JACOB J. SOUDER, a citizen of the United States, residing in Washington, in the District of Columbia, have invented a new and useful Improvement in Dumping-Cars, of which the following is a description.

The invention relates, generally, to that class of cars designed for the transportation of granular material in bulk in which the mass is discharged downwardly through suitable openings and conduits; and it relates, particularly, to the class of cars in which the downward discharge is central—that is, between the track-rails—of which the car shown and described in an application filed by me in the United States Patent Office on the 19th day of June, 1888, and serially numbered 277,580, is a type.

The objects of the invention are the provision of improved means for insuring the retention of the contained material, improved means for insuring the inflexibility of the discharging-doors, improved facilities for the discharge of the contained material when desired, improved means for facilitating the discharge of liquid matter, and an improved means for freeing the contents of the car from accumulations of ice or snow.

With these objects in view the invention consists in the various novel constructions which will be first particularly described, and then distinctly claimed in the concluding paragraphs of this specification.

In the accompanying drawings, Figure 1 represents a partial top plan view of the car, the roof of the same having been removed. Fig. 2 is a transverse vertical section in the line *u u* in Fig. 1. Fig. 3 is a partial longitudinal vertical section in the line *v v* of Fig. 1. Fig. 4 is a view showing the securing or safety chain or bar detached. Fig. 5 is a detail of one of the discharging-doors and its strengthening-ribs. Fig. 6 represents modified forms of the strengthening-ribs. Fig. 7 represents a bottom plan view of one of the discharging-doors. Fig. 8 is a detail plan view of the longitudinal and transverse revoluble shafts.

As best seen in Fig. 3, the Λ -shaped angle-plate or meeting bar *a* rests by its ends *a'* upon the transverse supporting-bars *B* at the center or mid-length thereof.

As seen in Fig. 2, the discharging-doors *D*

D', which are unprovided with grooves or other depressions in which granular matter or other substances might find lodgment, embrace the entire transverse area of the hopper *H* of the car *A*—that is, the short hinge-plates *d'* of the doors are secured by bolts *d²* directly to the vertical inner face of the exterior longitudinal sills *S S'* of the bed-frame *F*, while the hinge-straps *d*, which by means of the hinge-rod *d⁴* are connected with the plates *d'*, extend to a point beyond the angle-plate *a*, against or nearly against which the edge of the door proper abuts, but is free to move up or down without actual frictional contact with the surface of such plate. As will be observed, the hinge plates or straps *d* are somewhat longer than the transverse extent of the doors *D*, and the projecting ends *d³* of such straps, when the doors are brought to their closed position through the operation of the winding-shaft *W* and its chains *c c*, are forced tightly against the edges of the lower extremity of the angle-plate.

The doors are provided upon their exterior face, at a point near their closing edge, with eyes *e*, one or more, each of which, when the doors are brought into their closed position, receives one of the hooks *r'* of a securing-chain or bent securing-rod *r*, as seen in Figs. 2 and 4.

To prevent the doors from being bent downwardly by the pressure due to the weight of the contained material and the constant agitation thereof when the car is in motion, the plate *d⁵*, of which the body of the door is composed, is at the outset bent slightly upward transversely, as seen most clearly in Fig. 5, and in this slightly-crowning form it has applied to it by rivets or bolts *d⁷* or other equivalent means a suitable number of correspondingly-curved transversely-extending strengthening-ribs *d⁶*, which in their transverse section may be of either of the forms represented in Fig. 6 or of other desired configuration. The strengthening-ribs may be applied upon either surface or upon both surfaces of the discharging-doors.

To insure the removal of ice or snow which may accumulate when the car is without a roof, as in the transportation of coal, ore, limestone, or other coarse material, a perforated pipe *P*, of suitable dimensions and properly secured in position at any desired distance

below the bed-frame, is extended through the hopper H from end to end of the car, its projecting ends *p* being in practice adapted to be connected with a steam-pipe which leads from the steam-chamber of the locomotive or other steam or water source. Suitable connecting-pipes being applied between the several cars of a train, the entire contents thereof may by this means be quickly and almost simultaneously freed from the undesirable accumulations. In some cases the pipe P may be provided with short branch pipes; but ordinarily a single longitudinal pipe will be sufficient.

It will be understood that the discharging-doors are secured in their closed position by means substantially as described in my former application, above referred to, and that the safety chain or bar *r* is auxiliary thereto.

In Fig. 8, W is the longitudinal winding-shaft, and *w'* the transverse actuating-shaft. Instead of this bevel-gearing, a worm-shaft may be employed acting upon a suitable wheel fixed upon the winding-shaft, after the manner shown in my former application for dumping-car filed October 15, 1887, and serially numbered 252,430.

If desired, the meeting plate or bar *a* may be solid instead of open, as shown.

The invention having been thus described, what is claimed is—

1. The transverse supporting-bars B, depressed at their mid-length, and the A-shaped plate or bar *a*, resting by its ends in the depressed mid-length portion of such supporting-bars, in combination.

2. In a dumping-car, the exterior longitudinal sills and the vertically-placed hinge-plates *d'*, secured to the vertical inner face of such sills, in combination.

3. The exterior longitudinal sills, the hinge-plates *d'*, secured to such sills in the position described, and the discharging-doors D, hinged to the plates *d'* and extending when closed to the inclined face of the angle-plate *a*, in combination.

4. The angle plate or bar *a*, having downwardly and outwardly inclined face and the

hinged discharging-doors movable up or down along such inclined face in a plane parallel to the same and extending when closed in a plane substantially perpendicular thereto, in combination.

5. The angle plate or bar *a*, having downwardly and outwardly inclined face, and the hinged discharging-doors, the body of which extends in a plane perpendicular to the inclined face of the angle plate or bar and the hinge-straps of which project beyond the body of the door and in its closure limit the upward movement thereof along the surface of the plate or bar, in combination.

6. The exterior longitudinal sills and the doors D D', forming when closed a hopper-shaped bottom, each hinged directly to the inner face of the body of such sills, whereby the entire transverse area of the bottom or hopper portion of the car is made dumpable, in combination.

7. The coincident hinged discharging-doors D and D', each having eyes *e*, and the securing chains or rods *r*, having hooks *r'* *r'* for engagement with the eyes *e*, in combination.

8. A dumping-car which is provided with upwardly-curved discharging-doors, substantially as and for the purpose set forth.

9. A dumping-car which has upwardly-curved discharging-doors which are provided with upwardly-curved strengthening-ribs to maintain the upward curvature of the door.

10. In a hopper-bottomed dumping-car, a discharging-door which in its closed position is coincident with the fixed inclined body of the hopper and which upon its upper surface is provided with strengthening-ribs which extend along the door in the direction in which the contents of the hopper move in dumping the same.

11. A merchandise-car which is provided with a foraminated pipe which extends longitudinally through the car and which is adapted to connect with a steam or water pipe.

JACOB J. SOUDER.

Witnesses:

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