

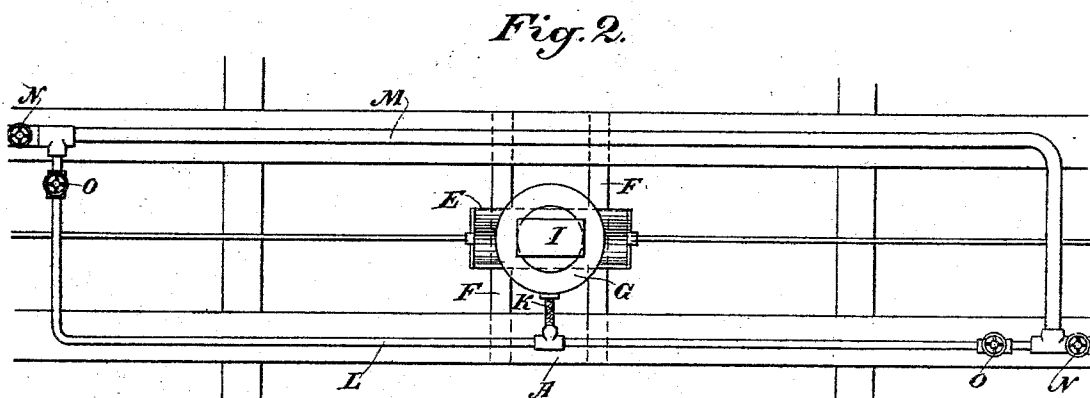
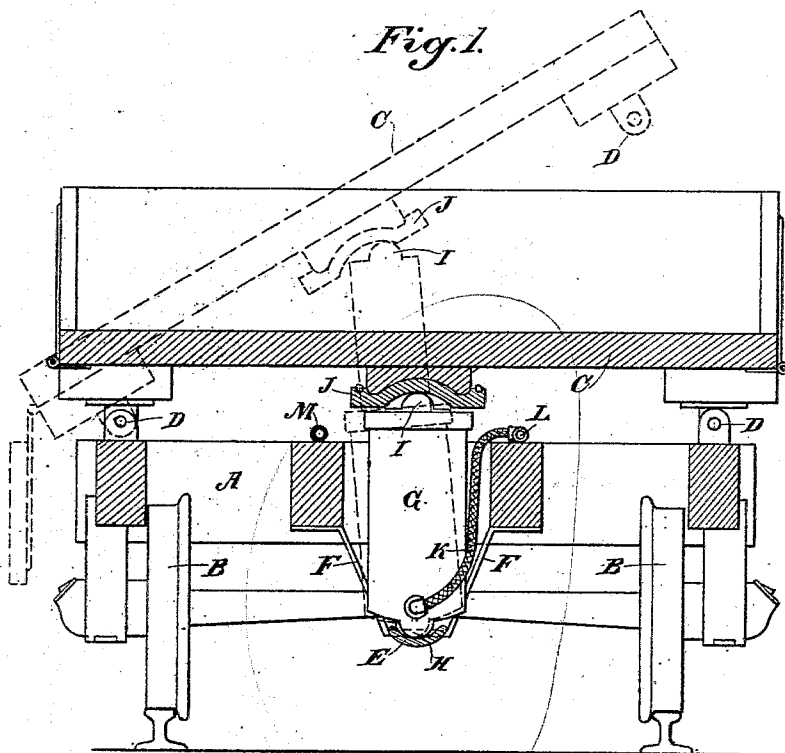
(No Model.)

2 Sheets—Sheet 1.

N. H. PINE.
HYDRAULIC CAR DUMPING DEVICE.

No. 514,662.

Patented Feb. 13, 1894.



Witnesses,
W. H. Morse
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Inventor
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(No Model.)

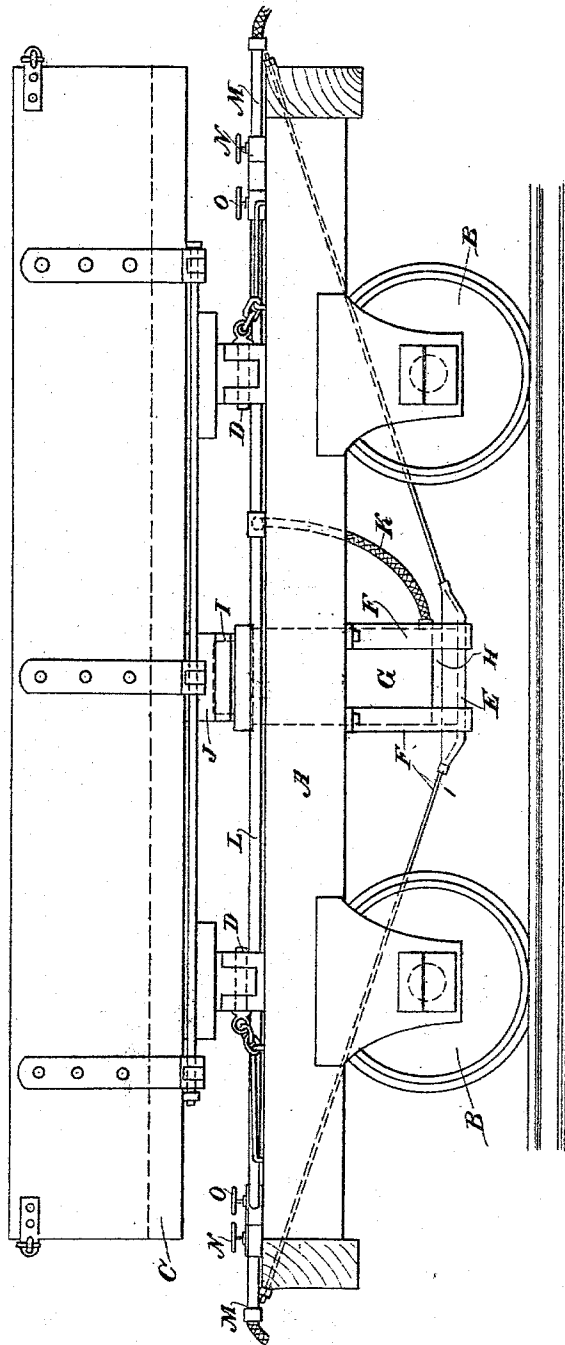
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Fig. 3.



Witnesses,
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UNITED STATES PATENT OFFICE.

NORTON H. PINE, OF EUREKA, CALIFORNIA.

HYDRAULIC CAR-DUMPING DEVICE.

SPECIFICATION forming part of Letters Patent No. 514,662, dated February 13, 1894.

Application filed October 6, 1893. Serial No. 487,365. (No model.)

To all whom it may concern:

Be it known that I, NORTON H. PINE, a citizen of the United States, residing at Eureka, Humboldt county, State of California, have
5 invented an Improvement in Hydraulic Car-Dumping Devices; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device for dumping
10 ing cars.

It consists of a vertically acting swiveled hydraulic ram, a double hinged false bottom to the car against the center of which the ram plunger acts to dump to either side, and means
15 for supplying water or other liquid to the ram cylinder, and in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

20 Figure 1 is a lateral cross section through my car. Fig. 2 is a partial plan view of the timber showing the arrangement of the supply pipes. Fig. 3 is a side elevation of my car.

25 The object of my invention is to provide a means for dumping loads to either side from cars, such as those employed for the construction of jetties in which rocks of many tons weight are conveyed by the cars to the point
30 of deposit, also for dumping heavy logs, timber or other material which it is desirable to unload rapidly and without especial care.

A is the body of the car mounted upon the wheels B and adapted to run upon the track
35 in the usual manner.

C is the false or movable bed having hinges D upon each side by which it is connected with the frame of the bed A, so that by disengaging either set of hinges, the bed may be
40 tilted about the others, and the load dumped to either side at will. Beneath the center of the car is a concave socket or support E attached to the central timbers of the car by stout straps F.

45 G is the cylinder of a hydraulic ram, the lower end of which has a rounded lug or boss H adapted to fit in the concaved support E as shown. Within this cylinder is fitted the ram or plunger having at the upper end a
50 rounded projection or contact piece I, and beneath the movable bed C of the car is fixed a concave plate J, the concavity of which is in

such position that the contact piece I lies approximately in its center when the parts are in their normal position. In this position the
55 cylinder G is vertical, the boss H resting in the support E, and the contact piece I lying centrally in the concave plate J.

K is a flexible pipe connecting the lower part of the cylinder G with the water pipe L
60 which extends beneath the car and connects with the main pipe M, extending from end to end of the car, and adapted to couple with corresponding pipe of the next car by any suitable couplings, not here shown.

The pipe M is provided with cocks N, at
65 each end, by which the passage of water may be closed if desired.

The pipe L is provided with cocks or valves O through which water is admitted to it from
70 the pipe M, and is thence conveyed to the cylinder G by the short flexible pipe K as before described.

When it is desired to discharge the load from the car, the pivot pins of the hinges D
75 upon the side opposite to which the load is to be delivered, are withdrawn, and water or other liquid under pressure, which is supplied from a pump or pressure apparatus upon the engine or other convenient point, is ad-
80 mitted into the pipe L, passes thence into the lower part of the cylinder G, and acting upon the plunger, forces the latter up, and tilts the movable bed C about the hinges D which remain connected with the main car body. As
85 this movable bed is raised at an angle as shown in dotted lines, Fig. 1, the cylinder G is free to tilt upon its support E, and the upper rounded projection I slides or rolls in the concave socket J, moving to one side of the
90 concavity as the bed is raised and tilted, and returning to the central position as the bed is allowed to return to its former position. The curvature of the concave portion of the
95 plate J is such that as the bed C is tilted, the pressure of the ram is always approximately in a radial line with the interior of the curve, and the single cylinder will act to tilt the supplemental floor in either direction by disen-
100 gaging the hinge connection upon the opposite side. As the floor is raised about its hinge fulcrum, the point of application of the power is shifted and its distance from the fulcrum is increased, while the cylinder remains

nearly vertical and the thrust or pressure is maintained nearly the same.

In case of short cars it will be manifest that a single central cylinder, and a single movable tilting bottom, will be sufficient to discharge the load, but in case of long cars, the tilting bottom may be made in two sections, and two cylinders may be employed, one for each section, so that the load can be discharged either separately if composed of rock or other separate articles, or if it consists of logs of considerable length, both sections of the tilting bottom can be raised simultaneously until the logs roll off. It will also be manifest that the load may be dumped to either side of the car by removing either of the hinge pins by which the false bottom is attached to the main bed of the car.

A relief cock valve, or passage, will serve to limit the movement of the plunger, by allowing the liquid to escape from the cylinder when the plunger reaches the proper point.

When the load has been dumped from one car the supply cock N is closed and the plunger remains elevated until all the cars are discharged. A cock connecting with a circulating pipe at the pump is then opened, and by opening the cocks N, the liquid is allowed to return to the receiver, and the plungers and tilting bottoms will return to their normal position. If water only is used, it may, if preferred, be discharged directly from each cylinder by a suitable relief cock.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a dumping car, the main bed, a supplemental bed having adjustable hinges upon opposite sides by which it is connected with the car body so that it may be tilted to either side, a single hydraulic cylinder supported beneath the body of the car, a plunger mov-

able therein having the upper end adapted to engage a pressure plate beneath the tilting bed, and water supply pipes and cocks whereby water under pressure is admitted into the cylinder, substantially as herein described.

2. A dumping car consisting of a main bed, a supplemental tilting bed having disengaging hinges by which it is connected with the sides of the main bed, and by which it may be tilted upon either side by disengaging the opposite hinges, a hydraulic cylinder centrally disposed between the sides, a concave supporting socket in which the lower end of said cylinder is movably fitted, a plunger reciprocating within the cylinder and having a rounded contact piece at the upper end, a pressure plate fixed to the center of the tilting bed with a concave lower surface into which the contact piece of the plunger fits and is movable from side to side, water supply pipes and cocks, and a flexible connecting pipe between the supply pipes and the cylinder whereby the latter is allowed to tilt about its point of support and maintain its relative position with the tilting bed as the latter is raised and inclined about the hinges, substantially as herein described.

3. In a dumping car, a movable bottom with detachable hinges at each side, and adapted to be tilted in either direction, a centrally disposed hydraulic cylinder, the plunger of which acts against the center of the movable bottom, a concave plate fixed to the bottom, and a contact piece upon the plunger movable over the concave plate as the latter is raised or depressed, substantially as herein described.

In witness whereof I have hereunto set my hand.

NORTON H. PINE.

Witnesses:

S. H. NOURSE,
J. A. BAYLESS.