

(No Model.)

L. HETFIELD.

DUMPING CAR.

No. 280,621.

Patented July 3, 1883.

Fig. 1.

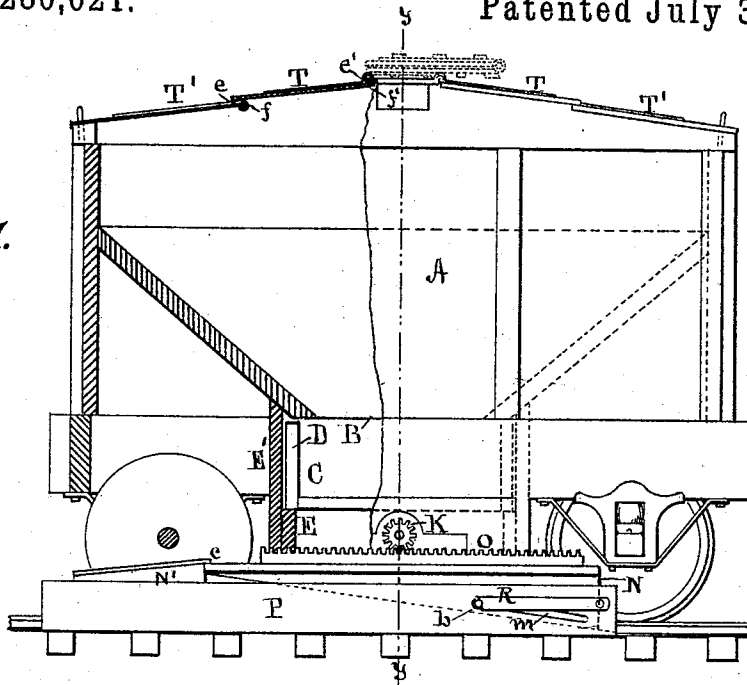


Fig. 2.

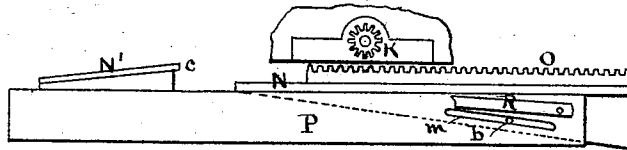
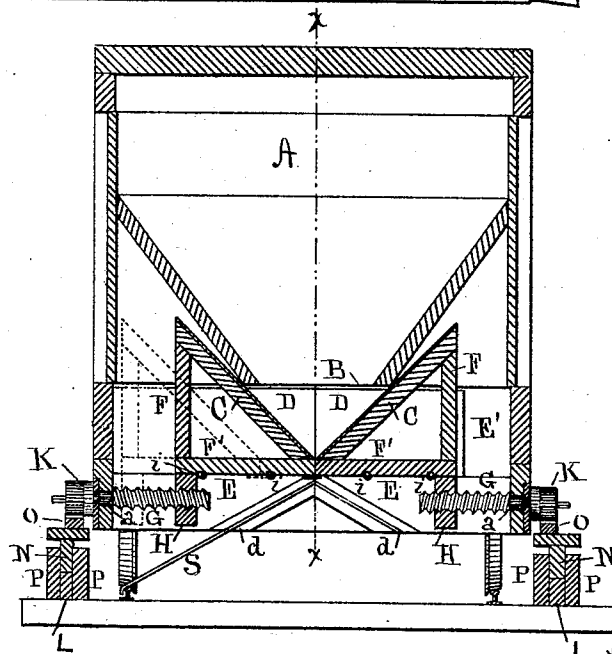


Fig. 3.



Witnesses.
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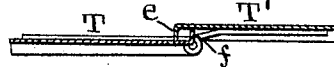


Fig. 4.

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UNITED STATES PATENT OFFICE.

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DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 280,621, dated July 3, 1883.

Application filed May 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, LEVI HETFIELD, of Plainfield, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Self-Dumping Coal-Cars; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to coal and grain cars, and has for its object the protection of the contents of the car from exposure to the weather, and the automatic discharge of a single car or of an entire train at any given point upon either side of the track.

It consists in the combination, with a central opening in the bottom of the car, (which is made to slope thereto from the sides and ends,) of dumping-doors moving horizontally from either side of the car to meet and close under the opening, each of which is constructed with an inclined face sloping toward the center, so as to form substantially, when closed, a continuation of the inclined bottom on that side, and is actuated by a screw which may be turned by a wrench, but which is also fitted with a pinion on its outer end to engage an adjustable rack placed alongside of the track, and adapted to be raised or lowered at pleasure, and which, when raised, shall engage the pinion, and as the car moves forward thereby cause a rotation of the screw and consequently an opening of the dumping-door on that side.

It consists, also, in the combination, with the car, of a folding roof or cover for its protection, admitting of being locked to prevent a withdrawal of its contents other than through the dumping-doors, and whose joints are made to interlock, in manner as hereinafter described, to effectually prevent an entrance of dust or of rain thereat.

In the accompanying drawings, Figure 1 is a side elevation, partly in section on line *x x* of Fig. 2, illustrating my improved automatic dumping-car with the dumping-rack elevated in an operative position; Fig. 2, a detached view, in elevation, of the rack and pinion, illustrating the disengagement thereof; Fig. 3, a transverse section of the car in line *y y* of Fig. 1; Fig. 4, a detached view, on an enlarged

scale, illustrating the folding joints of the roof or cover.

A represents a coal or grain car, constructed of any desirable proportions, with a bottom sloping inwardly, both from its ends and sides to a central opening, B, elongated longitudinally, and which is closed by doors C C moving toward each other in a horizontal plane, so as to meet centrally under said opening, as shown in Fig. 3. The upper inner face of each door is made to form an incline at an angle so nearly approaching that of the sloping bottom of the car as to constitute in effect an extension or continuation thereof when the door is closed. These doors are made to traverse to and from each other upon plates D, to which they are secured at each end, and whose lower edges slide upon suitable ways, E, formed horizontally upon cross-beams F in the frame of the car, under the bottom thereof. These sliding plates D serve to close the triangular spaces between the opening in the bottom of the car and the sloping faces of the doors at each end. The front edges of the plates D are beveled to a sharp edge, adapted to clear the ways of any pieces of coal which may have lodged therein.

The inclined doors C C are strengthened and supported by securing the upper edge of each to a vertical plate, F, and its lower edges to a horizontal plate, F', the two being united at their intersection at a right angle to each other; and the whole frame thus constructed is still further strengthened by means of tie rods or bars *ii*, extending longitudinally under the horizontal plate F', and whose ends are secured firmly to the end plates, D, upon which the door slides.

The movement of the doors to and from each other is produced by means of screws G, which, extending inwardly each from a cylindrical shank, *a*, rotating freely in a bearing provided therefor centrally under the outer edge of the car-frame, are led through a nut, H, fixed upon the under side of the door, so that the rotation of the screw in its fixed bearing and in the nut secured to the door, will work the door back or forth, according to the direction in which the screw is turned. The shank *a* of each screw is fitted with a cogged wheel or pinion, K, made fast thereon, and outside of

the bearings it terminates in a square end, adapted to be taken hold of by a wrench or crank. The door is thus readily moved to open or close by turning the screw G with a crank, and the power thus readily applied for its movement will suffice to close the door, even when coal is dropping from the car, and thus it off a further discharge.

L is a beam secured to the ends of the cross-ends of the car-track over a trestle or pit adapted to permit a discharge of the coal or other contents of the car from the bottom thereof. One end of this beam L is made to form an inclined way upon which slides a second beam or bar, N, sloped off upon its under side at an angle the counterpart of that of the slope of the fixed beam L, so that in sliding thereon its upper surface shall remain constantly level. (See dotted lines, Figs. 1 and 2.) This sliding bar N is confined laterally between two slide-plates, P P, secured against the base-beam L, (see Fig. 3,) but is left free to slide longitudinally thereon over a distance determined by a longitudinal slot, m, cut in the slide-plates P P, through which a stop-pin, b, fixed in the side of the sliding bar is made to project. Upon the upper face of the sliding bar is formed or secured a rack, O, adapted to mesh with the cog-wheel K on the screw. By sliding the bar N up the incline on the supporting fixed beam L, the rack O is brought into line for engagement with the cog-wheel K, whenever the latter, by the movement of the car along the rails, is brought over the same. (See Figs. 1 and 2.) By sliding the bar N down the incline the rack is dropped out of line of engagement, so that the cog-wheel K will, in the movement of the car along the rails, pass freely over the rack, as shown in Fig. 2. When moved up into an operative position, the rack is retained in that position by means of a pivoted catch or latch, R, adapted to engage the stop-pin on the slide-bar, when, in its upward movement, it has reached the end of the slot m, as shown in Fig. 1. The upper end of the slide-bar N is steadied, when thus elevated by contact with the end of a block, and an overhanging ledge, c, thereon. By opening both doors the contents of the car are delivered centrally beneath it. A discharge to the one side or the other of the track is accomplished by opening the door upon that side only, and inserting under the door an inclined board or plate, S, of sheet metal, whose upper end is slipped for its support into lateral grooves d d, formed in or upon the sides of the cross-beams E in the lower frame of the car, on either side of the opening in the bottom thereof, (see Fig. 3 of the drawings,) and whose lower end is made to reach and rest upon the rail of the track beneath.

To insure the prompt delivery of the coal from the car in winter upon the automatic opening of its dumping-doors, it becomes essential to protect the same from the weather, so that it may not become clogged and bound together by becoming wet and then freezing.

To properly protect the coal from the elements and insure its safe delivery without loss from thieves, I combine with the top of the car a folding cover or roof sloping from the center toward either end, and composed of either end of two transverse plates, T T', hinged together, as shown in Figs. 1 and 5, to fold back to the center. The upper plate, T, of this folding cover is provided with a flange, e, bent down upon its lower edge to overlap a flange, f, bent up upon the upper edge of the plate next below it when the cover is closed down over the top of the car, as shown in Fig. 4. The upturned flange f' on the upper edge of the upper plate passes under a bent-down flange, e', on the fixed central plate, to which both sides of the cover hinge, and over upon which they fold back, as shown in the dotted lines, Fig. 1. The edges of the car are also overlapped by lateral flanges turned down on the ends of the plates.

In the use and operation of my improved dumping-car the covers T T' are closed down after the car has been loaded and securely locked. The interlocking flanges e f at the hinged joints and the lateral flanges at either end effectually exclude rain and dust from the car, so that its contents are protected from damage from this source and remain in readiness for prompt delivery whenever the dumping-doors C C, closing the opening in the bottom, are opened. These doors may be readily opened, either together or singly, by a person standing upon the track, by the application of a wrench to the proper screw G, and as readily closed again without the necessity of climbing up upon or into the car. When it is desired to dump the contents of the car upon either side of the track, the chute-board S is slipped into place, and, extending from under the edge of the door out to the rail of the track, forms a continuation of the inclined bottom of the car and of the inclined face of the door under whose edge it is fixed, so that upon opening the opposite door the coal or grain will be carried freely down the inclined chute thus formed out beyond the rail, and, if the car be upon a trestle, the coal may be delivered directly therefrom into a wagon or cart beneath and screened as it runs.

To produce an automatic delivery of the coal or grain from the cars at any given point, the rack-bars L, located for the purpose at that point, are elevated into position to engage the pinions on the screws operating the dumping-doors of each car, and as the train is run slowly forward over the rack-bars the doors will be thereby thrown open. In this manner all the cars in a train may be automatically dumped in succession upon either side of the track. After the cars are dumped and are drawn back again the reverse movement of the screws, as the cog-wheels return over the racks, will automatically close the doors, leaving the cars in readiness for another load.

I claim as my invention—

1. The combination, with an opening in the

bottom of a car, of the incline-faced doors C C, traversing horizontally upon ways beneath the car to meet, from either side, under said opening and close the same, substantially in the manner and for the purpose herein set forth.

2. The combination, with an opening in the bottom of a car, a door adapted to traverse horizontally under said opening, and a fixed nut secured to the door, of a screw, G, fitted to rotate horizontally without longitudinal movement in bearings in the frame of the car, to engage the fixed nut on the door, so that the door may be opened or closed by a rotation of the screw, substantially in the manner and for the purpose herein set forth.

3. The combination, with a door traversing horizontally under an opening in the bottom of a car to close the same, a nut fixed to said door, a screw engaging said nut and made to rotate horizontally without longitudinal movement in bearings in the frame of the car, and a pinion upon the shank or end of said screw, of an adjustable horizontal rack, O, supported and secured upon a sliding bar, N, inclined upon its under side, and traversing longitudinally upon the inclined face of the fixed bar L, to be thereby elevated or depressed, all sub-

stantially in the manner and for the purpose herein set forth.

4. The combination, with the sloping bottom of a coal-car, an opening, B, in said bottom, and an incline-faced door, C, adapted to form the extension of the sloping bottom below said opening, of an adjustable chute-board or plate, S, fitted in inclined grooves or ways *d*, to constitute an extension of the inclined way produced by the slope of the bottom and door, substantially in the manner and for the purpose herein set forth.

5. The combination, with the coal-car A and its sliding doors C C, closing the discharge-opening in the bottom thereof, of a folding cover closing the top thereof, constructed of transverse plates T T', hinged together, and provided at their hinged edges with overlapping flanges *e f*, bent at a right angle to each plate, substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LEVI HETFIELD.

Witnesses:

A. W. STEIGER,
A. B. MOORE.