J. H. PIERCY, DEC'D.

E. E. PIERCY, ADMINISTRATOR.

LOADING DEVICE.

APPLICATION FILED MAY 8, 1912.

1,079,718.

Patented Nov. 25, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

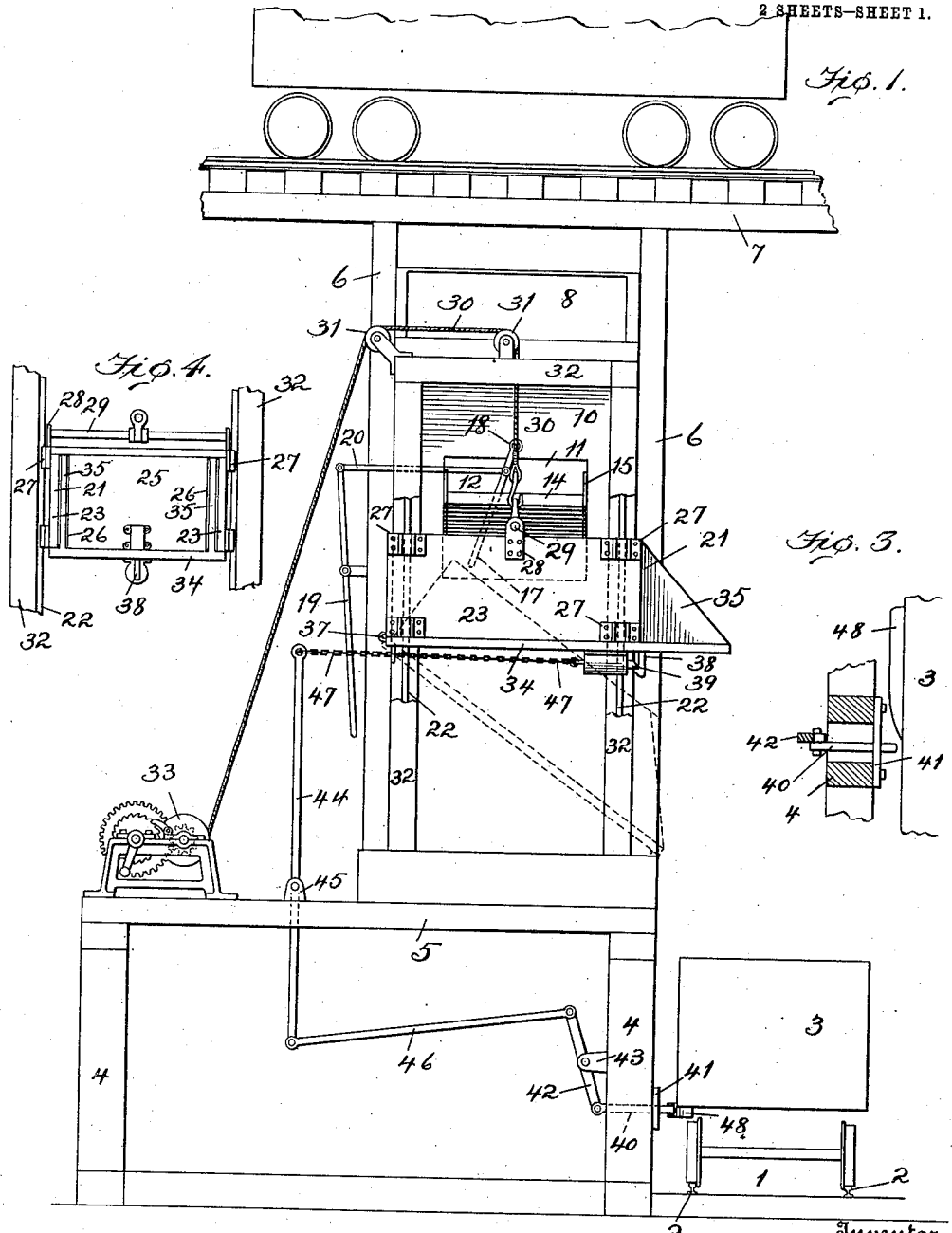


Fig. 4.

Fig. 3.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

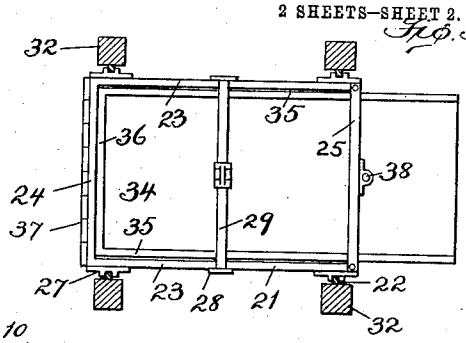


Fig. 2

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UNITED STATES PATENT OFFICE.

JOHN H. PIERCY, DECEASED, LATE OF HIGHLANDTOWN, MARYLAND, BY EDGAR E. PIERCY, ADMINISTRATOR, OF HIGHLANDTOWN, MARYLAND.

LOADING DEVICE.

1,079,718. Specification of Letters Patent. Patented Nov. 25, 1913.

Application filed May 8, 1912. Serial No. 695,991.

To all whom it may concern:

Be it known that JOHN H. PIERCY, late a citizen of the United States, residing at Highlandtown, in the county of Baltimore and State of Maryland, did invent certain new and useful Improvements in Loading Devices, of which the following is a specification.

This invention relates to improvements in automatic loading devices and has reference to a device that may be actuated by a moving vehicle to automatically dump a load into a car while the latter is passing the loading point.

The invention consists in the construction, combination and arrangement of devices or their equivalents, hereinafter described and particularly pointed out in the claims.

The accompanying drawings illustrate the invention wherein—

Figure 1, shows the improved apparatus in side elevation. Fig. 2, illustrates a rear elevation of the same. Fig. 3, shows the trip device in sectional plan. Fig. 4, shows a front elevation of the dumping hopper and the elevator carrier, and Fig. 5, illustrates a top plan view of the latter.

Referring to the drawings by numerals, 1, designates a trackway comprising the two tracks or rails, 2, on which the car or tender, 3, to be loaded will move. At one side, and in close proximity to the trackway, there is provided a framework having posts, 4, on which a platform, 5, is sustained in a horizontal plane and in an elevated position with respect to the trackway, 1.

A supplemental frame-work, 6, rises and extends vertically from and above the platform, 5, and a suitably-sustained elevated track-way, 7, is partially sustained by the frame, 6, so as to be elevated with respect to said platform.

Beneath the elevated trackway, 7, the supplemental frame carries a storage bin, 8, which latter has a bottom, 9, that inclines downwardly and also has an inclined side wall, 10, with a discharge-opening, 11, at the point of joinder of said wall with the said bottom. The general shape of the storage bin is such as to cause a load to seek an outlet through the discharge-opening, 11.

A trough or chute, 12, is pivotally sustained at, 13, so that its inner end including its bottom, 14, and side walls, 15, will register with the opening, 11, and its outer end may swing in an arc so as to be raised or lowered. When the trough or chute, 12, is raised as shown in full lines in Fig. 2, the inner ends of its bottom and side walls will form a closure for the opening, 11, and thereby confine the load in the bin by preventing its escape through said opening 11.

In order to prevent the load of material from choking by bridging across the opening, 11, in the bin wall, there is provided a rake-bar, 16, which is carried on the lower end of a swinging bar, 17,—the latter being pivoted at, 18, at its upper end to the side wall, 10. An actuating lever, 19, is pivotally sustained at the side of the frame, 6, and a link bar, 20, connects the upper end of said lever, 19, with the swinging bar, 17, whereby the latter may be rocked crosswise at the bin-opening, thereby loosening the material and aiding it to flow freely through the outlet.

At one side of the frame, 6, there is provided an elevator-frame, 21, which travels on vertical guide-ribs, 22, of which latter there are four in number. This elevator frame has vertical side walls, 23, a vertical rear end-wall, 24, and has a front wall, 25, with a vertical slot, 26, at each end,—the latter being shown in Fig. 4. The elevator frame is without top or bottom and consists solely of the four vertical walls. Guide plates, 27, are provided on the vertical side walls, 23, to engage the guide ribs, 22, and by this means the elevator-frame may be guided vertically when raised or lowered, as will now be explained.

Suitable bracket plates, 28, are provided on the outer sides of the side walls, 23, of the elevator frame and a horizontal cross-bar, 29, is sustained by said plates in order that a hoisting cable or rope, 30, may be attached thereto. This cable or rope passes around pulleys, 31, on top of the frame-work, 32, which carries the guide ribs for the elevator frame and said cable or rope then extends down to a windlass, 33, in the platform, 5, by means of which latter the elevator frame may be moved vertically on the guide-ribs.

By reference to Fig. 2, of the drawing it will be seen that the free end of the chute, 12, projects over the upper edge of one side wall, 23, of the elevator frame and that when the frame is raised by the windlass to

the position shown in full lines in said Fig. 2, said free end of the chute will be turned up so as to effect a closure of the opening, 11, in the inclined wall, 10, of the storage bin and thereby prevent the coal or other material from escaping from said bin. A dumping hopper is carried by elevator frame, 21, said hopper having a bottom, 34, vertical side walls, 35, and a rear wall, 36. The rear end of the dumping hopper is pivotally connected by a hinge or equivalent structure, 37, to the rear wall, 24, of the elevator frame. The bottom, 34, of the dumping hopper projects beyond its side walls, 35, and said projecting side portions extend beneath the lower bottom edges of the side walls, 23, of the elevator frame, as shown in Fig. 4, of the drawing.

By reference to Figs. 4 and 5, it will be noted that the bottom, 34, and side walls, 35, of the dumping hopper extend beyond the front wall, 25, of the said frame. To permit this the said wall, 25, has the vertical slots, 26, and the side walls, 35, of the dumping hopper project up into said slots. The outer vertical side of front wall, 25, is provided with a bolt, 38, and the bottom, 34, of the dumping hopper has a perforation through which said bolt projects. A spring latch, 39, on the under side of the bottom, 34, serves to engage the bolt, 38, and thereby prevent the hopper from dropping away from the bolt, as shown in Fig. 1, of the drawing.

One of the features of the present invention is to provide a construction whereby actuation may be automatically effected by the car, tender or vehicle that is to receive the load, it being understood that the dumping hopper, when in the position shown in Fig. 1, will contain a load in readiness to be dumped when the vehicle to receive it is in proper position. To do this a trip device is provided, as shown in Figs. 1, 2 and 3, wherein a reciprocable trip-rod, 40, has its outer end sustained in a bearing plate, 41, on the posts, 4, and the inner end of said rod is connected to the lower end of a lever, 42, which is pivotally sustained in a suitable bracket, 43, also carried on said posts. A lever, 44, is pivotally mounted in a bracket, 45, on the plaform, 5, and said lever has one end that passes down through the platform so that a link-bar, 46, may connect said end with the lever, 42. The upper end of lever, 44, is connected to the spring latch, 39, by means of a chain, 47, or other suitable connection.

To actuate the trip rod the car, tender or vehicle is provided with a beveled or tapered trip bar, 48, which contacts with the end of trip-rod, 40, and by pushing said rod laterally the levers, 42, and, 44, will be so actuated as to retract the bolt, 39, and thereby allow the dumping hopper to drop to the position shown in broken lines in Fig. 1, thus dumping the contents of the hopper into the car or vehicle, 3.

After a load has been discharged from the hopper the recharging is effected as follows:—The windlass is operated to lower the elevator frame and in doing so the chute, 12, is also lowered. As the frame lowers about the side walls of the hopper said walls will enter the slots 26, in the front wall, 25, of the frame and thus close the hopper at the front. When the hopper and frame are brought together, the operation being quite rapid, the bolt, 38, will pass through the opening in the bottom, 34, and spring latch, 39, will engage and lock it. The windlass is then reversed and the hopper inclosed by the frame will again be elevated. During the movement the material will be passing from bin, 8, out opening, 11, and down chute, 12, into the hopper and this filling operation will continue until the elevator frame is raised sufficiently to move chute, 12, up and thereby close the said opening, 11.

While it has been stated that the loading operation can be effected while the vehicle, 3, is traveling it will also operate in precisely the same manner where the vehicle is brought to a stop upon actuating the trip rod. It will also be seen that by manually operating lever, 44, the load may also be dumped.

The device as a coaling means is useful for locomotive tenders, whether the coaling is to be done while the tender is in motion or not. Often where an engineer desires to coal he has trouble in placing the tender in proper relation with the chute and sometimes the train must be backed to effect this. By means of this device the loading can be done instantly by tripping the lever, 40, and much trouble is avoided because the load is dumped in practically a single mass.

Having thus described the invention of the said decedent, JOHN H. PIERCY, what I claim and desire to secure by Letters Patent is,—

1. In a loading device the combination with a dumping hopper having a bottom two opposite side walls one end wall and the other end of the hopper being open, of a vertically movable elevator frame having two side walls and one end wall which extends about the two side and one end wall of the dumping hopper said elevator frame being open at both the top and bottom; means carried by the movable elevator frame for closing the open end of the dumping hopper; means for detachably locking the hopper and the movable elevator frame together; means for pivotally connecting the dumping hopper with the movable elevator frame and means for raising and lowering the elevator frame.

2. In a loading device the combination with an elevator guideway, of an elevator-frame movable vertically on the guideway and being open at both the top and bottom and having two side walls and two end walls; a dumping hopper having a bottom two side walls and one end wall and said hopper fitting up into the elevator frame from the underside,—the hopper being pivotally connected at one end to the elevator frame and the opposite open end thereof being closed by the end wall of the elevator frame; means for locking the hopper bottom to a wall of the elevator frame and means for moving the hopper and the inclosing elevator frame vertically with respect to the guideway.

3. In a loading device the combination with an elevator guideway, of an elevator frame having two side walls and two end walls and open at both top and bottom and said frame being movable on said guideway and one of the end walls of the movable frame having vertical slots; a dumping hopper having a bottom, two side walls and one end wall and the two side walls near one end extending through the slots in the end wall of the movable frame; means for pivotally connecting the closed end of the hopper and the frame; means for locking the open end of the hopper and frame together and means for moving said hopper and frame vertically on the guideway.

4. In a loading device having a storage bin with an outlet and a chute pivoted at the outlet, the combination with an elevator frame movably sustained at the outlet side of the storage bin said frame being open at the top and bottom and closed at the sides and ends, of a dumping hopper having a bottom, two side walls and one end wall and said hopper being pivotally sustained from the inclosing walls of the elevator frame; means for locking the hopper and frame together and means for moving the frame and hopper vertically to operate the chute and close the bin opening.

5. In a loading device the combination with the trackway, of an elevator frame comprising two side and two end walls and movable vertically at one side of the trackway; a dumping hopper carried by and having one end pivotally connected to the elevator frame and said hopper movable independently of the elevator frame to assume a dumping position; means for locking the frame and hopper together, and trip mechanism extending from the locking means on the hopper and frame to a point adjacent to the trackway whereby the trip may be released by the vehicle to release the dumping hopper.

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

EDGAR E. PIERCY,
Administrator of the estate of John H. Piercy.

Witnesses:
CHARLES B. MANN, Jr.,
G. FERD. VOGT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."