(No Model.) 2 Sheets—Sheet 1.

# P. E. BOYCE.

## BALLAST UNLOADER FOR CARS.

No. 563,128. Patented June 30, 1896.

Fig. 1.

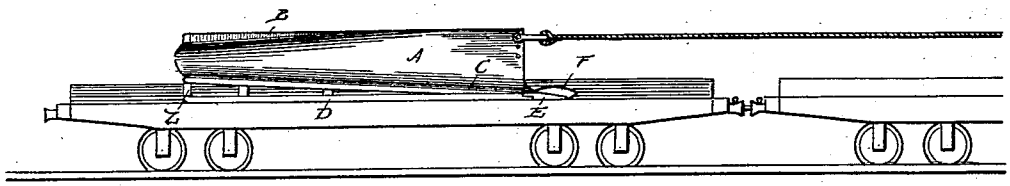



Fig. 2.

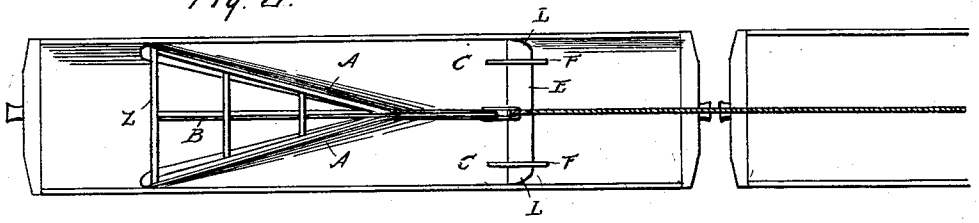



Fig. 3.

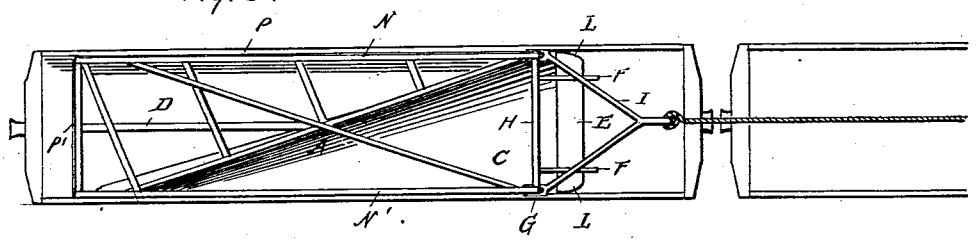
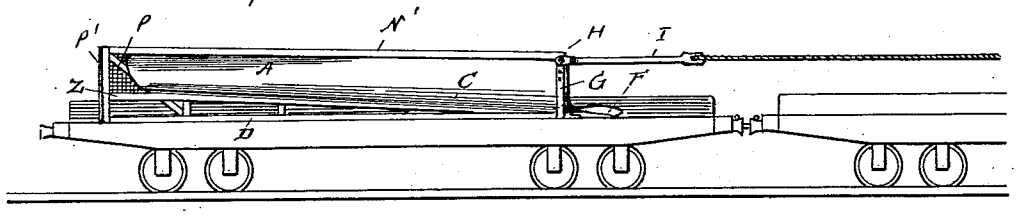



Fig. 4.




WITNESSES

Geo. M. Anderson

Philip C. Masi.

INVENTOR

P. E. Boyce

by G. M. Anderson

his Attorney

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

(No Model.) 2 Sheets—Sheet 2.

# P. E. BOYCE.

## BALLAST UNLOADER FOR CARS.

No. 563,128. Patented June 30, 1896.

Fig. 5.

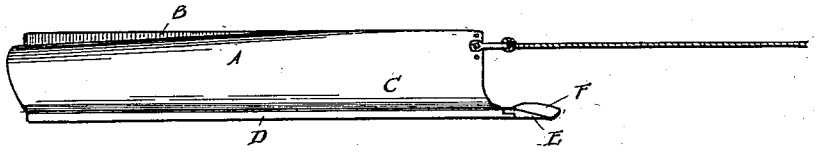



Fig. 6.

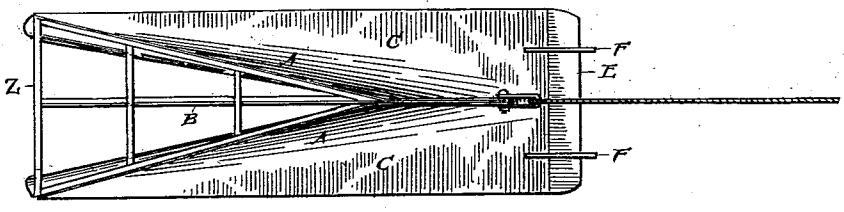



Fig. 7.

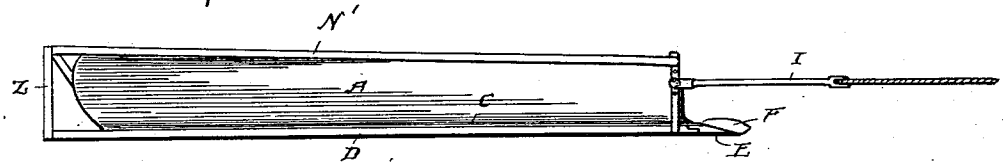
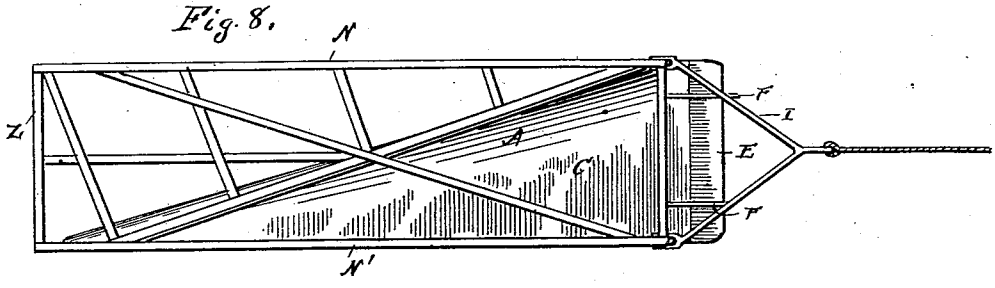



Fig. 8.




WITNESSES

Geo. M. Anderson

Phil. C. Masi.

INVENTOR

P. E. Boyce

by Geo. M. Anderson

his Attorney

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

# UNITED STATES PATENT OFFICE.

PETER E. BOYCE, OF SNOHOMISH, WASHINGTON.

## BALLAST-UNLOADER FOR CARS.

SPECIFICATION forming part of Letters Patent No. 563,128, dated June 30, 1896.

Application filed January 8, 1896. Serial No. 574,708. (No model.)

*To all whom it may concern:*

Be it known that I, PETER E. BOYCE, a citizen of the United States, and a resident of Snohomish, in the county of Snohomish and State of Washington, have invented certain new and useful Improvements in Ballast-Unloaders for Cars; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a side view of double-moldboard form of invention as in operation. Fig. 2 is a plan view of same. Fig. 3 is a plan view of single-moldboard form as in operation. Fig. 4 is a side view of same. Figs. 5 and 6 are side and plan views, respectively, of modification of double-moldboard form. Figs. 7 and 8 are similar views of modification of single-moldboard form.

My invention relates to that species of ballast-unloaders which are mounted to slide upon cars and are drawn over the cars from one end of the train to the other and push the ballast off of the edge of the cars. In using devices of this character there have been two serious drawbacks. The plow has been very liable, especially in gravel, to ride upon the load and run over it without removing it clean, leaving frequently a layer of several inches all over the floor of the car. There is also frequent trouble by reason of large gravel getting between the plow and one of the guide-stakes at the side and breaking it off, thus consuming time to replace it. It has also been impossible to use side-boards to the cars, thus making the loads carried much less than the capacity of the cars.

My invention is intended more particularly to remedy these defects.

The style shown in Figs. 1 and 2, in which the unloading is done at each side of the track, will be first described. This consists of a double plow formed by the two moldboards A, meeting at their forward end in a V shape, and having a central web B of a sheet of metal extending some distance forward from the apex of the plow and also rearward between the moldboards, being rigidly connected to the frame Z. These moldboards are curved toward their bottom edges, so that they smoothly merge into the horizontal plates C. These plates C are not strictly horizontal, but rise from their front end to the rear, as will be seen by reference to Fig. 1. Across the car they are horizontal to the point where the vertical portion of the moldboard begins. This horizontal plate extends ahead and to each side of the moldboard to the full width between the stakes. Across the front end of this extends the share or shoe E. The front edge of this is close to the floor of the car and as it is drawn forward it lifts the dirt or gravel upon it. To prevent this shoe or share from catching upon the end of a car when passing over the space between two cars, two or more runners F, having curved front under surfaces such that they will raise the front end of the plow, are provided. If the platforms of the two cars are slightly twisted with relation to each other, so that the platform of the front car is higher on one side than the platform of the rear one, these runners will strike before the share will and will raise the front end of the plow, so that it will ride upon it without the share catching. Each end of the share E, that is at each side of the plow, is rounded, as shown at L, so that it will be sure of striking within the side boards or stakes of the car in front. If left of the full width, it might catch on these, whereas when it is rounded it will move slightly to one side, so that it will be properly entered between them. The attachment of the draft-cable to the plow is to the front end of the central web or plate B. A vertical row of holes permits the attachment to be varied as the conditions may seem to require.

The shape of the shoe E and the flat horizontal portion C causes it to cut under the load and will prevent its ever riding over the load, but will keep it close to the floor of the car.

The weight of the ballast being at all times upon the horizontal plate C, the plow is held down and prevented from riding upon the ballast. The manner of attaching the draft-cable, which is similar to the clevis of a plow, also tends to hold down the front end. The amount of this action can be regulated by

changing the point of attachment vertically. The sliding of the ballast being upon the plow and not upon the floor of the car, the latter is saved a great deal of wear.

The runners D, forming the framework of the plow, rest upon the car-floor, and the plate C is some distance above the car-floor, and as it approaches the rear end of the plow it raises still more. This construction makes it possible to use side-boards on the car, thus greatly increasing its capacity. Before the ballast has reached the rear end of the plow, it has been raised above the level of the side-boards and they will not interfere with its being pushed off the car. The idea of my plow is to first lift the ballast and then push it off.

For unloading entirely at one side some slight modifications in the attachment of the hauling-cable is required. An upright G is placed at the front end of the plow upon the unloading side, and is connected at the top by a bar H, which passes over the load to a similar upright placed at the front end of the moldboard. This cross-bar is to keep the uprights from being forced inward under the strain of the pull. Attached to these uprights are the links or the bail I, to the front end of which is attached the hauling-cable. To take the strain of hauling from the upright G, one or both of the bars N and N′ are attached to its upper end and extend back over the top of the moldboard to the framework Z of the plow. These bars are high enough to be out of the way of the ballast while it is being unloaded. Upon the opposite side from the moldboard, and at the rear end, the framework is closed by plates P P′.

The side stakes on the car will not be broken by the gravel wedging between the wings and the stakes as the gravel will be lifted entirely above the stakes before it reaches the wings.

Figs. 5, 6, 7, and 8 show modifications of the invention, Figs. 7 and 8 of the single-moldboard form, and Figs. 5 and 6 of the double-moldboard style. In these modifications, the plates C are not inclined upwardly from front to rear, but are horizontal, being raised above the front of the car only to the extent of the incline of the share or shoe E, usually about four inches. With this form, lower side-boards must be used on the car.

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

1. In a ballast-unloader, the combination with parallel runners adapted to slide on a car-platform, of an elevating-incline mounted thereon, and a moldboard wing or wings mounted on said incline and inclined to the axis of the unloader, substantially as specified.

2. In a ballast-unloader, the combination of the parallel slide-runners, the framework thereon, the elevating-incline, the oblique wing or wings thereon, the transverse downwardly-inclined shoe at the front having rounded corners and parallel runners projecting forwardly of the said shoe and upwardly inclined on their lower faces, substantially as specified.

3. In a ballast-unloader, the combination of the parallel slide-runners, the frame, the plate having the downwardly-inclined transverse shoe at its forward end, the vertical wing or wings mounted on said plate, and the draft attachment, substantially as specified.

4. In a ballast-unloader, the combination of the parallel slide-runners, the framework, the plate C, the oblique vertical wing thereon, the uprights G, the draft-bail connected to said uprights, the bracing-bars N, N′, and the plates P, P′, closing in said framework, substantially as specified.

5. A ballast-unloader having a framework mounted upon longitudinal runners, the inclined plate portions, the shoe or share at the front, the vertical moldboard-wings, and a draft attachment, substantially as specified.

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

PETER E. BOYCE.

Witnesses:
L. H. CYPHERS,
LOT WILBUR.