

C. B. KING & H. J. BARNHART.
BALLAST UNLOADER.

APPLICATION FILED SEPT. 20, 1909.

957,348.

Patented May 10, 1910.

2 SHEETS-SHEET 1.

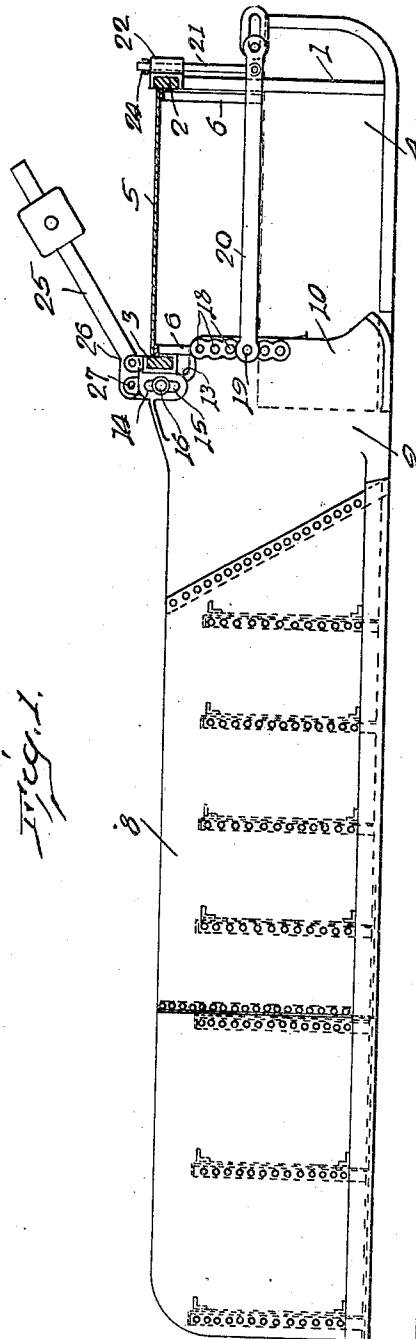


Fig. 1.

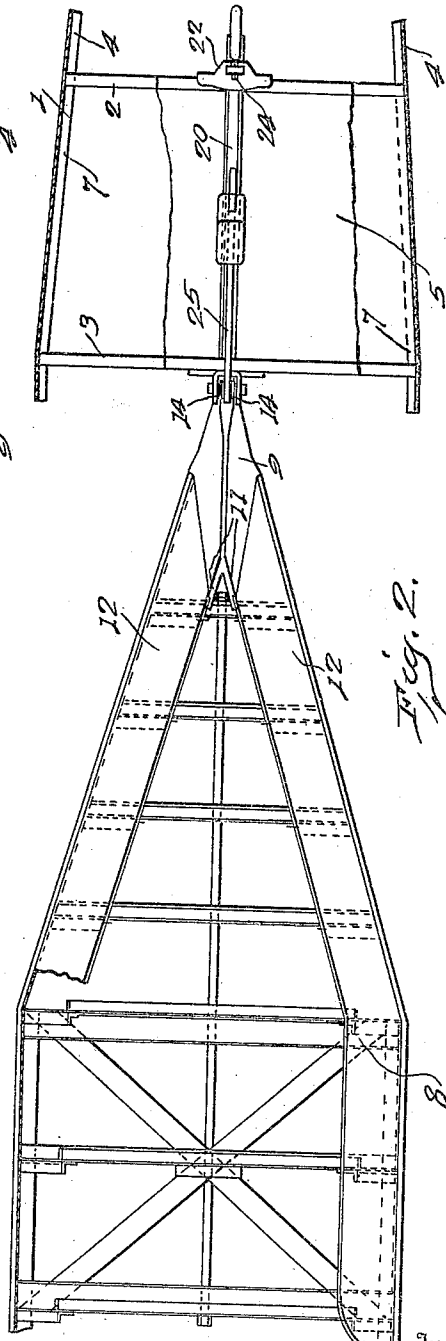


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

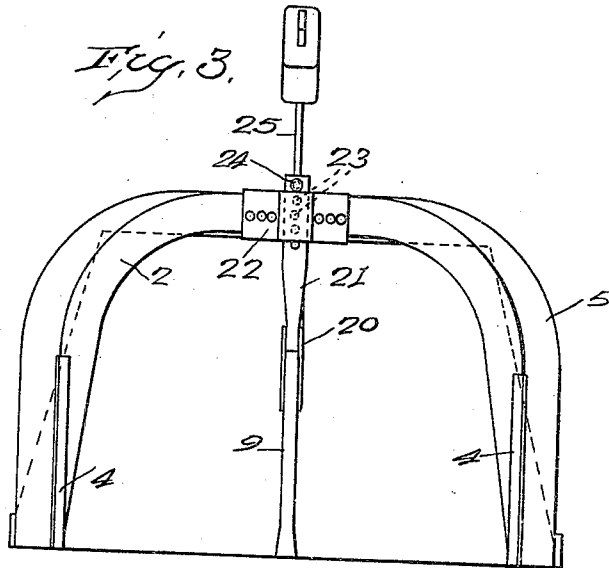


Fig. 4.

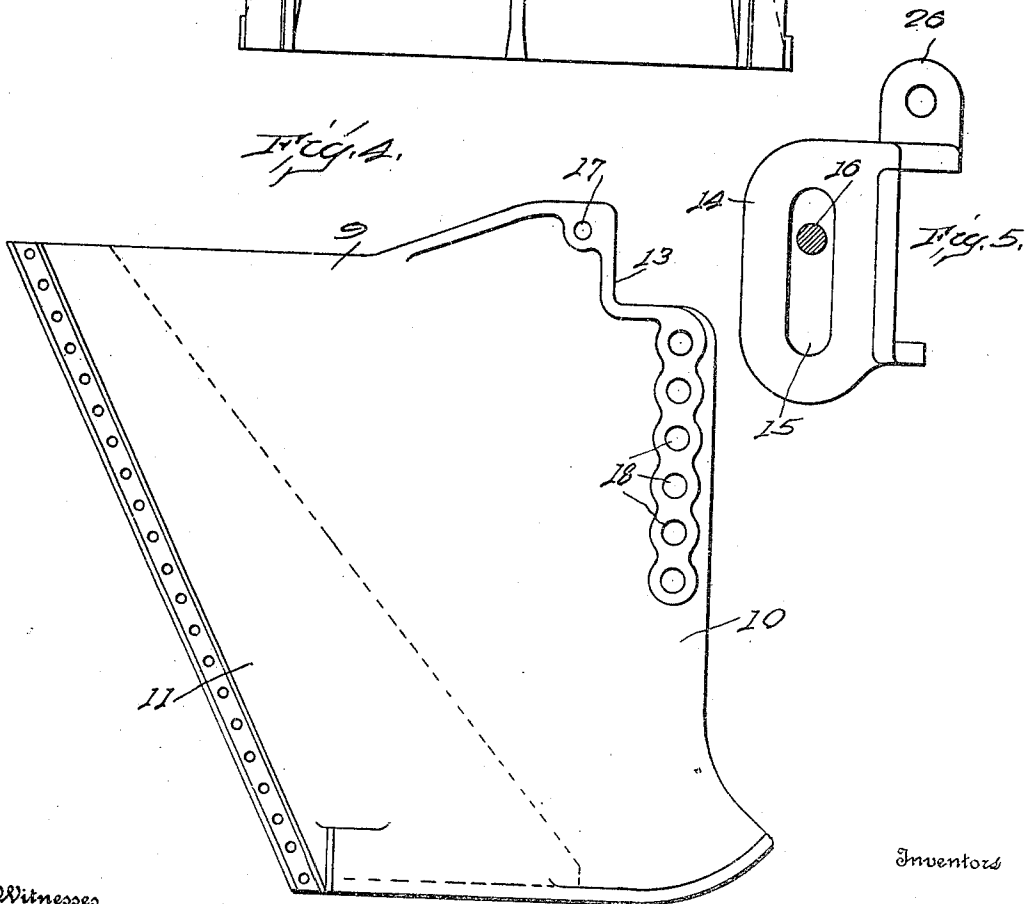


Fig. 5.

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UNITED STATES PATENT OFFICE.

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BALLAST-UNLOADER.

957,348.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed September 20, 1909. Serial No. 518,501.

To all whom it may concern:

Be it known that we, CHARLES B. KING and HARRY J. BARNHART, citizens of the United States, residing at Marion, in the county of Marion and State of Ohio, have invented certain new and useful Improvements in Ballast-Unloaders, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to ballast unloaders, and more particularly to that type of unloader shown and described in Letters Patent No. 714,193, granted Nov. 25, 1902, to George W. King and assigned to The Marion Steam Shovel Company, assignee of the present invention.

The object of the present invention is to provide a ballast unloader of this type in which both the pilot or front guide and the plow or unloader proper will be of a well braced and strong, durable construction; in which the force exerted by the plow upon the pilot to drive the latter ahead of the former will be applied directly to the frame of the pilot; and in which the draft bar may be adjustably connected to the plow and may be adjustably supported near its forward end from the pilot.

With these and other objects in view our invention consists in certain novel features and in certain combinations and arrangements of parts hereinafter to be described, and then more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of an unloader embodying our invention, showing the pilot in section; Fig. 2 is a top plan view of such an unloader; Fig. 3 is a front elevation of the same; Fig. 4 is a detail view of the plow nose; and Fig. 5 is a fractional detail view of the rear frame member of the pilot.

In these drawings we have illustrated one embodiment of our invention and, as here shown, the front guide or pilot 1 is of the same general construction as that shown in the above-mentioned Letters Patent and comprises a front arch or frame member 2 and a rear arch or frame member 3 which are connected to each other by the fender plates 4. In the present instance, however, the front and rear arches are further connected one to the other by means of one or more plates, 5, of sheet metal rolled to conform substantially to the curvature of the

arches and rigidly secured at the edges to the arches. To this end, angle irons 6 are secured to the adjacent faces of the arches and other angle bars 7 extend between the two arches near the upper edges of the fender plates 4 and the plate 5 is riveted to these angle irons. This arrangement of the plate 5 serves to rigidly brace the frame members of the pilot and provides a very strong, durable construction having a large amount of resisting power.

The unloader proper or plow 8 also conforms in its general construction to the plow of the above-mentioned Letters Patent. The present plow, however, has its nose 9 cast in a single piece and provided with a forwardly extending cutting edge or blade 10 and rearwardly diverging and upwardly inclined webs or walls 11, to which are rigidly secured the forward edges of the mold boards 12 of the plow. The nose 9 is so arranged with respect to the rear arch 3 of the pilot that it will engage this arch in such a manner as to apply thereto the force necessary to move the pilot ahead of the plow, thus eliminating intermediate connections and providing a much stronger and more reliable connection. To accomplish this the upper forward corner of the nose is cut away to form a shoulder 13 which is of sufficient height to enable the same to engage the arch 3. The nose is preferably loosely connected to the pilot to prevent the separation thereof under abnormal conditions, such as when the unloader is passing from one car to another and the cars are of different height. This connection is, in the present instance, formed by mounting on the arch 3 of the pilot rearwardly extending lugs or brackets 14 arranged on opposite sides of the nose 9 and having vertical slots 15. A pin 16 extends through an aperture 17 in the upper portion of the nose and through the slots 15 in the brackets 14 and forms a connection which, while it prevents the separation of the pilot from the plow, allows a considerable degree of movement of these parts relatively one to the other. The slots 15 are preferably of a width greater than the diameter of the bolt, so that, under normal conditions, the bolt will not engage the edges of the slots, and, consequently, none of the force exerted by the nose on the pilot will be applied to the pin 16. The brackets 14 also serve to prevent the lateral

displacement of the pilot relatively to the nose.

When it is desirable to utilize a counterweight in connection with the unloader the lever 25 of the counterweight may be pivotally connected to lugs 26 on the rear arch 3 and the rear end of the lever may be connected to the pin 16 by means of a link 27, and, in this manner, the pin 16 serves not only to connect the pilot to the plow, but also to connect the counterweight thereto.

The blade 10 of the nose has one or more apertures 18 adapted to receive a pin 19, by means of which a draft bar 20 is connected to the plow. In the present instance we have provided a series of apertures 18 arranged vertically of the nose and are thereby enabled to adjust the point of connection of the draft bar to the plow to accommodate the draft to the class of material and the size of the load being plowed off. The forward end of the draft bar 20 is supported from the front arch 2 of the pilot by means of a supporting bar 21, which is pivotally connected to the draft bar and is adjustably connected to the arch 2. This connection is, in the present instance, formed by extending the supporting bar 21 through an apertured bracket 22 which is rigidly secured to the front arch. The supporting bar 21 is provided with a vertically arranged series of holes 23 adapted to receive a bolt 24, by means of which the position of the supporting bar 21 in the bracket 22, and, consequently, the elevation of the front end of the draft bar 20, is adjusted. The supporting bar 21 is loosely fitted within the apertured bracket 22 so that it is free to move vertically therein to accommodate itself to the rise and fall of the draft cable as it passes over rocks or elevations on the car ahead of the pilot. The downward movement of the support 21 and the forward end of the draft bar is limited by the bolt 24 to maintain the same in proper relation to the point of connection of the draft bar to the nose of the plow. The forward end of the draft bar can also be adjusted to cause it to exert a downward pull upon the pilot. While the support 21 and the forward end of the draft bar have a free vertical movement, they are held against lateral movement and the pilot will be moved laterally with the draw bar when the cable tends to move the draw bar to one side or the other.

It will be observed that, by means of the plate connected to the front and rear arches of the pilot, this member is rigidly braced in all directions and that the construction thereof is rendered very strong and durable; that the nose of the plow proper is of cast metal and therefore exceedingly rigid and very strong and that it is provided with webs or diverging walls, to which the forward ends of the mold boards of the plow

may be connected; and that the arrangement of the nose relatively to the pilot is such that the force exerted by the plow upon the pilot to move the same forward is applied directly to the frame of the pilot, providing a strong, positive connection.

It will further be observed that the draft bar may be adjusted relatively to the plow and to the pilot and may have its front and rear ends adjusted relatively one to the other to accommodate the same to the character of the material, size of the load and to other conditions which may vary from time to time.

We wish it to be understood that we do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a ballast unloader, the combination, with a plow, of a pilot comprising transverse frame members, fender plates, and a bracing plate extending transversely to said pilot, arranged between said frame members and rigidly secured at its edges to the respective frame members.

2. In a ballast unloader, the combination, with a plow, of a pilot comprising transverse frame members, and a plate of metal shaped to conform substantially to the contour of said frame members, arranged between the same and rigidly secured at its edges thereto.

3. In a ballast unloader, the combination, with a plow, of a pilot comprising transverse frame members, angle irons secured to the adjacent faces of said frame members, and a plate arranged between said frame members and rigidly secured to said angle irons.

4. In a ballast unloader, the combination, with a plow, of a pilot comprising two arches, and a curved plate arranged between said arches and rigidly secured thereto.

5. In a ballast unloader, the combination, with a plow, of a pilot comprising two arches, fender plates connecting said arches at their lower ends, and a plate curved to conform to the shape of those portions of said arches lying above said fender plates and rigidly secured to said arches.

6. In a ballast unloader, a plow comprising a nose having rearwardly diverging webs, and mold boards secured at their forward edges to the respective webs of said nose.

7. In a ballast unloader, a plow comprising a nose having a forwardly extending blade, said blade having a vertically arranged series of openings, said nose also having rearwardly diverging and upwardly inclined webs, and mold boards secured at

their forward ends to the respective webs of said nose.

8. In a ballast unloader, the combination, with a pilot comprising a frame, of a plow arranged to bear against the frame of said pilot.

9. In a ballast unloader, the combination, with a pilot, of a plow loosely connected to said pilot and adapted to bear against a fixed part thereof.

10. In a ballast unloader, the combination, with a pilot having a transverse frame member, of a plow having its nose arranged to engage said frame member and exert pressure thereon to move said pilot ahead of said plow.

11. In a ballast unloader, the combination, with a pilot having a transverse frame member, of a plow loosely connected to said pilot and having its nose arranged to engage said frame member and exert pressure thereon to move said pilot ahead of said plow.

12. In a ballast unloader, the combination, with a pilot having an arch near the rear end thereof, of a plow having a nose arranged to extend above the lower edge of said arch and engage the same to exert pressure thereon and move said pilot ahead of said plow.

13. In a ballast unloader, the combination, with a pilot having an arch near the rear end thereof, and slotted brackets extending rearwardly from said arch, of a plow having a nose adapted to engage said brackets and having an aperture, and a pin extending through said slotted brackets and through the aperture in said nose.

14. In a ballast unloader, the combination, with a pilot, and a plow arranged in the rear of said pilot, of a draft bar adjustably con-

nected at one end to said plow, and means for supporting the other end of said draft bar from said pilot.

15. In a ballast unloader, the combination, with a pilot, and a plow, of a draft bar, means for adjustably connecting one end of said draft bar to said plow, and means for adjustably supporting the other end of said draft bar from said pilot.

16. In a ballast unloader, the combination, with a pilot, and a plow, of a draft bar connected at one end to said plow, a support for the other end of said draft bar comprising a supporting member slidably mounted on said pilot, and a stop for limiting the movement of said supporting member.

17. In a ballast unloader, the combination, with a pilot, and a plow, of a draft bar connected at one end to said plow, a support for the other end of said draft bar comprising a supporting member pivotally connected to said draft bar, an apertured bracket secured to said pilot and adapted to receive said supporting bar, and an adjustable stop secured to said supporting bar above said bracket to limit the downward movement of said supporting bar and said draft bar.

18. In a ballast unloader, the combination, with a pilot, and a plow, of a draft bar connected at one end to said plow, and vertically movable means for supporting the other end of said draft bar.

In testimony whereof, we affix our signatures in presence of two witnesses.

CHARLES B. KING.
HARRY J. BARNHART.

Witnesses:

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FRENCH CROW.