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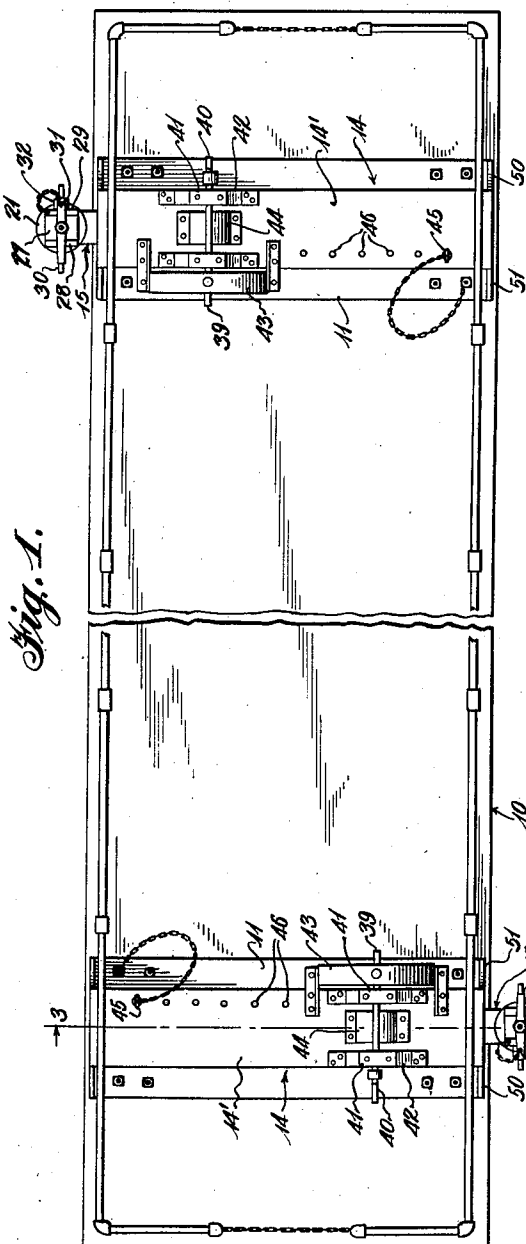
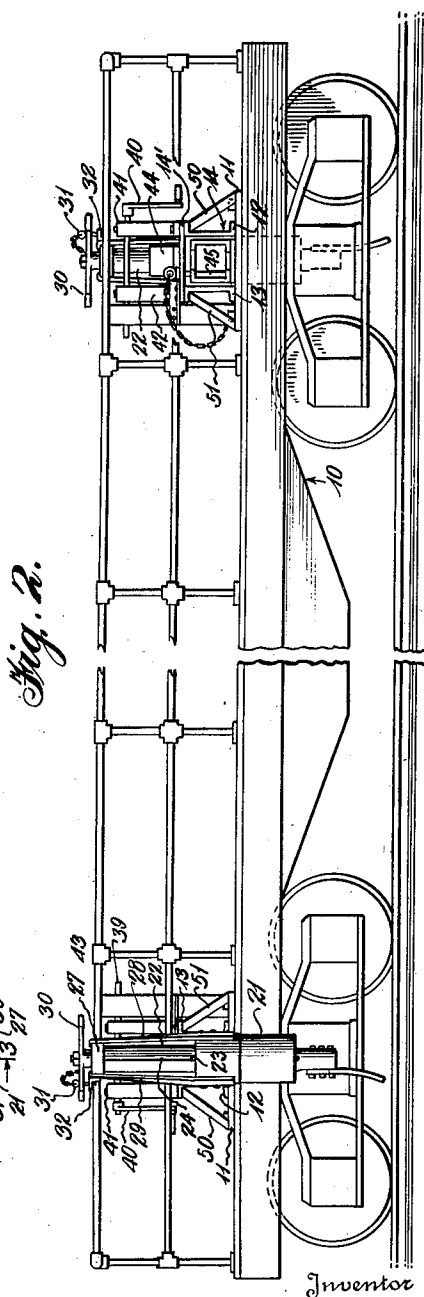
C. A. GILL

2,266,633

BALLAST FLOW

Filed Feb. 15, 1940

2 Sheets-Sheet 1



Inventor
Charles A. Gill

By *Brown & Phelps*
Attorneys

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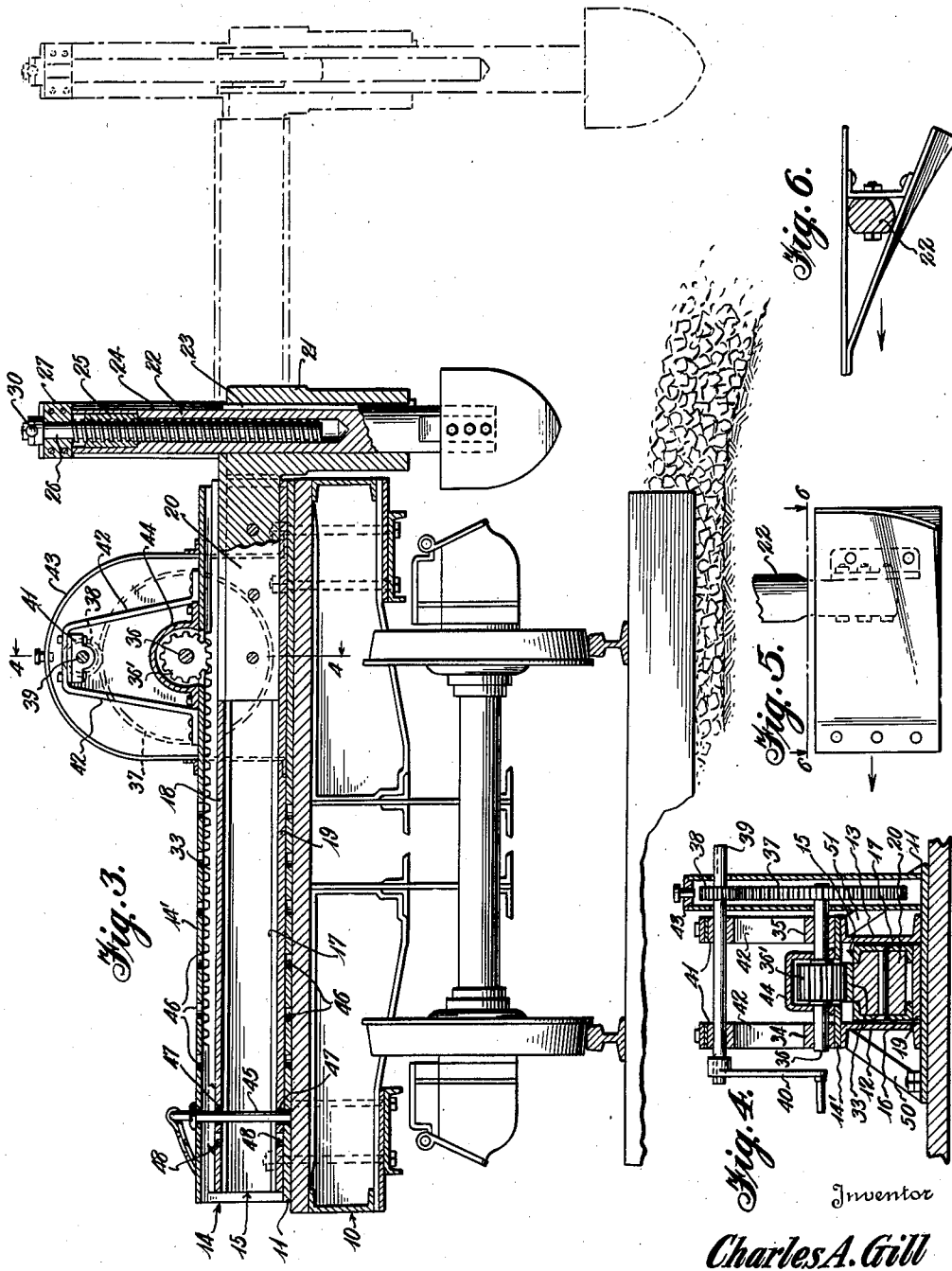
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Brown & Phelps

Attorney

UNITED STATES PATENT OFFICE

2,266,633

BALLAST PLOW

Charles A. Gill, Reading, Pa.

Application February 15, 1940, Serial No. 319,159

2 Claims. (Cl. 37—105)

The invention relates to ballast plows and has as an object the provision of a device applicable to a railway car to loosen the ballast alongside the track in order to permit the ballast to be more readily taken up for cleaning.

It is an object of the invention to provide a device of the character described which may be easily adjustable both to and from the railway car as well as for depth of excavation.

It is a further object of the invention to provide a device of this character to which a variety of implements may be attached.

It is a further object of the invention to provide a device of this character that shall be exceedingly rigid in operation.

Further objects of the invention will appear from the following description when read in connection with the accompanying drawings forming a part hereof, and wherein:

Figure 1 is a plan view of a railway flat car having two of the devices secured thereon;

Fig. 2 is a side elevation of a structure of Figure 1;

Fig. 3 is a vertical transverse section on line 3—3 of Figure 1 upon an enlarged scale;

Fig. 4 is a detail vertical section on line 4—4 of Figure 3;

Fig. 5 is a detail side elevation of the rack end of the plow mast having a scraper attached instead of the shovel of the other figures; and

Fig. 6 is a detail horizontal section on line 6—6 of Figure 5.

As shown the device is secured in place upon a platform of a flat car 10. For purposes of illustration two of the devices are shown as applied to act at diagonally opposite corners of the flat car. The device may, and for many reasons preferably would be applied to the vehicle which carries a ballast gathering and screening apparatus, such for instance as is shown in Patent No. 2,145,763 granted to me on the 31st day of January, 1939.

The device of the present invention, as shown, comprises a base plate 11, which is firmly mounted upon the vehicle carrying the device, as by means of bolts 12 passing through cross sills of the car. Obviously the device may be welded in place upon metal portions of the car. Carried by the base plate 11, there is shown a box 14 formed of channel beams 12, 13 and a cover plate 14'.

Sliding within the box housing there is an arm 15, shown in Figure 4 as formed of channel members 16, 17 with their flanges turned inwardly and secured to top and bottom plates 18, 19 respectively. Secured in one end of the hollow

arm 15 there is shown a member 20 of solid metal which is rigidly secured to a hollow vertical sleeve 21, best seen in Figure 3. Sliding in the sleeve 21, there is shown a mast 22 guided in its sliding movement by a key 23 fast with one of the members, with the sleeve 21 as shown, and a key-way 24 formed in the other member, in the mast as shown.

To provide for vertical adjustment of the mast in the sleeve 21 and relative to the vehicle, the mast is shown as provided with a central bore and with an internally threaded nut 25 secured in the upper portion thereof. Coacting with the nut 25, there is a threaded shaft 26 freely revoluble in a head 27 carried by straps 28, 29, which straps are secured to the head 27 and to the sleeve 21, as most clearly shown in Figure 2.

The screw 26 may be revolved by means of a hand lever 30. To lock the lever in adjusted position, there is shown a pin 31 passing through a portion of the lever and into a bracket 32 carried by one of the straps as 29.

To adjust the position of the shovel relative to the ends of the ties of the railway, the arm 15 is shown as provided with a rack 33 secured to its upper surface and sliding under the top plate 14' of the housing. Mounted upon the housing, in bearings 34, 35, is a shaft 36 carrying a pinion 36' rotating in an opening in top plate 14' of the housing and in mesh with the rack 33. Also carried by the shaft 36 is a gear 37 in mesh with a pinion 38 rigidly carried by a drive shaft 39 which may be caused to revolve by means of a hand crank 40. The hand crank 40 may be applied to either end of the shaft 39 or, if desired, a crank may be secured upon each end thereof. The shaft 39 is shown as mounted in bearings 41 carried by straps 42 secured upon the cover plate 14'. The gear 37 and pinion 38 are shown as provided with a housing cover 43 and the pinion 36' is provided with a cover 44.

To lock the arm 15 in any position of adjustment, there is shown a pin 45 passing through openings in the housing and in the arm 15. A number of openings 46 are provided for various positions of adjustment and desirably two openings 47, 48 may be provided in the arm spaced one-half the distance of the openings 46 for a more close adjustment.

When the device is to be transported between operations the arm 15 must be fully retracted to the position shown in Figure 3 and locked. The lever 30 is placed parallel with the rails and locked in order to avoid any danger of catching upon objects along the right-of-way and desira-

bly the excavating implement at the bottom of the mast is removed to reduce the overall projection of the device beyond the ties. The end of the housing 14 adjacent the mast is shown as braced by means of braces 50, 51.

For different effects a variety of implements may be applied to the lower end of the mast 22. In Figures 1-3 a shovel is shown, while in Figures 5 and 6 a device similar to a land side plow. Either of these may be used to loosen ballast in advance of the pick up of the cleaning device.

If desired a scraper to spread clean ballast may be so applied.

Minor changes may be made in the physical embodiment of the invention within the scope of the appended claims without departing from the spirit thereof.

I claim:

1. In a device of the class described, the combination of: a hollow rectangular way member to be mounted upon a railway car transversely thereof and provided with a plurality of pin-receiving openings spaced longitudinally therein; a rectangular arm slidable in said way member and provided with longitudinally spaced pin-receiving openings spaced differently from the first-named openings, whereby a pin passed

through selected ones of said openings will lock said arm in adjusted position; a rack mounted upon a surface of said arm, a pinion projecting through an opening in said way member in mesh with said rack; a shaft journaled in bearings mounted upon said way member and carrying said pinion; a large gear secured upon said shaft; a small pinion in mesh with said gear; a manually actuated crank upon a shaft carrying said pinion; and tool carrying means mounted upon the projecting end of said arm to project downwardly into contact with the ballast alongside of the railway track.

2. In a device of the class described, the combination of: a hollow rectangular way member; a hollow arm slidable therein; a massive metal member secured in the hollow end of said arm; a vertically extending sleeve carried by said massive member; a mast having feathered sliding engagement with said sleeve; screw means to adjust said mast relative to said sleeve; a ballast excavating implement carried by the lower end of the said mast; and means to adjust the arm in the way member to vary the spacing of the tool from the ends of the ties of a railway track.

CHARLES A. GILL.