

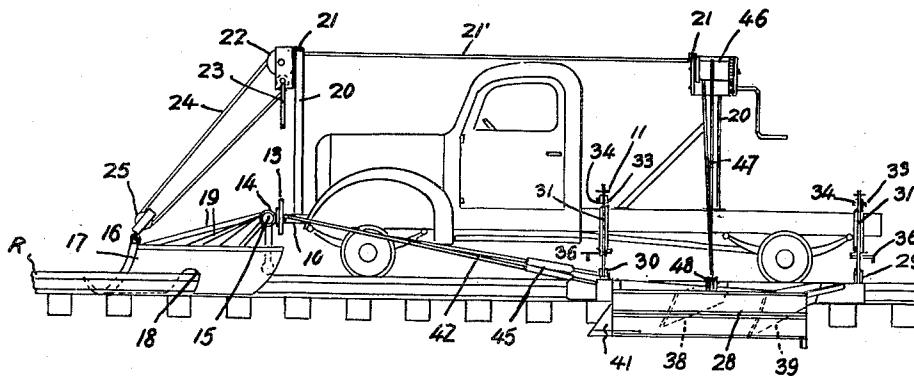
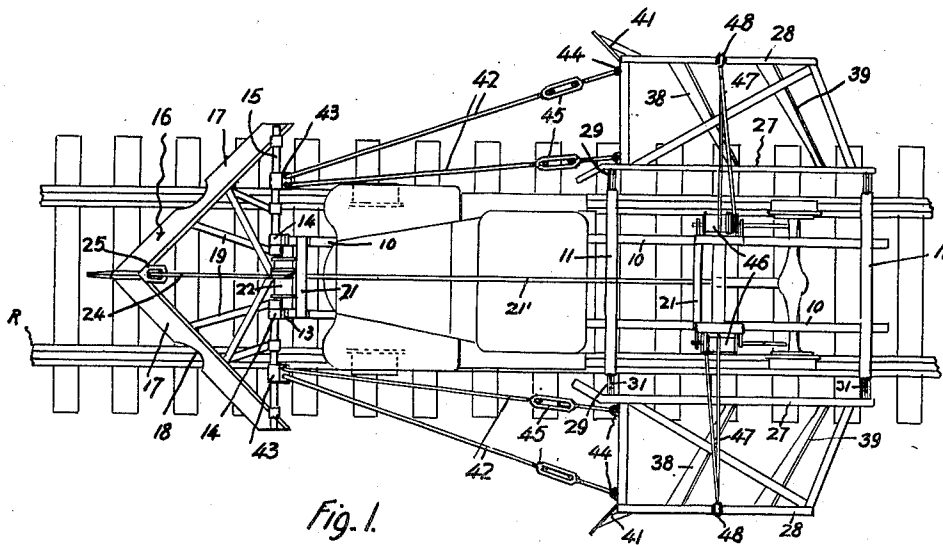
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BALLAST SPREADER

2,583,378

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2 SHEETS—SHEET 1



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By

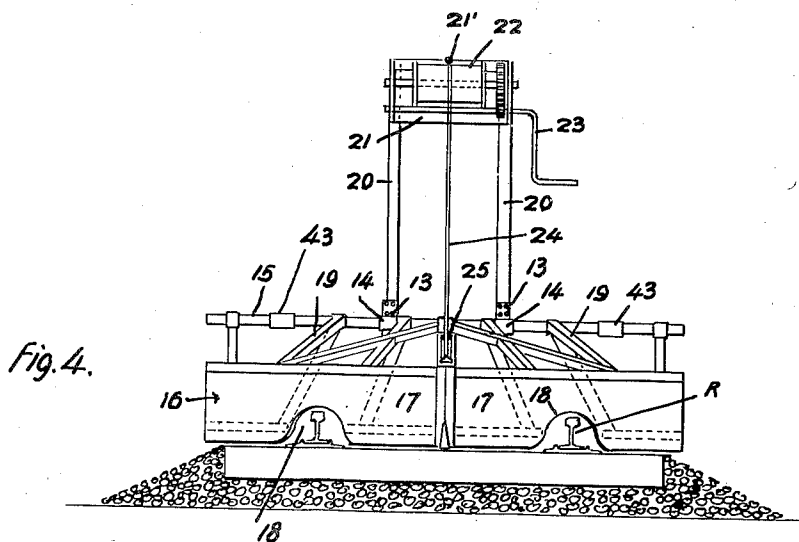
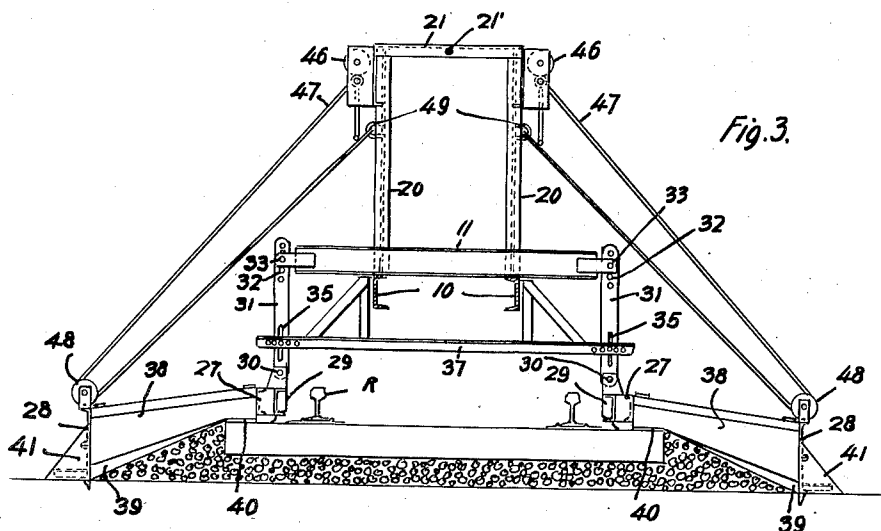
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BALLAST SPREADER

2 SHEETS--SHEET 2



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UNITED STATES PATENT OFFICE

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BALLAST SPREADER

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7 Claims. (Cl. 37-105)

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This invention is a ballast spreader and is adapted particularly for use in association with railway track treatment to spread, evenly distribute and dress the ballast not only between the rails of the track but at the sides as well.

The primary object of the invention is to provide apparatus in connection with a suitable rail travelling car which, as the vehicle moves forward, first levels off, spreads and dresses the ballast between the rails and over the protruding ends of the ties and then levels off, distributes and dresses the ballast for a predetermined distance beyond the ends of the ties.

A further and particular object of the invention is to provide vehicle borne apparatus of the character generally stated, equipped with means whereby adjustments in the elevation of the plow and side dresser wings may be readily and accurately made and whereby the plow and dresser wings may be readily elevated to avoid obstructions as the vehicle moves forwardly.

A further object of the invention is to provide a track dressing machine of the character stated having its operative parts so connected and associated with one another as to properly distribute the strains incident to its use to elements especially equipped to assume such strains.

A further object of the invention is to provide ballast distributing and dressing wings for each side of the track which are operable, either in adjustment or for elevation, independently of one another.

A further object of the invention is to provide a ballast spreader and dresser of the character generally stated which is of comparatively simple construction and operation, which may be readily attached to or mounted upon a railroad carriage or vehicle, which requires the exercise of little skill and manual attention in its operation, which is of rigid and durable construction, which has its several parts so constructed and coordinated as to minimize the opportunity for wear, breakage or derangement, and which will prove highly practical and efficient in its operation.

With the foregoing objects in view, together with others which will appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawings, and particularly pointed out in the claims.

In the drawings:

Fig. 1 is a top plan view of a ballast spreader constructed in accordance with the invention,

Fig. 2 is a side elevation thereof,

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Fig. 3 is a vertical transverse sectional view illustrating the manner of mounting the side dresser wings, and

Fig. 4 is a front elevation of the plow mechanism per se.

Generally stated, the invention resides in a structure including a plow and side wings properly mounted and braced upon a vehicle adapted to travel over the trackway to be dressed. The plow is arranged at the forward end of the vehicle while the side dressing wings are disposed at the sides of the vehicle and project outwardly proper distances beyond the ends of the ties. The dresser wings are to the rear of the plow, and as the vehicle advances the plow levels, smoothes out and evenly distributes the ballast between the rails as well as immediately adjacent thereto beyond the rails, and the surplus ballast passes laterally beyond the sides of the plow and into the path of the oncoming dresser wings to be smoothed and inclined in accordance with the angle of the blades. The plow and the side dressers are all pivoted to the supporting vehicle so that they may be readily elevated, either together or individually, to clear obstructions which might be encountered as the car advances. The improved structure includes means whereby these lifting operations may be adequately and effectively carried out in a simple manner, as well as means whereby the plow and side dressers may be accurately adjusted to determine the elevation of the ballast as well as its inclination beyond the ends of the ties.

More particularly, the improved dresser includes a frame having longitudinal sills in the form of channel irons 10 rigidly connected by lateral channel irons 11 properly braced to provide a rigid structure forming a part of or to be mounted upon a car or other vehicle of a desired type and construction, and to the forward ends of which are secured plates 13 carrying bearing members 14 to accommodate shaft 15 disposed transversely of the track and preferably of a length greater than the distance between the track rails.

The plow is indicated generally at 16, and includes moldboards 17 secured together at their adjacent ends in substantially V-shape relation. These moldboards are properly curved from bottom to top, and are provided in their lower edges with cut-away portions or recesses 18 so located as to accommodate the rails R of the track when the plow is in lowered position. The meeting ends of the moldboards will be disposed substantially in the median line of the trackway, while the

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outer ends project a slight distance beyond the ends of the cross ties. The plow is rigidly reenforced by struts as shown, in order that the strains and pressures to which it will be subjected in operation may be withstood without breaking or distorting the plow. The plow is also equipped with arms 19 rigidly secured at their forward ends in spaced relation to the plow and at their rear ends to the rock shaft 15. The arrangement is such that the plow as a unit hinges in the bearings 14.

The supporting structure includes a superstructure including posts 20 arranged in upstanding relation at the forward and rear ends of the supporting structure. These posts are connected together by cross members 21 and angle struts as well as a longitudinal tie rod 21' to insure stability in the structure. At the top and at the forward end of the superstructure is a windlass including a drum 22 mounted in suitable bearings as shown and operated in any approved manner, a hand crank 23 being utilized in the present instance. The drum 22 is disposed in the median line of the structure and has secured thereto one end of a lift cable 24, passing over a sheave 25 secured to the forward end of the plow and having its opposite end attached to the superstructure. This arrangement is such that operation of the winch or windlass will cause the plow to be elevated or lowered depending upon the direction of rotation of the drum.

The dressers for ballast at opposite sides of the track are identical in construction and a description of one will suffice for both. The side dresser includes a frame preferably formed of channel bars rigidly secured together and properly braced as shown, including inner and outer bars 27 and 28. These bars are disposed parallel to the track, and the inner bar 27 has rigidly secured thereto spaced bracket arms 29, the upper ends of which are apertured to receive hinge pins 30 to connect the bracket arms to the lower ends of vertically disposed links 31 carried by the supporting structure. The links near their upper ends are provided with a longitudinal series of openings 32, into any one of which a supporting pin 33 may be extended to secure the link within supporting brackets 34 rigidly attached to a cross sill 11 of the supporting structure. The lower portion of each link is equipped with a longitudinally disposed slot 35 for the accommodation of a securing pin 36 carried by a laterally disposed angle bar 37 rigidly connected to the supporting structure as shown.

The side dresser frame is equipped with a pair of dresser blades indicated at 38 and 39. These blades are rigidly secured within the frame and between the bars or plates 27—28 in spaced relationship. The lower or scraping edges of these blades differ in their angularity as well as their depth. The forward blade 38 has its lower edge disposed horizontally near its inner end as at 40 and for such distance as it overlies the end of the cross tie, from whence it extends in a downward direction and outwardly to the channel bar 28 to which the opposite end is rigidly secured. The trailer or final blade 39 corresponds at its inner end to the forward blade but the angularity as it progresses outwardly is preferably greater than that of the first described blade. Both of the blades are disposed at an angle to the trackway as shown and their particular angularity with respect to the ground surface will be determined at the time the blades are assembled in the frame.

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The forward end of the longitudinal channel bar 28 is equipped with a deflector plate or share 41, rigidly secured and braced to the said channel bar and projecting outwardly and forwardly therefrom.

By this arrangement, such ballast as is thrown laterally by the plow as the vehicle advances along the track, will be deposited in the path of the oncoming blades 38—39 of the dresser wings.

The inclination of the operative edges of the dresser blades corresponds to the desired angularity of the ballast at the track sides. The first or advancing blade is relatively shallow near its outer end, while the follower blade extends further down near its outer edge to true the ballast during the advancing movement of the vehicle. The deflector plate 41 serves to retrieve such ballast as may have passed beyond the path of the dresser blades.

To absorb the strain to which the dresser wings must necessarily be subjected in leveling the ballast at the track sides, each of the dresser wing frames is provided with forwardly projecting struts 42. These struts are permanently connected at their forward ends to bearing members 43 carried by the shaft 15, and the rear ends of these struts are detachably engaged in U bolts or eyes 44 rigidly secured in spaced relation to the forward end of the dresser wing frame. Each strut rod is equipped with a turn buckle 45 in order that adjustments may be made and a rigid strut may be obtained.

Mounted at the top of the superstructure, and at each side thereof, is a hand or power winch including a drum 46, to one end of which a lift cable 47 is secured; the said cable passing over a sheave 48 rigidly secured to the outer bar 28 of the dresser wing, after which the opposite end of the cable is firmly attached as at 49 to the superstructure.

In operation, it will be understood that the loose ballast for the track is usually deposited by hopper bottom cars, most of which ballast is dropped between the rails of the track and in greater quantity than is required in such location. The improved track dresser, after the plow and side dressers have first been adjusted to the proper or desired degree, is pushed along the track, the plow leveling off the ballast and diverting the surplus to the sides of the trackway and into the path of the oncoming or following side dresser blades. These blades, operating successively upon the ballast, level off the latter to the desired thickness or depth and at the angle determined by the inclination of the operative edges of the dresser blades. Such ballast as may have been projected beyond the path of the side dresser blades will be retrieved and diverted into their path by the deflector blades 41. The strains to which the dresser wings are subjected will be transmitted through the forwardly projecting struts 42 to the shaft 15 at the forward end of the supporting structure which is mounted in such manner as to absorb such strains.

When obstacles are to be encountered; such, for instance, as switches or cross-overs, the struts 42 are detached from the dresser wing frames, the windlass drum 22 is operated to draw upwardly upon the plow, and the drums 46 are similarly operated to raise the dresser wing frames. In instances when the vehicle is travelling and not in operation, the plow and the side dresser wings will be maintained in raised or upright positions.

The mounting of the dresser wings upon the

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members 3/ permits of liberal adjustment both vertically as well as laterally, whereby an accurate elevation of the side dresser wings may be properly determined.

From the foregoing, it is apparent that I have provided a ballast plow and track dresser which will effectively perform the functions for which it is adapted, which has its several parts so assembled that the strains and pressures are equally distributed throughout a number of supporting elements, which is simple in its several operations and by the use of which the ballast distributing and dressing operations are quickly and efficiently carried out with a minimum of manual effort.

I claim:

1. A ballast spreader comprising a supporting structure, links mounted for vertical and horizontal adjustment at a side of said supporting structure, a dresser wing, a pivotal connection between said dresser wing and the lower ends of said links, and means for rocking said dresser wing upon said pivots.

2. A ballast spreader comprising a supporting structure, a pair of links each having a longitudinal series of openings near their upper ends, pins to connect said links to said supporting structure in any one of said openings, a bar on said supporting structure below said pin connection and disposed adjacent to the lower ends of said links, said links each having a longitudinal slot near the lower end thereof, said bar having a horizontal series of openings therein, pins to connect through any of said openings and the slot of the adjacent link, and a dresser wing pivotally connected to the lower ends of said links.

3. A ballast spreader comprising a supporting structure, a dresser wing comprising spaced parallel bars, dresser blades disposed transversely of said wing and connected at their ends to said bars, the operative edges of said blades disposed at different angles to one another, pivots connecting said dresser wing to said supporting structure, and means for moving said dresser wing upon said pivots.

4. In apparatus for operating upon ballast adjacent the ends of the cross ties of a railroad track, a pair of spaced apart vertical plates extending parallel to the rails of the railroad track, forward and rear ballast blades fixedly mounted at each end to the plates, said blades each having a horizontally disposed lower edge portion on the ends nearest the rail and a downwardly sloping lower edge portion extending outwardly from the horizontal portion, means mounting the blades in in-swept position relative to the longitudinal center line of the railroad track and with the sloping lower edge portion of the forward blade above the working level of the corresponding portion of the rear blade, and means to support the

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apparatus and move the same along a railroad track with the horizontal lower edge portion of the blades disposed over the ends of the cross ties.

5. In apparatus for operating upon ballast adjacent the ends of the cross ties of a railroad track, a pair of vertical spaced apart ballast retaining bars extending parallel to the rails of the railroad track, one of said bars being disposed over the cross ties near the ends thereof and the other thereof being disposed outwardly of the ends of the cross ties, forward and rear ballast blades mounted between the bars, said blades each embodying a backwardly inclined plate with the front side thereof lying at an acute angle relative to the longitudinal center line of the railroad track thereby to lift ballast and move it toward the ends of the cross ties, lower edges on the plates comprising a relatively short horizontal portion overlying the ends of the cross ties and a downwardly sloping portion disposed outwardly of the ends of the cross ties, the lower outwardly disposed edge portion of the forward blade lying above the level of the corresponding edge portion of the rear blade, and means to support the apparatus and move it along a railroad track.

6. Apparatus as defined in claim 5 in which the forward end of the bar outwardly of the cross ties is provided with an outwardly disposed deflector plate adapted to draw ballast between the bars and hence into the path of the blades.

7. Apparatus as defined in claim 5 in which the means to move and support the apparatus embodies a pivotal connection between the supporting means and the side of the apparatus nearest the rail of the track, and a flexible member secured to the supporting means and to the side of the ballast apparatus farthest from the rail and supporting the last named side.

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