

Oct. 9, 1923.

1,470,058

S. F. CLAPP

BALLAST DRESSING MACHINE

Filed Aug. 4, 1922

6 Sheets-Sheet 1

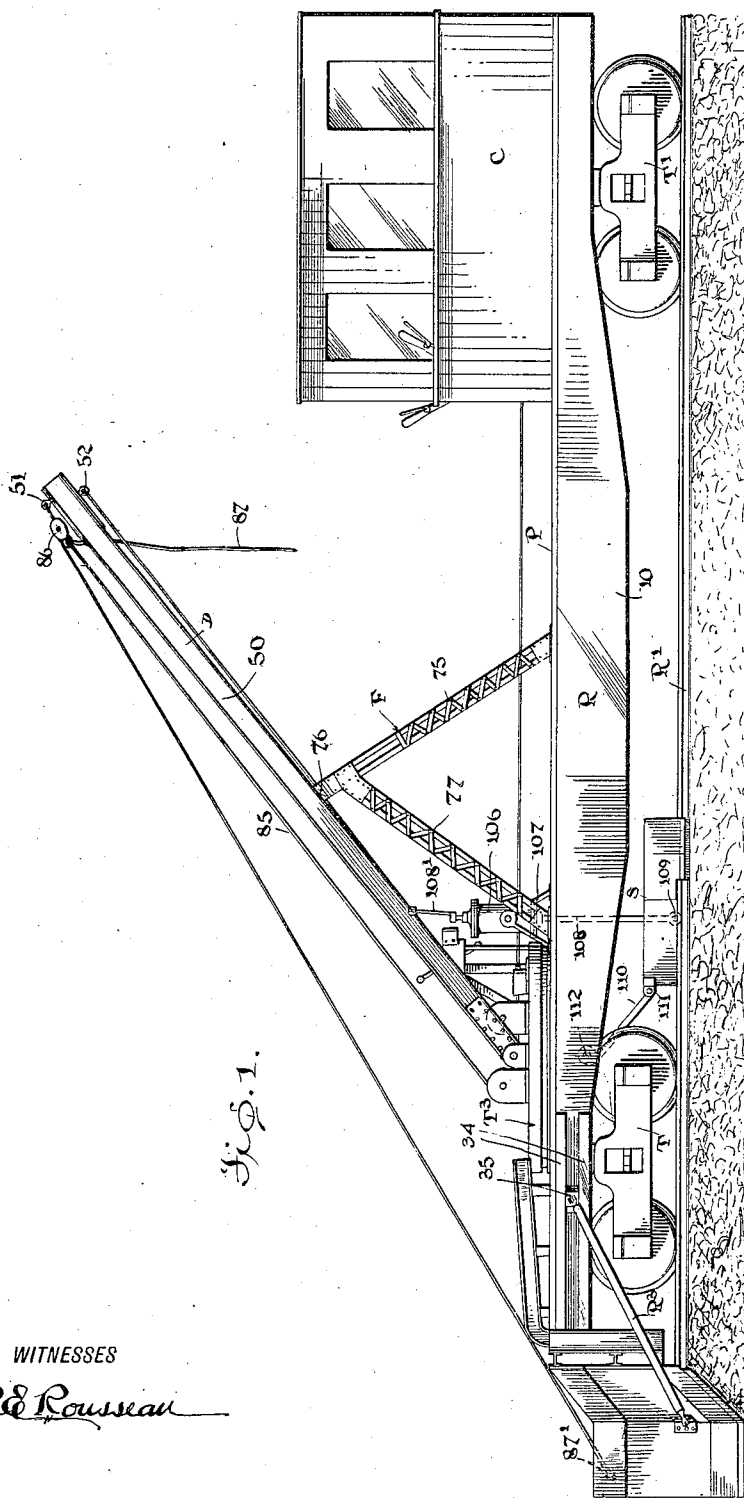


Fig. 1.

WITNESSES

R. E. Roussier

INVENTOR
S. F. Clapp.

My
Attorneys

Oct. 9, 1923.

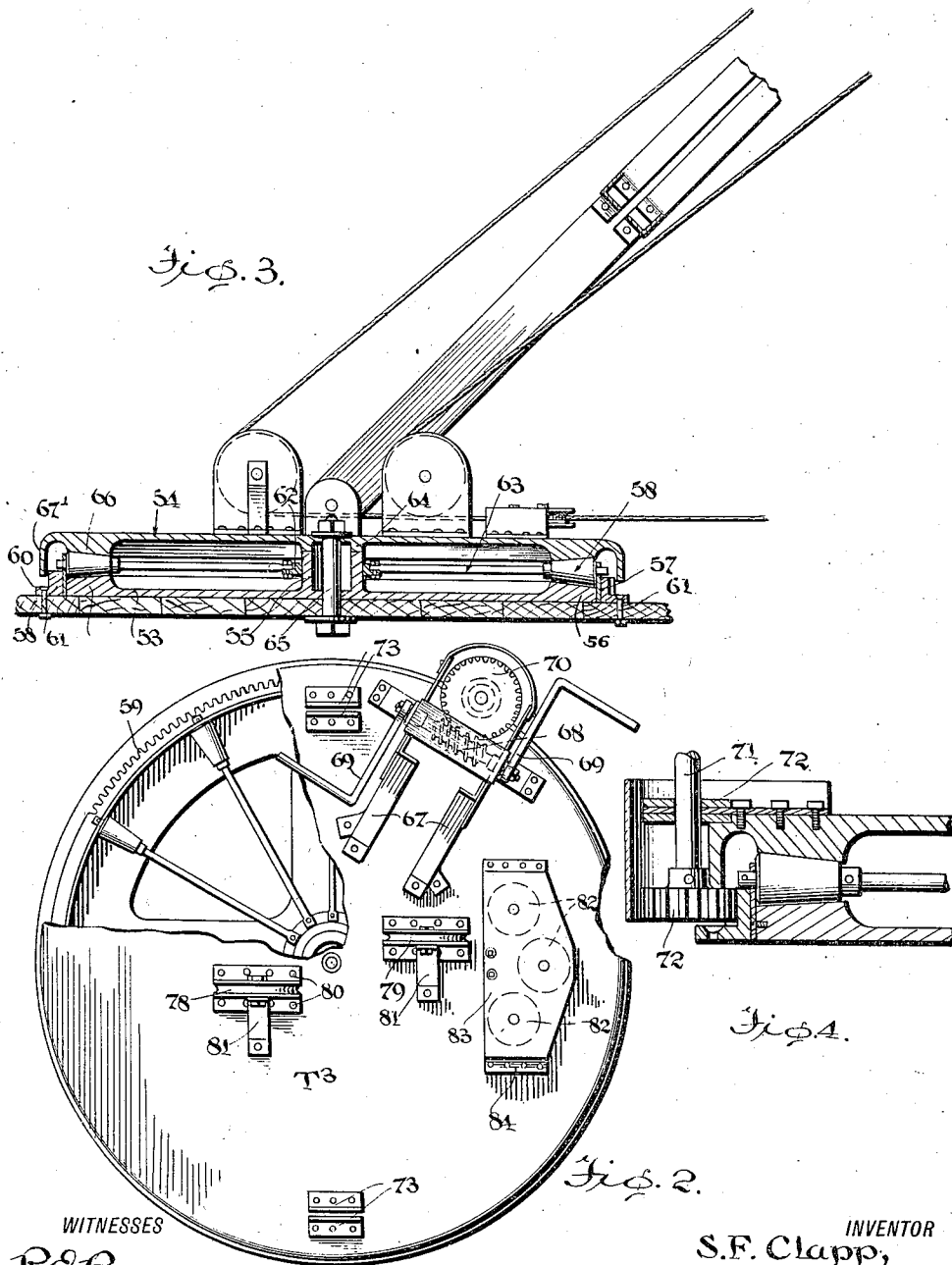
S. F. CLAPP

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BALLAST DRESSING MACHINE

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6 Sheets-Sheet 2



WITNESSES
R. E. Rousseau

INVENTOR
S. F. Clapp,
BY *Munroe*
ATTORNEYS

Oct. 9, 1923.

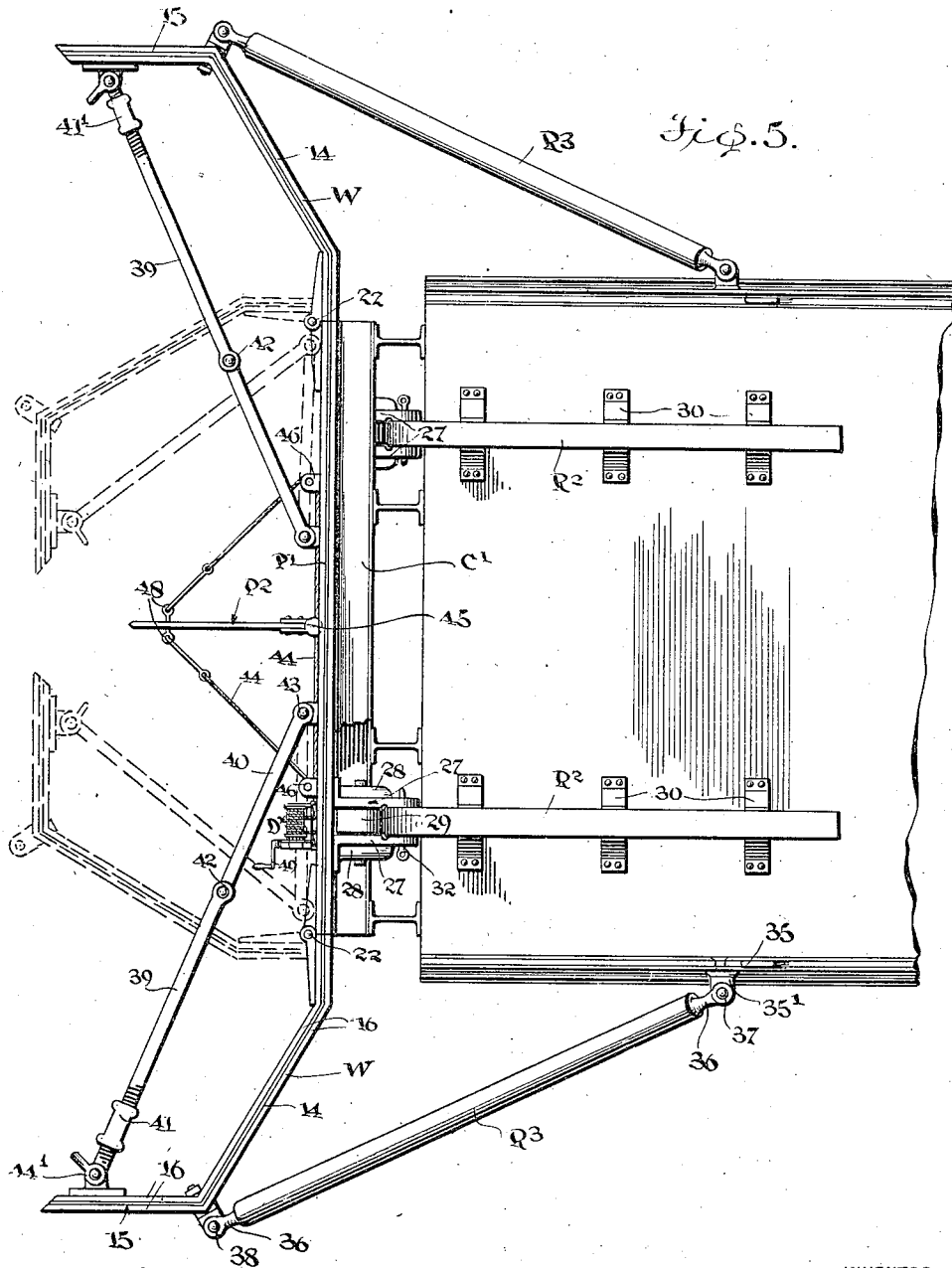
S. F. CLAPP

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BALLAST DRESSING MACHINE

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6 Sheets-Sheet 3



WITNESSES

R. E. Roussau

INVENTOR
S. F. Clapp,

BY *Wm. H. Co.*
ATTORNEYS

Oct. 9, 1923.

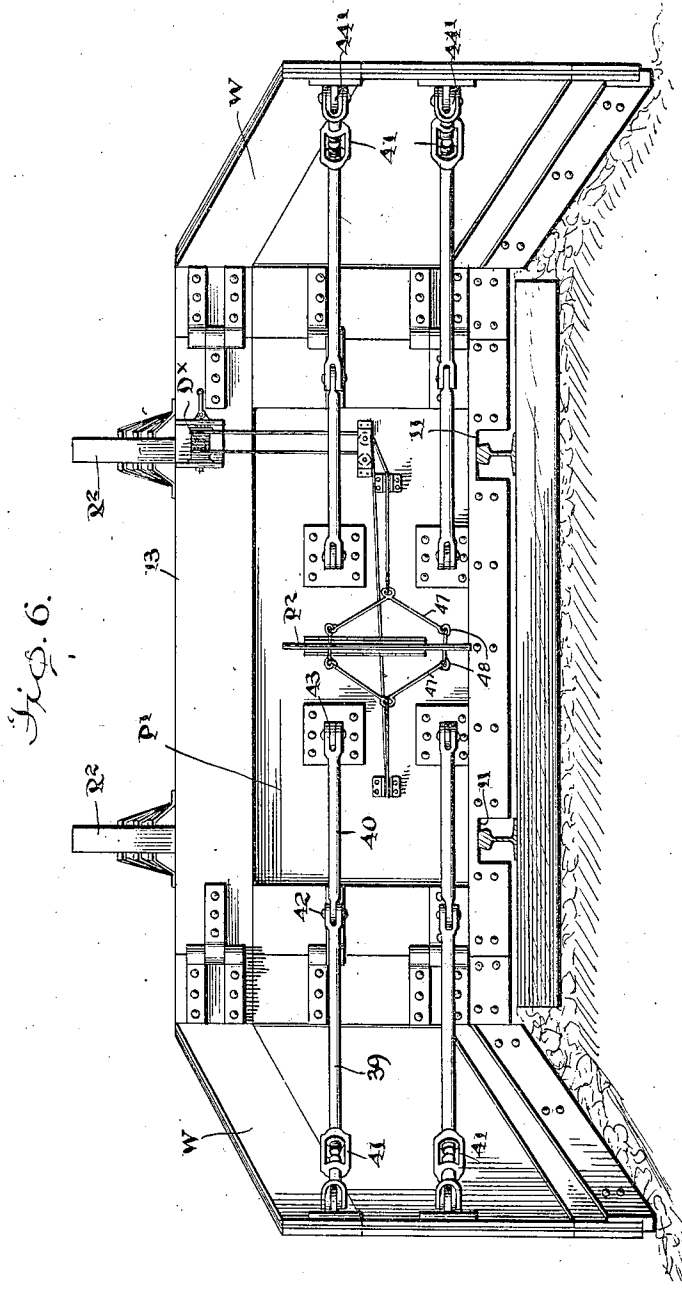
1,470,058

S. F. CLAPP

BALLAST DRESSING MACHINE

Filed Aug. 4, 1922

6 Sheets-Sheet 4



WITNESSES

R. E. Rousseau

INVENTOR
S. F. Clapp,

BY *M. H. Co.*
ATTORNEYS

Oct. 9, 1923.

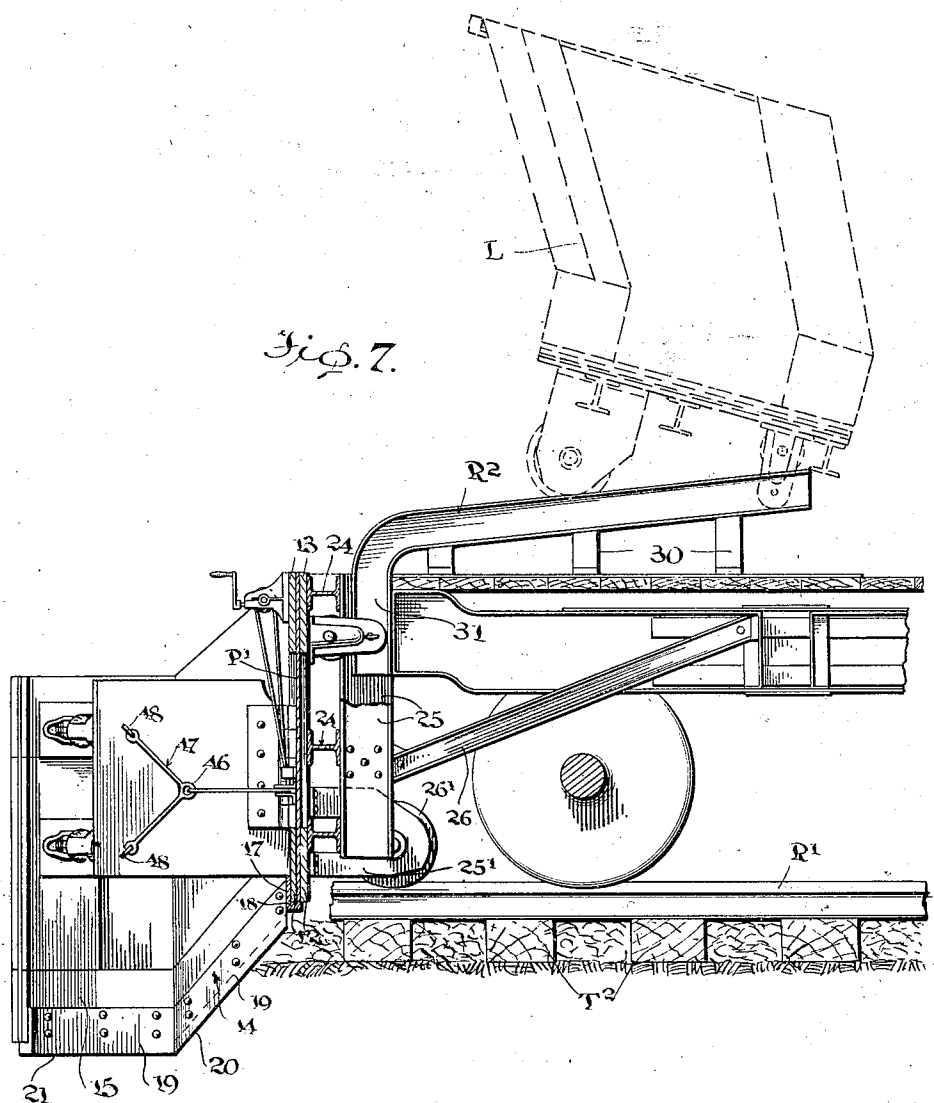
1,470,058

S. F. CLAPP

BALLAST DRESSING MACHINE

Filed Aug. 4, 1922

6 Sheets-Sheet 5



WITNESSES

R. E. Rousseau

INVENTOR

S. F. Clapp,

BY

Wm. H. Co.

ATTORNEYS

Oct. 9, 1923.

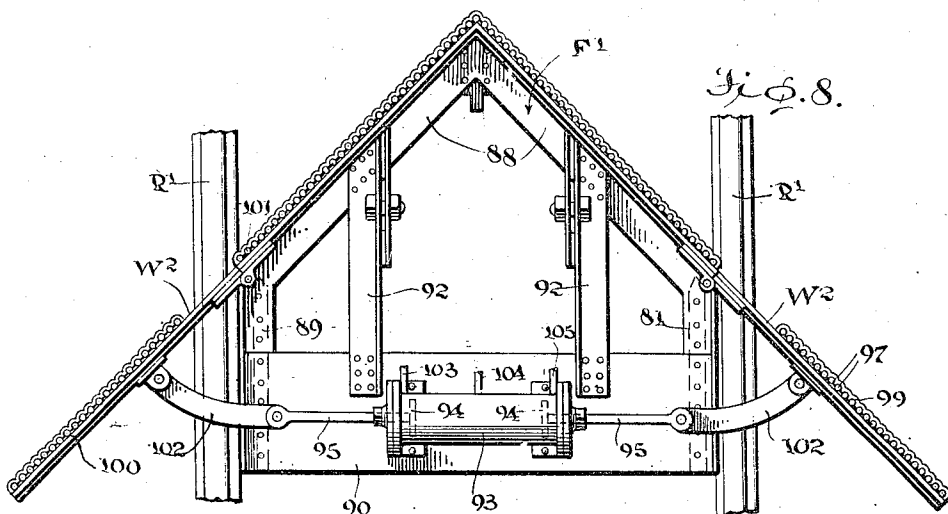
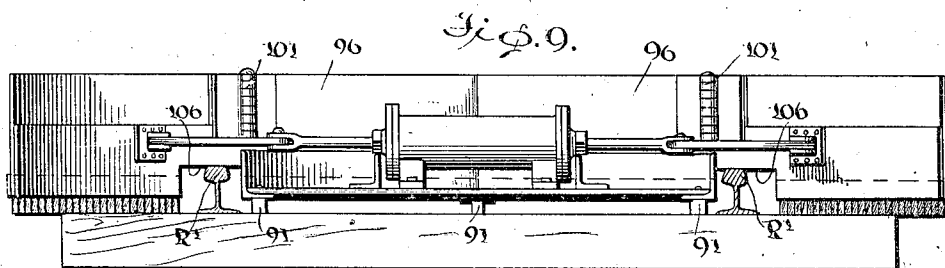
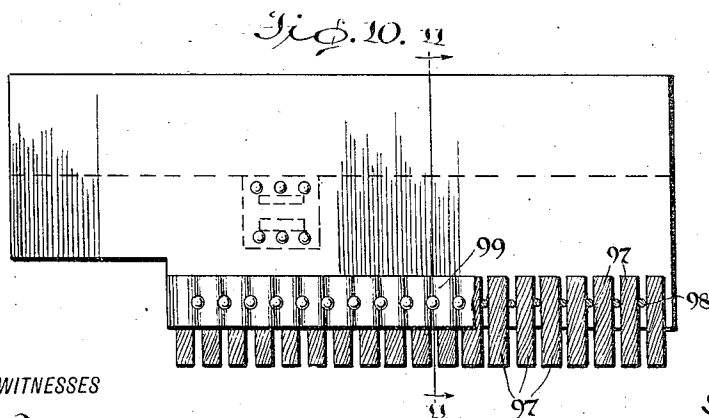
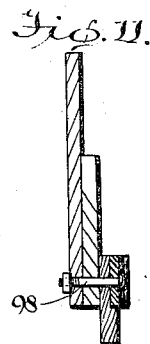
1,470,058

S. F. CLAPP

BALLAST DRESSING MACHINE

Filed Aug. 4, 1922

6 Sheets-Sheet 6



WITNESSES
R. E. Roussier

INVENTOR
S. F. Clapp,
BY *M. H. Ho.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

SOLON FRANCIS CLAPP, OF TEMPLE, TEXAS.

BALLAST-DRESSING MACHINE.

Application filed August 24, 1922. Serial No. 579,678.

To all whom it may concern:

Be it known that I, SOLON F. CLAPP, a citizen of the United States, residing at Temple, in the county of Bell, State of Texas, have invented certain new and useful Improvements in Ballast-Dressing Machines, of which the following is a specification.

This invention relates to a ballast dressing machine or apparatus for railroads.

The usual manner of ballasting a railroad is to dump between the rails the ballast desired and then level the ballast and spread the same upon either side of the rails by the use of hand shovels. The task of spreading and levelling the ballast requires a great number of laborers and consequently a great expense.

An object of the present invention is to provide a machine or apparatus in which the spreading and levelling of ballast may be accomplished in a highly efficient and rapid manner and with a minimum of labor.

It is also an object of the invention that the machine or apparatus be adapted to move upon the rails of the railroad being operated upon.

A further object of the invention is that the machine or apparatus be adapted to operate for dressing the ballast with one movement over the railroad rails.

It is a still further object of the invention that the machine or apparatus operate to clean the rails and top surfaces of the ties during the operation of spreading and levelling the ballast.

It is also an important object of the invention that the machine or apparatus be adapted to operate upon a curve with equal efficiency.

It is also an object of the invention that the apparatus be adapted to be quickly and easily assembled or loaded for moving the same to a distant point for different operations.

Other objects, and objects relating to detail of construction, combination and arrangement of parts will hereinafter appear in the detailed description to follow.

The invention is illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a view in side elevation of a dressing machine or apparatus embodying the present invention,

Figure 2 is a top plan view of the turntable employed with the apparatus,

Figure 3 is a transverse vertical sectional view of the turntable and also showing in side elevation a portion of the associated derrick supported thereby,

Figure 4 is a detail sectional view more clearly illustrating the manner in which the turntable is rotated,

Figure 5 is a top plan view of the forward portion of the machine or apparatus and particularly illustrating the ballast spreading and evener unit,

Figure 6 is a front elevation of the spreader and evener unit,

Figure 7 is a central vertical sectional view of the forward portion of the apparatus also showing in dotted lines the position of the spreader and evener unit when loaded for moving the apparatus,

Figure 8 is a top plan view of the sweeper unit employed in the apparatus,

Figure 9 is a view in rear elevation of the same and also illustrating the manner in which this unit operates upon the rails and ties of a railroad over which the apparatus may be passing,

Figure 10 is a front elevation of one side of the sweeper unit and particularly illustrating the manner in which the sweeping elements are held in position, and

Figure 11 is a sectional view taken substantially on the line 11—11 of Figure 10.

Like reference numerals refer to similar parts throughout the several views.

Referring to the drawings more particularly the machine or apparatus may briefly consist of a car generally indicated by the reference character R; cab C; a leveller and scraper unit L, a derrick D and a sweeper unit S.

The car R may consist in an ordinary gondola type of freight car and comprise a platform P having depending sides 10 and supported by the front and rear trucks T and T', respectively. If desired suitable brakes may be incorporated in this structure and also suitable means for locking the car in the position desired. Preferably an engine is employed for moving the car from place to place and also for supplying compressed air and steam for operating the apparatus. The leveller and scraper unit is best shown in Figs. 1, 5 and 7 of the drawings and may consist in a scraper plate P' which is preferably

made of steel and which is disposed transversely to the rails of the track or transversely to the car.

R¹ indicates the rails upon which the car
 5 R may move and T² indicates the ties supporting said rails. The scraper plate P' should be equal in length to the ties T² and this plate should have recesses 11, one adjacent each end thereof adapted to accommodate the rails R¹. The lower end of the
 10 plate P' may be enforced by a pair of plates 12 which may extend longitudinally of the plate and be secured thereto in any desired manner. A similar pair of plates 13 are
 15 provided for reinforcing the upper portion of the plate P'. To each end of the scraper plate P' there is hinged a wing W, said wing in each instance comprising an inner
 20 portion 14 and an outer portion 15, respectively. The sections 14 and 15 are substantially of the same height as the plate P' and are properly reinforced by suitable marginal plates 16 which extend along the upper edge of said sections. Upon the lower
 25 longitudinal edge of the plate P' there is removably secured an L-shaped member 17 having its portion 18 which is disposed beneath the lower edge of the plate P' of a greater thickness than its other portion.
 30 This member 17 serves as a shoe for the plate P' and may be removed. A similar shoe or member 19 is secured to each of the sections 14 and 15 of the wings W. The section 14 of each wing W has its lower edge
 35 20 inclined, as shown, while the similar edge 21 of the section 15 of each wing is disposed horizontally, the purpose of this structure will later become apparent. The section 14 of each wing W extends slightly forward
 40 with respect to the plate P' and is hinged in each instance to the plate P', as at 22. These hinges should be of such strength that they may withstand the strain imposed thereon during the operation of the apparatus.
 45 The sections 15 in each instance are preferably integral with the sections 14. The wings W should be so hinged that they may be moved to the dotted line position illustrated in Fig. 5 of the drawings.
 50 The plate P' together with its wings W are supported by a carriage, generally indicated by the reference character C¹, and said carriage in turn being adapted to move upon the rails R² supported by the platform
 55 P of the car R. The carriage C¹ consists preferably in the three I beams 24 which extend transversely of the car R or in other words parallel with the plate P'. These I beams are secured to the plate P' in a rigid
 60 manner and are adapted to abut a plurality of I beams 25 which are disposed vertically immediately forward to the platform P of the car R and which are braced by the members 26 extending between the car and
 65 said I beams. Adjacent each end of the

plate P' there is secured a pair of laterally extending roller journaling members 27, each member 27 preferably being formed upon its outer face with an enlargement 28.
 70 The pair of members 27 in each instance are spaced to accommodate therebetween the associated rail R². Each pair of members 27 journal a roller 29 and said roller being adapted to engage upon the associated rail R². The rails R² in each instance preferably
 75 consist of an I-beam having its lower flange resting upon suitable blocks 30 which are properly secured to the platform P of the car R. The forward end of each rail R² is provided with a downwardly extending
 80 portion 31 which is disposed vertically and parallel with the I-beams 25.

The outer ends of each pair of members 27 are provided with registering openings adapted to receive a pin 32 and each of the rails R² are provided with one or more openings through which the pins 32 may be extended and thereby to adjustably lock the
 85 leveller and scraper unit in its operative position as best illustrated in Figs. 5 and 7. By this arrangement the I-beams 24 now about the I-beams 25 and a solid and substantial driving means is provided between
 90 the car R and the scraper and leveller unit.

Upon the rear side of the scraper plate P' adjacent each side thereof there is secured an L-shaped bracket plate 25' which
 95 rotatably supports at its free end a wheel 26'. The wheel 26' is flanged to conform to a railroad car wheel and adapted to move upon either of the rails R¹. The inner end of the bracket 25' is preferably slotted to straddle the associated I-beams 24. Upon
 100 the leveller and scraper unit assuming its operative position as illustrated in Fig. 7 of the drawings the wheel 26' will be disposed upon the rails R¹ and thus further support this unit. Upon the scraper and
 105 leveller unit being moved to its operative position as illustrated in dotted lines in Fig. 7 the roller 29 will be disposed upon the rails R² and likewise the wheels 26 and thus support this unit in its loaded position.

Upon each side of the car R and adjacent the forward end thereof there is mounted a pair of guide members 34 which are adapted to slidably accommodate a block
 115 35. Between each block 35 and the associated wings W there is extended a connecting rod R³. The rod terminates at each end with a reduced and bifurcated portion 36. The portion is pivotally connected at
 120 its one end to a lug or stud 35' by a pin 37 and the lug is in turn pivoted to the block as shown. The outer end of the rod R³ is connected by a stud-bolt 38 to the associated wing W.
 125

The section 15 of each wing W is connected to the plate P' through the means of two pairs of links, each pair constituting
 130

the links 39 and 40. The link 39 in each instance has interposed therein a turn-buckle 41. The links 39 and 40 are pivotally connected to each other, as at 42.

5 The link 30 in each instance is also pivotally connected to the plate P', as at 43, and the outer end of the link 39 in each instance is likewise connected to the section 15, as at 44'. Upon folding the wings W inwardly the links 39 and 40 will assume the position shown in dotted lines in Fig. 5 of the drawings.

15 The leveller and scraper unit may also be provided with a ballast divider which may be employed to an advantage when the apparatus is operating upon a curve. This ballast divider may consist in a plate P² arranged centrally and vertically with respect to the plate P' and disposed forwardly thereto. This plate P² is hinged to the plate P', as at 45, for swinging movement. The lower edge of the plate P² should be disposed approximately as shown in Fig. 7 of the drawings. A ratchet drum generally indicated at D* may be mounted upon one side of the plate P' and from this ratchet drum there may extend a pair of ropes or cables 44 which are adapted to be equally wound upon the ratchet drum D* or equally released. Each of the cables 44 may extend beneath a sheave or pulley 46 mounted upon the forward face of the plate P' and one pulley being positioned upon each side of the plate P². The free end of each cable 44 may be connected to an eye 46' of an L-shaped link 47, said link in each instance having its free ends secured to an eye-bolt 48 occurring upon one side of the plate P². The drum D* may be suitably connected with a crank handle 49 by which the same may be rotated in either direction. As is obvious the plate P² may be swung either in a right or left hand direction and held in the position desired. In the operation of the apparatus as the plate P² is disposed parallel with the rails of the track being operated upon, then, of course, the ballast deposited between the rails will be equally divided. In case the track should make a curve then it will be necessary to shift more of the ballast to one side of the track than the other or else an uneven distribution of the ballast will result. This can be overcome by swinging the plate P² to the proper position.

55 The derrick D may consist in a frame comprising two side sections 50 which are properly secured together at their upper ends and provided at this point with the eye bolts 51 and 52. The lower ends of the sections 50 are pivotally attached to a turntable generally indicated by the reference character T³. The turntable T³ consists in a stationary section 53 and a rotatable section 54, said rotatable section being super-

imposed upon the section 53. The section 53 is supported by the platform P of the car R and may consist in a circular-shaped casting having a hollow boss 55 to serve as a hub therefor and having an annular enlargement 56 extending about the peripheral edge thereof. About the casting 53 there may be positioned an annular plate 57 and about this plate there may be secured a ring gear 58, said ring gear having its teeth 59 formed about the outer periphery and having a flange 60 by which the gear may be secured to the platform P through the means of bolts or the like, as at 61.

About the boss 55 there may be positioned a collar 62 and to this collar there may be secured a plurality of spokes or rods 63, said rods extending radially from the collar 62 and each rod having its outer end supported by the annular plate member 57 and carrying at this last-named end a roller 58, said roller being preferably frusto-conical in shape and rotatably supported. The roller is free of the enlargement 56 of the casting 53 as illustrated in Fig. 3 of the drawings.

The rotatable section 54 of the turntable may consist in a circular plate casting having upon its bottom surface an annular flange 64 which is adapted to seat upon the upper end of the boss 55 of the casting 53. A king bolt 65 may be extended through the platform P and upwardly through the boss 55 and through the casting 54, thereby to turnably hold the casting 54 upon the casting 53. The casting 54 is also provided with an annular enlargement 66 about its peripheral edge and said enlargement occurring upon the lower side of the casting and having an inclined surface adapted to engage upon the rollers 58 and thereby cooperate with said rollers for supporting the section 54 for rotative movement. The casting 54 may also be provided with a downwardly turned flange 67', said flange extending from the peripheral edge of the casting, as shown in Fig. 3 of the drawings and adapted to encircle the ring gear 58.

Suitable bracket members 67 are secured to the top surface of the turntable section 54 for turnably supporting a worm shaft 68. Each end of this shaft is provided with a crank 69 by which the same may be manually rotatable and this worm shaft in turn meshes with a worm wheel 70 which is carried by the rod 71. The rod 71 is disposed vertically and journaled for rotative movement by plates 72 secured to the section 54 of the turntable and said rod has secured at its lower end a cog wheel 72 which is in constant mesh with the ring gear 58, as is obvious by this arrangement and construction. Upon rotating the worm shaft 68 rotative movement will be imparted to the cog wheel 72 which in turn

will rotate the turntable 64 about the king pin 65.

Upon the top surface of the turntable section 54 there is secured the two pairs of L-shaped bracket plates 73, said pairs being diametrically opposed to each other and each pair being adapted for pivotally connecting the lower end of one of the sections or legs 50 and thereby to support the derrick D for forward and rearward swinging movement with relation to the car R.

When the derrick D is not being used it is possible that the same may be permitted to rest upon a support and with this in mind I provide the supporting frame, generally indicated by the reference character F. This frame may consist in a U-shaped section comprising the two leg portions 75 and a bridgeportion 76. The U-shaped section should be inclined forwardly with relation to the car R and each leg portion thereof is braced by a leg structure 77. This supporting frame is of particular value in case that the apparatus is to be moved to a considerable distance to begin a new operation. With the derrick D resting upon the frame F as illustrated in Fig. 1 every danger of the derrick falling is eliminated.

Upon the turntable T^a there is mounted the two sheaves 78—79. Each sheave is preferably supported through angle plates 80 which are secured to the turntable casting 54 and also an angle plate 81 may be employed for further supporting the sheaves 78 if so desired. Also three other sheaves or pulleys 82 may be supported upon the turntable T^a and these sheaves are preferably arranged so that their rotative axis is disposed in a vertical plane. The sheaves 82 may be supported by a substantially U-shaped plate 83 which may have its leg portions formed with extensions, as at 84, and by means of bolts or rivets may be secured upon the turntable casting 54.

For swinging the derrick D forwardly a rope 85 may have its one end attached to the eye bolt 51 and then this rope may be extended downwardly and about one of the pulleys 78 as best shown in Fig. 1 of the drawings. The rope may now be continued, as likewise shown, to the cab C and there properly connected to a double winding drum and then again returned and brought through the remaining pulley 79 and from thence upwardly and connected with the other eyebolt 52 carried by the derrick D. The engineer in the cab C through the means of lever bars, as indicated in Fig. 1, may operate the power controlling the winding drum whereby to swing the derrick D forwardly and rearwardly.

It is to be understood that I am not to be limited to any particular arrangement for manipulating the derrick D, that is, for

swinging this derrick rearwardly and forwardly. Any suitable means may be employed for working this derrick. The turntable, of course, is preferably rotated by means of the crank arms 69.

To the eye-screw 51 of the derrick D there is also attached a block and fall said block and fall being generally indicated by the reference character 86 and this block and fall is connected to each of the wings W of the leveller and scraper unit L, as at 87'. A rope 87 may extend downwardly to the platform P of the car R so that the block and fall may be easily taken up or let out.

The scraper unit S preferably consists in a main frame portion or section F¹ which is angular in shape and consists in the two side portions 88 which extend from each other at substantially 90° and each side portion being formed with an extension 89, said extensions 89 extending parallel to each other and supporting therebetween a plate 90. Suitable runners 91 may be provided for the scraper unit and also braces 92 may extend between the plate 82 and the side portions 88. Upon the plate 90 there may be mounted a cylinder, generally indicated by the reference character 93, said cylinder having two pistons, as at 94, and each piston being connected to a connecting rod 95. A plate section 96 is secured to each portion 88 of the frame F¹ and upon the forward face of the plate section 96 there is positioned sweeper elements 97. Each sweeper element 97 consists in a short section of wire rope and said elements being arranged in closely spaced relation to each other and held apart by bolts 98 extending from the forward face of the plates 96. A metal strap 99 is employed for each of the plates 96 for holding the different sweeper elements 97 thereon, said straps 99 being held in position by the bolts 98.

To the free end of each plate 96 and associated frame member 88 there is hinged a wing W², said wing in each instance consisting in a plate like body 100, which is hinged, as at 101, to the associated plate 96 and adapted for inward swinging movement. Each wing W² is connected to its associated connecting rod 95 by the means of a link 102. Each wing W² is also provided with a plurality of sweeping elements 97 which are held in position by the straps 99 and bolts 98 the same as utilized for the sweeping elements employed upon the plates 96 of the sweeper unit. The cylinder 93 should have three pipe connections, as indicated at 103, 104 and 105. Upon air being admitted at 103, the piston 94 at this end of the cylinder will be driven inwardly and thereby moved inwardly the connecting wing W². The same will occur when air is admitted upon one end of the pipe 105 and upon air being admitted upon pipe 104

the pistons will be moved to the position shown in Fig. 8 of the drawings and so held that is if the pressure is permitted to remain within the cylinder. Each wing W^2 is provided with a recess 106, said recess occurring at the inner and lower edge of the wing and adapted to permit the associated rail R^1 to pass therethrough.

For lifting the sweeper unit to bring the same clear of the railroad bed there is provided a cylinder, generally indicated by the reference character 106, which is supported through the means of suitable brackets 107 mounted upon the plate P of the car R and which has its piston connected to a rod or bar 108, said rod or bar having its lower end pivotally connected to the sweeper unit S , as at 109. Preferably connection between the rod 108 and sweeper unit S occurs at a point centrally of the sweeper unit, as shown to advantage in Fig. 1 of the drawings. A suitable extension 108' may be connected to piston and serve for engaging the frame of derrick to hold the sweeper unit raised.

Between the forward end of the sweeper unit there may extend one or more links 110, said links at its one end being pivotally connected to ears formed upon the sweeper unit, as at 111 and at its other end pivotally connected to the sides 10 of the car R , as at 112. The links 110 serve to maintain the sweeper unit in its proper position when lowered and when the car R^1 is moving forwardly. Also these links permit the sweeper unit to be raised which is entirely obvious.

The operation of the present apparatus is as follows:—Assuming that sufficient ballast has been deposited between the rails R^1 and it is desired to level, and spread this ballast or, in other words, to dress the same, then the leveller and spreading unit should be positioned as shown in Fig. 1 of the drawings. The sweeper unit should also be lowered as likewise shown in this view of the drawings. The wings W^2 of the sweeper unit are, of course, extended and should be so held. The plate section P' of the leveller unit L will operate between the rails R^1 and also a short distance upon each side thereof, this last-named distance being sufficient to cover the ends of railroad ties T^2 . The section 14 of the wings W will operate immediately beyond the outer ends of the ties T and the sections 15 of these wings will operate to gather in any ballast which may have been thrown outwardly a considerable distance with relation to the track and will also operate to form a straight marginal line for the ballast as the car is moved straight forward. The ballast will be distributed between the rails through the plate P' and when an excess ballast exists this will be crowded over the top of the

rails R^1 and distributed upon the sides thereof through the wings W . This operation may continue with the forward movement of the car R and the ballast will be evenly and uniformly distributed or dressed. With the forward movement of the car R the sweeper unit S will also function to relieve the rails of any ballast which may collect thereon and also to sweep the ties clean of ballast or other debris. It is thought from the specific construction of this sweeper unit that the manner in which the same will function is entirely apparent. It has been found that by the use of the sweeper elements shown that the cost of the upkeep of this unit is comparatively negligible.

It is, of course, to be assumed that an engine is employed for moving the apparatus. Suitable pipe lines or the like may be extended through said engine to the cab C so that air or steam pressure may be employed for operating the derrick D and also the sweeper unit S . These pipes are, of course, extended through the cylinder 106 and so arranged that the sweeper unit S may be lifted readily and if desired suitable means may be employed for locking the sweeper S in such raised position.

Should it be desired to move the apparatus to another place for beginning operation or for storage then it is necessary to load the combined leveller and scraper unit L . This may be accomplished through the means of the derrick D . The derrick D is swung forwardly and the rope 87 manipulated so that the cables associated with the block and fall 86 will be properly taken up and then a person may rotate the cranks 69 to swing the derrick D in the direction desired.

Assuming that it is intended to move the right hand wing W of the scraper and leveller unit inwardly then, of course, the derrick would be swung in a direction for this purpose. By properly manipulating the derrick the wings W may be swung to the dotted line position shown in Fig. 5 of the drawings, and then the pins 32 may be removed and the leveller unit as a whole moved rearwardly upon the tracks R^2 with the rearward swinging movement of the derrick D . When the leveller L has assumed its dotted line position, shown in Fig. 5, then the same is loaded preparatory to moving the car R .

Further mention should here be made of the divider plate P^2 . This plate as before mentioned is brought into operation upon operating about a bend or curve in the railroad track. If this plate was permitted to remain at right angles to the plate P as shown in Fig. 5 then the ballast would be equally divided by the plate. If such was the case when going about the curve the lower side of the railroad would not receive

sufficient ballast to properly fill the same. By swinging this plate P^2 in the proper direction this disadvantage may be overcome in an obvious manner. Also it should
 5 be pointed out that the turnbuckles 41 may be utilized for changing the operative position of the wings W.

While I have shown and described the preferred form of my invention it should
 10 be understood that I am aware of the fact that the general arrangement and combination of parts may be changed by those skilled in the art without departing from the scope of the invention as pointed out in the
 15 appended claims.

I claim:

1. A ballast dressing apparatus comprising a running gear adapted to move upon the rails of a railroad, a plate carried by
 20 said running gear and extending transversely to said rails, the lower edge of said plate being disposed beneath the level of the upper edge of said rails, said plate having a recess adjacent each side adapted to
 25 accommodate either of said rails, and an annular wing carried upon each end of said plate, each wing comprising an inner section and an outer section disposed at angles to each other.
- 30 2. A ballast dressing apparatus comprising a running gear adapted to move upon the rails of a railroad, a plate carried by said running gear and extending transversely to said rails, the lower edge of said
 35 plate being disposed beneath the level of the upper edge of said rails, said plate having a recess adjacent each side adapted to accommodate either of said rails, and an annular wing carried upon each end of said
 40 plate, each wing comprising an inner section and an outer section, the outer section extending forwardly with relation to the inner section.
- 45 3. A ballast dressing apparatus comprising a running gear, a plate supported forward of said running gear equal in width to the ties of said railroad and having its lower edge disposed in close proximity to
 50 said ties and also having its lower edge formed with a recess for each of the rails, said plate being adapted to uniformly distribute and level ballast which may be deposited between the rails with the movement
 55 of said running gear, and a foldable wing carried at each end of said plate, said wing in each instance comprising an inner section disposed at an angle to the plate and an outer section extending forwardly to the inner section.
- 60 4. A ballast dressing apparatus comprising a running gear, a plate supported forward of said running gear equal in width to the ties of said railroad and having its lower edge disposed in close proximity to
 65 said ties and also having its lower edge

formed with a recess for each of the rails, said plate being adapted to uniformly distribute and level ballast which may be deposited between the rails with the movement
 of said running gear, a foldable wing carried at each end of said plate, said wing in
 70 each instance comprising an inner section disposed at an angle through the plate and an outer section extending forwardly to the inner section, and foldable link means between
 75 the outer section of each wing and the plate.

5. An apparatus of the character described comprising a running gear adapted to move upon the rails of a railroad, a plate
 80 carried by said running gear disposed transversely thereto and being substantially equal in length to the length of the ties of said railroad, said plate having its lower edge provided with a recess through which the
 85 rails may pass, and means whereby said plate may be moved to rest upon the top of the running gear for carrying the same to a distant point.

6. An apparatus of the character described comprising a running gear adapted to move upon the rails of a railroad, a plate carried by said running gear disposed
 90 transversely thereto and being substantially equal in length to the length of the ties of said railroad, said plates having its lower edge provided with a recess through which the rails may pass, a wing provided for each
 95 end of the plates, and means whereby the plate and wings may be moved to rest upon the running gear.

7. An apparatus of the character described comprising a running gear adapted to move upon the rails of a railroad, a plate
 100 carried by said running gear disposed transversely thereto and being substantially equal in length to the length of the ties of said railroad, said plate having its lower edge provided with a recess through which the rails may pass, a wing provided for
 105 each end of the plate, and a carriage whereby the plate and wings may be moved together upon the top of running gear.

8. An apparatus of the character described comprising a running gear adapted to move upon the rails of a railroad, a plate
 110 carried by said running gear disposed transversely thereto and being substantially equal in length to the length of the ties of said railroad, said plate having its lower edge provided with a recess through which the rails may pass, a wing provided for each
 115 end of the plate, a carriage whereby the plate and wings may be moved together upon the top of running gear, and means whereby the wings may be folded inwardly previous to moving the plate and wings to the position upon the top of the running
 120 gear.

9. An apparatus of the character de- 130

scribed comprising a running gear adapted to move upon the rails of a railroad, a plate extending transversely to said running gear and supported thereby, said plate having its lower edge disposed in close proximity to the railroad ties, and a divided plate carried upon the forward face of the first-named plate and adapted to operate with the forward movement of said running gear to divide ballast deposited between said rails previous to the moment said ballast may be operated upon by the first named plate.

10. An apparatus of the character described comprising a running gear adapted to move upon the rails of a railroad, a plate extending transversely to said running gear and supported thereby, said plate having its lower edge disposed in close proximity to the railroad ties, a divider plate carried upon the forward face of the first-named plate and adapted to operate with the forward movement of said running gear to divide ballast desposited between said rails previous to the moment said ballast may be operated upon by the first named plate, and means whereby said divided plate may be laterally swung upon a vertical pivot in either direction.

11. An apparatus of the character described comprising a running gear adapted to move upon the rails of a railroad, a plate extending transversely to said running gear and supported thereby, said plate having its lower edge disposed in close proximity to the railroad ties, a divider plate carried upon the forward face of the first-named plate and adapted to operate with the forward movement of said running gear to divide ballast deposited between said rails previous to the moment said ballast may be operated upon by the first named plate, and means whereby said divider plate may be adjustably swung upon the pivot in either direction whereby to change the division line of the ballast deposited between the rails.

12. A device of the character described comprising a running gear adapted to move upon the rails of a railroad, a platform supported upon said running gear, a combined leveller and scraper unit carried by said running gear forward thereto, said leveller and scraper unit comprising a transversely disposed plate having its lower edge disposed in close proximity to the ties of a railroad, a foldable wing upon each end of said plate, means whereby said wings may be folded and together with the plate moved upon the platform over said running gear, a turntable carried by said platform, a derrick mounted upon said turntable and adapted for forward and rearward swinging movement with relation to the running gear, means whereby said der-

rick may be connected to the wings of said evenner plate whereby with the turning movement of said turntable the wings may be folded, and means whereby upon rearward swinging movement of said derrick the scraper and evenner unit may be moved upon the top of the platform of said running gear.

13. A device of the character described comprising a running gear adapted to move upon the rails of a railroad, a platform supported upon said running gear, a combined leveller and scraper unit carried by said running gear forward thereto, said leveller and scraper unit comprising a transversely disposed plate having its lower edge disposed in close proximity to the ties of a railroad, a foldable wing upon each end of said plate, means whereby said wings may be folded and together with the plate moved upon the platform over said running gear, a turntable carried by said platform, a derrick mounted upon said turntable and adapted for forward and rearward swinging movement with relation to the running gear, means whereby said derrick may be connected to the wings of said evenner plate whereby with the turning movement of said turntable the wings may be folded, a carriage supporting said scraper and leveller unit, and means whereby with the rearward swinging movement of said derrick the scraper and evenner unit may be drawn upon the top of the platform.

14. In a device of the character described, a vehicle, a pair of rails arranged upon said vehicle, a carriage supported by the rails and adapted to be brought to a substantially vertical position at one end of the vehicle, and a scraper plate carried by the carriage.

15. In a device of the character described, a vehicle adapted to move upon a pair of rails supported upon the vehicle, a carriage movable upon the last-named rails and adapted to be brought to a substantially vertical position at one end of the vehicle, wheels carried by the carriage adapted to move upon the first-named rails and thereby support said carriage, and a scraper plate carried by said carriage.

16. In a device of the character described, a vehicle adapted to move upon a pair of rails supported upon the vehicle, a carriage movable upon the last-named rails and adapted to be brought to a substantially vertical position at one end of the vehicle, wheels carried by the carriage adapted to move upon the first-named rails and thereby support said carriage, a scraper plate carried by said carriage, and co-operative means carried by the carriage and the rails upon said vehicle, whereby to prevent forward tilting movement of the carriage.

17. In an apparatus of the character described, a vehicle, a pair of rails arranged

upon said vehicle at one end thereof, a carriage movable upon said rails, said rails terminating at their ends corresponding to the associated ends of the vehicle in downwardly curved portions and adapted to permit the carriage to be brought to a vertical position at said end of the vehicle, a scraper plate carried by said carriage, and a derrick carried by the vehicle and adapted to be utilized for moving said carriage upon said rails and to a position upon the vehicle.

18. In an apparatus of the character described, a vehicle, a pair of rails arranged upon said vehicle at one end thereof, a carriage movable upon said rails, said rails terminating at their ends corresponding to the associated ends of the vehicle in downwardly curved portions and adapted to permit the carriage to be brought to a vertical position at said end of the vehicle, a scraper plate carried by said carriage, a foldable wing carried by each end of the scraper plate, a turntable carried by the vehicle, a derrick carried by the turntable, said derrick and turntable being adapted to be utilized for folding said wings upon the scraper plate and also for moving the carriage to its position upon the vehicle.

19. In an apparatus of the character de-

scribed, a vehicle, a pair of rails supported by said vehicle at its one end and each rail terminating in a downwardly curved portion at its associated end of the vehicle, a carriage supported by said rails and adapted to be brought to a vertical position at the last-named end of the vehicle, co-operative supports carried by said vehicle and carriage adapted to brace and hold the carriage in its last-named position, and a scraper plate carried by said carriage.

20. In an apparatus of the character described, a vehicle, a pair of rails arranged upon said vehicle, said rails terminating at one end of the vehicle in downwardly extending portions, a carriage supported by said rails and adapted to be brought to a vertical position and forward to the last-named end of the vehicle, wheels carried by the carriage adapted to support the same in the last-named position, a scraper plate carried by said carriage, a wing hingedly connected to each end of the carriage, and brace members extending between each wing and the vehicle, said brace members being connected whereby to permit the carriage to be moved from its vertical position to a position upon said vehicle.

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