

G. H. CRAVENS.

APPARATUS FOR BALLASTING RAILWAY ROAD BEDS.

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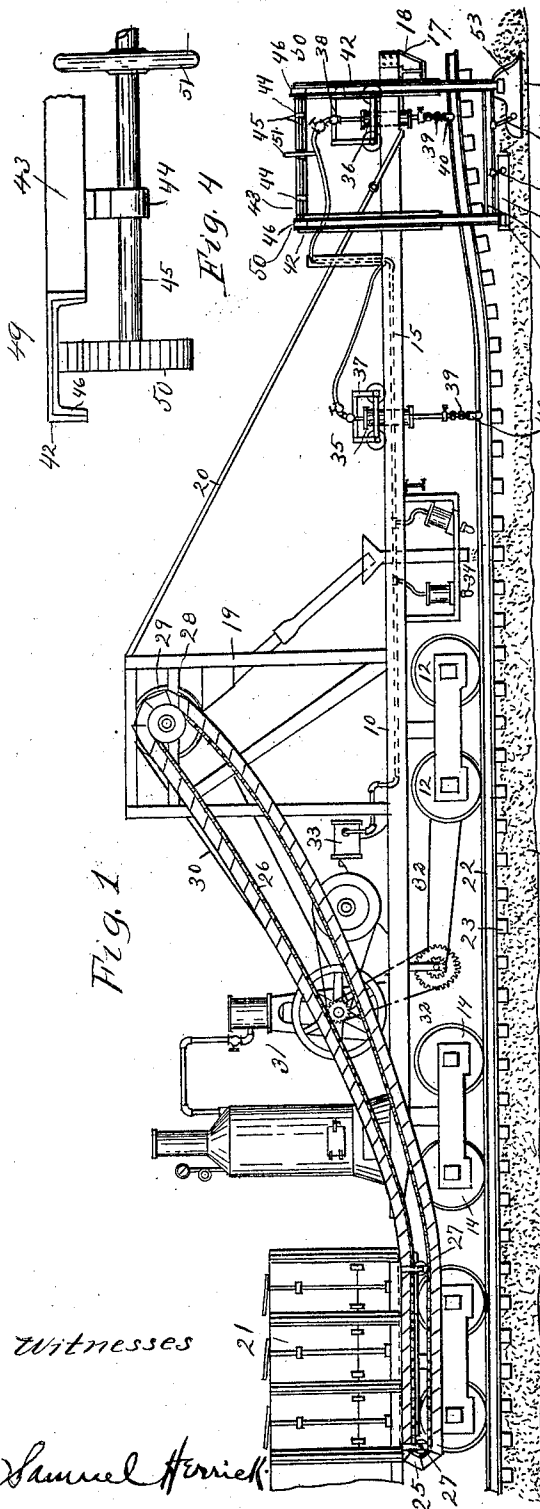


Fig. 1

Witnesses

Samuel Herrick

Thomas Howell

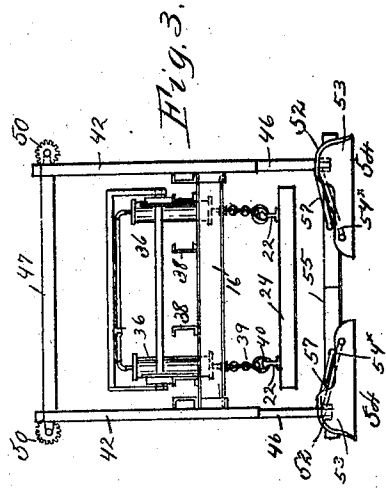


Fig. 3.

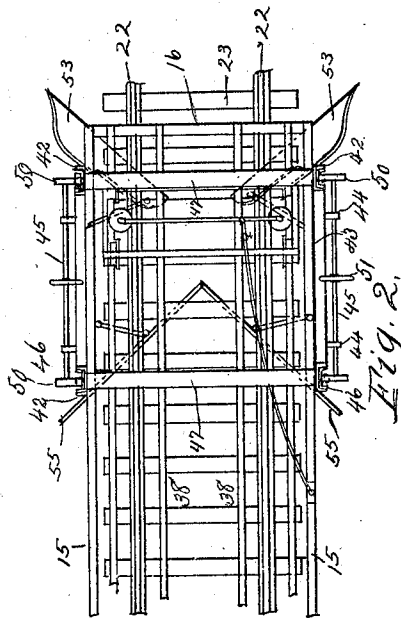


Fig. 2.

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APPARATUS FOR BALLASTING RAILWAY ROAD-BEDS.

No. 802,157.

Specification of Letters Patent.

Patented Oct. 17, 1905.

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To all whom it may concern:

Be it known that I, GRAHAM H. CRAVENS, a citizen of the United States of America, residing at De Queen, in the county of Sevier and State of Arkansas, have invented certain new and useful Improvements in Apparatus for Ballasting Railway Road-Beds; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of the invention is to convey the ballast upon the sides of the road-bed beneath the superstructure in advance of the deposit of the ballasting material between the ties, and is an improvement upon the invention as shown and described in application for Letters Patent filed by me in the United States Patent Office on the 6th day of May, A. D. 1904, Serial No. 206,699.

The invention consists in the novel construction and combination of parts, such as will be first fully described and then specifically pointed out in the claims.

In the drawings, Figure 1 is a side view in elevation of the improved railroad-ballasting apparatus, showing the railroad superstructure elevated in position above the road-bed and the improved ballast conveying and leveling devices upon the forward end of the apparatus. Fig. 2 is a plan view in detail of the forward extended end of the platform of the car, showing portions of the elevated track superstructure and the ballast conveying and leveling devices beneath the superstructure. Fig. 3 is a view of the forward extended end of the platform-car, showing the novel devices applied thereto and leveling devices beneath the superstructure. Fig. 4 is a view of the upwardly-extended end of the adjusting-beams, showing the novel devices for adjusting the same.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

Referring to the drawings, 10 represents the platform of a vehicle or car, which is shown mounted at its forward end upon the flanged track-wheels 12 12 and at rear end upon the track-wheels 14 14. Upon the forward end of the platform is a forwardly-extended frame for supporting the devices for raising the superstructure of the railroad and also the improved ballasting and leveling devices constituting the present invention and which con-

sists of the longitudinal beams 15 15, the rear ends of which are connected with the vertical sides of the platform 10 and the forward ends are projected horizontally the proper distance to support the superstructure-raising and ballast-conveying devices and are rigidly connected with a forward transverse beam 16. On the under surface of the forward ends of the beams 15, a short distance rearwardly from said ends, is an I-beam 17, which is supported by straps 18, connected with the under surface of the beams. Upon the forward end of platform is an upright structure or frame 19, secured rigidly to the platform, from the upper ends of which extend the supporting truss-rods 20, which are connected with the forward end of the longitudinal beams 15 15.

In rear of the platform-car is a material-conveying car 21, which is coupled thereto, both cars being mounted upon the track-rails 22, which are supported by the cross-ties 23, and said ties and rails form the superstructure of the railroad-bed, the portion of the road-bed 24 directly beneath the cars being raised to the proper level and ballasted, the cross-ties and rails laid in position, and the ballast completed between the ties. This latter operation formed the subject-matter of the previous application, and the devices performing the operations of ballasting the road-bed and tamping the material, as well as the devices for elevating the superstructure of the railroad road-bed, will be briefly alluded to.

The material in the conveying-car 21 falls by gravity into conveyer-buckets 25 on the endless conveyer-chain 26, which passes over the guide-rollers 27 27 on the under surface of the car, thence over a wheel on the shaft 28 on the elevated frame 19, on which shaft is a band-wheel 29, over which extends a belt 30, driven by the band-wheel on the shaft of a stationary engine 31 on the rear end of the platform, power from which through the belts 32 conveys power to the axle of the forward car-wheels 12 of the platform-car. The engine also supplies power to an air-compressor 33, which in turn conveys compressed air to the material-tamping cylinders 34 beneath the forward end of the car, and also to the cylinders of the air lifting-jacks 35 36, the latter jacks being mounted on the rear truck 37, which is narrow in width and movable on the inner track-rails 38 on the extended portion or frame on the forward end of the platform 10 of the car. The jacks 35 are within the truck-frame 38, mounted on the outer

parallel track-rails, so that these truck-frames when moved on the track-rails will telescope with each other. Upon the piston-rods of the jacks are chains 39, and upon the lower ends of the chains are rail-grasping hooks 40, which 5 grasp the rails and by means of which and the chains the superstructure of the railroad road-bed is raised in position above the bed of the road. For the purpose of the present 10 invention upon each side of the forwardly-extended frame 15 is rigidly connected a guide-frame 41, consisting of vertically-arranged channel-beams 42 42, one of which is near the forward end of the frame and the other a 15 considerable distance rearwardly from said end. The upper ends of the beams extend a short distance upwardly, above the line of the beams 15, and the lower ends extend a like distance below the line of the under surface of said beams. The upper ends of the 20 beams are connected by a horizontal bar 43, upon which are outwardly-extended shaft-supports 44, in which is journaled a rotary shaft 45. In the channel-beams 42 are slid- 25 ingly arranged the separate channel-beams 46 46, the lower ends of which beams extend downwardly beneath the level of the railroad superstructure. The upper ends of the frames are connected by the transverse bars 47, which 30 are parallel with each other. Near the lower ends of the bars 46 is a horizontal bar 48, connected rigidly with the inner surface of said beams. On the inner surface of the sliding channel-beams 46 are racks 49. Upon the ends 35 of the rotary shaft 45 are the cog-wheels 50. Upon the shaft 45 is a shaft-operating wheel 51. Upon the inner ends of the beams 46 are downwardly-extended pivots 52.

53 represents the winged ballast gathering 40 and spreading plates, upon the rear surface of which are the sockets 54, which receive the supporting-pivots 52 on the forward beam 46, the lower portion of the plates being bent outwardly and forwardly at an angle to the beam 45 46. The plates 53 are similar to an ordinary plowshare and project outwardly the required distance, the winged portion extending inwardly and rearwardly at an angle to the 50 track-rails beneath the railroad-ties a considerable distance, and these portions are braced by the rods 54^x, extending to the connecting- 55 bar 48 on the lower end of the slidable channel-beams 46 and detachably connected therewith.

In rear of the plates 53 are the leveling devices, which consist of the narrow plates or 55 bars 55, upon the rear surface of which are the sockets 56, which receive the pivots on the lower ends of the sliding channel-beams 60 46 in the rear portions of the frames. These bars extend forwardly and inwardly at an angle to the track-rails and are movably connected together at their inner ends. These bars are braced by rods 57, connected there- 65 with and removably connected with the bar

48 on the lower ends of the slidable channel-beams 46.

In the construction of the road-bed the ballasting material is distributed upon the sides of the road-bed and also supplied to the car 70 21. In the forward movement of the car the quantities of ballasting material in advance of the winged plates 53 upon the side of the road-bed are conveyed and spread by said 75 plates upon the road-bed, and the leveling bars or plates 55 level the material to the grade desired, upon which the superstructure is laid, and the ballast from the conveyers 30 falls through the conveying-spouts 59 to the ties, and the tamping devices 34 complete the 80 work of tamping the material between the ties. When it is desired to adjust the position of the plates 53 upwardly or downwardly to provide for the varying positions of the 85 ballasting material upon the side of the road-bed, the wheel 51 is operated, which moves the channel-beams either upward or downward, as may be required. In the completion of the road-bed the rods connected with the 90 winged portions of the plates 53 are detached, the plates are turned on the pivots outwardly in a like manner, and the leveling devices are detached at their inner ends and turned on the pivot into a position parallel with the 95 bar 48. The wheel 51 being operated, the shaft 45 is rotated, and the channel-beams 46 move upwardly, so as to remove the material conveying and leveling devices above the level of the superstructure.

Such modifications of the invention may be 100 employed as are within the scope of the invention.

Having fully described my invention, what I now claim as new, and desire to secure by 105 Letters Patent, is—

1. In a railroad-ballasting apparatus, a power-propelled vehicle or car, means for raising the railroad superstructure above the bed of the railroad, in advance of the car, and material conveying and spreading devices beneath the superstructure propelled by the car. 110

2. In a railroad-ballasting apparatus, a power-propelled platform-vehicle, and a forwardly-extended frame upon said platform, elevating devices thereon, for raising the railroad superstructure above the bed of the road, material conveying and spreading devices beneath the superstructure, and supporting devices therefor, connected with the said forwardly-extended frame. 115

3. In a railroad-ballasting apparatus, the combination with a power-propelled platform-vehicle, of a forwardly-extended frame upon said platform, means for raising the superstructure above the bed of the road, and material conveying and spreading devices extending beneath the superstructure, and adjustable supporting devices therefor, connected with the extended frame on said platform. 120 125 130

4. The combination in a railroad-ballasting apparatus, of a power-propelled platform-vehicle, a forwardly-extended frame upon said platform, vertically-disposed guide-beams on the sides of said frames, and adjustable beams thereon, and material conveying and spreading devices on said adjustable beams.

5. The combination in a railroad-ballasting apparatus, of a power-propelled platform vehicle or car, means thereon for raising the superstructure of the railroad above the bed of the road, and material spreading and leveling devices beneath the superstructure, propelled by the car.

6. The combination in a railroad-ballasting apparatus, with a power-propelled platform vehicle or car, of means thereon for raising the railway superstructure above the bed of the road, devices on the car for spreading the material beneath the superstructure, and means propelled by the car for leveling the ballasting material.

7. In a railroad-ballasting apparatus, the

combination with a power-propelled platform-vehicle, of a forwardly-extended frame on the forward end of said platform, elevating devices upon said frame for raising the superstructure above the bed of the road, material spreading and leveling devices beneath the superstructure, and supporting devices therefor on the sides of said extended frame, pivotally connected therewith.

8. In a railroad-ballasting apparatus, the combination with a power-propelled platform-vehicle, of a forwardly-extended frame on the forward end of said platform, means on the platform for raising the railroad superstructure above the road-bed, and vertically-adjustable beams on the sides of said frame, and material spreading and leveling devices extending beneath the superstructure and rotatably connected with the ends of said beams.

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Witnesses:

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