

Aug. 7, 1923.

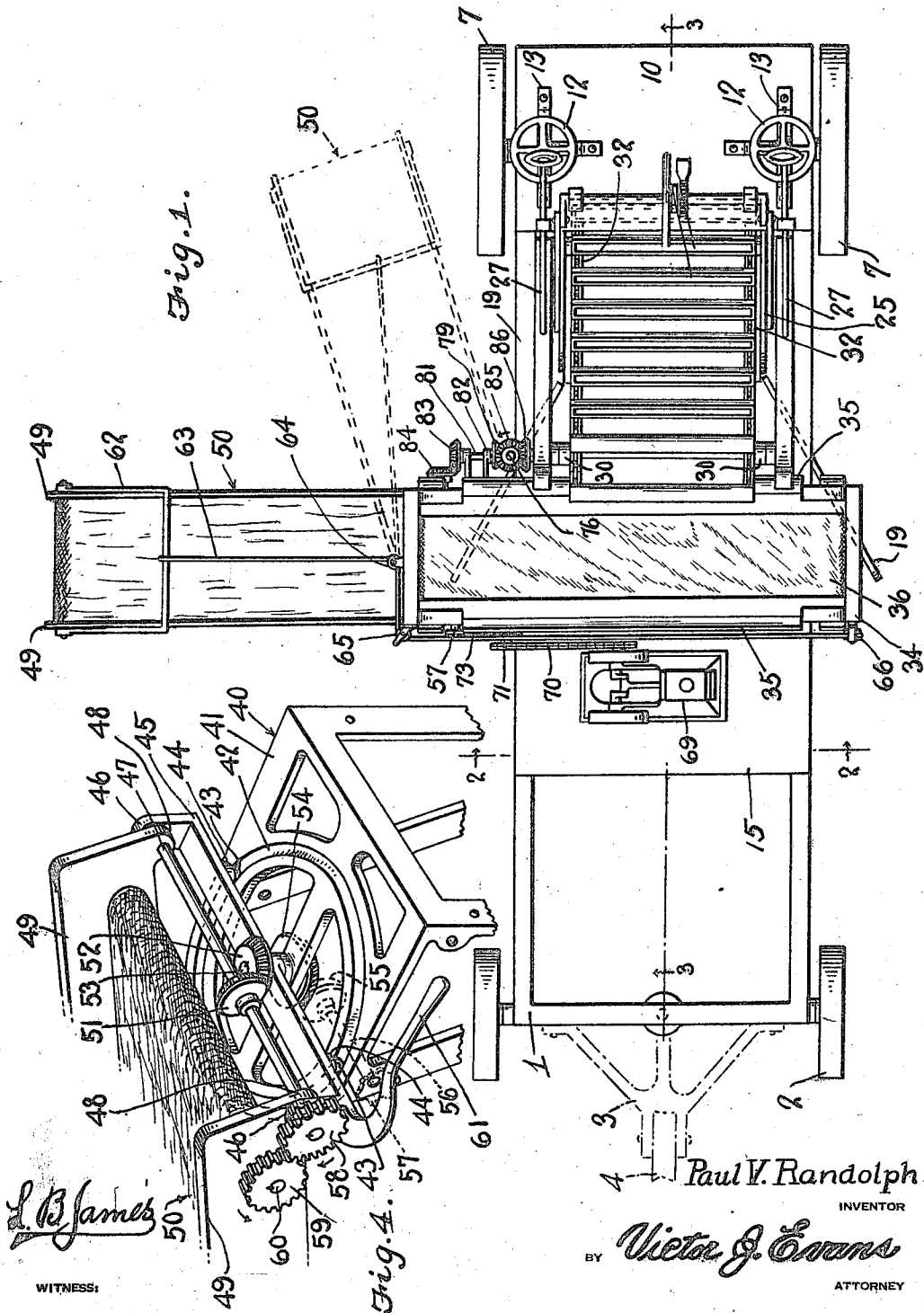
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ROAD SCRAPER AND CONVEYER

Filed April 11, 1921

2 Sheets-Sheet 1



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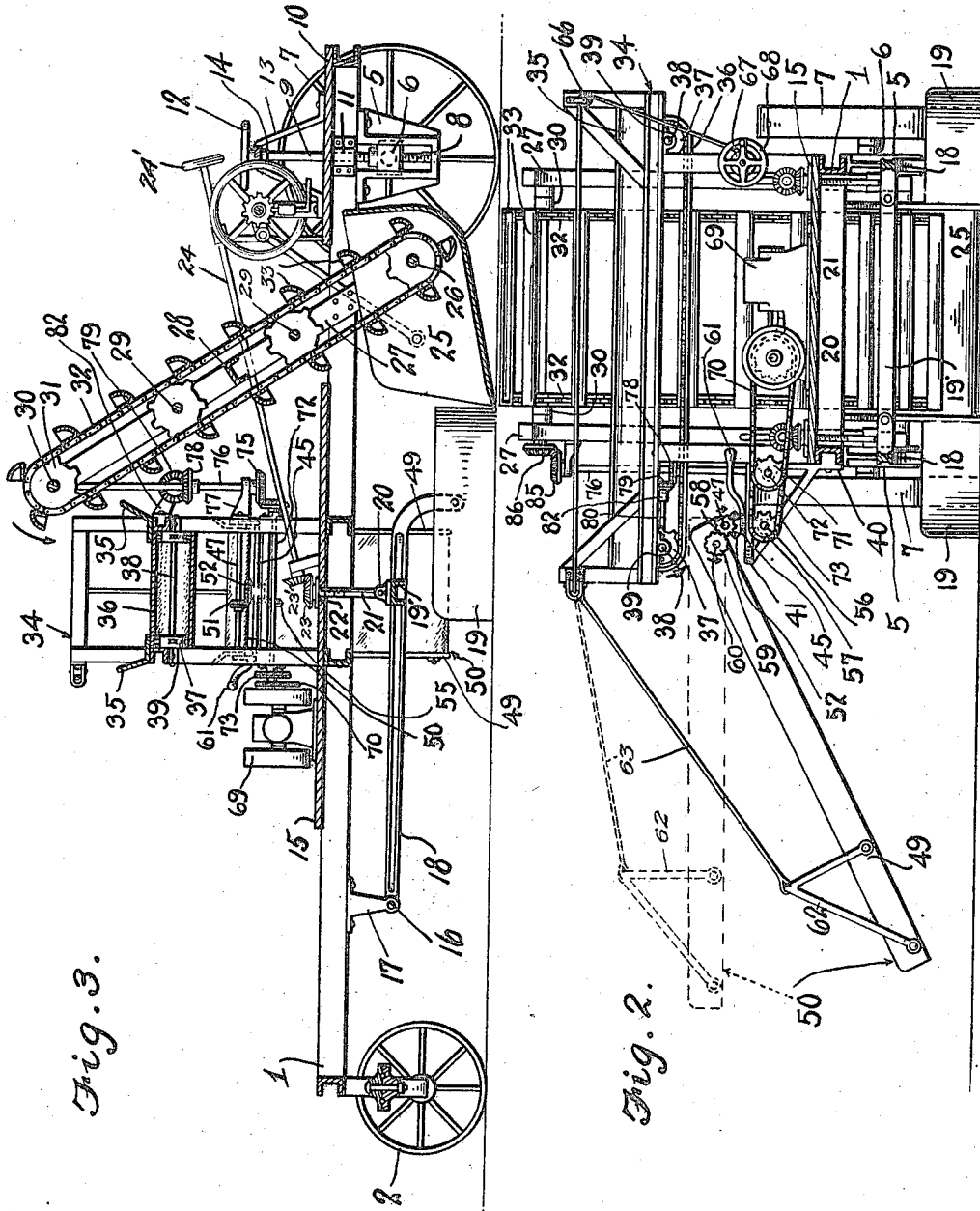
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UNITED STATES PATENT OFFICE.

PAUL V. RANDOLPH, OF ENFIELD, NORTH CAROLINA.

ROAD SCRAPER AND CONVEYER.

Application filed April 11, 1921. Serial No. 460,327.

To all whom it may concern:

Be it known that I, PAUL V. RANDOLPH, a citizen of the United States, residing at Enfield, in the county of Halifax and State of North Carolina, have invented new and useful Improvements in Road Scrapers and Conveyers, of which the following is a specification.

My present invention has reference to a machine for scraping, elevating and delivering dirt from the surface of roadbeds.

My object is to produce a wheeled device of this character in which both vertically and laterally adjustable scraper blades travel over the road bed to deliver dirt therebetween into a scoop, which is also vertically adjustable, means being provided for elevating the dirt from the scoop on to a conveyer which latter delivers to a delivery member, the same being provided with an endless belt and is adjustable both vertically and laterally whereby the material therein may be delivered to one side of the road bed at desired elevations, and also whereby obstructions on the side of the road bed may be avoided by the lateral adjustment of the chute.

It is a further object to produce a road scraping and conveying apparatus in which the ground wheels of the device are supported in adjustable bearings, whereby the body, and elements carried thereby may be properly arranged with respect to the road bed, said body including directing and scraping means, elevating means, receiving means and delivering means all of which being operable in unison and receiving power from a single motor.

The foregoing, and many other objects which will appear as the nature of the invention is better understood, may be accomplished by a construction, combination and operative association of parts, such as is illustrated by the drawings which accompany and which form part of this application.

In the drawings:—

Figure 1 is a top plan view of the improvement.

Figure 2 is a sectional view approximately on the line 2—2 of Figure 1.

Figure 3 is a sectional view approximately on the line 3—3 of Figure 1.

Figure 4 is a fragmentary perspective view illustrating the manner in which the endless belt of the delivery chute is operat-

ed, and also the manner in which the said chute is pivotally supported.

The body of the improvement is preferably in the nature of a substantially rectangular frame, comprising longitudinal and transverse angle bars suitably connected together. At the front of the frame 1 there are journaled on the usual axle, connected to the frame in the ordinary manner, the steering wheels 2, the axle being provided with hounds 3 to which is connected the tongue 4 for the draft animals. The longitudinal or side members of the frame, at the rear thereof have secured on their under faces oppositely disposed depending substantially U-shaped brackets 5. Each bracket 5 supports therein a movable bearing 6 for a stub shaft on whose outer end or spindle there is journaled a ground wheel 7. The bearings 6 have threaded openings therethrough, the threads thereof being engaged by the threaded portions 8 of rods 9. The lower ends of the rods are journaled in suitable bearings in the bottom portions of the brackets, the said rods passing through a plate 10 on the top of the frame, and also passing through bearings 11 secured to the inner sides of the longitudinal or side members of the frame. The upper ends of the rods 9 are provided with hand wheels 12, and the said upper ends are supported by suitable frames 13 secured to the plate 10. The frames 13 are provided with openings through which the rods pass, and the said rods have collars 14 respectively that contact with the opposite faces of the top members of the frames, whereby the rods are held against longitudinal movement through the frames. By turning the hand wheels, the bearings 6 will be adjusted in the brackets, and consequently the ground wheels 7 may be independently adjusted with respect to the frames. This is an important feature of the improvement because road beds are rounded from their central portion to the sides thereof and the arrangement permits of the road engaging elements of the improvement properly contacting with the road bed.

The plate 10, of course, provides a portion of the top of the frame, but the main top, and what may be referred to as the body of the frame is also in the nature of a plate arranged approximately at the center of the frame. This plate is indicated by the numeral 15.

Forward of the body plate 15, the side members of the frame have pivoted, as at 16, to depending lugs 17, grooved bars 18. The bars are directed toward the ground wheels, and have their free ends rounded downwardly and pivotally connected to scraper blades 19 respectively. Received in the grooves of the respective bars 18 are boxings provided at the ends of a channeled iron 19'. The channeled iron has pivotally secured thereto, as at 20, an upstanding threaded rod 21 that passes through an opening 22 in the body plate 15. On the upper portion of the rod 21 there is fixed a combination nut and gear 23 which meshes with a gear 23' on the lower end of a rod 24. The upper end of the rod is preferably provided with a handle-like portion 24'. By rotating the gears the rod 21 will be vertically adjusted, and consequently the bars 18 will be swung from their pivoted ends 16 either toward or away from the body of the device, and consequently the scraper blades 19 will be brought either toward or away from the said body. A scoop 25 is arranged adjacent the scraper blades 19 and has its bottom portion normally disposed at a downward inclination so that the point thereof is in normal contact with the road bed. The scoop is journaled on a shaft 26 which is mounted in suitable bearings which are secured to and depend from the side members of the frame.

Secured to the side members of the frame are upwardly directed angularly disposed plates 27 connected, at intervals by transverse members 28. The members 27 may be extended to provide bearings for the shaft 26. The members 27 have journaled therebetween, at suitable spaced intervals shafts 29 and 30 respectively. The shaft 30 is journaled between the upper ends of the said members 27, the shafts 29 being disposed preferably equi-distantly spaced from each other and from the shafts 30 and 26. On the shafts 26, 29 and 30, adjacent to the ends thereof there are secured sprocket wheels 31 around which are trained sprocket chains 32. The respective pairs of chains are connected together by flights which, in the present instance, are in the nature of buckets 33. This construction provides an elevator, whereby material directed into the scoop by the scraper blades 19 will be received in the buckets of the elevator, raised and delivered into a receiving conveyer which will presently be described.

On the body plate 15 there is secured a vertically disposed frame which is broadly indicated by the numeral 34. On this frame, and arranged transversely with respect to the body 15 are supported the side boards 35 for an endless receiving conveyer 36. The conveyer is, of course, disposed below the delivery end of the elevator, and the belt of the conveyer is trained over rollers 37 se-

cured on shafts 38 that are journaled in suitable bearings 39 on the frame 34.

Below, and inward of the delivery end of the receiving conveyer there is a second vertical frame 40. The frame 40 has its top provided with an angular roll 42 that forms a guideway for rollers 43 which are journaled in depending members 44 on a plate 45. The plate 45 has angle ends 46 respectively that receive therethrough and provide journals for a shaft 47, the said shaft passing through depending ears 48 on the side bars 49 for an endless conveyer. On the shaft 47 there is keyed a pinion 51 that is in mesh with a pinion 52 disposed approximately centrally on the upper face of the plate 45, the stub shaft 53 for the pinion 52 passing through bearing openings in the said plate 45 and in the top 41 of the frame 40. The stub shaft has on its lower end a gear 54, which is in mesh with a similar gear 55 provided on one end of a stub shaft 56, the said shaft being journaled in suitable bearings provided by the frame 40, one of said bearings being in the nature of an opening in one of the outer inclined uprights. On the outer end of the stub shaft 56 there is secured a sprocket wheel 57. On one end of the shaft 47 there is a pinion 58 which is in mesh with a toothed wheel 59 secured on the end of a shaft 60 that carries the upper directing roller for the belt of the endless delivery conveyer 50. The plate 45 has integrally formed on one of its ends an angle member in the nature of a handle 61, and by manipulating this handle, the said plate, together with the delivery conveyer may be swung on the vertically disposed stub shaft which connects the plate to the frame, and in this manner the delivery conveyer may be adjusted laterally with respect to the frame 1.

To the side boards 49 of the delivery conveyer 50, at the outer ends thereof there is pivoted a yoke 62, and to this yoke there is connected a flexible element such as a chain or cable 63 which is trained around guide wheels 64 and 65 arranged at the front and one of the corners of the frame 34. The elements 63 is further trained around another guide wheel 66 at the opposite corner of the frame 34, and is from thence directed around a drum 67 that is suitably journaled on the said frame 34. The numeral 68 designates the operating wheel for the drum, suitable means (not shown), being provided between the drum and frame for holding the drum against turning when the cable 63 has been wound on the drum for retaining the outer end of the delivery conveyer at a desired inclination with respect to the frame 1.

On the body plate 15 there is a suitable motor, such as a gasoline engine 69 provided with the usual controlling means. On the drive shaft of the motor there is a gear for an endless sprocket chain 70. The chain

is directed around a sprocket wheel 71 journaled on a suitable shaft 72. On the same shaft 72 there is a second sprocket wheel that receives a second endless chain 73, the latter being also trained around the sprocket wheel 57 whereby motion is imparted to the delivery conveyer through the intermeshing gears supported on the frame 40 and the gear 59 on the shaft 60. The shaft 72 is arranged transversely of the frame 34, being journaled in suitable bearings on the said frame, and having on its outer end a beveled pinion 74 which meshes with a similar pinion 75 on a vertically disposed shaft 76. The shaft 76 is journaled in suitable bearings 77 and has secured thereon a beveled pinion 78 which is in mesh with a similar pinion 79 on a shaft 80, the said shaft being journaled in horizontal bearings 82 on the frame 34 and carrying at its outer end a pinion 83 which is in mesh with a similar pinion 84 secured on the shaft 39 for the rollers at the delivery end of the receiving conveyer 36. The shaft 76 carries at its upper end a beveled gear 85 that is in mesh with a similar gear 86 secured on the shaft 30. By such arrangement it will be seen that when the engine is in motion the elevator will operate to deliver on to the receiving conveyer, the conveyer will operate to deliver on to the delivery conveyer, and the delivery conveyer will convey the material outwardly and deliver the same to one side of the road.

My improvement is particularly adapt-

able for removing dirt from road surfaces which have been arranged thereon by suitable machines which remove the dirt from the gutters on the sides of the road, placing the said dirt on the road surface a suitable distance inward of the gutters, but may be, of course, employed for scraping, and removing surplus dirt from the entire surface of the road bed, and it is thought that the foregoing description, when taken in connection with the drawings will fully set forth the construction, operation and advantages of the improvement, but it is thought necessary to state that the nature of the invention is such as to render the same susceptible to changes and modifications, so that the scope of the invention is only limited by the attached claim.

Having described the invention, I claim:—

A road scraper and conveyer comprising a wheeled frame, a scoop supported beneath the frame, scraper blades respectively disposed on opposite sides of the scoop in angular relation thereto for directing material into the scoop, means pivotally supporting the said blades and including a threaded rod penetrating the said frame, and means for adjusting the said blades vertically of the frame and said scoop, said adjusting means including a stationary nut threadedly engaged with the said rod and means for turning the nut on the said rod.

In testimony whereof I affix my signature.
PAUL V. RANDOLPH.