June 14, 1938. C. F. GREINER ET AL 2,120,745

TRENCH ROLLER ATTACHMENT FOR ROAD VEHICLES

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Fig. 1.

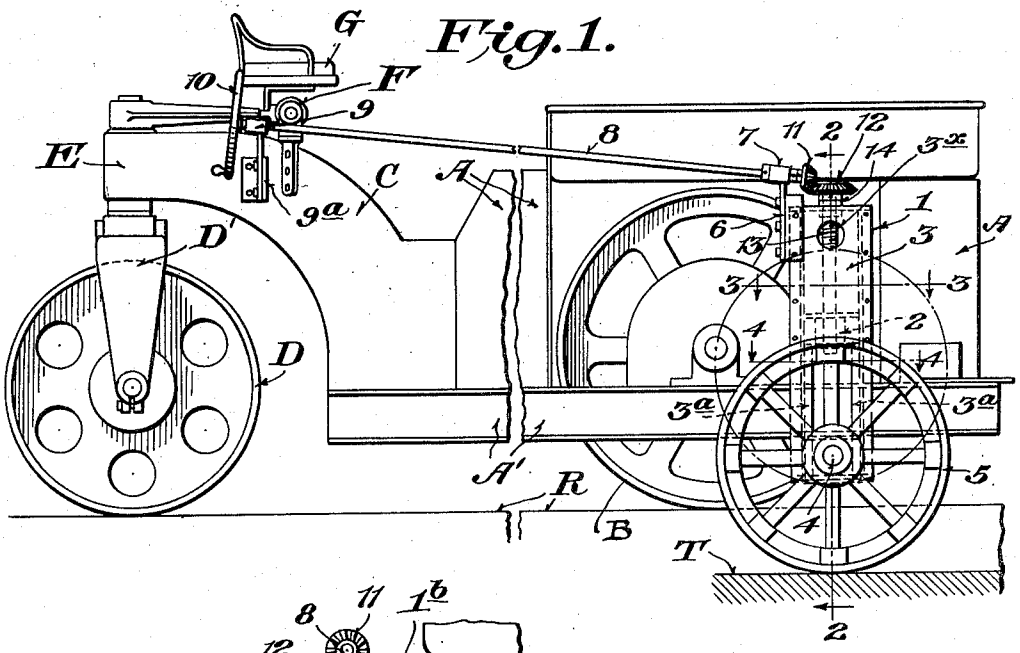


Fig. 2.

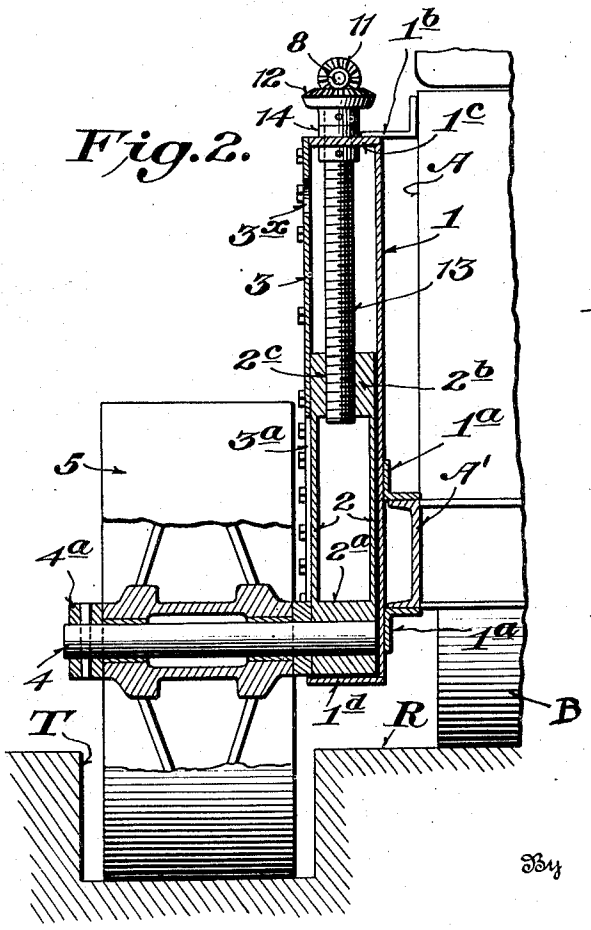


Fig. 3.

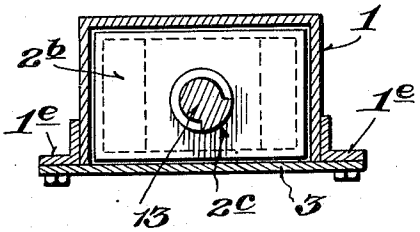
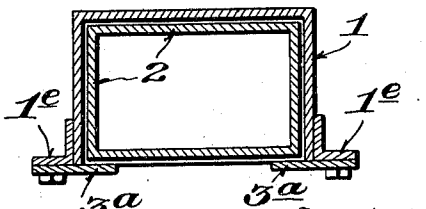


Fig. 4.



Inventors

Carl F. Greiner

and

Andrew W. Aitken

By Alexander & Dowell

Attorneys

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TRENCH ROLLER ATTACHMENT FOR ROAD VEHICLES

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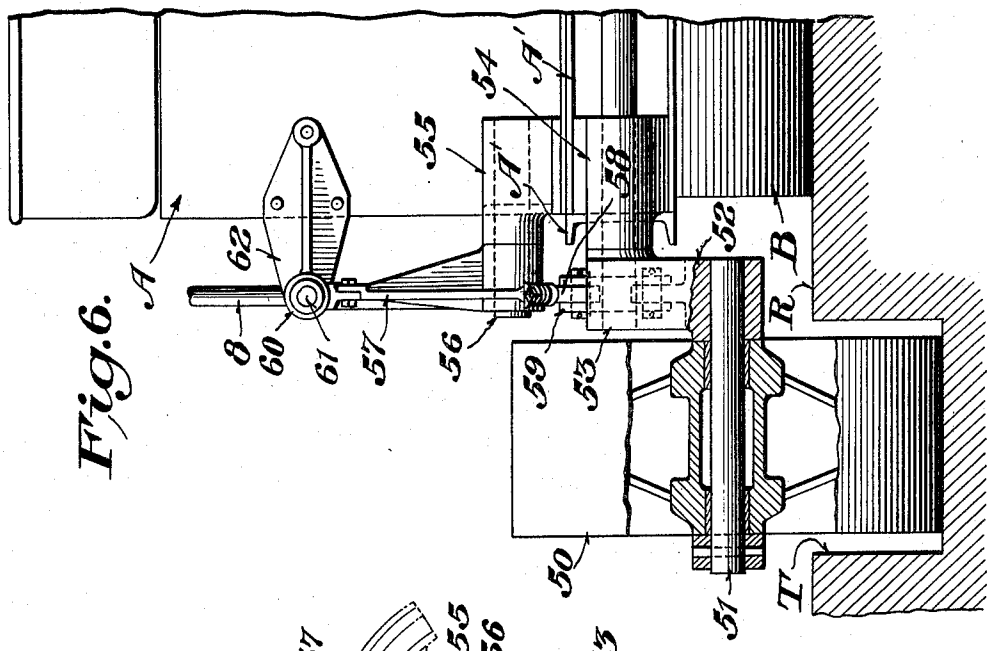


Fig. 6.

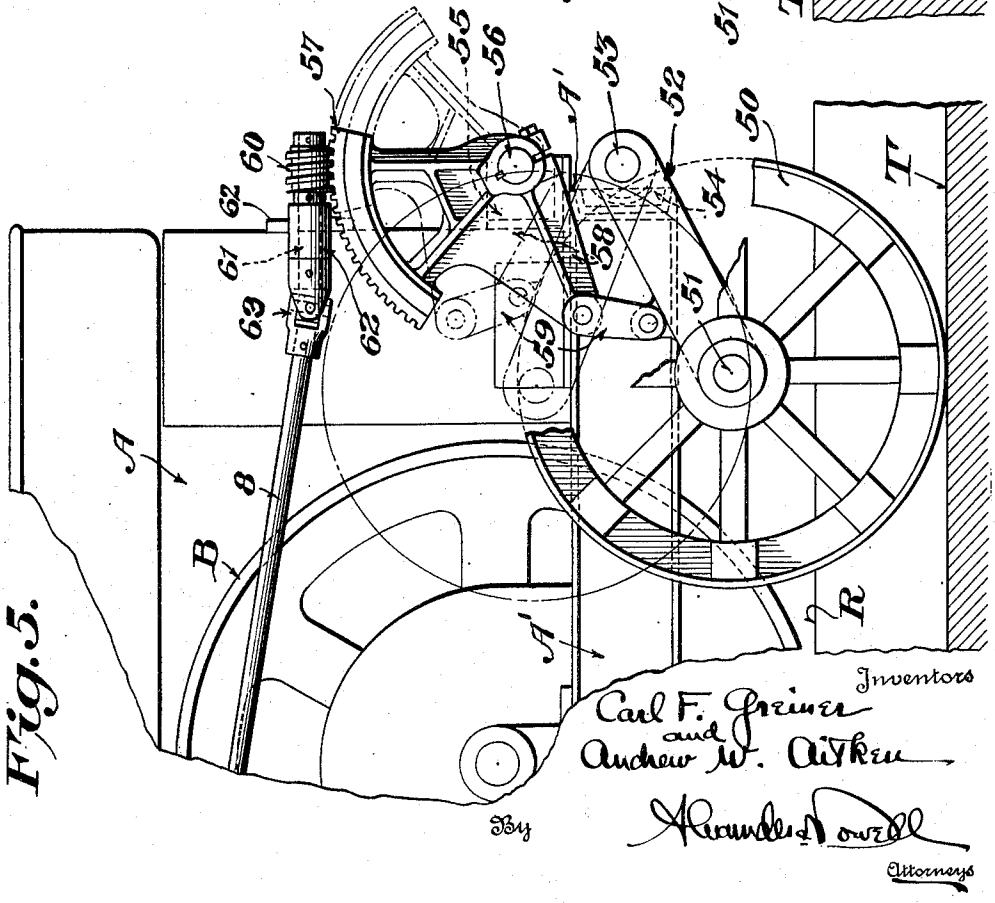


Fig. 5.

Inventors
Carl F. Greiner
and
Andrew W. Aitken

By Alexander & Dowell

Attorneys

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TRENCH ROLLER ATTACHMENT FOR ROAD VEHICLES

Carl F. Greiner and Andrew W. Aitken, Springfield, Ohio, assignors to The Buffalo-Springfield Roller Co., Springfield, Ohio, a corporation of Ohio

Application September 18, 1937, Serial No. 164,599

11 Claims. (Cl. 61—63)

Our invention is a novel trench roller attachment for road vehicles, such as road rollers or the like, the attachment being particularly adapted for operation in trenches beside roadways or the like when the latter are being widened, said trenches being ordinarily dug at one or both sides of the roadway, into which trenches are poured the materials to be used for the foundation of the widened portion or shoulder of the road.

The principal objects of our invention are to provide a novel, simple, and efficient trench roller attachment which may be readily mounted upon the side of a conventional road roller or other heavy road vehicle, said attachment being adapted to roll the materials poured into trenches beside roadways or the like; also to provide an attachment which will be capable of producing variable pressures on the materials in the trenches.

Other minor objects of the invention will be hereinafter set forth.

We will explain the invention with reference to the accompanying drawings which illustrate several practical embodiments thereof to enable others familiar with the art to adopt and use the same; and will summarize in the claims the novel features of construction, and novel combinations of parts, for which protection is desired.

In said drawings:

Fig. 1 is a side elevation, partly broken away, showing a conventional road roller provided with one form of our novel trench roller attachment, the trench roll being shown in full lines in lowered operating position in a trench, and in dotted lines in elevated inoperative position.

Fig. 2 is an enlarged vertical section through the attachment on the line 2—2, Fig. 1, also showing the adjacent parts of the road roller frame.

Fig. 3 is an enlarged horizonal section on the line 3—3, Fig. 1.

Fig. 4 is an enlarged horizontal section on the line 4—4, Fig. 1.

Fig. 5 is a side elevation of the rear end of a conventional road roller showing a modified form of attachment applied thereto, the trench roll being shown in lowered operating position (in full lines) in a trench, and in elevated inoperative position (in dotted lines).

Fig. 6 is an end elevation, partly broken away, of the modification shown in Fig. 5.

The road roller is shown as being of conventional tandem type, same having a frame including side members A reinforced at their lower ends by channel irons A', the side members carrying the usual motor (not shown). Drive roll B is journaled in the rear ends of side members A, the front ends thereof converging and terminating in a goose-neck portion C overlying the front steering roll D having a yoke D' mounted in trunnion E in the usual manner and carrying a quadrant steered by a worm F in the usual manner. The details of the road roller form no part of our present invention.

The attachment shown in Figs. 1–4 inclusive comprises a vertically disposed channel shaped guide 1 mounted on side member A of the road roller adjacent the drive roll B thereof, the guide being preferably secured at its lower end by means of angle clips 1*a* to the flanges of the reinforcing channels A', and secured at its upper end by means of a clip or bracket 1*b* of the side frame A. Guide 1 extends downwardly at the side of the frame to a point adjacent the road surface R and is closed at the top by a plate 1*c* and at the bottom by a plate 1*d*.

Within guide channel 1 is a hollow sliding block 2 of width and thickness to make a sliding fit in the guide 1, said block however being of less strength than the guide so as to be capable of vertical movement or adjustment therein. Block 2 is retained in the guide by means of a plate 3 bolted to angle irons 1*e* secured to the outer ends of the flanges of the channel 1, said plate 3 closing the upper portion of the channel 1, i. e., that portion outside the limits of movement of stub shaft 4, hereinafter described. Below the plate 3 are spaced plates 3*a* likewise bolted to angle irons 1*e* providing therebetween an opening permitting the said stub shaft to rise and fall within its limit of movement. If desired, plate 3 may have a central opening 3*x* therein adjacent its upper end opposite the screw shaft 13 (hereinafter described) for convenience in applying lubricant to said shaft.

Block 2 has an enlargement 2*a* at its lower end in which is fixedly secured a stub shaft 4 on which is rotatably mounted a trench roll 5 confined thereon by a fixed washer 4*a*, said roll 5 being of substantial diameter and of width to suit the width of the trench T. The upper end of block 2 also has a substantial enlargement 2*b* having an axially disposed vertical bore 2*c* tapped to receive a screw shaft 13 by which the block 2 is raised and lowered. The upper end of screw shaft 13 is journaled in a bearing 14 on the top plate 1*c* of the guide 1,

and said shaft carries a bevel gear 12 above the bearing 14.

At the upper end of guide 1 is secured a bracket 6 (Fig. 1) carrying a bearing 7 for a shaft 8, the opposite end of which shaft is journaled in a bearing 9 mounted on a bracket 9a on gooseneck C, said shaft 8 carrying a hand wheel 10 adjacent the driver's seat G, whereby same may be rotated. On shaft 8 adjacent bearing 7 is a beveled pinion 11 meshing with a beveled gear 12 of screw shaft 13 whereby as shaft 8 is rotated the block 2 will be adjusted in its guide 1 to raise or lower trench roll 5. In Fig. 1 trench roll 5 is shown in full lines in lowered position operating in trench T, in which position the lower periphery of roll 5 is disposed substantially below the road surface R on which the road roller wheels B and D rest. The trench roll 5 is also shown in elevated position in dotted lines in Fig. 1 with its lower periphery disposed substantially above the road surface.

In operation, the road roller provided with our novel attachment is run along the road surface R with the laterally disposed trench roll 5 operating in trench T for the purpose of compacting material therein. Trench roll 5 is vertically adjusted to suit the depth of the material in the trench, and variable pressure on said material may be effected by utilizing portions of the weight of the road roller acting downwardly on trench roll 5, by properly adjusting the elevation of the block 2. When increased pressure on trench roll 5 is desired, the block 2 may be lowered somewhat in its guide 1 thereby tending to raise the side of the road roller adjacent the trench roll and thereby effecting a greater downward pressure on the material in the trench. Obviously the attachment may be mounted on road vehicles other than road rollers if same are of sufficient weight to provide for said variable pressures on the trench roll 5.

Figs. 5 and 6 show a modification of the attachment in which trench roll 50 is mounted upon a stub shaft 51 carried by the lower end of a lever 52 journaled as at 53 in a bracket 54 secured to the rear end of the road roller frame. Mounted on the frame above bracket 54 is a bearing bracket 55 for a stub shaft 56 carrying a quadrant gear 57 having an arm 58 disposed over the lever 52. A short link 59 connects the arm 58 of the quadrant gear to the lever 52 adjacent its outer end whereby as the quadrant gear 57 is rotated, the lever 52 will be correspondingly raised or lowered. A worm 60 is mounted on a shaft 61 journaled in bearing bracket 62 above the quadrant gear 57, said worm meshing with the quadrant gear; and shaft 61 is connected by a universal joint 63 to the shaft 8, described in connection with Figs. 1–4 inclusive, carrying the hand wheel 10 disposed adjacent the driver's seat G, whereby rotation of shaft 8 will correspondingly swing the lever 52 to adjust trench roll 50 from its lower position shown in full lines in Fig. 5 operating in trench T, to its upper or inoperative position shown in dotted lines in said figure in which roll 50 is disposed above the road surface R.

Our attachments may be applied to one or both sides of a road roller or other vehicle, but we do not limit our invention to use only in connection with road rollers for obviously the same may be applied to any road vehicle of relatively heavy weight so that said weight may be utilized to exert a variable downward pressure upon the trench roll during operation.

We claim:—

1. In combination, a self-supporting road vehicle having a frame provided with wheels journaled therein, and with steering means; a member independent of the journals for the wheels mounted on the side of the frame adjacent the end remote from the steering end; a vertically adjustable journal carried by said member; a trench roll loosely mounted on said journal and disposed at one side of the vehicle and adapted to be raised above and lowered below the ground level; and manual means for adjusting the journal.

2. In a combination as set forth in claim 1, said member comprising a guide removably secured to the frame; a block slidably mounted in said guide; and said journal comprising a stub shaft extending from said block.

3. In a combination as set forth in claim 1, said member comprising a guide removably secured to the frame; a block slidably mounted in said guide and carrying said journal; and said adjusting means comprising a screw shaft mounted in the guide and engaging a tapped bore in said block, and means for rotating the screw shaft.

4. In a combination as set forth in claim 1, said vehicle having an operator's stand; and said member comprising a guide removably secured to the frame; a block slidably mounted in said guide and carrying said journal; and said adjusting means comprising a screw shaft mounted in said guide and engaging a tapped bore in said block, a second shaft mounted in said guide and extending adjacent the operator's stand; means on said shaft adjacent the operator's stand for rotating the second shaft, and intermeshing gearing connecting said shafts.

5. In a combination as set forth in claim 1, said member comprising a guide channel removably secured to the frame, a block slidably mounted in said channel; means for maintaining the block in said channel; and said journal comprising a stub shaft extending from the lower end of said block.

6. In a combination as set forth in claim 1, said member comprising a guide channel removably secured to the frame, a block slidably mounted in said channel; and said journal comprising a stub shaft extending from the lower end of said block; a plate closing the channel above the upper limit of movement of the stub shaft; and spaced plates partially closing the channel within the limits of movement of the stub shaft.

7. In a combination as set forth in claim 1, said member comprising a lever journaled on said frame; and said journal comprising a stub shaft mounted on said lever.

8. In a combination as set forth in claim 1, said member comprising a lever journaled on said frame; and said journal comprising a stub shaft mounted on said lever; and said adjusting means comprising a shaft journaled on said vehicle; an arm actuated by said shaft and disposed above said lever, a link connecting the arm and lever; and means for rotating the shaft.

9. In a combination as set forth in claim 1, said member comprising a lever journaled on said frame; and said journal comprising a stub shaft on said lever; and said adjusting means comprising a quadrant gear journaled on said frame and having an arm disposed above said lever; a link connecting the arm and lever; a worm shaft journaled on the frame and carrying a worm

meshing with the quadrant gear; and means for rotating the worm shaft.

10. In a combination as set forth in claim 1, said vehicle having an operator's stand; said member comprising a lever journaled on said frame; and said journal comprising a stub shaft on said lever; and said adjusting means comprising a quadrant gear journaled on said frame and having an arm disposed above said lever; a link connecting the arm and lever; a worm shaft journaled on the frame and extending adjacent the operator's stand and carrying a worm meshing with the quadrant gear; and means adjacent the operator's stand for rotating the worm shaft.

11. A trench roller attachment comprising a guide channel adapted to be mounted on a vehicle; a block slidably mounted in said channel; a stub shaft extending from the outer face of said block; a trench roll rotatably journaled on said stub shaft; a plate closing the channel beyond the limits of movement of the stub shaft; and spaced plates partially closing the channel within the limits of movement of the stub shaft; and means adapted to be mounted on a vehicle for adjusting the block in the guide channel.

CARL F. GREINER.
ANDREW W. AITKEN.