March 30, 1926. 1,578,384

W. T. BEATTY ET AL

ROAD ROLLER MAINTAINER WITH REVERSIBLE BLADE

Filed Nov. 5, 1923 5 Sheets-Sheet 1

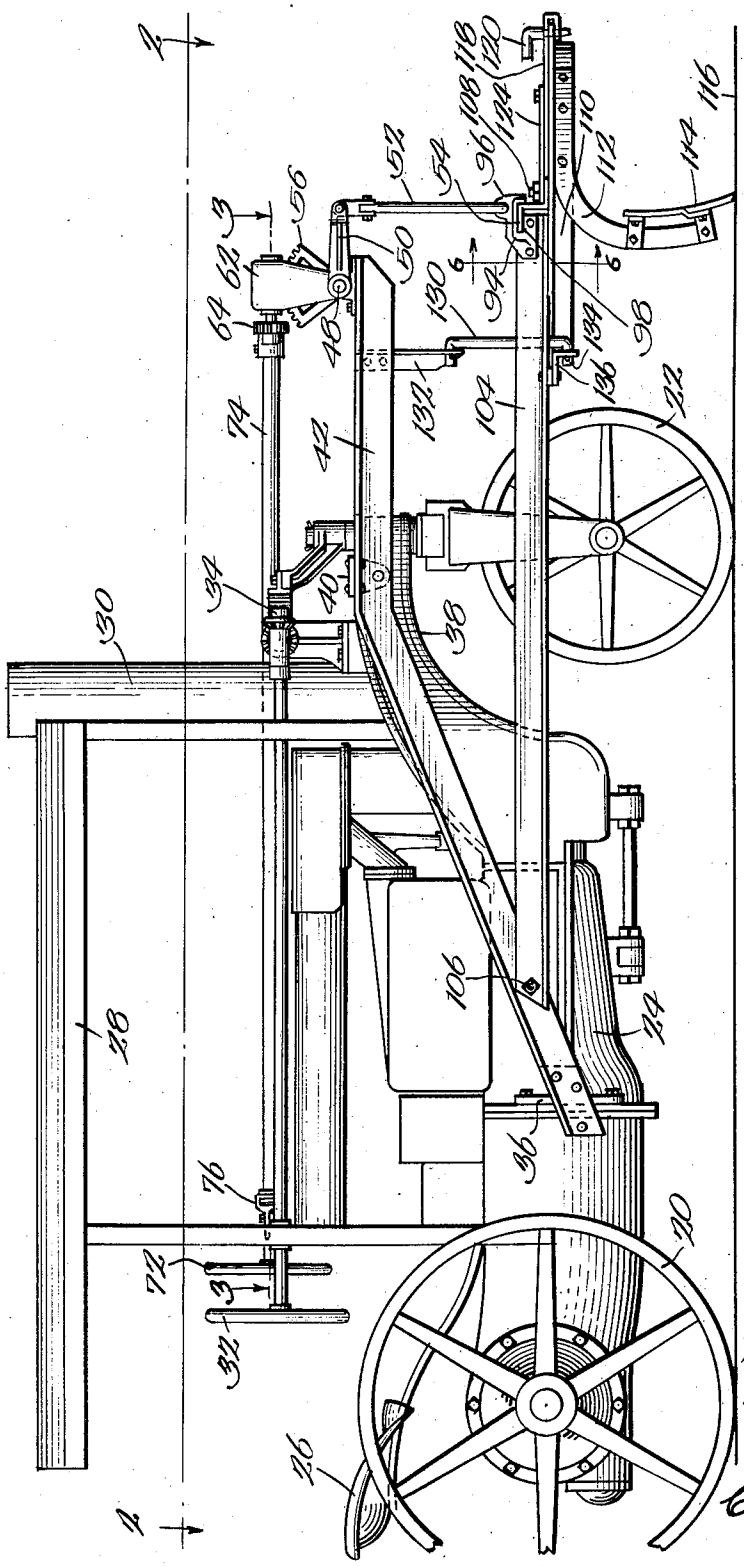


Fig. 1.

Inventors:
William T. Beatty
Frank S. Davis
Fred D. Wilson
By
Cheever Cox
Attys

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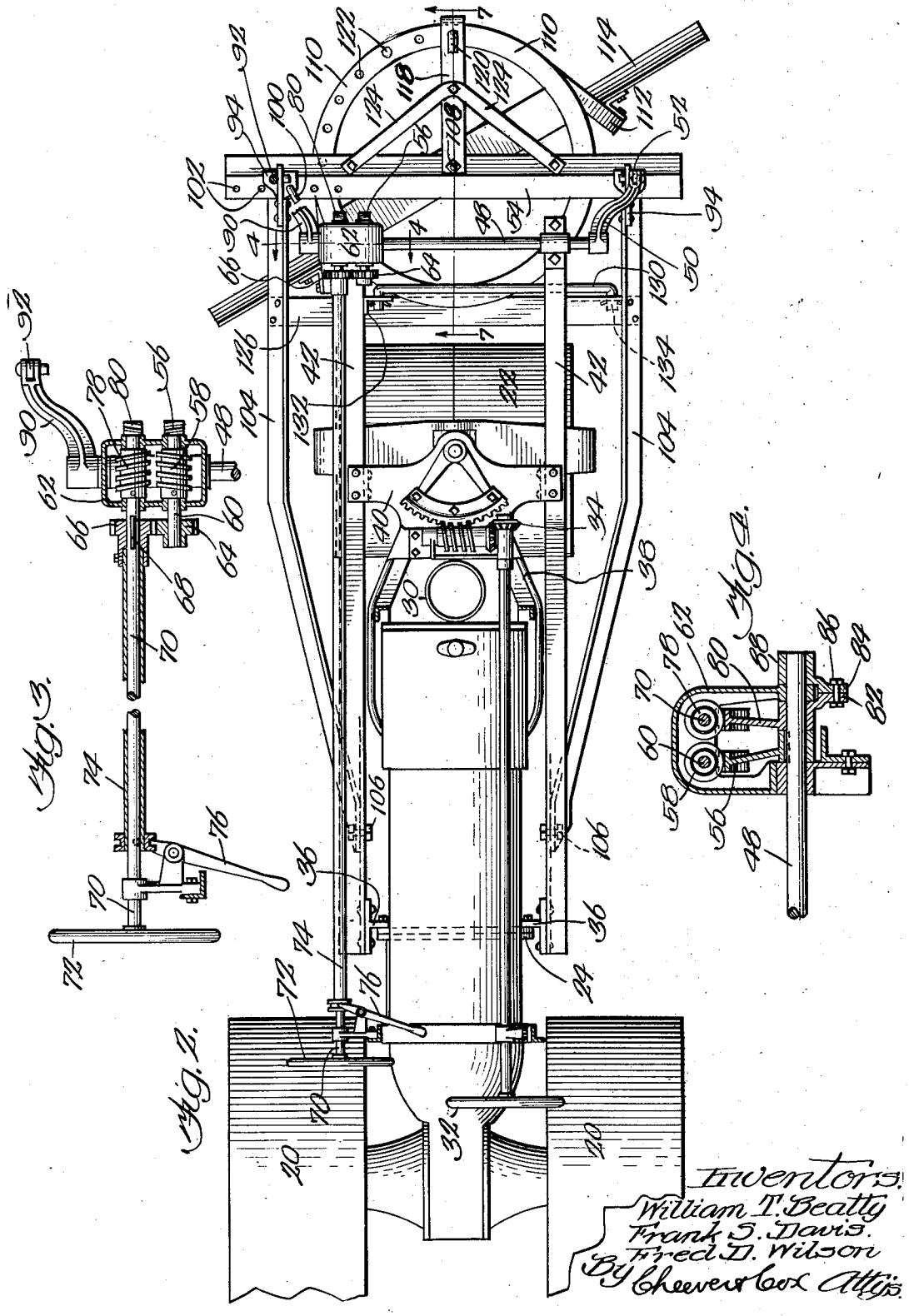


Fig. 3.

Fig. 4.

Inventors:
William T. Beatty
Frank S. Davis.
Fred D. Wilson
By Cheever Cox Attys.

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W. T. BEATTY ET AL

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Fig. 5.

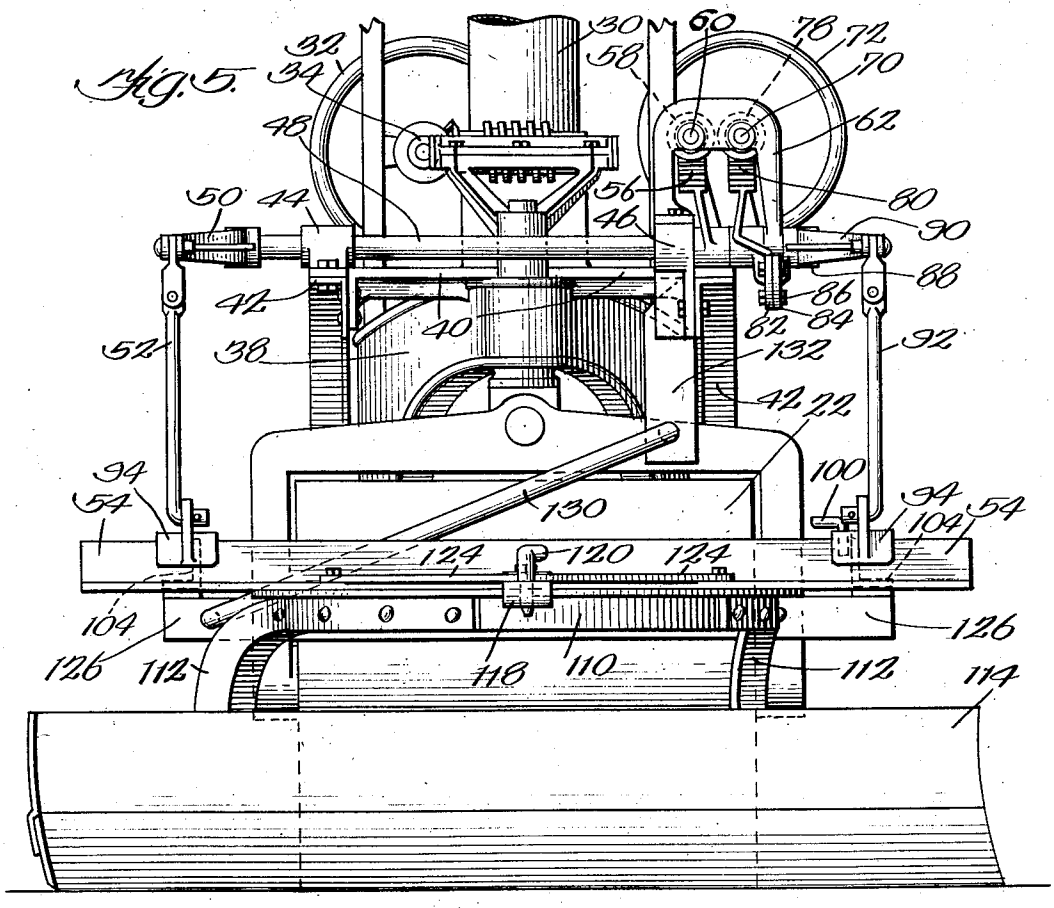


Fig. 6.

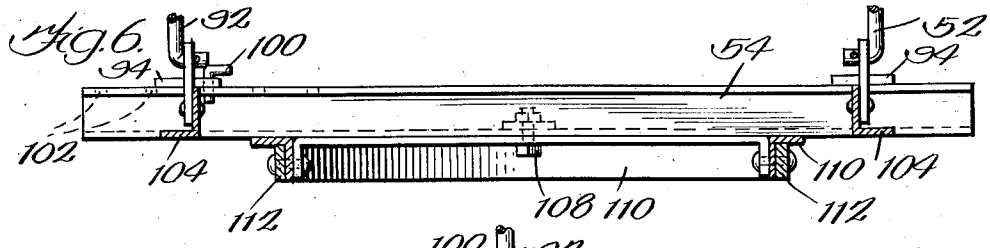
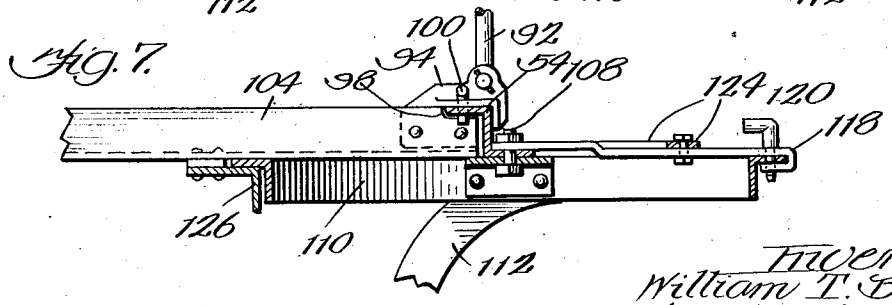


Fig. 7.



Inventors.
William T. Beatty
Frank S. Davis
Fred D. Wilson
By Cheever & Cox Atty's.

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W. T. BEATTY ET AL

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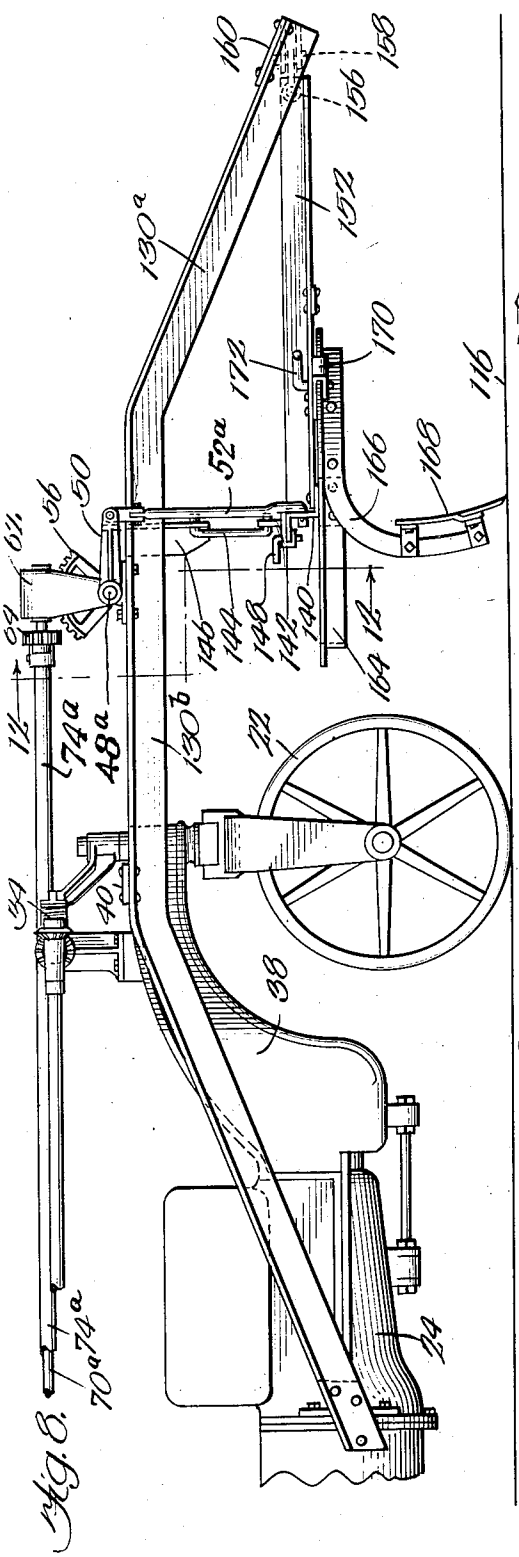


Fig. 8.

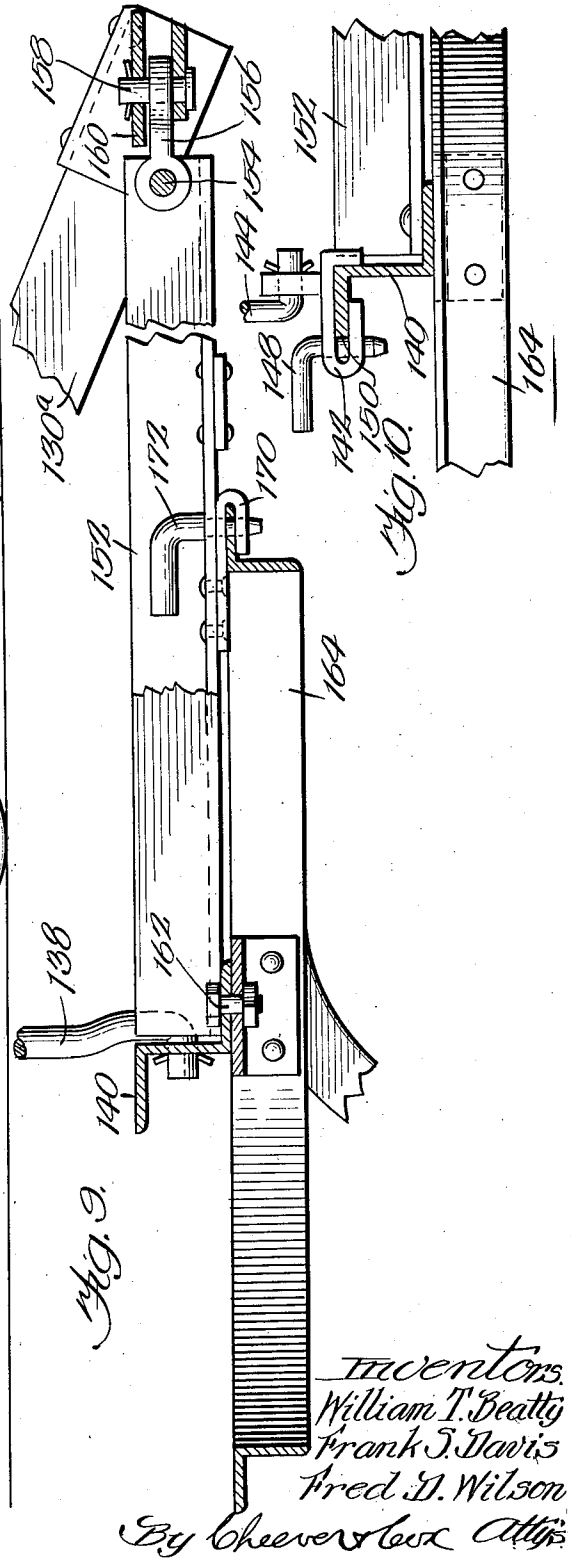


Fig. 9.

Fig. 10.

Inventors
William T. Beatty
Frank S. Davis
Fred D. Wilson
By Cheever & Cox Attys

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W. T. BEATTY ET AL

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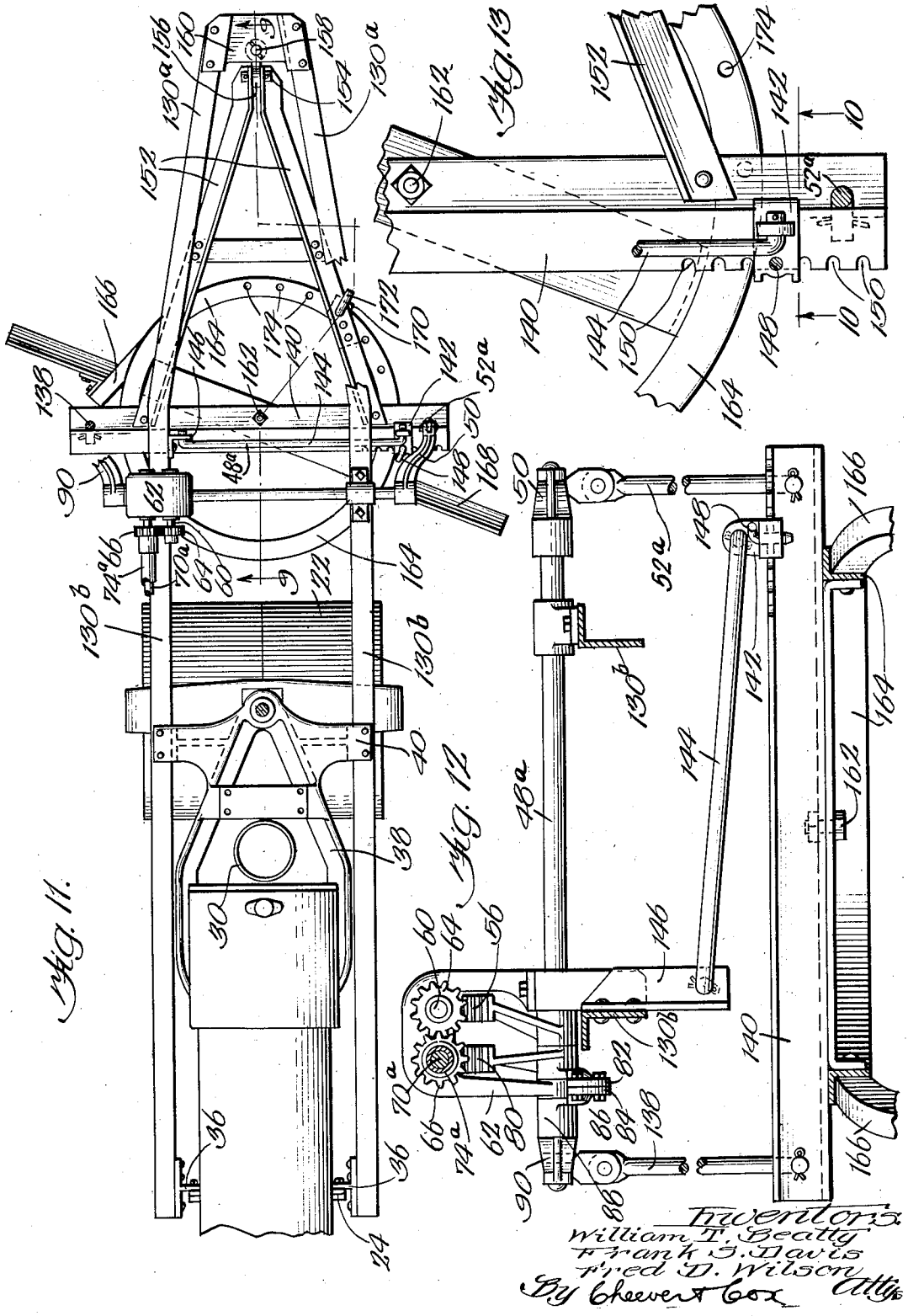


Fig. 11.

Fig. 12

Fig. 13

Inventors:
William T. Beatty
Frank S. Davis
Fred D. Wilson
By Cheever & Cox Attys

Patented Mar. 30, 1926. 1,578,384

UNITED STATES PATENT OFFICE.

WILLIAM T. BEATTY, OF FLOSSMOOR, FRANK S. DAVIS, OF HOMEWOOD, AND FRED D. WILSON, OF HARVEY, ILLINOIS; SAID DAVIS AND SAID WILSON ASSIGNORS TO AUSTIN MANUFACTURING CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ROAD-ROLLER MAINTAINER WITH REVERSIBLE BLADE.

Application filed November 5, 1923. Serial No. 672,727.

To all whom it may concern:

Be it known that we, WILLIAM T. BEATTY, FRANK S. DAVIS, and FRED D. WILSON, citizens of the United States, residing, respectively, at Flossmoor, Homewood, and Harvey, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Road-Roller Maintainers with Reversible Blades, of which the following is a specification.

This invention relates to road roller maintainers of the general class set forth in our earlier patent application, Serial Number 610,345, filed January 2, 1923, in which a road working blade is carried in front of a road roller and is manipulatable by an operator of the road roller.

The prinicpal object of the present invention is to so mount the maintainer blade in front of the roller that it may be selectively adjusted to different angles across the central axis of the road roller or the road on which it works to, at the will of the user, deliver road material worked by the maintainer blade to either selected side of the road. A further object of the invention is to so mount the maintainer blade having the foregoing capabilities that it is either a pushed blade or a pulled blade, as the original constructor of the machine may elect.

The invention consists in means for attaining the foregoing and other objects; which can be easily and comparatively cheaply made and constructed; which is efficient in operation and is not readily liable to get out of order. More particularly, the invention consists in numerous features and details of construction which will be hereafter more fully set forth in the specification and claims.

Referring to the drawings, Figure 1 is a side elevation of mechanism illustrating this invention in its preferred form, the blade shown being of the pushed type.

Figure 2 is a plan view, taken on the line 2—2 of Figure 1.

Figure 3 is a detail view, partially in section, on the line 3—3 of Figure 1.

Figure 4 is a sectional detail view on the line 4—4 of Figure 2.

Figure 5 is a front view of the machine taken at the right hand end of Figures 1 and 2.

Figure 6 is a sectional, detail view on the line 6—6 of Figure 1.

Figure 7 is a sectional, detail view on the line 7—7 of Figure 2.

Figure 8 shows a pulled blade mounted to attain the proper object of this invention, applied to the main road roller of Figure 1.

Figure 9 is a central sectional detail view of the device of Figure 8, taken on the irregular line 9—9 of Figure 11.

Figure 10 is a sectional detail view on the line 10—10 of Figure 13.

Figure 11 is a plan view of the mechanism of Figure 8.

Figure 12 is a sectional end view on the irregular line 12—12 of Figure 8.

Figure 13 is an enlarged detail plan view of an adjusting mechanism appearing near the center and on the lower edge of Figure 11.

In Figure 1, the invention is shown applied to what is, for the purposes of this case, a conventional road roller, having rear rollers 20, front roller 22, engine body 24, driver's seat 26, hood 28, smoke stack 30 and front wheel steering mechanism 32—34.

Rigidly secured to opposite sides of the engine member 24 by any suitable means, as for instance, brackets 36 and rigidly secured to the arched front wheel 22 carrying casting 38 by any suitable means, as, for instance, the cross plate 40 thereon are two parallel forwardly extending frame members—specifically angle irons—42, carrying at their extreme forward ends two generally corresponding shaft bearings 44 and 46. Journaled transversely of the machine in these bearings is a shaft 48, carrying adjacent to bearing 44 a normally horizontally extend-

ing lever arm 50 sustaining a depending rod 52, pivotally connected at its lower end to a bar or beam 54, extending across the longitudinal axis of the machine. The opposite end of shaft 48 carries rigidly segmental gear 56, meshing with a worm 58, on a short shaft 60, suitably journaled in a gear housing 62 and carrying at its opposite end a pinion 64 meshing with a gear 66 longitudinally slidable through the agency of a spline 68 on a long shaft 70 journaled in gear house 62 parallel to shaft 60. This shaft 70 extends into proximity to the operator's seat 26 and there carries a hand wheel 72 readily manipulatable by the operator. The gear 66 is also rendered usable from the operator's seat 26 by a sleeve 74 on shaft 70 manipulatable at the operator's seat by conventional control lever 76. Shaft 70 carries within housing 62 a worm 78 meshing with a segmental gear 80, closely resembling segmental gear 56. This gear 80 is journaled freely on the right hand end of shaft 48 (Figures 4 and 5) and is connected through the lugs 82 and 84 and the bolt 86 of Figure 4 with the hub 88 of a horizontally extending lever arm 90, normally substantially parallel to lever arm 50. On the outer end of lever 90 is a depending rod 92 attached to cross-member 54 near its end which is opposite to that supported by rod 52.

The mechanism numbered 56 to 88, inclusive, is as more fully shown, described and claimed in our prior application Serial Number 670,494, filed October 24, 1923, provided so the operator can, by properly manipulating lever 76 selectively elevate or depress, as the case may be, lever arms 50 and 90 in unison or he can elevate or depress only lever 90, thereby in the first instance moving cross-member 54 and parts attached to it to different vertical positions parallel to its or their former positions; and, in the second instance, raising or lowering only the right hand end thereof as viewed in Figure 5.

The method of attaching the lower ends of rods 52 and 92 to the cross member 54, here used, includes in each instance, a block or casting 94 provided with an upwardly extending lug 96 to which the adjacent rod is pivoted and having in its lower portion a recess 98 through which the cross member 54 is selectively slidable, being normally selectively locked in position by a pin 100 passing through one of these lugs 94, and selectively insertable in different holes 102 provided in the horizontal flange of member 54 as shown in the upper right hand corner of Figure 2. Each one of these blocks 94 is rigidly secured to and forms the forward end of an approximately horizontal brace rod 104, secured to the adjacent frame member 42 at a suitable point near the engine case 24, as, for instance, by the bolts 106.

Rotatably mounted below the frame 104—54—104 and centered on a vertically disposed bolt 108 through member 54 is a horizontally disposed wheel 110, having rigidly secured to it by any suitable means, as for instance, depending bracket members 112, the working tool or maintainer blade 114 of the machine designed to scrape the road 116 over which the device travels. Extending forward from cross member 54 in alignment with pivot bolt 108 is a stationary bar 118 embracing at its end the circumference of wheel 110, said member 118 carrying a removable locking bolt or pin 120, adapted to be inserted through the member 118 in a selected one of a plurality of perforations 122 in the wheel. These perforations are so disposed that maintainer blade 114 may be positioned as desired, for instance, as shown in Figure 2 or after it has been rocked in a clock-wise direction through an angle of thirty to sixty degrees or so. In the position shown in Figure 3, dirt taken from the road 116 by maintainer blade 114 will be delivered at the left hand side of an operator seated on seat 26, and in the latter angular position, dirt will be delivered at the opposite side of the machine. Member 118 is braced from member 54 by diagonal braces 124 of conventional construction.

As clearly shown in Figure 7, the wheel 110 is guided at its rear edge by angle iron brackets 126 secured to the under sides of brace members 104.

The entire frame mechanism carrying the wheel 110 is held against lateral movement with reference to the central axis of the machine and frame members 42 by a brace rod 130 extending diagonally across the machine, one end being pivotally attached to a depending member 132, secured to a frame member 42 while the other end of the connecting rod 130 is pivoted as at 134 to a reinforcing, transverse frame member 136 connecting opposite frame members 104.

An inspection of the drawing thus far referred to will show that the cutting or maintainer blade 114 is located well in front of the roller mechanism, and is pushed in front of it by the frame members 104 which are entirely rigid except as they are moved up and down when the operator adjusts wheel 72 and consequently one or both of the rods 52 or 92, the machine therefore has in combination with a road roller all of the advantages of conventional, pushed, cutting blade road working machines.

In the operation of the machine thus far described, the operator first determines to which side of the machine he wants the maintainer blade 114 to deliver the dirt taken from the road surface 116 and by manipulating latch bolt 120, correspondingly adjusts the blade 114, in so doing selecting the angle at which he wishes the blade 114

placed transversely of the central line of the road. Having made this adjustment, he takes his seat at 26 and by devices not shown starts the motor contained in engine case 24 to drive the machine along the road. He steers the machine by manipulating handle 32 and controls the vertical position of the blade by manipulating hand wheel 72 with or without the use of lever 76. If at any time in the work it is desired to change the machine so that the blade 114 will deliver dirt at the opposite side of the road from that previously selected, adjustment is readily made by dismounting from seat 26 and removing locking pin 120 and swinging the blade 114 on pivot 108 and thereupon replacing locking pin 120.

In the modified construction of Figures 8 to 13, inclusive, the frame members 42 are replaced by other frame members substantialliy identical with them as far as they go but provided with additional, forwardly extending ends. The main parts of these frame members which correspond to 42 are in Figures 8 and following designated as 130^b and the downwardly inclined extensions are designated 130^a. These substituted frame members carry in substantially the same position as before a control shaft 70^a corresponding to shaft 70 within sleeve 74^a operating transverse shaft 48^a, corresponding to shaft 48, and vertically disposed rods 52^a and 138, corresponding to rods 52 and 92. Pivotally mounted to the lower ends of rods 52^a and 138 is a transverse bar 140 corresponding in general function but not in detail to bar 54. Slidably mounted on the upper edge of bar 54 is a block 142 pivotally attached to a connecting rod 144, attached at its other end to a depending member 146 extending downward from an adjacent frame member 130^b. Rod 140 is slidable through a suitably disposed recess in block 142 and is detachably secured in position by a locking pin 148, selectively insertable through the block 142 and a selected one of a series of notches 150 in the side of bar 140.

As clearly shown in Figure 11, the transverse bar 140 forms the base of a triangular frame whose other two numbers are as shown in the drawings the forwardly extending angle irons 152 connected at their forward end by a bolt 154 carrying a horizontally disposed link 156 whose opposite end is connected by a vertical pivot pin 158 to a nose plate 160 carried by the converging outer ends of frame extensions 130^a. The result of the construction just described is that the frame member 152—140 can move either in a vertical or horizontal plane with reference to the frame members 130^a—130^b, thereby permitting the horizontal adjustment described of member 140 through block 142 and the vertical adjustment by the aid of rods 52^a and 138 under the control of shaft 70^a and the hand wheel 72 thereon, when that wheel is manipulated as has been heretofore described in connection with the first construction.

Rotatably mounted beneath the frame mechainsm 140—152 on a pivot bolt 162 through member 140 is a wheel 164, corresponding to the wheel 110, the same carrying as before depending bracket arms 166 directly supporting maintainer blade 168. This wheel 164 rotates at its edge in one or more clips 170, carried on the other side of frame member or members 152 and is detachably securable in selected angular position by the use of a locking pin 172, corresponding in function to pin 120, entering a selected one of perforations 174 located at various points along wheel 164. By removing locking pin 172, the operator can place maintainer blade 168 in the position shown in Figure 11 in which dirt from the road surface is delivered at the right hand of the machine, as viewed by an operator occupying seat 26 and the operator can by first removing said pin 172 rock the blade in a counter clockwise direction as viewed in Figure 11 until it will deliver the dirt from the road surface at the opposite side of the machine.

In the second construction shown and just described, the maintainer blade 168 is pulled through the agency of what is practically a universal joint 154—158 from a point well in front of the blade and this pulling operation is not materially interfered with except as the operator adjusts shaft 70^a to raise or lower opposite ends of the blade 168. The machine therefore has in combination with a road roller all the advantages of a pulled cutting blade placed in front of the roller:—this while giving the roller the selective angular adjustments transversely of the road which constitutes the main object of this invention. The machine of the second construction is operated by the user in substantially the same manner as the prior construction, the blade being adjusted transversely of the road by the use of the pin 172 and the ends of the blade being adjusted vertically by the manipulation of shaft 70^a.

In both constructions, the entire blade and its angular positioning mechanism may be moved laterally over the central axis of the machine by adjusting the pin 120 in a selected one of the holes 102 in the first instance, and by adjusting the pin 148 in a selected one of the notches 150 in the second instance.

From the foregoing it will be seen that the embodiments of the invention described provide for the application of the maintainer blade angularly adjustable transversely of the road axis and bodily adjustable across the machine to the front of a roller main-

tainer and this irrespective of whether the blade used is pushed or pulled. In both constructions, the front roller 32 is enclosed by the frame member which carries the maintainer without interfering with the operator's free manipulation of such front roller by a proper use of hand wheel 32.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In mechanism of the class described, a road roller, a laterally shiftable support for a maintainer at an end of the roller, and a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of the longitudinal axis of the machine.

2. In mechanism of the class described, a road roller, a support for a maintainer at an end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of the longitudinal axis of the machine, and means adjustably shifting the support and maintainer to different positions across the longitudinal axis of road roller.

3. In mechanism of the class described, a road roller, a support for a maintainer at an end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of the longitudinal axis of the machine, and means adjustably shifting the maintainer to different positions across the longitudinal axis of the road roller.

4. In mechanism of the class described, a road roller carrying an operator's station, a support for a maintainer at an end of the roller, a maintainer blade pivoted on a laterally shiftable support and adjustable to two different positions in which it selectively moves material engaged by it to different sides of the longitudinal axis of the machine, and means manipulatable by an operator at the station shifting the vertical position of the support and maintainer.

5. In mechanism of the class described, a road roller carrying an operator's station at one end of the roller, a support for a maintainer at the other end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of the longitudinal axis of the machine and means manipulatable by an operator at the station shifting the vertical position of the support and maintainer.

6. In mechanism of the class described, a road roller carrying an operator's station, a support for a maintainer at an end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of the longitudinal axis of the machine, means manipulatable by an operator at the station shifting the vertical position of the support and maintainer, and a single means manipulatable by an operator at the station selectively shifting the vertical position of the support and maintainer or one end thereof.

7. In mechanism of the class described, a road roller carrying an operator's station at one end of the roller, a support for a maintainer at the other end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of the longitudinal axis of the machine, means manipulatable by an operator at the station shifting the vertical position of the support and maintainer, and a single means manipulatable by an operator at the station selectively shifting the vertical position of the support and maintainer or one end thereof.

8. In mechanism of the class described, a road roller carrying an operator's station, a support for a maintainer at an end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of longitudinal axis of the machine, means manipulatable by an operator at the station shifting the vertical position of the support and maintainer, and means selectively positioning the maintainer in different positions on the support crosswise of the support.

9. In mechanism of the class described, a road roller carrying an operator's station at one end of the roller, a support for a maintainer at the other end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of the longitudinal axis of the machine, means manipulatable by an operator at the station shifting the vertical position of the support and maintainer, and means selectively positioning the maintainer in different positions on the support crosswise of the support.

10. In mechanism of the class described, a road roller carrying an operator's station, a support for a maintainer at an end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of the longitudinal axis of the machine, means manipulatable by an operator at the station shifting the vertical position of the support and maintainer, a single means manipulatable by an operator at the station selectively shifting the vertical position of the support and maintainer or one end thereof, and means

selectively positioning the maintainer in different positions on the support crosswise of the support.

11. In mechanism of the class described, a road roller carrying an operator's station at one end of the roller, a support for a maintainer at the other end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of longitudinal axis of the machine, means manipulatable by an operator at the station shifting the vertical position of the support and maintainer, a single means manipulatable by an operator at the station selectively shifting the vertical position of the support and maintainer or one end thereof, and means selectively positioning the maintainer in different positions on the support crosswise of the support.

12. In mechanism of the class described, a road roller, carrying a horizontally disposed rotatable member, carrying a maintainer blade extending across the longitudinal axis of the roller, means securing said rotatable member in different angular positions to vary the angularity of the blade to said axis of the road roller, and means selectively shifting the said rotatable member and blade across said axis of the roller.

13. In combination with a road roller, a frame extending to some distance in front thereof, a second frame pivoted in two directions to the front of the first frame, extending thereunder back toward the roller, a horizontally rockable maintainer blade carried by the second frame extending across the longitudinal axis of the roller and means for adjusting the blade and adjacent part of the second frame across the first frame.

14. In combination with a road roller, a frame extending to some distance in front thereof, a second frame pivoted in two directions to the front of the first frame, extending thereunder back toward the roller, a horizontally rockable maintainer blade carried by the second frame extending across the longitudinal axis of the roller and means for angularly positioning the blade on the second frame to different positions across the longitudinal axis of the roller.

15. In combination with a road roller, a frame extending to some distance in front thereof, a second frame pivoted in two directions to the front of the first frame, extending thereunder back toward the roller, a horizontally rockable maintainer blade carried by the second frame extending across the longitudinal axis of the roller, means for adjusting the blade and adjacent part of the second frame across the first frame, and means for angularly positioning the blade on the second frame to different positions across the longitudinal axis of the roller.

16. In combination with a road roller, a frame extending to some distance in front thereof, a second frame pivoted in two directions to the front of the first frame, extending thereunder back toward the roller, a horizontally rockable maintainer blade carried by the second frame extending across the longitudinal axis of the roller, means for adjusting the blade and adjacent part of the second frame across the first frame, and means operable from the roller for elevating or depressing the entire maintainer blade or an initially predetermined end thereof.

17. In combination with a road roller, a frame extending to some distance in front thereof, a second frame pivoted in two directions to the front of the first frame, extending thereunder back toward the roller, a horizontally rockable maintainer blade carried by the second frame extending across the longitudinal axis of the roller, means for angularly positioning the blade on the second frame to different positions across the longitudinal axis of the roller, and means operable from the roller for elevating or depressing the entire maintainer blade or an initially predetermined end thereof.

18. In combination with a road roller, a frame extending to some distance in front thereof, a second frame pivoted in two directions to the front of the first frame, extending thereunder back toward the roller, a horizontally rockable maintainer blade carried by the second frame extending across the longitudinal axis of the roller, means for adjusting the blade and adjacent part of the second frame across the first frame, means for angularly positioning the blade on the second frame to different positions across the longitudinal axis of the roller, and means operable from the roller for elevating or depressing the entire maintainer blade or an initially predetermined end thereof.

19. In mechanism of the class described, a road roller, a support for a maintainer at an end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in which it selectively moves material engaged by it to different sides of longitudinal axis of the machine, and means controlled by an operator on the roller selectively positioning the height of the maintainer or a predetermined end thereof.

20. In mechanism of the class described, a road roller, a laterally shiftable support for a maintainer at an end of the roller, a maintainer blade pivoted on the support adjustable to two different positions in

which it selectively moves material engaged by it to different sides of longitudinal axis of the machine, means adjustably shifting the maintainer to different positions across the longitudinal axis of road roller, and means controlled by an operator on the roller selectively positioning the height of the maintainer or a predetermined end thereof.

In witness whereof, we have hereunto subscribed our names.

WILLIAM T. BEATTY.
FRANK S. DAVIS.
FRED D. WILSON.