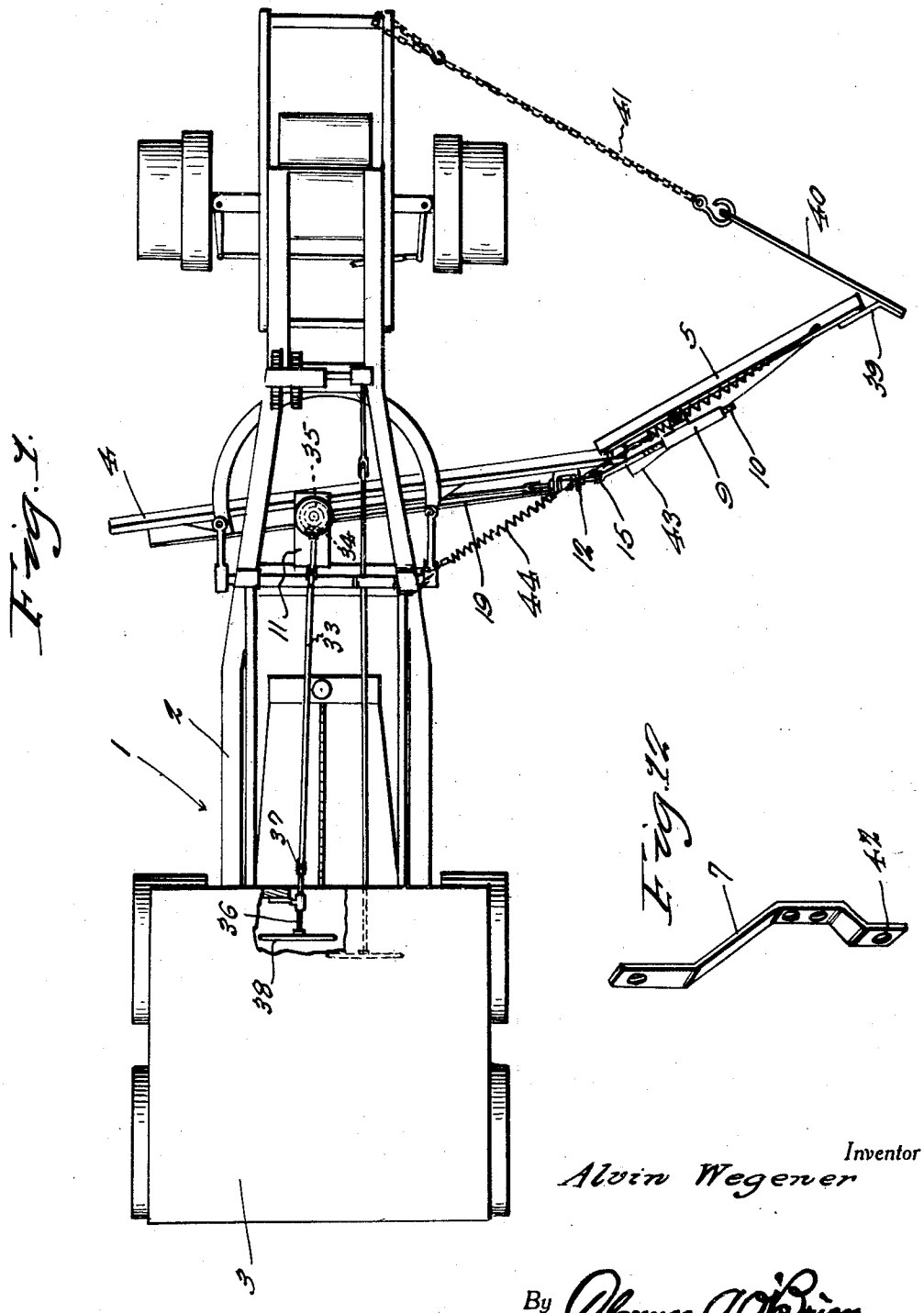
Sept. 6, 1932. A. WEGENER 1,875,534

ROAD MACHINE ATTACHMENT

Filed June 29, 1931 4 Sheets-Sheet 1



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ROAD MACHINE ATTACHMENT

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Fig. 4.

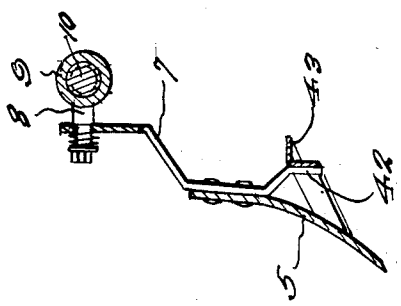


Fig. 3.

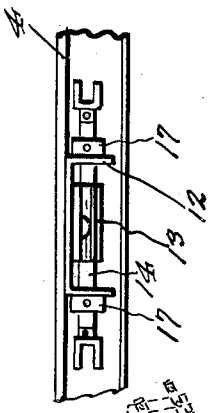


Fig. 1.

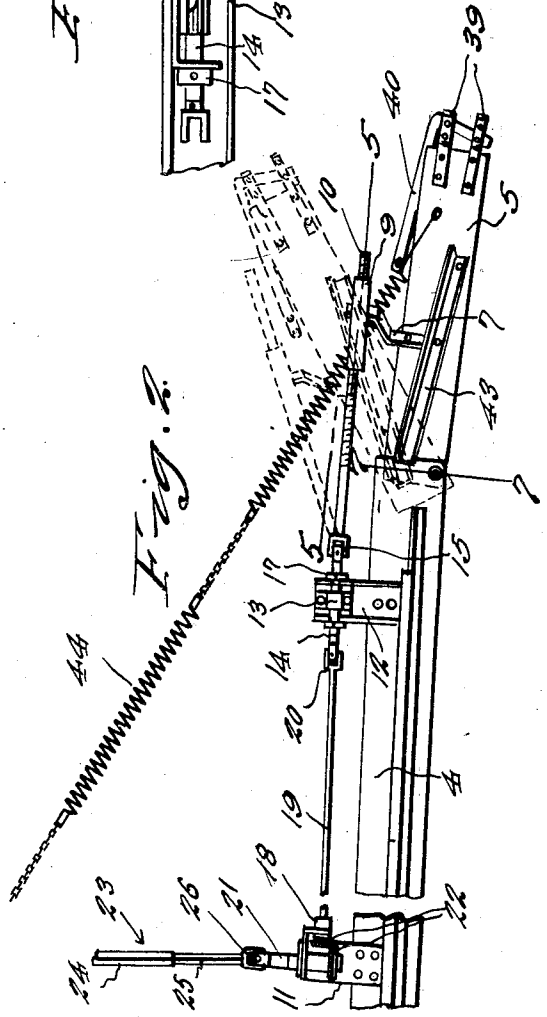


Fig. 5.



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Fig. 11.

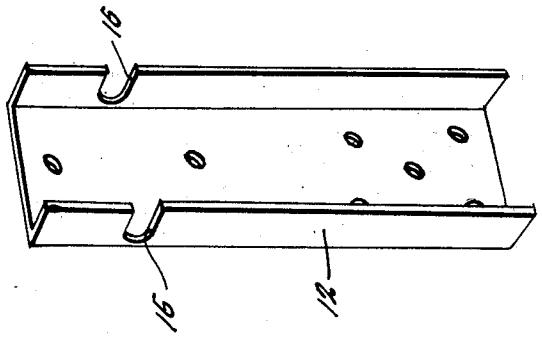


Fig. 8.

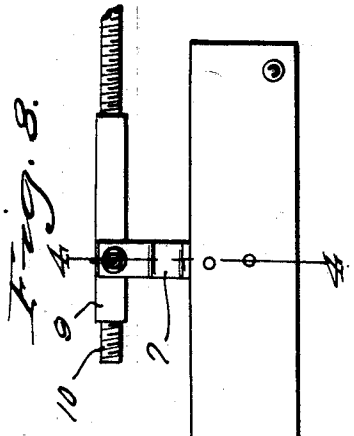


Fig. 9.

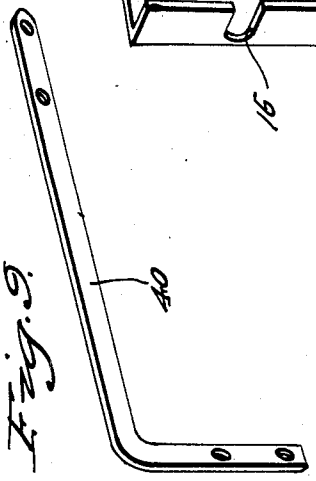


Fig. 10.

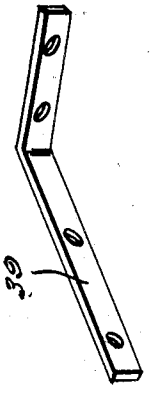


Fig. 7.

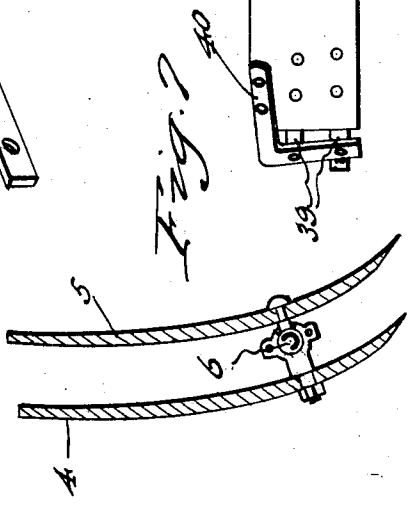
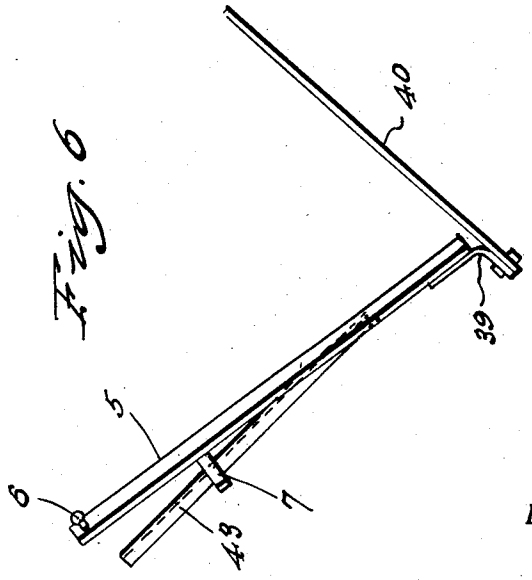


Fig. 6.



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Fig. 12.

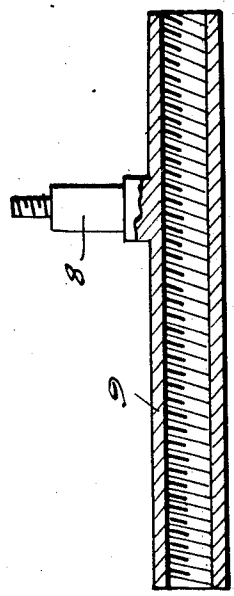


Fig. 16.

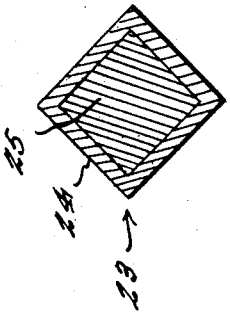


Fig. 13.

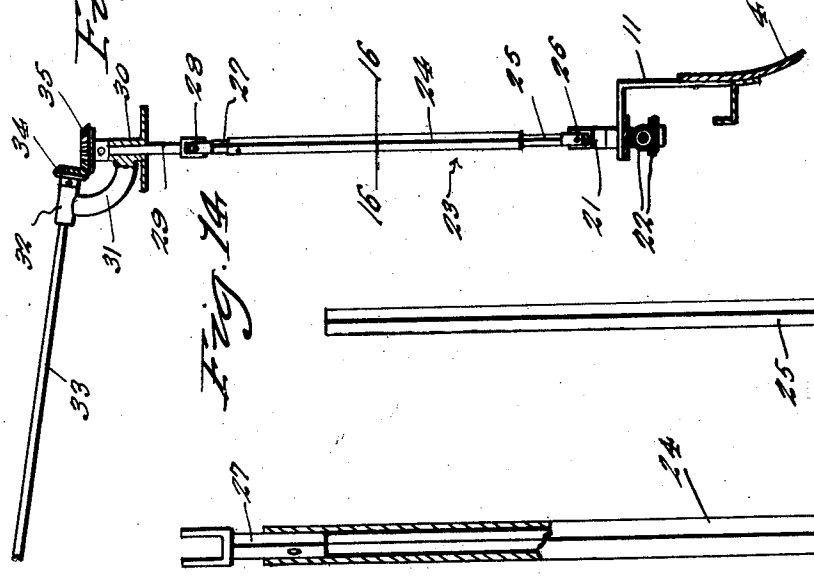


Fig. 14.

Fig. 15.

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Patented Sept. 6, 1932

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UNITED STATES PATENT OFFICE

ALVIN WEGENER, OF BEAR CREEK, WISCONSIN

ROAD MACHINE ATTACHMENT

Application filed June 29, 1931. Serial No. 547,751.

The present invention relates to an attachment for road grading machines and has for its primary object to provide, in a manner as hereinafter set forth, a device of this character embodying a novel construction, combination and arrangement of parts through the medium of which the shoulders of a road or highway may be maintained in proper condition.

Another important object of the invention is to provide an attachment of the aforementioned character which may be expeditiously mounted in position for operation on a conventional road grading machine without the necessity for materially altering said machine structurally or interfering with its proper functioning as a grader or scraper.

Other objects of the invention are to provide a road machine attachment of the character described which will be simple in construction, strong, durable, efficient and reliable in operation and which may be manufactured and installed at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in top plan showing a shoulder maintaining attachment in accordance with this invention mounted in operative position on a road machine.

Figure 2 is a view in rear elevation showing the portion of the attachment which is mounted on the usual road machine blade.

Figure 3 is a detail view in top plan of one of the supporting brackets which are mounted on the road machine blade and in which is journaled a coupling shaft.

Figure 4 is a vertical sectional view taken substantially on the line 4—4 of Figure 8.

Figure 5 is a sectional view taken substantially on the line 5—5 of Figure 2.

Figure 6 is a view in top plan of the shoulder blade and elements mounted thereon showing the same detached from the road machine.

Figure 7 is a vertical sectional view taken substantially on the line 7—7 of Figure 2 showing the means for connecting the shoulder blade to the road machine blade.

Figure 8 is a view in front elevation of the shoulder blade.

Figure 9 is a detail view in perspective of the draw bar which is mounted on the outer or free end of the shoulder blade.

Figure 10 is a detail view in perspective of one of the angular brackets for connecting the draw bar to the shoulder blade.

Figure 11 is a detail view in perspective of the channeled bracket which is illustrated in Figure 3.

Figure 12 is a detail view in perspective of the bracket which is mounted on the shoulder blade for connecting the screw engaging sleeve thereto.

Figure 13 is a view in vertical section showing certain of the drive shafts and the connecting gears for manually rotating the shoulder blade adjusting screw.

Figure 14 is a detail view in the side elevation of one of the sections of the extensible drive shafts.

Figure 15 is a detail view partially in elevation and partially in section of the other portion of the extensible drive shaft.

Figure 16 is a view in horizontal cross section taken substantially on the line 16—16 of Figure 13.

Figure 17 is a detail view in longitudinal section through the sleeve which is threaded on the adjusting screw.

Referring now to the drawings in detail, it will be seen that the reference numeral 1 designates generally a conventional road scraping or grading machine comprising a wheeled main frame 2 upon the rear end portion of which is located the operator's cab 3. The reference numeral 4 designates the usual adjustable blade of the road machine.

The attachment constituting the presnt invention comprises a shoulder maintaining blade 5 which is pivotally connected by a ball and socket joint 6, at one end, to the outer end portion of the road machine blade 4, said ball and socket joint being illustrated

to advantage in Figure 7 of the drawings. An angular bracket 7 is fixed on an intermediate portion of the blade 5 and has its upper end portion apertured for the passage of a shank 8 projecting from one side of an internally threaded sleeve 9 through which a screw shaft 10 is threaded for adjustment. In this manner the screw shaft 10 is connected with the blade 5 for raising and lowering said blade in a manner which will be presently set forth.

An angular upstanding bracket 11 and a channeled upstanding bracket 12 are rigidly mounted, at spaced points, on the road machine blade 4. A horizontally disposed bearing 13 is mounted in the upper portion of the bracket 12 and journaled therein is a coupling shaft 14 which is connected, by a universal joint 15, to the inner end of the screw shaft 10. The coupling shaft 14 is operable in notches or recesses 16 (see Figure 11) provided therefor in the sides of the bracket 12. Collars 17 are fixed on the coupling shaft 14 and engageable with the sides of the bracket 12 for preventing longitudinal movement of said shaft 14.

A bearing 18 is mounted on the bracket 11 and journaled therein is one end of a transverse drive shaft 19, the other end of which is operatively connected by a universal joint 20 to the inner end of the coupling shaft 14. A vertically disposed stub shaft 21 is rotatably mounted on the bracket 11 and operatively connected to the shaft 19 by the meshed beveled gears 22. A vertically disposed extensible drive shaft designated generally by the reference numeral 23 comprises a female upper section 24 of polygonal cross section in which is slidably disposed a male lower section 25 also of polygonal cross section. A universal joint 26 operatively connects the lower end of the male section 25 to the upper end of the stub shaft 21. A shank 27 is fixed in the upper end portion of the female section 24 of the extensible shaft 23 and is operatively connected by a universal joint 28 to a stub shaft 29 of circular cross section which is journaled vertically in a bearing 30 provided therefor on the frame of the road machine. An arm 31 extends from the bearing 30 and has mounted thereon a bearing 32 in which the forward end portion of a longitudinal drive shaft 33 is journaled. A beveled gear 34 is fixed on the forward end portion of the shaft 33 and meshes with a beveled gear 35 fixed on the upper end portion of the vertical stub shaft 29 for operatively connecting said stub shaft to the shaft 33 for actuation thereby. A shaft 36 is mounted for rotation in a bearing provided therefor in the cab 3 of the road machine 1 and said shaft 36 is operatively connected to the rear end of the shaft 33 by a universal joint 37. A hand wheel 38 is fixed on the rear end portion of the shaft 36 within the cab 3.

Rigidly mounted on the free end portion of the shoulder blade 5 and projecting therefrom at an angle is a pair of angular brackets 39 each having a plurality of openings in its free end portion for adjustably mounting an angular draw bar 40 on said shoulder blade. The draw bar 40 comprises a short arm which is connected to the brackets 39 and a comparatively long arm which is disposed diagonally when the machine is in operation and to which one end of a chain 41 is connected, the other end of said chain 41 being connected in any suitable manner to the front end portion of the main frame 2 of the road machine 1.

The bracket 7, it will be noted, is mounted on the rear side of the shoulder blade 5 and the lower end portion thereof is rearwardly offset from said shoulder blade, as indicated at 42. A keeper arm 43 has one end rigidly connected to the shoulder blade 5 at an intermediate portion secured to the offset portion 42 of the bracket 7 for rigidly mounting said keeper arm on the rear of the shoulder blade 5. The keeper arm 43 extends inwardly in diverging relation to the shoulder blade 5 over the outer end portion of the road machine blade 4, and is engageable therewith for preventing the shoulder blade 5 from tilting forwardly when the same is elevated. A pair of coil springs 44 are connected with an outer portion of the shoulder blade 5 and with an upper portion of the main frame 2 of the road machine 1 for balancing the shoulder blade 5 and for assisting in manually raising or lowering the same.

In operation, as may be apparent, the shoulder blade 5 is raised or lowered to the desired position by actuating the screw shaft 10 from the cab 3 of the road machine through the medium of the various shafts, couplings and gears which connect the hand wheel 38 to said screw shaft. When in operative position, the shoulder blade 5 extends downwardly from the blade 4 of the road machine, as best seen in Figure 2 of the drawings. The angle of the blade 5 with respect to the blade 4 may, of course, be varied as desired. The telescopic, extensible shaft 23 permits the raising or lowering of the blade 4 of the road machine in the usual manner. If desired, a suitable housing may be provided for the gears 34 and 35 and also for the gears 22.

It is believed that the many advantages of an attachment constructed in accordance with the present invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:—

1. An attachment for a road machine of the type having a scraper blade, comprising a ground working blade, a ball and socket joint connecting the second named blade to the first named blade for swinging movement, an angular bracket mounted on the second named blade and having its end portions offset with respect thereto, a keeper arm having one end rigidly secured to the second named blade and the other end secured to one of the offset end portions of the bracket, said keeper arm having a free end portion engageable with one end of the first named blade for limiting the swinging movement of the second named blade in one direction when the same is raised, and means for manually raising and lowering the second named blade.

2. An attachment for a road machine of the type having a scraper blade, comprising a ground working blade, a ball and socket joint connecting the second named blade to the first named blade for swinging movement, an angular bracket mounted on the second named blade and having its end portions offset with respect thereto, a keeper arm having one end rigidly secured to the second named blade and the other end secured to one of the offset end portions of the bracket, said keeper arm having a free end portion engageable with one end of the first named blade for limiting the swinging movement of the second named blade in one direction when the same is raised, and means for manually raising and lowering the second named blade, said means comprising an internally threaded sleeve mounted for swinging movement on the other end portion of the angular bracket, a screw shaft threaded through the sleeve, and a hand wheel mounted on the road machine and operatively connected with the screw shaft for actuating the same.

3. An attachment for a road machine of the type including a scraper blade, comprising a ground working blade pivotally connected to the scraper blade, a bracket rigidly secured to the ground working blade, an internally threaded sleeve, a shank projecting laterally from an intermediate portion of the sleeve and journalled in the bracket for mounting the sleeve for swinging movement on said bracket, a screw shaft threaded through the sleeve, and means for rotating the screw shaft for threading the sleeve longitudinally thereon for swinging the ground working blade on the scraper blade.

4. An attachment for road machines of the type including a scraper blade comprising a ground working blade connected, at one end for swinging movement to the scraper blade, a vertical bracket rigidly secured at an intermediate point to the ground working blade and having offset free end portion, an internally threaded sleeve, a shank projecting laterally from an intermediate portion of the sleeve and journalled in the upper end portion of the bracket for mounting the sleeve thereon for swinging movement, a screw shaft threaded through the sleeve, manually operable means for rotating the screw shaft for threading same through the sleeve in a manner to swing the ground working blade on the scraper blade, and an arm having one end secured to the ground working blade and an intermediate portion secured to the lower offset end portion of the bracket, said arm being engageable with the scraper blade for limiting the swinging movement of the ground working blade in one direction.

In testimony whereof I affix my signature.

ALVIN WEGENER.