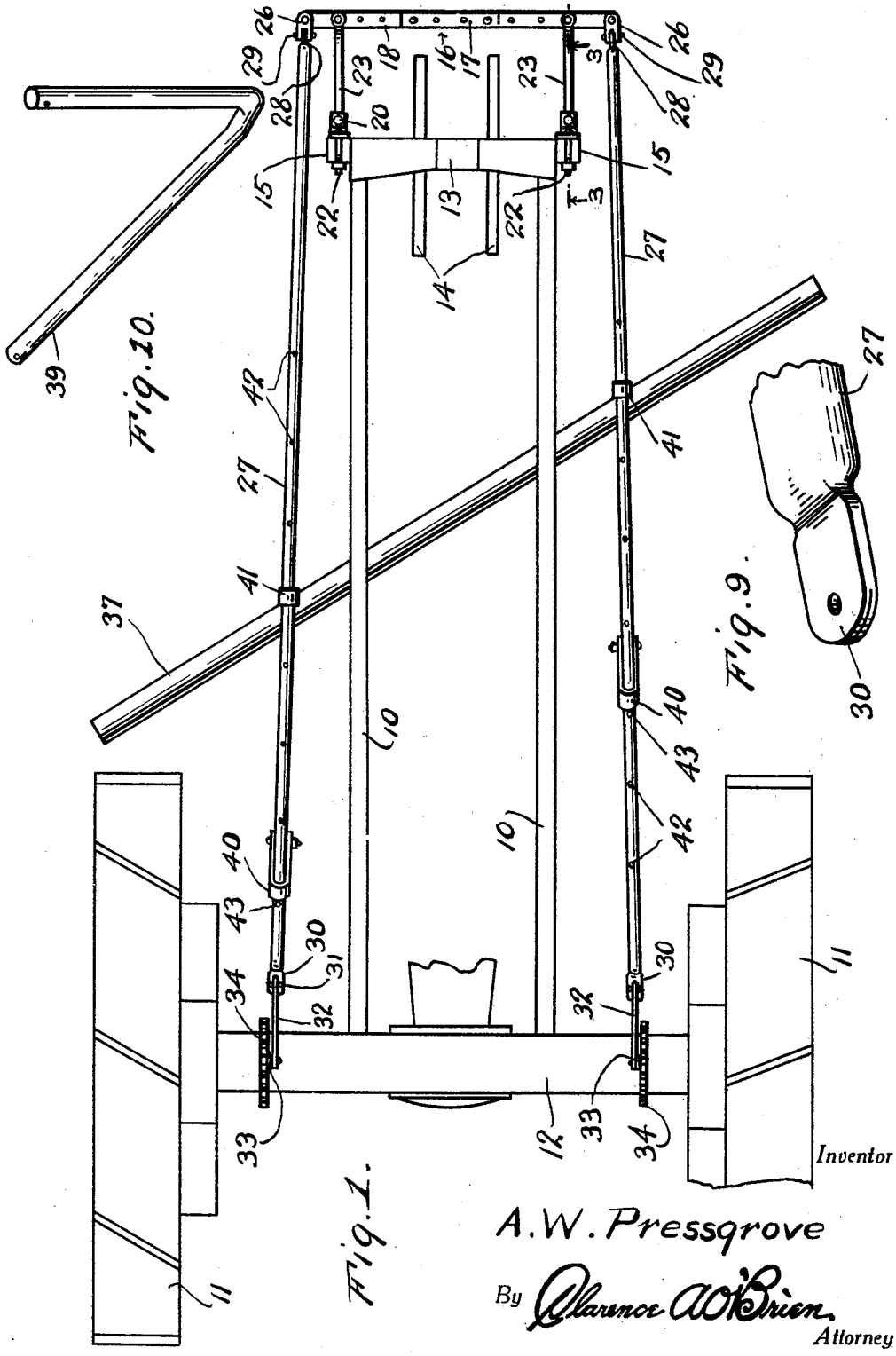
May 3, 1932. A. W. PRESSGROVE 1,856,968

ROAD GRADER

Filed March 10, 1931 3 Sheets-Sheet 1



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ROAD GRADER

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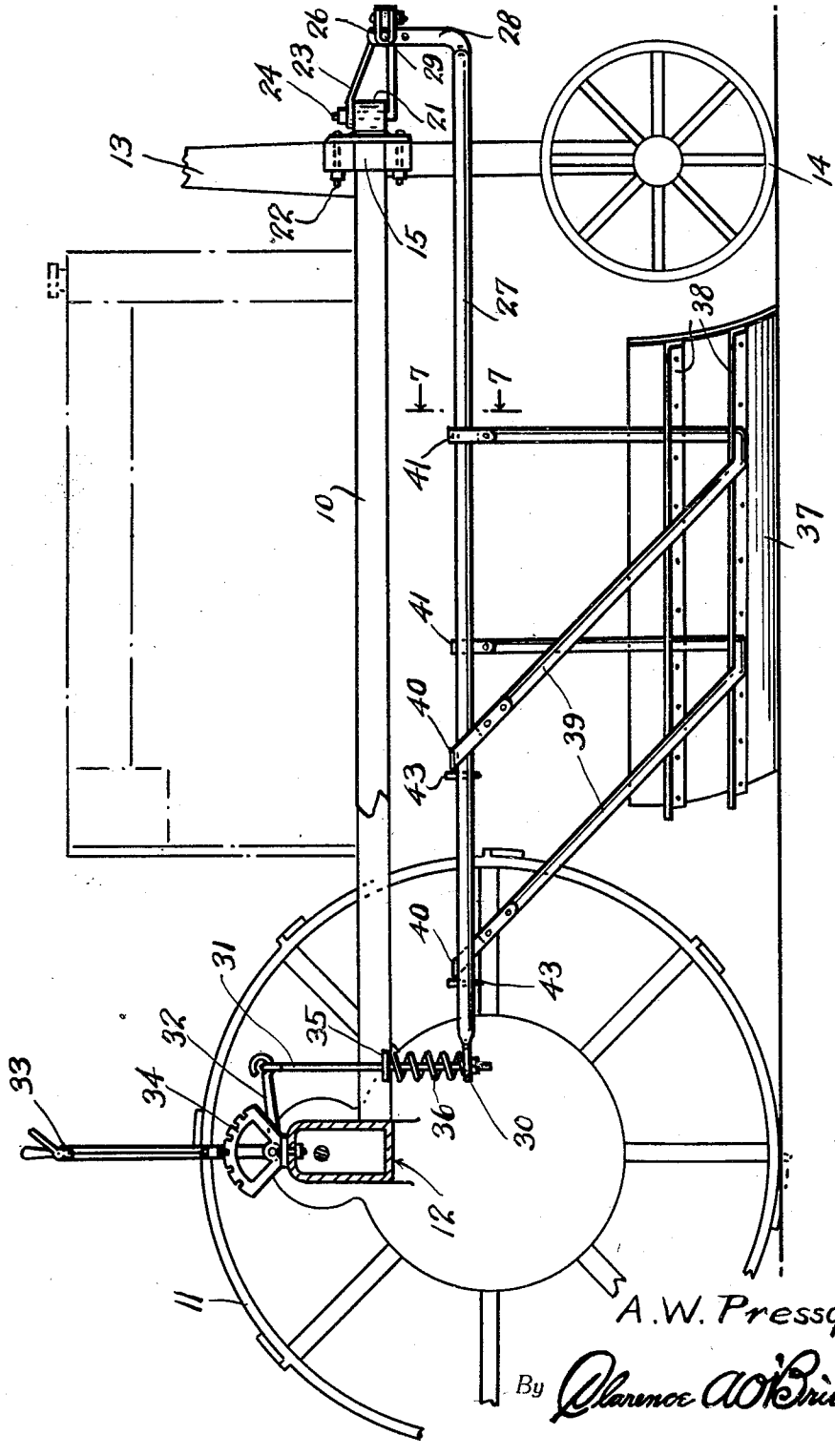

Fig. 2.

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ROAD GRADER

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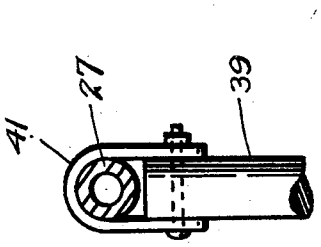

Fig. 7.

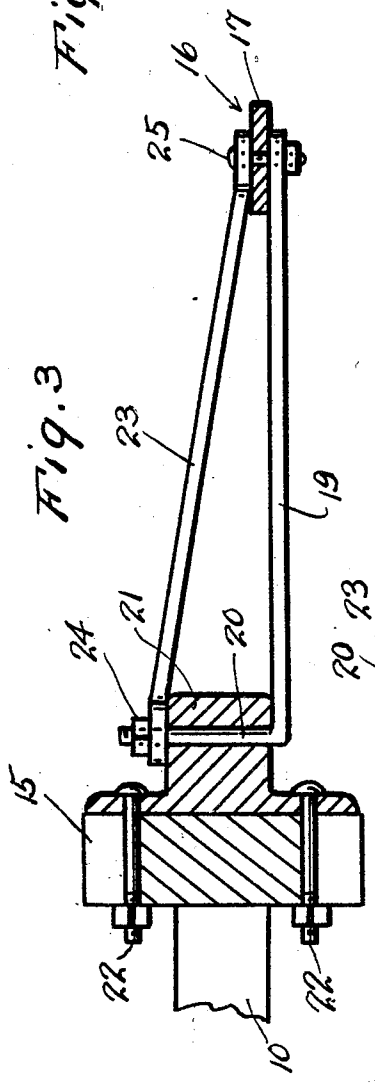

Fig. 3

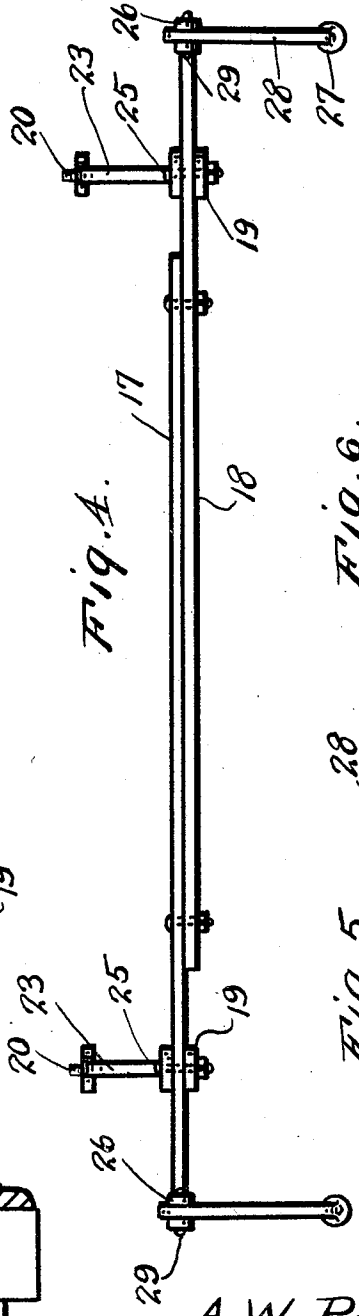

Fig. 4.

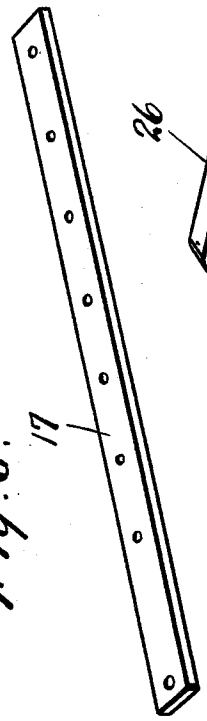

Fig. 6.

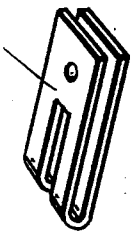

Fig. 8.

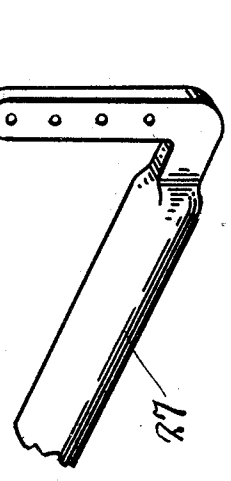

Fig. 5.

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Patented May 3, 1932 1,856,968

UNITED STATES PATENT OFFICE

ALBERT W. PRESSGROVE, OF TECUMSEH, KANSAS

ROAD GRADER

Application filed March 10, 1931. Serial No. 521,527.

This invention relates to an improved surface conditioning and leveling machine of the type generally referred to as a road grader, and has specific reference to a practical structure designed for conditioning the surface of smooth loose, dirt-coated highways for leveling and otherwise treating the surface to render it more dependable and serviceable for the particular purpose for which it is intended.

As a result of extensive study and experimentation, I have found that it is feasible and practicable to construct a machine of this general classification which is in the nature of an attachment, and which is especially, but not necessarily, designed for removable application to a popular type of tractor of the McCormick-Deering type specifically known to the trade as a "Farmall".

Briefly stated, the patentable novelty is predicated upon the utilization of a structure characterized by a substantially horizontal subframe which is applicable to the frame of the existing type of tractor without requiring alterations to the usual stock parts, yet said frame being pivotally extended at its front end portion and adjustably suspended at its rear end portion, and being especially formed to accommodate a longitudinally shiftable unit whose primary part comprises a surface conditioning and scraping mold portion.

In the drawings:—

Figure 1 is a top plan view of a portion of a tractor showing the essential parts in light lines with the attachment shown in heavy lines.

Fig. 2 is a side elevational view.

Fig. 3 is an enlarged detail section on the line 3—3 of Fig. 1.

Fig. 4 is a front end elevation of the attachment per se showing the extensible draw bar.

Fig. 5 is a fragmentary perspective view of the front end of one of the sub-frame bars.

Fig. 6 is a perspective view of one of the parts of the draw bar.

Fig. 7 is a section on the line 7—7 of Fig. 2.

Fig. 8 is a perspective view of a clevis.

Fig. 9 is a perspective fragmentary view of the rear end portion of one of the sub-frame bars.

Fig. 10 is a perspective view of one of the blade hangers.

In the drawings in light lines, the numeral 10 designates the chassis bars of the usual Farmall tractor, the numeral 11 indicates the rear traction wheels, while 12 indicates the rear axle housings, 13 the front part, 14 the front guide wheels, and 15 the extending end portions of the transverse front bar of the chassis. All of the parts are old and well known.

Referring to the attachment in detail, I first call attention to the numeral 16 which designates the front draw bar. This comprises a pair of complemental sections 17 and 18 adjustably connected together. A pair of duplicate devices are employed for connecting the draw bar to the chassis bar 15. Each device is detailed in Fig. 3, and it will be observed that it comprises a link 19 having an upturned spindle portion 20 mounted in a bracket 21 secured by bolts or the like 22 to the bar 15. The numeral 23 designates a diagonal brace fastened at 24 to the upper end of the part 20, both of the parts 23 and 19 being secured by single fastenings 25 to the adjacent sections of the draw bar.

At opposite ends, the draw bar is provided with clevises 26. The spaced parallel horizontal members or bars of the sub-frame are designated by the numeral 27 and each has its forward end flattened and bent upwardly as indicated at 28 in Fig. 5. This flattened portion is apertured to pivotally attach it as at 29 to the adjacent clevis. The rear end of each bar 27 is flattened and apertured as indicated at 30 in Fig. 9, and as seen in Fig. 2, is adjustably mounted by a nut on the lower threaded end of a hoisting link 31. This link, one at each side of the machine, is connected to the hooked end of a rocker arm 32 which is operable by way of the lever 33, said lever having a pawl for cooperation with the retainer segment 34. The numeral 35 on the link represents a stop, and a shock absorbing spring 36, bears at one end against the stop and at the opposite end against the aper-

tured part 30 to allow for freedom of movement of the bars of the sub-frame.

The surface engaging and grading unit is shown in general in Fig. 2, and it will be observed that it comprises a transversely bowed and appropriately proportioned mold board 37 having angle iron ribs 38 on its back. The flanges of these ribs are apertured to rotatably accommodate portions of a pair of symmetrical hangers 39. Each hanger is of general V-shape in configuration and the upper ends of the arms thereof are suspended from the frame bars 27 by way of suitably shaped saddles 40 and 41 respectively.

It will be noted that the frame bars 27 are apertured to provide keeper pin receiving holes 42 in which removable pins 43 may be arranged as seen in Fig. 2 to retain the adjusted positions of the hangers 39. Consequently, the mold board may be bodily shifted and adjusted angularly with respect to the line of draft to obtain the desired scraping and surfacing results.

Particularly do I wish to emphasize the arrangement wherein the attachment as a complete appliance is characterized by a sub-frame extended below the attaching frame on the tractor with appurtenances whereby this sub-frame may be pivotally attached to the front portion of the tractor and vertically and adjustably suspended from the rear portion of the tractor. Then too, I wish to emphasize the appurtenances for accomplishing these important results, as well as the spring shock absorbing means to insure effective accommodation of the mold board to irregular surfaces.

Then too, the arrangement whereby rigidity and dependability are insured is a popular feature of the invention.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

Having thus described my invention, what I claim as new is:—

1. In a structure of the class described in combination, a wheel supported tractor frame, rocker arms adjustably supported on the rear portion thereof, links depending from said rocker arms, a front draw bar, means for connecting said draw bar with the front portion of the tractor frame, a sub-frame including spaced parallel rod members, the forward portions of said rod members being pivotally connected to the end portions of said draw bar, and yieldable connections between the rear end portions of the rod members and said links.

2. In a structure of the class described in combination, a wheel supported tractor frame, a road grader attachment including a sub-frame embodying spaced parallel horizontal rod members, means for pivotally connecting the forward ends of said rod members to the corresponding end portion of said tractor frame, the rear end portion of each rod member being flattened and apertured, and hoisting and lowering means for the rear end portions of said rod members, each means including a rocker arm pivotally mounted on the tractor frame, adjusting means therefor, said rocker arm having a terminal hook, a link provided with an eye engaged with said hook, the lower end of said link being threaded and provided with a nut, the nut equipped end extending through the aperture in the adjacent flattened end of said rod member, a shoulder on said link, and a coiled spring surrounding said link and engaging the shoulder at one end and the flattened end of said rod at its lower end.

3. A sub-frame attaching structure for the top part of a sub-frame of an attachment of the class described comprising a pair of brackets, bolts for securing said brackets to the front bar of a tractor frame, a front draw bar in advance of said tractor, and comprising a pair of adjustably connected companion elements, clevises connected with the end portion of said draw-bar, and connecting devices between the brackets and draw-bar, each device comprising a horizontal member having an upturned end mounted in the bracket, a brace connected with the bracket and said upturned end, the front end of said member and brace being fastened to an adjacent portion of the draw bar.

In testimony whereof I affix my signature.

ALBERT W. PRESSGROVE.