Sept. 19, 1950 W. I. REMINGTON 2,522,583

BULLDOZER ATTACHMENT FOR TRACTORS

Filed April 8, 1948 2 Sheets-Sheet 1

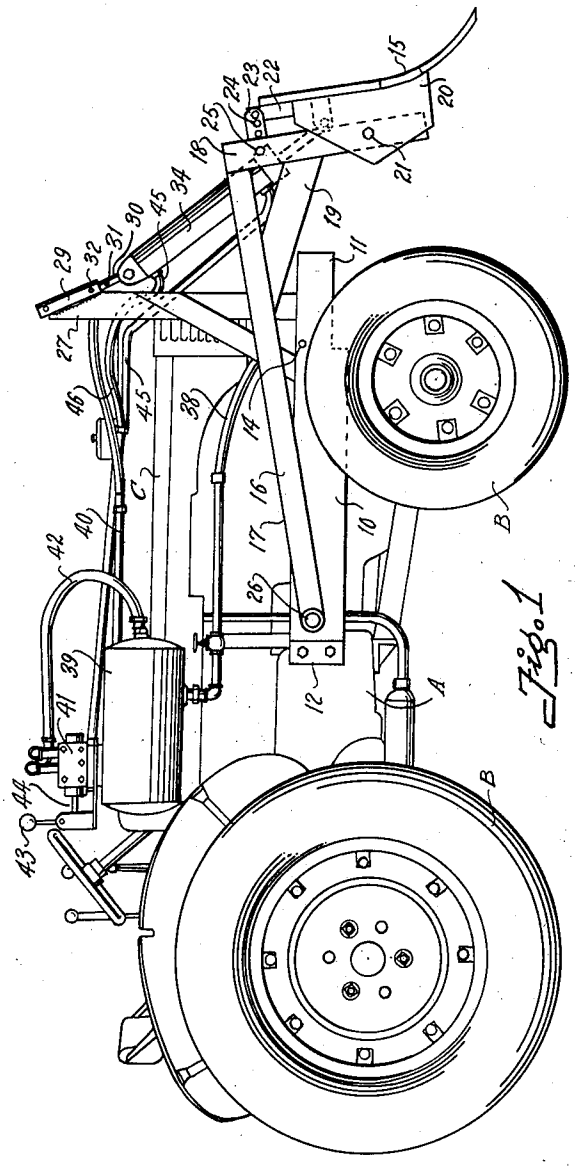


Fig. 1

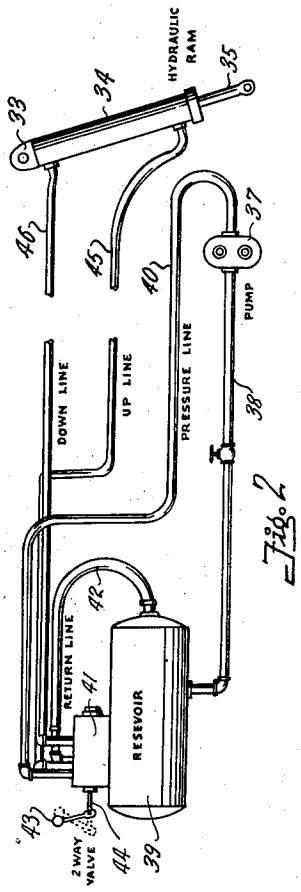


Fig. 2

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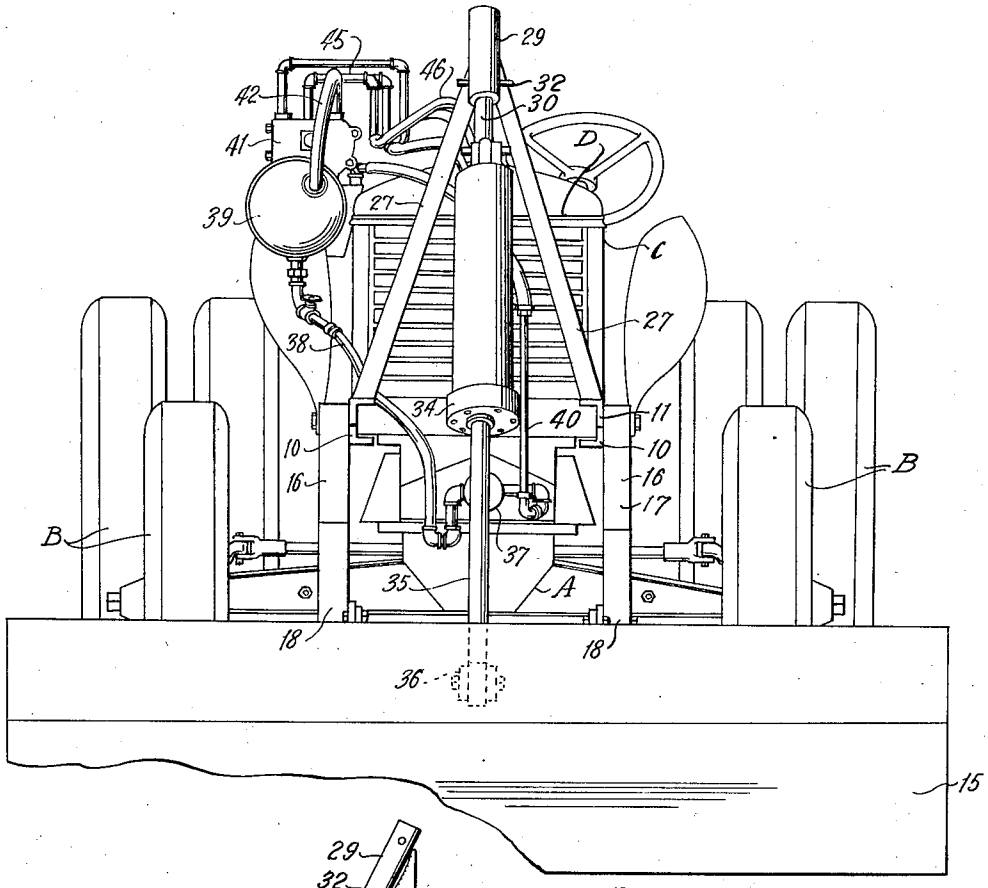


Fig. 3

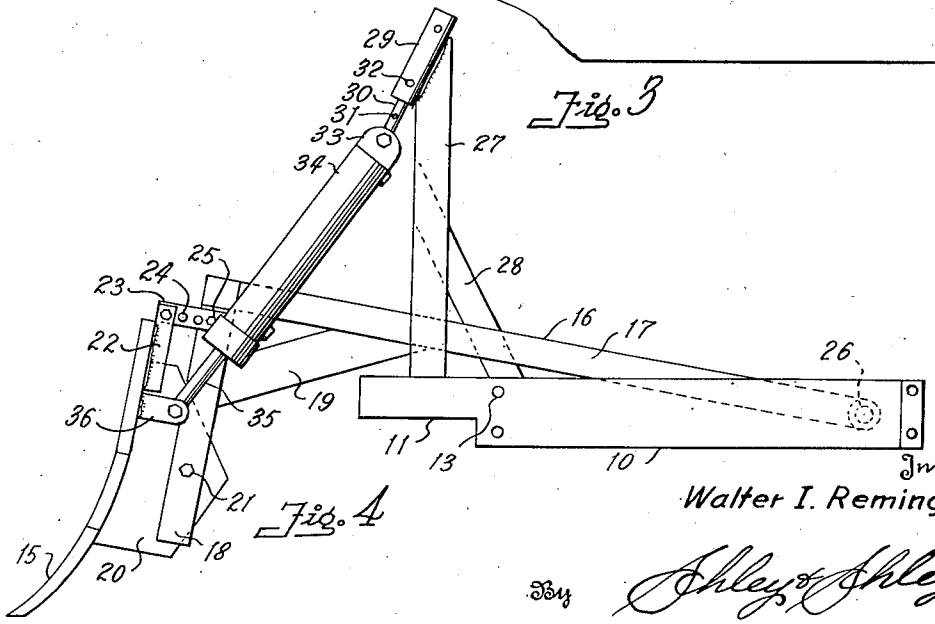


Fig. 4

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UNITED STATES PATENT OFFICE

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BULLDOZER ATTACHMENT FOR TRACTORS

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2 Claims. (Cl. 37—144)

1

This invention relates to new and useful improvements in bulldozer attachments for tractors.

One object of the invention is to provide an improved attachment which may be readily secured to the front end of a tractor, which is arranged to support a dozer blade for vertical swinging movement and has hydraulic means for effecting this movement.

Another object is to provide an attachment, of the character described, wherein the entire mechanism, aside from the power supply and control means, is carried by the attachment in a new and novel manner, whereby a more simple and compact device is provided and which may be secured to the tractor with a minimum of labor.

A further object of the invention is to provide an improved bulldozer attachment wherein the hydraulic lifting means is carried in front of the tractor so as to free the sides of the engine and frame of the tractor from the mechanism and whereby the piston of a hydraulic cylinder may be directly connected to the center of the dozer blade to obtain a direct lift which permits the use of shorter swing arms.

A construction designed to carry out the invention will be hereinafter described together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, wherein an example of the invention is shown, and wherein:

Fig. 1 is a side elevation of a tractor equipped with a bulldozer attachment constructed in accordance with the invention,

Fig. 2 is a schematic view of the hydraulic power and control means,

Fig 3 is a front elevation of the tractor and attachment with the dozer blade being lowered, and

Fig. 4 is a longitudinal, vertical, sectional view of the attachment.

In the drawings, the letter A indicates the frame of a conventional tractor, B the ground wheels, C the engine, and D the radiator which has been shown as being of transversely rounded type. The numeral 10 designates one of a pair of side supports or frame members. Each of these supports has a reduced extension 11 at its forward end. The rear end of each support has an inwardly offset bracket 12 for securing it to the frame A of the tractor at the medial portion thereof. Immediately rear of the extension 11 of each support, a pair of bolt holes or openings 13 are provided for stud bolts 14 (Fig. 1), whereby the supports may be secured to the front end

2

of the tractor frame. Since the supports are mounted longitudinally on the sides of the frame, the extensions 11 project forwardly of the tractor frame and the radiator D.

A dozer blade 15 is carried by a pair of swing arms 16. Each arm is right angular in shape and includes a longitudinal swing bar 17 having a depending hanger 18 which has its upper end rigidly secured to the forward end of the bar, as by welding. To strengthen the arm 16, a brace bar 19 extends from the swing bar 17 to the hanger 18. The blade 15 has rearwardly directed vertical web plates 20 which are pivoted to the hangers by bolts 21. Upright lugs 22 are welded to the plates 20 and the rear upper face of the blade so as to project above said blade. These lugs are for the purpose of tilting the blade to the desired vertical inclination. Links 23, having a plurality of openings 24, are pivoted to the upper ends of the lugs and extend rearwardly to the hangers 18. Bolts 25 carried by the hangers engage in the various openings 24 to adjust the inclination of the blade. The rear end of each swing bar 17 is journaled upon a pivot pin or bolt 26 extending outwardly from the support 10, in front of the bracket 12. It is pointed out that the swing bars are comparatively short and even when raised, as in Fig. 1, do not obstruct access to the engine C.

An upright A-shaped frame 27 is disposed in front of the radiator D and has its legs welded to the top of the support extensions 11. Inclined braces 28 extend from the frame downwardly and rearwardly to the supports. The rounded sides of the radiator D provides spaces for these braces. A sleeve 29 is welded to the apex of the frame 27 at a downward and forward inclination and has a cylindrical hanger bar 30 telescopingly engaged in the lower end thereof. The bar 30 has a plurality of openings 31 for receiving a cross pin 32 carried by the sleeve, whereby said bar may be adjusted up and down. The lower end of the hanger bar is pivoted in a bracket 33 on the upper end of an inclined hydraulic cylinder 34, having the rod 35 of its piston (not shown) extending down to the medial portion of the blade 15 and pivoted to an ear 36 carried by the rear face of said blade.

It is obvious that when the cylinder is energized to extend or retract the rod 35, the blade is lowered or raised. In this manner the swing arms 16 merely act as supports or struts for the blade. By applying the lifting power directly to the center of the blade, a single cylinder wholly in front of the tractor may be used. It will be seen that all of the mechanism is carried on the

front portion of the tractor, aside from the swing bars 17. This makes a compact and efficient attachment and does not obstruct the sides of the tractor.

Any suitable fluid power supply mechanism may be connected to the cylinder 34. As shown in Fig. 2, such mechanism includes a pump 37 which is adapted to be connected to and driven by the engine. A hose 38 connects one side of the pump 37 with a reservoir 39, containing a liquid, such as oil. A second hose 40 leads from the other side of the pump to a valve box 41 having the usual 2-way slide valve therein. A liquid return hose 42 leads from the box 41 to the reservoir 39. The box is mounted on the reservoir and the latter is suitably mounted on the engine hood. This valve box may be of any suitable structure and has a hand lever 43 connected to its valve stem 44, within convenient reach of the driver.

A hose 45 leads from the valve box 41 to the lower end of the cylinder 34, while a hose 46 leads from the box to the upper end of said cylinder. It will be seen that when the valve is in a neutral position, oil is drawn from the reservoir by way of the hose 38 and discharged from the pump 37 by way of the hose 40 to the valve box 41, from which it is returned to the reservoir by way of the hose 42. When it is desired to energize the cylinder 34, the lever 43 is operated. As an illustration, when the lever is pushed forwardly the valve is slid so that liquid is supplied to the hose 46, whereby the piston rod 35 is lowered and liquid below the piston is exhausted through the hose 45 by way of the valve to the return hose 42. When the lever 43 is pulled rearwardly, a reverse operation is obtained and the blade 15 is raised. It is obvious that when the lever 43 is in a neutral position, liquid is trapped in the cylinder and hoses 45 and 46 and, thus, the blade may be retained in a raised position.

The foregoing description of the invention is explanatory thereof and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:

1. A bulldozer attachment including, side supports adapted to be secured to the front portion of a tractor, a transverse A-shaped frame mounted on the forward ends of the supports, an inclined sleeve secured to the apex of said frame, a hanger bar adjustable in said sleeve and extending from the lower end thereof, a hydraulic cylinder having its upper end pivoted to said hanger bar, a piston rod extending from the lower end of said cylinder and having a blade connection at its lower end, and swing arms pivoted to the side supports having blade pivots at their front ends, in combination with a dozer blade having rearwardly extending web plates connected with the pivots of the swing arms, said blade having a member attached to the piston rod, and links pivoted to the top of the blade and adjustably connected with the swing arms.

2. A bulldozer attachment including, side supports adapted to be secured to the front portion of a tractor, a transverse A-shaped frame mounted on the forward ends of the supports, an inclined sleeve secured to the apex of said frame, a hanger bar adjustable in said sleeve and extending from the lower end thereof, a hydraulic cylinder having its upper end pivoted to said hanger bar, a piston rod extending from the lower end of said cylinder and having a blade connection at its lower end, and a pair of swing arms, each arm comprising a longitudinal swing bar pivoted at its rear end to one of the supports and having a depending blade hanger at its front end, and a brace bar connecting the swing bar and the hanger, in combination with a dozer blade having rearwardly extending web plates pivotally connected to the hangers of the arms, said blade having a rear member attached to the blade connection of the piston rod, and links pivoted to the top of the blade and adjustably connected with the arm hangers.

WALTER I. REMINGTON.

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