

Dec. 17, 1957

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2,816,375

AUXILIARY BLADE ATTACHMENT FOR BULLDOZERS

Filed May 9, 1955

2 Sheets-Sheet 1

Fig. 1

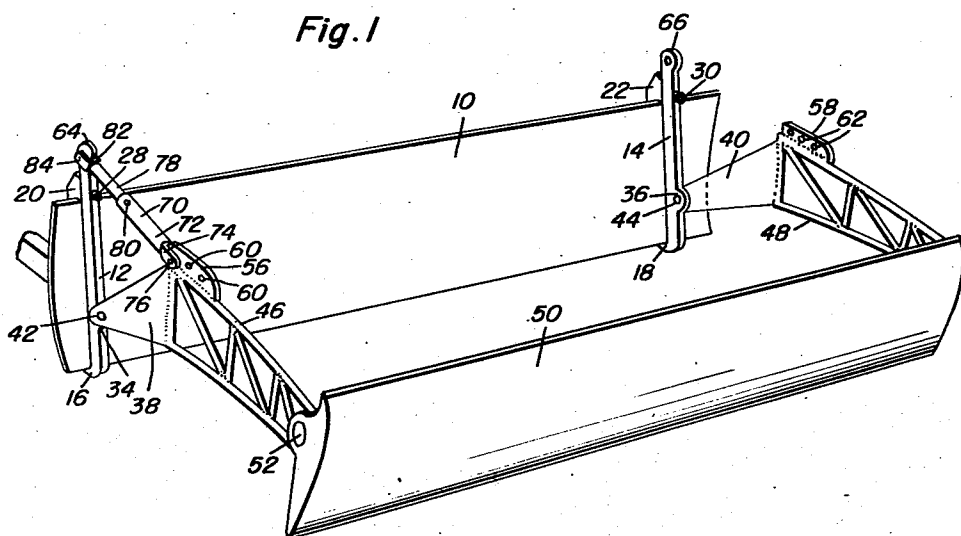


Fig. 2

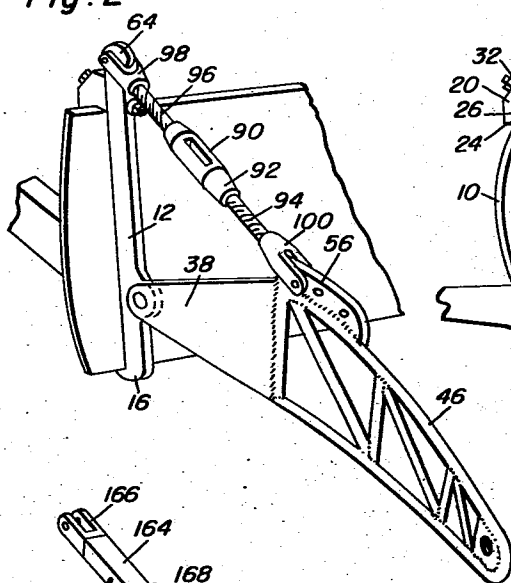


Fig. 3

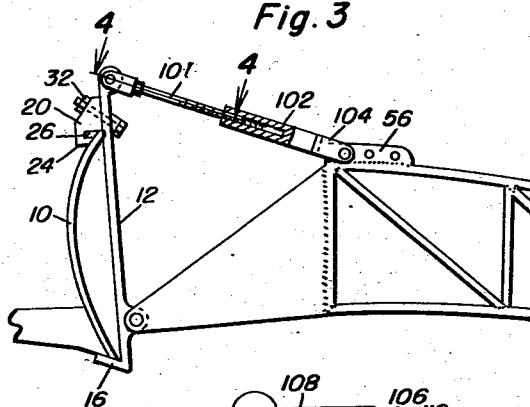
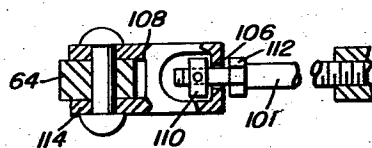


Fig. 4

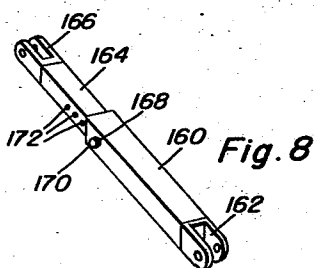


Fig. 8

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Fig. 5

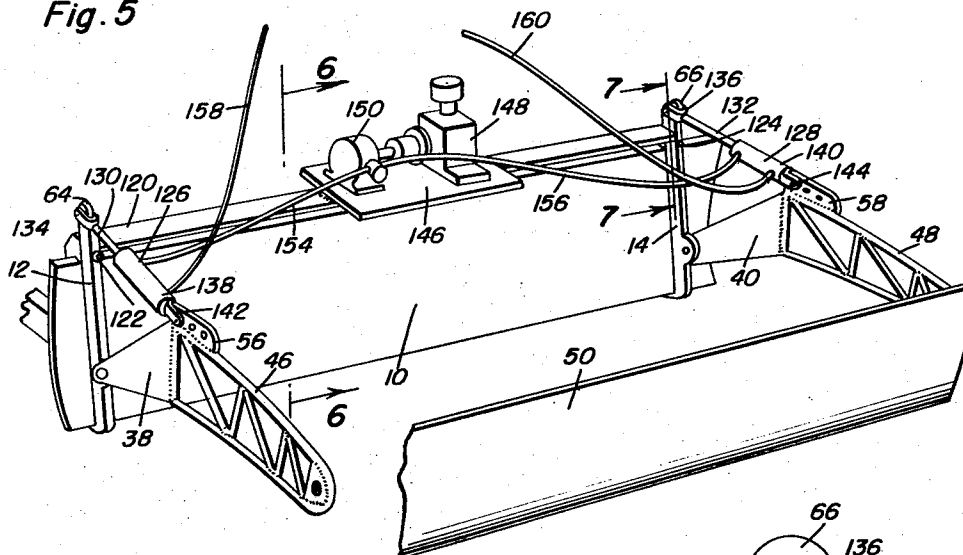


Fig. 6

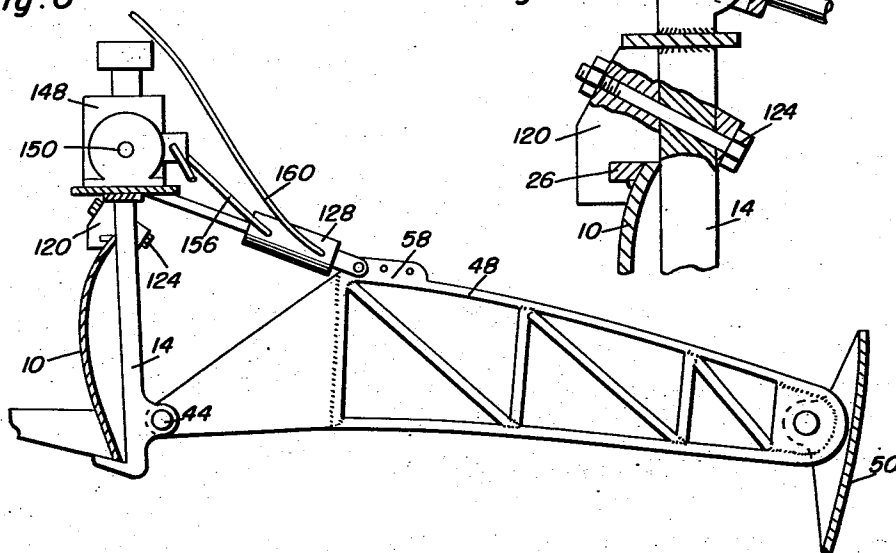
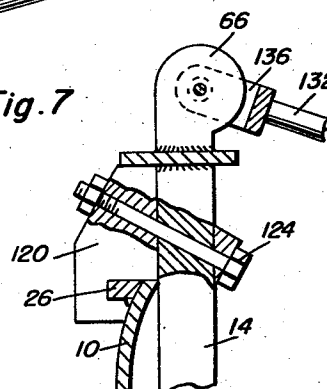


Fig. 7



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AUXILIARY BLADE ATTACHMENT FOR BULLDOZERS

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Application May 9, 1955, Serial No. 506,720

6 Claims. (Cl. 37—143)

This invention relates generally to agricultural equipment, and more particularly to a device adapted to be attached to a bulldozer blade.

The primary object of this invention resides in the provision of a detachable attachment for a conventional bulldozer blade so as to provide an auxiliary blade in forwardly spaced relationship to the bulldozer blade for utilization in back-filling ditches, grading wet spots and various other operations which cannot be easily carried out by a conventional bulldozer.

This invention is a continuation-in-part of my application for patent, Serial No. 393,562, filed November 23, 1953, for Auxiliary Blade Attachment for Bulldozers, now Patent No. 2,718,719.

A further important object of this invention resides in the provision of telescoping means for adjustably pivotally connecting the frame of the attachment to the mounting plate thereof for adjusting the auxiliary concave blade in a selected angular relationship to the conventional bulldozer blade, thereby enabling the auxiliary blade to be utilized in a versatile manner.

Still further objects and features of this invention reside in the provision of a bulldozer attachment that is simple in construction, universal in its adaptability, strong and durable, easily assembled and disassembled, while being relatively inexpensive to produce, thereby permitting wide distribution and utilization.

These, together with the various ancillary objects and features of the invention which will become apparent as the following description proceeds, are attained by this bulldozer attachment, preferred embodiments of which have been illustrated in the accompanying drawings, by way of example only, wherein:

Figure 1 is a perspective view of one form of this bulldozer attachment;

Figure 2 is a partial perspective view of a bulldozer attachment constructed in accordance with the concepts of the present invention and employing a turnbuckle arrangement;

Figure 3 is a partial elevational view with a portion thereof being shown in section of a modified form of the invention;

Figure 4 is a sectional detail view as taken along the plane of line 4—4 in Figure 3;

Figure 5 is a perspective view of a modified form of the invention employing a pneumatically operated means for adjusting the auxiliary blade;

Figure 6 is a vertical sectional view as taken along the plane of line 6—6 in Figure 5;

Figure 7 is a sectional detail view as taken along the plane of line 7—7 in Figure 5 and illustrating the means clampingly securing the bulldozer attachment to the bulldozer blade; and

Figure 8 is a perspective view of a modified form of telescoping means.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, reference numeral

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10 is used to generally designate a bulldozer blade of conventional construction which is mounted in any convenient and conventional manner on a bulldozer, not shown. A pair of mounting plates 12 and 14 of any convenient construction are provided and include angularly upwardly extending flanges 16 and 18 which engage the lower surface of the bulldozer blade 10. Clamp blocks 20 and 22 are provided, and each of the clamp blocks has a lower hook portion 24 which engages the upper flange 26 of the bulldozer blade 10 to lockingly hold the mounting plates 12 and 14 to the bulldozer blade 10 when the clamp bolts 28 and 30 which extend through the mounting plates 12 and 14 are threadedly clampingly held in engagement with the blocks 20 and 22 by means of nuts 32.

The mounting plates 12 and 14 have eye portions 34 and 36 to which frame plates 38 and 40 are pivotally attached, as by pins 42 and 44.

Connected to the frame plates 38 and 40, as by welding or other suitable means, are the tubular portions 46 and 48 which in conjunction with the frame plates 38 and 40 form the frame members to which the auxiliary rearwardly concaved blade 50 is pivotally attached, as at 52. The blade 50 may be adjustably held in any desired position relative to the frame members 46 and 48 by any suitable arrangement of braces or the like, not shown, or in lieu of the pivotal connection, as at 52, the blade 50 may be rigidly secured to the frame members. Forming a portion of the frame members are plates 56 and 58 which have series of apertures as at 60 and 62 therethrough. The mounting plates 12 and 14 have upper eye portions 64 and 66 which are suitably apertured.

As is shown in Figure 1, suitable telescoping elements 70 may be utilized to adjustably interconnect the mounting plates 12 and 14 and the plates 56 and 58 of the frame members. These telescoping means 70 include an outer cylindrical member 72 having a bifurcated portion 74 through which a pin 76 extends, the pin also extending through selected ones of the apertures 60 and 62 to pivot the cylindrical outer portion 72 to the plates 56 and 58. Inner piston members 78 are telescopically received in the outer cylindrical members 72, and they may be pinned, as at 80, in adjusted position, the pins extending through apertures in the outer cylindrical member 72 and through one of a series of apertures in the inner member 78. The inner members 78 have bifurcated portions 82 through which pins 84 extend, the pins 84 also extending through the eye members 64 and 66.

By the use of the telescoping members 70, the frame members and hence the blade 50 can be adjusted angularly with respect to the bulldozer blade 10.

Referring now to the embodiment as is shown in Figure 2, it will be noted that in lieu of the telescoping member 70, a telescoping arrangement 90 is utilized which includes a turnbuckle 92 threadedly receiving threaded portions 94 and 96 which have bifurcated portions 98 and 100 pivotally secured to the eye portions 64 and 66 and to the plates 56 and 58.

In Figures 3 and 4, there is shown a further modification of the invention in which an externally threaded rod 101 is threadedly engaged in an internally threaded outer member 102, the outer member having bifurcated portions 104 pivotally secured to the plates 56 and 58. The threaded rod 101 extends through an aperture 106 in a bifurcated attaching member 108 which is threadedly held in position by means of stops 110 and 112, the attaching member 108 being bifurcated as at 114 for attachment to the eye portions 64 and 66.

Referring now to the embodiment of the invention as is shown in Figures 5 through 7, it will be noted that in lieu of the separate clamp blocks 22 and 24, an elon-

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gated clamp block 120 is utilized which extends between the mounting plates 12 and 14 and by means of bolts 122 and 124 clampingly secures the mounting plates 12 and 14 of the bulldozer blade 10. Terminally connected to the eyes 64 and 66 of the mounting plates 12 and 14 is a pair of hydraulic cylinder assemblies 126 and 128 which include piston rods 130 and 132 having bifurcated portions 134 and 136 receiving the eyes 64 and 66 therebetween. The cylinder portions 138 and 140 are provided with bifurcations 142 and 144 connected to plates 56 and 58 in a pivotal manner.

Welded or otherwise secured to the clamp block 120 is a base plate 146 on which is mounted a motor 148 which drives a pump 150 to which hydraulic lines, as at 154 and 156 are connected, these lines also being connected to the cylinders 138 and 140, respectively. Other hydraulic lines 158 and 160 are suitably connected to a fluid reservoir, not shown.

The operation of this form of the invention is quite simple. Use of the pump 150 and a suitable control for the motor 148 causes fluid to be pumped into either of the ends of the cylinders 138 and 140 to actuate the piston rods 130 and 132 to therefore adjust the auxiliary blade 50.

Referring now to Figure 8, it will be seen that there may be provided a telescoping linkage including an outer member 160 having bifurcated portion 162 for attachment to a frame member. An inner member 164 is also provided with a bifurcated portion 166 for attachment to one of the eyes 64 or 66. The inner and outer members may be square in cross-section, with the outer member 160 having an aperture 168 therethrough so that a pin 170 which is engaged in the aperture 160 can extend through a selected one of the series of apertures 172 in the inner member 164 to adjust the inner member 164 relative to the outer member 160.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation as shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A bulldozer attachment comprising a pair of spaced mounting plates, clamp means associated with said plates for attaching said plates to a bulldozer blade, elongated frame members pivotally connected to and projecting forwardly of said plates, a concave blade mounted on the outer ends of said frame members, said concave blade having the concave portion thereof normally facing said plates, and telescoping means terminally pivotally secured to said frame members and said plates for adjusting said frame members about said pivotal connection with said plates.

2. A bulldozer attachment comprising a pair of spaced mounting plates, clamp means associated with said plates for attaching said plates to a bulldozer blade, elongated frame members pivotally connected to and projecting forwardly of said plates, a concave blade mounted on the outer ends of said frame members, said concave blade having the concave portion thereof normally facing said plates, and telescoping means terminally pivotally secured to said frame members and said plates for adjust-

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ing said frame members about said pivotal connection with said plates, said telescoping means including a hydraulically operated cylinder and piston assembly, and means for supplying hydraulic fluid to said cylinder.

3. A bulldozer attachment comprising a pair of spaced mounting plates, clamp means associated with said plates for attaching said plates to a bulldozer blade, elongated frame members pivotally connected to and projecting forwardly of said plates, a concave blade mounted on the outer ends of said frame members, said concave blade having the concave portion thereof normally facing said plates, and telescoping means terminally pivotally secured to said frame members and said plates for adjusting said frame members about said pivotal connection with said plates, said telescoping means including a hydraulically operated cylinder and piston assembly, and means for supplying hydraulic fluid to said cylinder mounted on said clamp means.

4. A bulldozer attachment comprising a pair of spaced mounting plates, clamp means associated with said plates for attaching said plates to a bulldozer blade, elongated frame members pivotally connected to and projecting forwardly of said plates, a concave blade mounted on the outer ends of said frame members, said concave blade having the concave portion thereof normally facing said plates, and telescoping means terminally pivotally secured to said frame members and said plates for adjusting said frame members about said pivotal connection with said plates, said clamp means including clamp blocks engageable with the bulldozer blade, and clamp bolts engaging said blocks extending through said plates.

5. A bulldozer attachment comprising a pair of spaced mounting plates, clamp means associated with said plates for attaching said plates to a bulldozer blade, elongated frame members pivotally connected to and projecting forwardly of said plates, a concave blade mounted on the outer ends of said frame members, said concave blade having the concave portion thereof normally facing said plates, and telescoping means terminally pivotally secured to said frame members and said plates for adjusting said frame members about said pivotal connection with said plates, said telescoping means including an outer internally threaded member and an inner externally threaded member threadably adjustably engaged in said outer member.

6. A bulldozer attachment comprising a pair of spaced mounting plates, clamp means associated with said plates for attaching said plates to a bulldozer blade, elongated frame members pivotally connected to and projecting forwardly of said plates, a concave blade mounted on the outer ends of said frame members, said concave blade having the concave portion thereof normally facing said plates, and telescoping means terminally pivotally secured to said frame members and said plates for adjusting said frame members about said pivotal connection with said plates, said telescoping means including an outer tubular member, an inner member slidably received in said outer member, and pin means adjustably securing said inner member to said outer member.

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