

Sept. 17, 1957

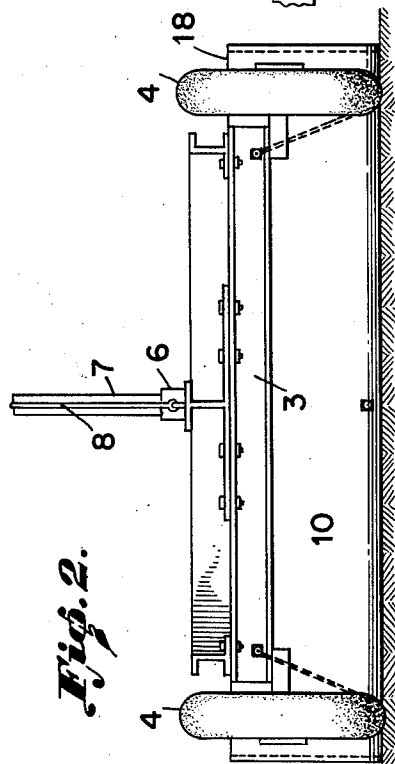
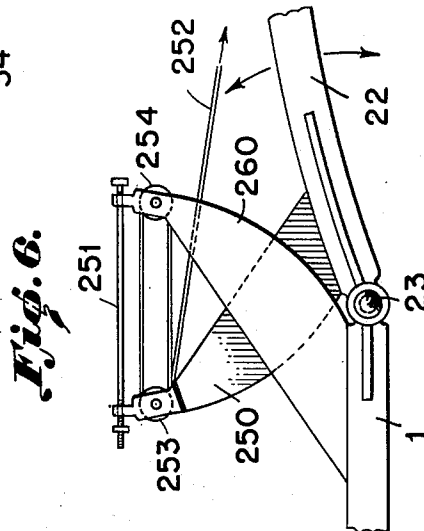
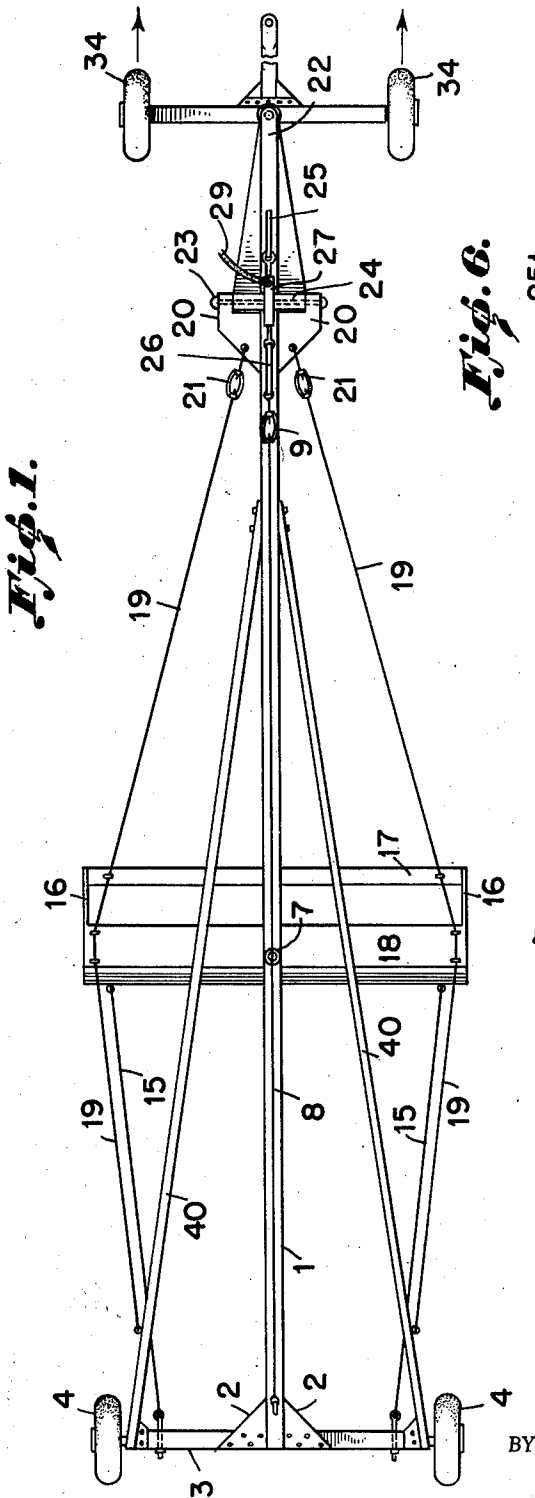
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2,806,306

LAND PLANING APPARATUS

Original Filed April 10, 1951

3 Sheets-Sheet 1



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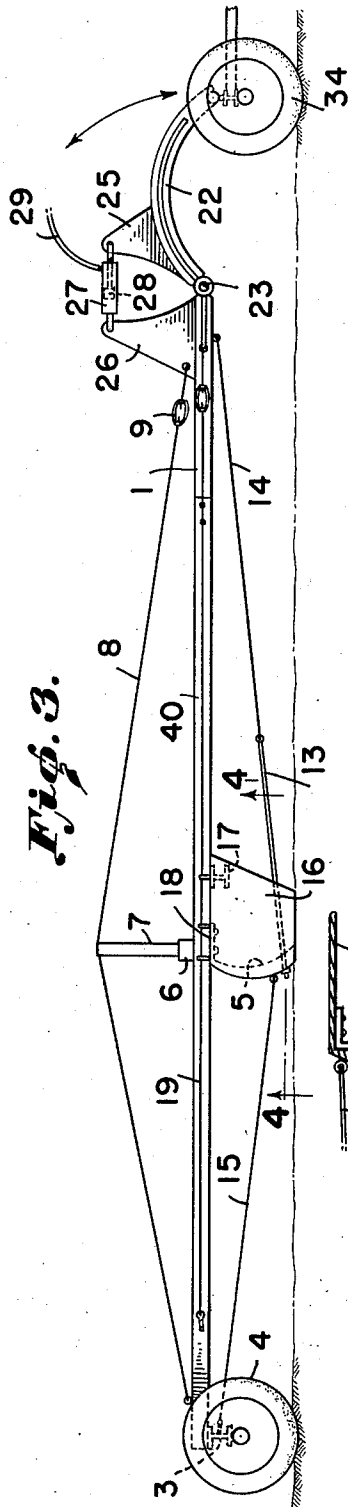


Fig. 3.

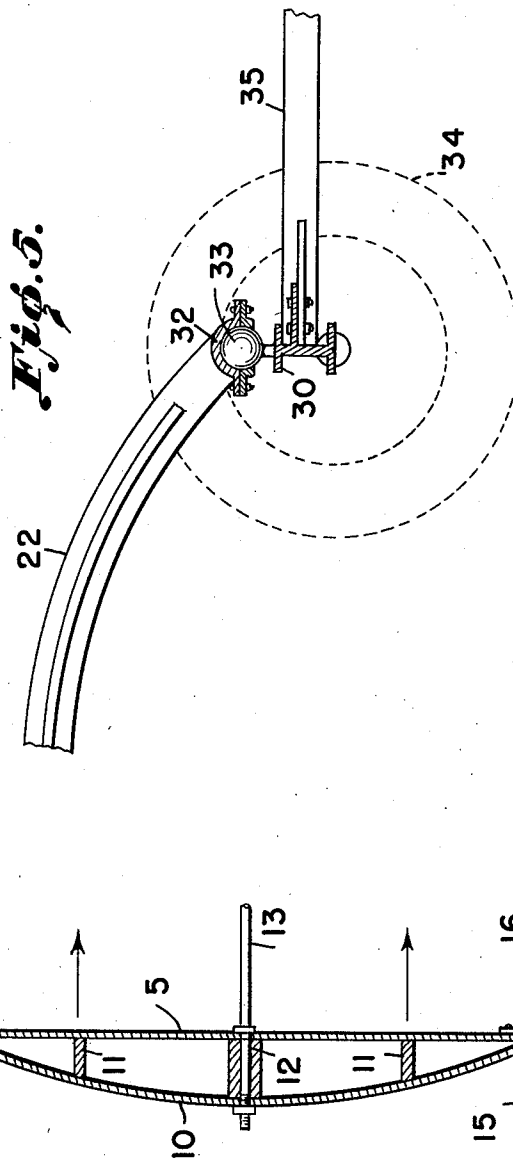


Fig. 5.

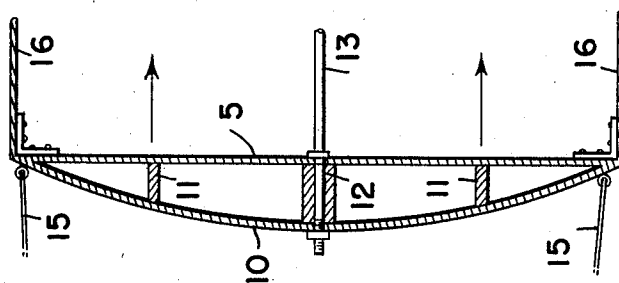


Fig. 4.

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3 Sheets-Sheet 3

Fig. 7.

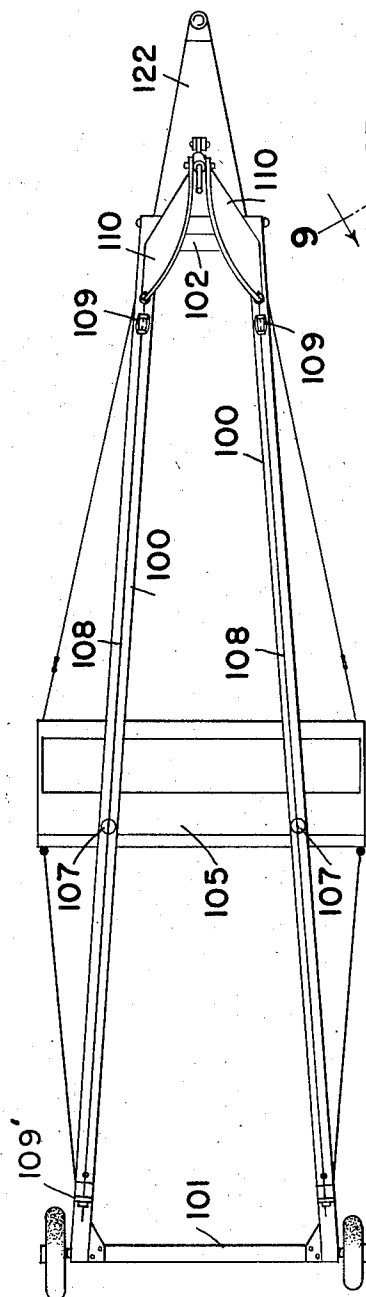


Fig. 8.

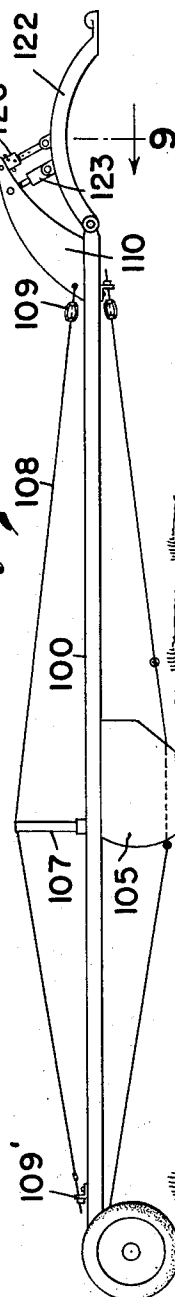
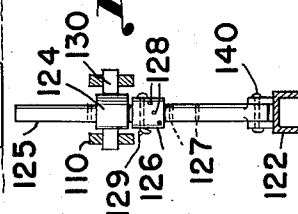


Fig. 9.



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1

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LAND PLANING APPARATUS

William Don Peterson, Fillmore, Utah

Original application April 10, 1951, Serial No. 220,326.
Divided and this application December 22, 1953, Serial No. 399,845

1 Claim. (Cl. 37—153)

(Granted under Title 35, U. S. Code (1952), sec. 266)

The invention herein described may be manufactured and used by or for the Government of the United States of America for governmental purposes throughout the world without the payment to me of any royalty thereon.

This invention relates to a land scraper, leveller, or plane. It particularly relates to a four wheeled land planing apparatus designed to be easily taken apart for shipment and to be readily re-assembled.

An object of this invention is to provide an apparatus of this character having means for controlling the height of the scraper blade from the seat of the pulling tractor.

Another object is to provide a four wheeled land plane which can readily be converted into a two wheeled scraper.

One embodiment of the invention is illustrated in the drawing in which:

Figure 1 is a plan view;

Figure 2 is a rear elevation of Figure 1;

Figure 3 is a side elevation;

Figure 4 is a cross-sectional view of the blade, on line 4—4 of Figure 3;

Figure 5 is a view partly in section of the ball and socket trailer hitch to the front wheel unit;

Figure 6 is a detail view of a modified blade height control means;

Figure 7 is a plan view of another modification;

Figure 8 is a side elevation of Figure 7; and

Figure 9 is a detail of a height adjusting means.

In the drawings is shown a main frame 1 made of pipe or I-beam. Plates 2 are welded to frame 1 and bolted to H-beam 3. Beam 3 forms or supports the rear axle, for rear wheels 4. Side braces 40 are bolted at the rear ends to beam 3, and to frame 1 at their forward ends in the modification shown in Figure 1. Directly above the line of transverse blade 5 is a sleeve 6, welded to frame 1. In sleeve 6 is mounted a short pipe length 7. Pipe 7 is placed in position in sleeve 6 during the assembly of the apparatus, and is readily removable for disassembly. Pipe 7 forms a truss support for top cable 8. Cable 8 is tightened in position by turnbuckle 9.

Blade 5 is part of a reinforced blade truss unit, shown in cross-section in Figure 4. The blade unit is mounted transversely to frame 1, being rigidly attached thereto by bolts or the like. Transverse blade 5 presents a concave curved surface forwardly, and is reinforced by curved back plate 10 and spacers 11 and 12. Rod 13 is attached at one end to the center of the blade unit, toward the lower edge, and at the other end to cable 14. Cable 14 is attached at the forward end of frame 1. Two cables 15 are attached to the rear cross beam 3 and to the edges of the blade unit. The blade is reinforced by two side plates 16 rigidly attached thereto and a cross beam 17 attached to the side plates. A narrow top shelf 18, rigidly attached to the blade and bolted to frame 1, serves as additional reinforcement. Two bracing cables 19 are attached to the side braces 40, at the shelf 18 and cross beam 17, and to frame plates 20 through

2

turnbuckles 21. The blade may be weighed by placing sand bags on shelf 18.

Frame 1 is pivotally attached to support arm 22 through hinge bolt 23 mounted in plates 20 and hinge sleeve 24 attached to arm 22 (Figures 1 and 3). The hinge can be uncoupled for shipping purposes. Arm 22 is arched as shown for strength, and for convenience in the application of the control force in the direction required to displace arm 22 angularly with respect to frame 1. The arching also permits a 90° or more turn of the wheels 34. A bracket 25 is rigidly attached to and extends upwardly from arm 22. Another bracket 26 is likewise secured to frame 1. When brackets 26 and 25 are moved toward each other, frame 1 is lowered together with blade 5. A conventional hydraulic cylinder is indicated at 27, containing a piston 28 and provided with an hydraulic line 29. Pressure in line 29 is controlled from the tractor seat (not shown) by any conventional means.

A modified control means is shown in Figure 6. The frame 1, support arm 22, and hinge 23 are the same as that shown in Figures 1 and 3. Bracket 250 is rigidly attached to arm 22. Bracket 260 is likewise attached to frame 1. In the upper ends of the brackets is mounted a rod and nut unit 251 to hold the frame 1 and arm 22 in a pre-set position if desired, or to set a limit to the upward movement of arm 22. The control of this modification is through cable 252 one end of which runs to the driver's seat. Cable 252 is wound about pulleys 253 and 254, mounted upon the brackets. The other end of the cable is attached to bracket 250. When cable 252 is pulled by the driver the upper ends of brackets 250 and 260 are pulley toward each other. This displaces arm 22 clockwise about pivot 23 (Figure 6) and frame 1 counterclockwise about pivot 23. This raises blade 5.

Arm 22 is attached to cross beam 30 by conventional ball and socket trailer coupling means 32, 33 attached thereto. Beam 30 provides the axle for two front wheels 34, and is attached to the tractor (not shown) by link 35. The arm 22 can be disconnected at 32—33 and connected directly to the tractor for use as an earth scraper.

In the modification shown in Figure 7 the frame comprises longitudinal members 100, rear cross beam 101, and forward cross member 102. The frame supports transverse blade 105. Demountable pipe sections 107 are mounted upon each beam 100. Reinforcing cables 108 are attached to the beams at 109 and to the brackets 110. Cables 108 are pulled taut over the ends or through the ends of pipes 107 by adjusting buckles 109. Supporting arm 122 is similar to arm 22. Arm 122 is displaced angularly toward frame 100 upon operation of hydraulic cylinder 123. The piston of this cylinder is attached to and between brackets 110. The height of the blade can be fixed or adjusted by the apparatus shown in detail in Figure 9. A sleeve 124 is mounted on and between the tips of brackets 110 by means of pin 130. The sleeve is free to slide along rod 125, thus allowing the blade to be raised by the hydraulic cylinder and released back to the position set by stop sleeve 126. Rod 125 is pivotally mounted on 122 at 140. Rod 125 is provided with equidistant holes 127. Stop sleeve 126 is provided with diagonally spaced holes 128. Sleeve 126 is fixed in position by pin 129, through the holes. The scraper blade can therefore be set at any desired depth of cut.

This application is a division of my application Serial No. 220,326, filed April 10, 1951, now abandoned.

I claim:

In a wheeled land planing apparatus comprising a frame having means toward one end for mounting traction wheels, an earth-contacting blade supported by the frame, a wheel unit having a support arm attached there-

3

to, transverse hinge means for coupling the support arm to the other end of the frame, and adjustable stop means to limit the minimum height of the earth-contacting blade above the ground, the improvement which comprises a first lever bracket rigidly secured to the frame adjacent the hinge, said first lever bracket extending upwardly and forwardly to overhang the support arm of the wheel unit, a second lever bracket rigidly secured to the support arm of the wheel unit, said second lever bracket extending upwardly and rearwardly to overhang the end of the frame adjacent the transverse hinge, said lever brackets crossing one another at a point intermediate their extremities, pulley means rotatably mounted near the upper extremity of each lever bracket, and a cable secured by one of its ends to one of the said lever brackets and wound in succession around each of the pulleys

4

whereby the height of the blade above the ground may be adjusted by varying the tension in the cable, the aforementioned adjustable stop means being connected between the upper extremities of the lever brackets thereby restricting the maximum separation of said upper extremities.

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