

[54] **MOTOR POWERED PLOW**

[72] Inventor: Woodrow Boyd, Route One, Lapine, Ala. 36046

[22] Filed: Jan. 26, 1970

[21] Appl. No.: 5,633

[52] U.S. Cl. 172/259, 172/332, 172/358, 172/427, 172/675, 172/773

[51] Int. Cl. A01b 69/00, A01b 3/02

[58] Field of Search 172/322, 332, 383, 397, 358, 172/668, 675, 744, 42, 21, 63, 64, 139, 238, 240-245, 256, 259, 260, 265, 384, 423, 429, 481, 734, 736, 773

[56] **References Cited**

UNITED STATES PATENTS

2,260,110	10/1941	Blohm.....	172/256 X
3,010,744	11/1961	Hollis.....	172/773 X
1,097,920	5/1914	Edwards.....	172/675 X
1,553,919	9/1925	Smith.....	172/675 X

FOREIGN PATENTS OR APPLICATIONS

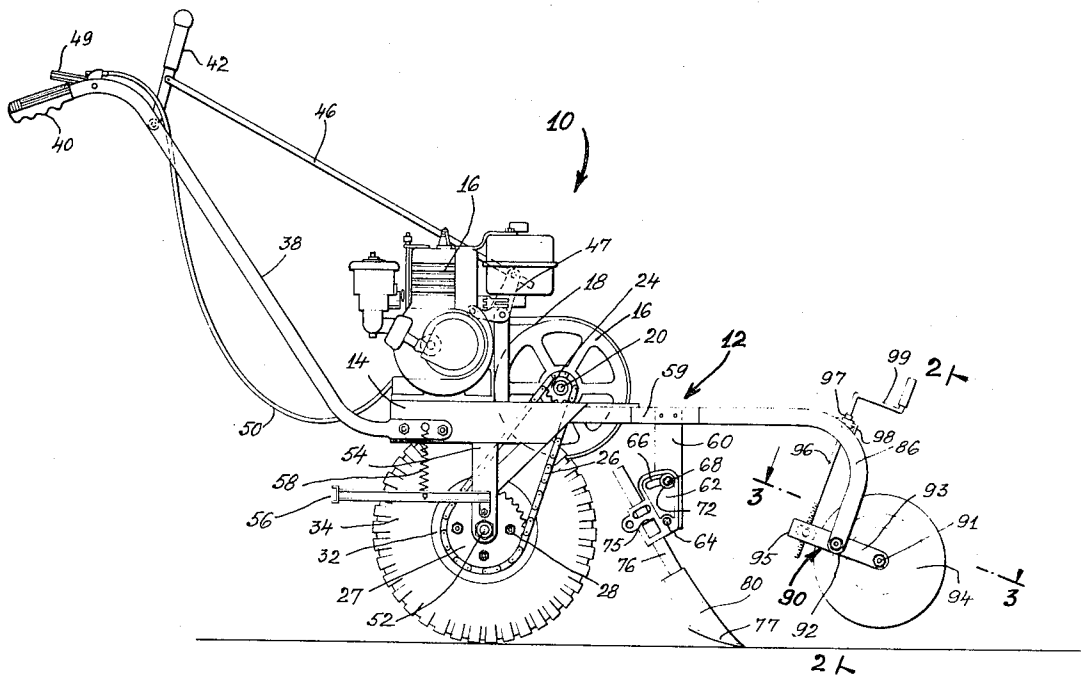
656,537	1/1929	France.....	172/427
948,926	8/1956	Germany.....	172/427

Primary Examiner—Robert E. Bagwill
 Assistant Examiner—R. T. Rader
 Attorney—Polachek, Saulsbury & Hough

[57] **ABSTRACT**

A hand guided, motor driven plow has a main driving wheel located under a platform directly beneath a massive driving engine which drives the wheel. Frame members extending forwardly of the platform carry an adjustable mounting for a plow blade which is disposed immediately forward of the main wheel. The cutting angle and elevation of the plow blade can be adjusted. Another adjustable mounting forward of the plow blade carries an auxiliary wheel which is adjustable in elevation. The main wheel, auxiliary wheel and plow blade are all vertically aligned in the central vertical plane of the plow.

3 Claims, 8 Drawing Figures



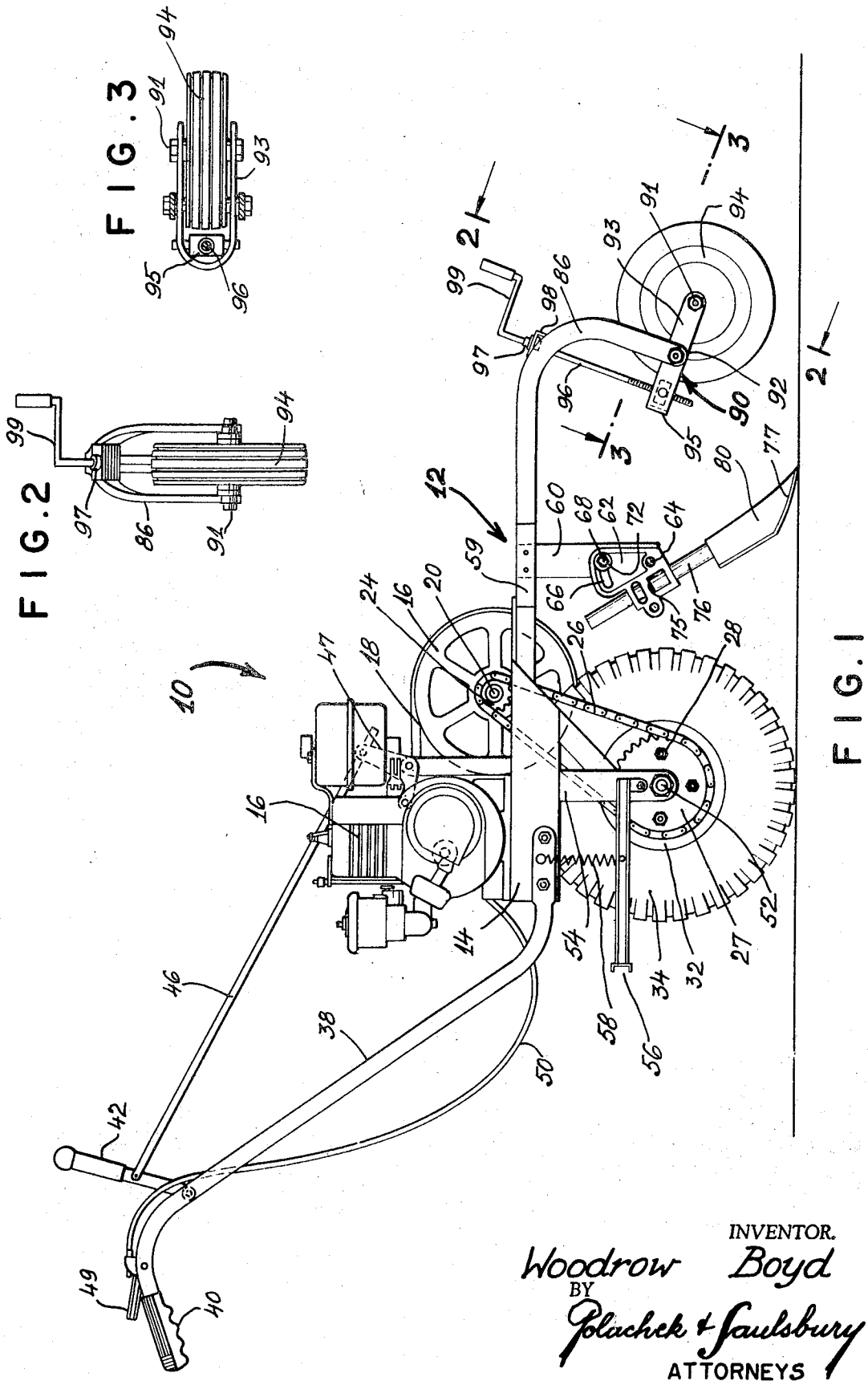


FIG. 1

FIG. 2

FIG. 3

INVENTOR.
Woodrow Boyd
BY
Plachek & Saulsbury
ATTORNEYS

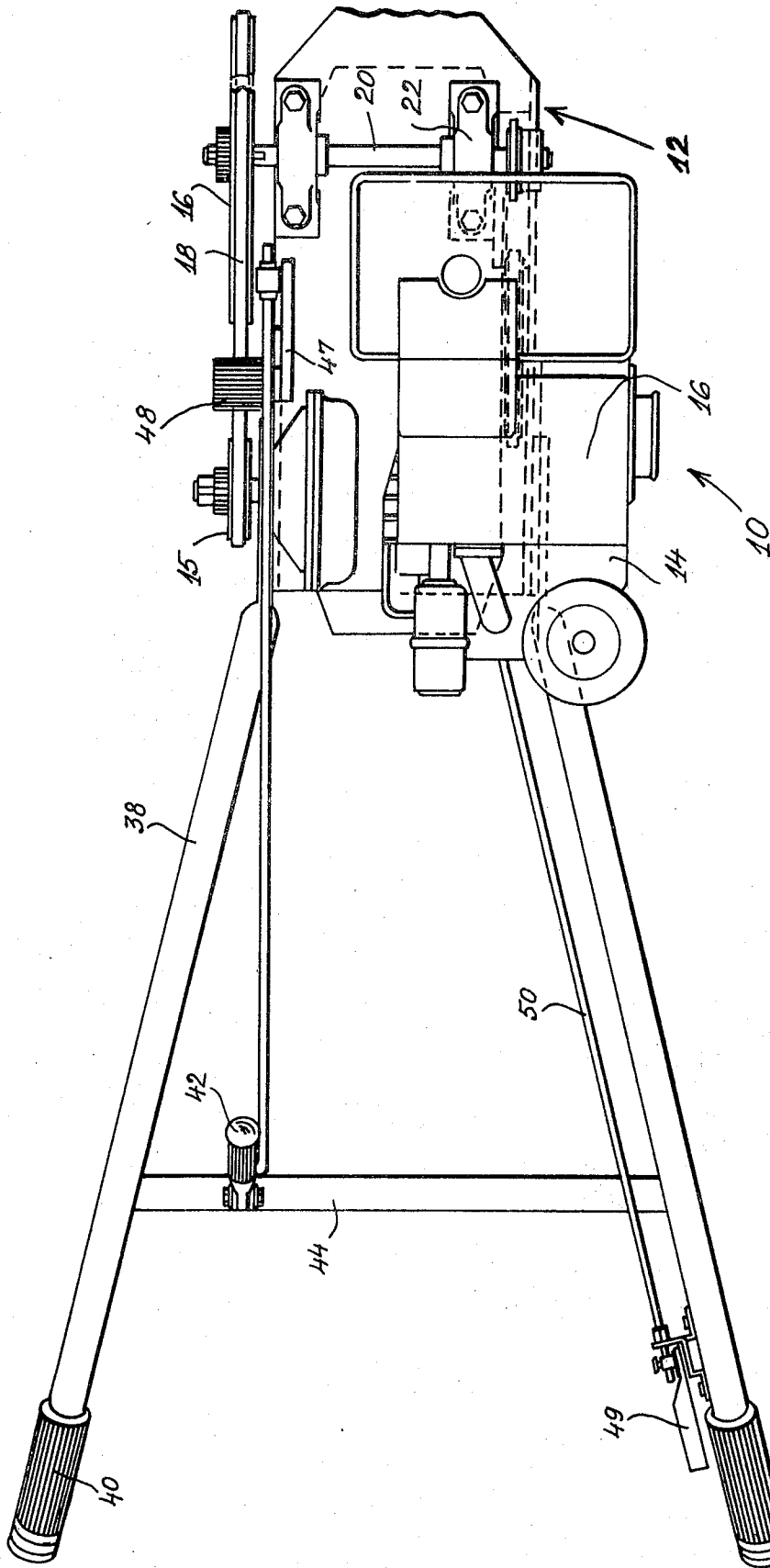


FIG. 4A

INVENTOR.
Woodrow Boyd
By
Glacke & Faulstich
ATTORNEYS

FIG. 4B

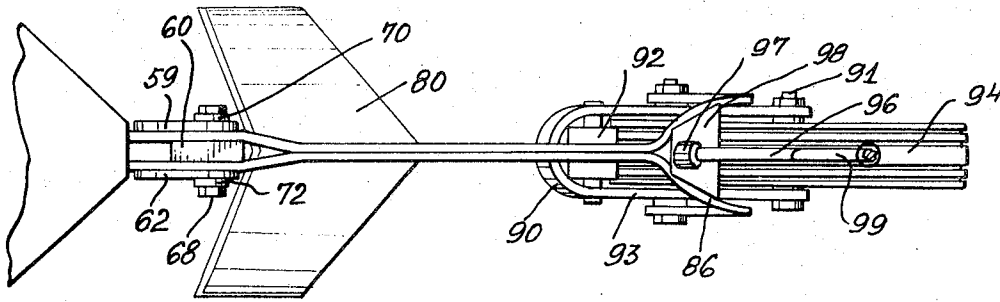


FIG. 5

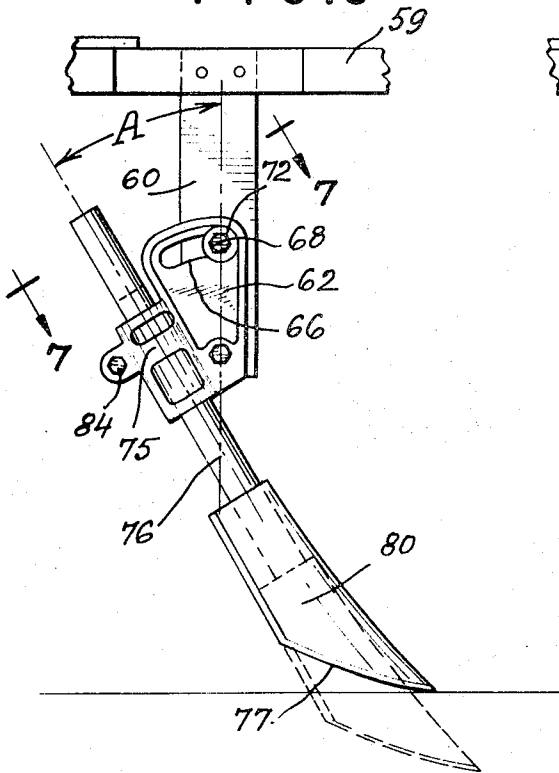


FIG. 6

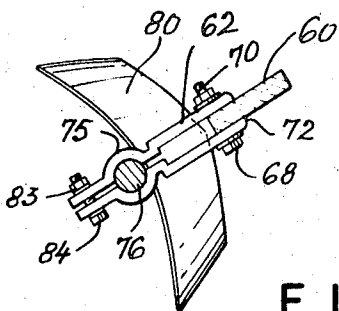
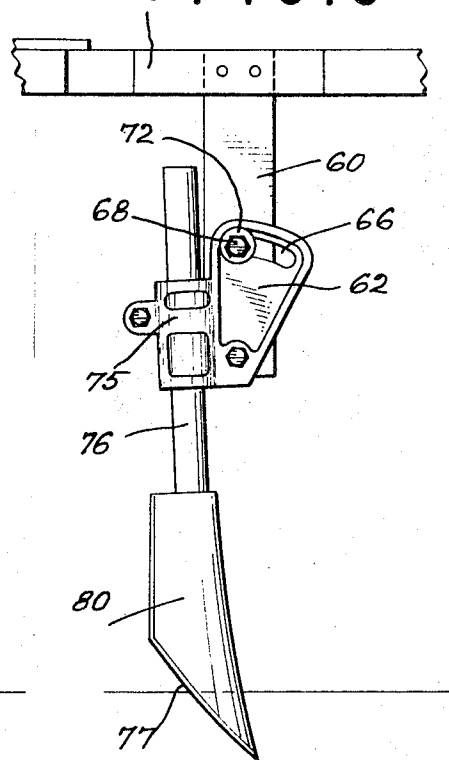


FIG. 7

INVENTOR.
Woodrow Boyd
BY
Plachek & Faulstich
ATTORNEYS

MOTOR POWERED PLOW

This invention relates to the art of motor powered plows and more particularly concerns an improved plow having a driving wheel located behind the plow.

Heretofore it has been conventional to construct garden-type motorized plows with a driving wheel located in front of the plow blade or plow share. Such construction is shown typically in U.S. Pat. Nos. 3,116,140 and 2,647,450. The plow blade is located behind the driving wheel and behind the plow blade is an auxiliary wheel for controlling the depth at which the plow penetrates the soil. A principal difficulty encountered with the prior constructions is that the driving motor is offset from both the driving wheel and plow blade so that the full benefit of the weight of the motor in forcing the plow blade into the soil is not obtained. Furthermore, in some constructions as in U.S. Pat. No. 2,647,450, the motor is so located that it tends to withdraw the plow blade from the ground since it unbalances the machine ahead of the driving wheel. Other difficulties are encountered in prior motor driven plows and cultivators due to lack of adjustability of the plow blade and poor adjustability of the auxiliary wheel.

The present invention is directed at overcoming the above and other difficulties and disadvantages of prior motor powered, hand guided plows and cultivators by providing a machine in which a single main driving wheel is placed behind a plow blade and centrally located directly underneath a driving engine. This insures proper balance, ease in handling, and formation of neat, straight furrows. The forward positioning of the plow blade enables plowing close to a fence or wall. The extra weight on the driving wheel enhances traction so that the plow moves ahead even in quite slippery ground. The driving wheel runs in the furrow which provides the better traction and keeps the plow at an even depth because machine runs in a plowed track of uniform depth.

The present machine further includes a single front wheel and a mounting assembly which allows easy plowing depth adjustments by means of a threaded crank. Also the plow blade is provided with an adjustable mounting which permits both vertical and angular adjustment with respect to the ground.

The above and other advantages, features and characteristics of the invention are described in further detail in the following detailed description taken together with the drawings, wherein:

FIG. 1 is a side view of a motor driven, hand guided plow or cultivator embodying the invention.

FIG. 2 is a fragmentary end view taken on line 2—2 of FIG. 1.

FIG. 3 is a fragmentary sectional view taken on line 3—3 of FIG. 1.

FIG. 4A is a fragmentary top plan view of the plow in part.

FIG. 4B is a fragmentary top plan view of the plow in continuation of FIG. 4A.

FIG. 5 is a fragmentary enlarged side view taken on line 5—5 of FIG. 4.

FIG. 6 is a view similar to FIG. 5 illustrating the adjustment of the plow blade.

FIG. 7 is a sectional view taken on line 7—7 of FIG. 5.

Referring first to FIG. 1, there is shown the plow or cultivator 10 embodying the invention. This machine has a frame 12 defining a platform 14 on which is mounted an engine 16. This engine may be an internal-combustion engine of known type. The engine has a drive sheave 15 driving jack sheave 16 via an endless V-belt 18. Shaft 20 carries sheave 16 and is supported in bearings 22 on platform 14. Shaft 20 carries a small sprocket 24 on which is entrained a chain 26 engaged around a larger sprocket 27 secured by bolts and nuts 28 to one side of wheel 32. A pneumatic tire 34 is mounted on wheel 32. Two handles 38 extend rearwardly from the frame 12 and carry hand grips 40. A pivotable handle 42 is mounted on crossbar 44. Handle 42 engages a link 46. Link 46 actuates a bell crank lever 47 serving as a belt clutch. Roller 48 on lever 47 bears on and controls belt 18. An engine speed control lever 49 is mounted at one hand grip, and controls the engine

via flexible cable 50. Wheel 32 is carried by axle 52 near the bottom end of vertical bracket 54 secured to the underside of the platform 14. A stand 56 is secured to bracket 54 and extends rearwardly. Springs 58 connect the stand and platform on opposite sides of the wheel and tire.

Secured between frame bars 59 which extend forwardly from platform 14 is a bracket 60 disposed in the central vertical plane of the machine; see FIG. 2. Attached to this bracket are two plates 62 pivoting on a pin 64 at one end. The plates have slots 66 through which extends bolt 68 engaged by nut 70. Washers 72 are also provided on the bolt. When the bolt and nut are tightened plates 62 are locked in a desired angular position in the central vertical plane of the plow 10. Plates 62 are formed with curved flanges 75 defining a socket in which is axially fitted a rod 76 integrally secured with sharp laterally extending plow blade 80. Bolt 84 extends through eyes in flanges 75 and is held by nut 83 to hold the rod in place; see FIGS. 5, 6 and 7. It will be apparent from an inspection of FIGS. 5 and 6, that the rod 76 can be adjustably rotated through angle A between the axially vertical position of FIG. 6 and the angular position of FIG. 5. Furthermore, this will adjust the angle of cutting edge 77 of the plow blade. Also the rod can be adjustably positioned axially in flanges 75. By this arrangement the plow blade can be adjusted in a vertical plane upwardly or downwardly as shown by dotted lines in FIG. 5.

Frame bars 59 extend forwardly from the platform and are formed with downwardly bent sections 86 at their forward end; see FIGS. 1 and 2. These sections flare outwardly and carry a U-shaped frame 90. The frame is pivotally mounted on a shaft or pin 92 extending through legs 93 of the frame. At their forward ends the legs of the frame carry an axle 91 on which is rotatably mounted the auxiliary wheel 94. A block 95 extends across the bight of frame 90. This block has a threaded bore in which is engaged the lower threaded end of a crankshaft 96. The shaft extends upwardly through a bracket 98 on the bend of frame bars 59. Shaft 96 is journaled to rotate in a bearing 97 in the bracket. The shaft terminates in a crank handle 99. It will be apparent that turning of the crank handle will cause the frame 90 to pivot like a lever on shaft 92 as a fulcrum. This will adjust the vertical elevation of the auxiliary wheel 94 which is centered in the vertical plane of the machine. The adjustment of the height of the wheel 94 with respect to the plow blade 80 determines the depth of the furrow cut by the blade.

By the arrangement described, there is a double adjustment possible for the height of the cutting edge of blade 80, namely, by turning crank handle 99 and by adjusting rod 76 axially in plate 62. Adjusting the elevation of wheel 94 also has a fine adjustment effect on the cutting angle of the plow blade. A larger range of adjustment is possible by turning plates 62 on pivot pin 64.

The plow or cultivator described has the important advantage that the driving wheel 32 is disposed immediately behind the plow blade. This keeps the driving wheel moving in the furrow just plowed and prevents lateral wobbling and vibration of the plow blade. Furthermore, the weight of the massive engine is centered over the driving wheel so that the plow blade immediately adjacent has the benefit of this weight in penetrating the soil. The wide auxiliary wheel runs on hard unplowed ground, so that the plow blade remains at predetermined, fixed elevation to plow a furrow of uniform depth.

It will be noted that parts such as plow blade, auxiliary wheel and driving wheel are all readily removable for easy repair or replacement. The machine structure described is rugged in construction, and relatively inexpensive to manufacture. It will provide long, trouble-free performance with improved plowing results than has been possible with comparable hand guided, power driven plows and cultivators.

What is claimed is:

1. A soil plowing machine, consisting essentially of a horizontal platform; an engine mounted on the platform; a single main wheel rotatably mounted under the platform and directly below the engine so that the weight of the engine is

3

4

borne by the wheel; transmission means operatively coupling the engine and wheel so that the wheel is driven by the engine; a frame member extending forwardly from said horizontal platform, said frame member including a first portion extending substantially horizontal in a forwardly direction and also including a terminal portion angling downwardly; a first mounting structure for a plow blade secured to said frame members on said substantially horizontal first portion immediately forward of the main wheel; first support means for adjustably supporting said plow blade on said first mounting structure; a second mounting structure for rotatably supporting an auxiliary wheel, said second mounting structure having a leverage point for adjusting height of said auxiliary wheel, and said second mounting structure being carried by said frame member immediately forward of said first mounting structure at about said terminal portion; first adjustable means mounted on said substantially horizontal first portion including a lever extending to said leverage point and attached to said leverage point wherein said second mounting structure comprises a U-shaped frame pivotally secured to the free end of said terminal portion; said first adjustable means comprising a manually rotatable crank engaged between said U-shaped frame and said frame member such that said auxiliary

wheel is adjustable in elevation with respect to the frame member; said first mounting structure comprising a bracket, said first support means comprising plates pivotable in a vertical plane for adjusting the angular position of the plow blade to the soil, and said first support means further comprising a pair of coupled flanges for carrying the plow blade at adjustable elevations with respect to the soil; said soil plowing machine including said auxiliary wheel rotatably mounted on said second mounting structure; including said plow blade mounted by said first mounting structure; and each of said main wheel, plow blade, and auxiliary wheel being about vertically centered in the central vertical plane of said horizontal platform.

2. A soil plowing machine as defined in claim 1, further comprising a cylindrical rod engaged in said flanges and axially adjustable therebetween; and a plow blade carried by said rod immediately forward of the main wheel, said plow blade and said main wheel both being centered in the central vertical plane of said horizontal platform.

3. A soil plowing machine as defined in claim 1, further comprising said auxiliary wheel rotatably mounted between the legs of said U-shaped frame.

* * * * *

25

30

35

40

45

50

55

60

65

70

75