Feb. 20, 1951 R. BURCHETT 2,542,474

TERRACING MACHINE

Filed March 8, 1949 2 Sheets-Sheet 1

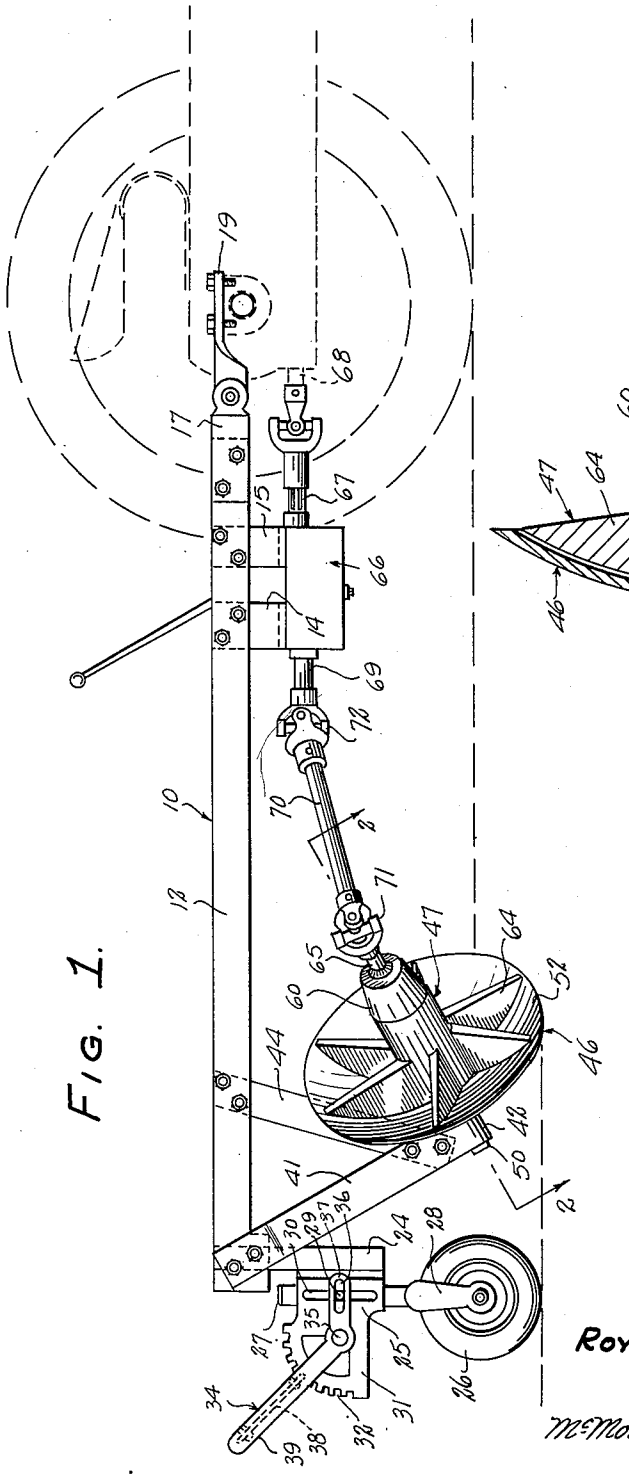


FIG. 1.

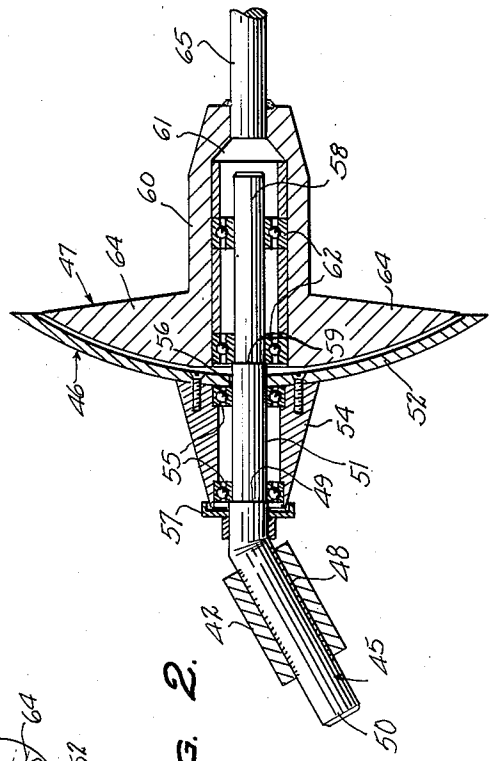


FIG. 2.

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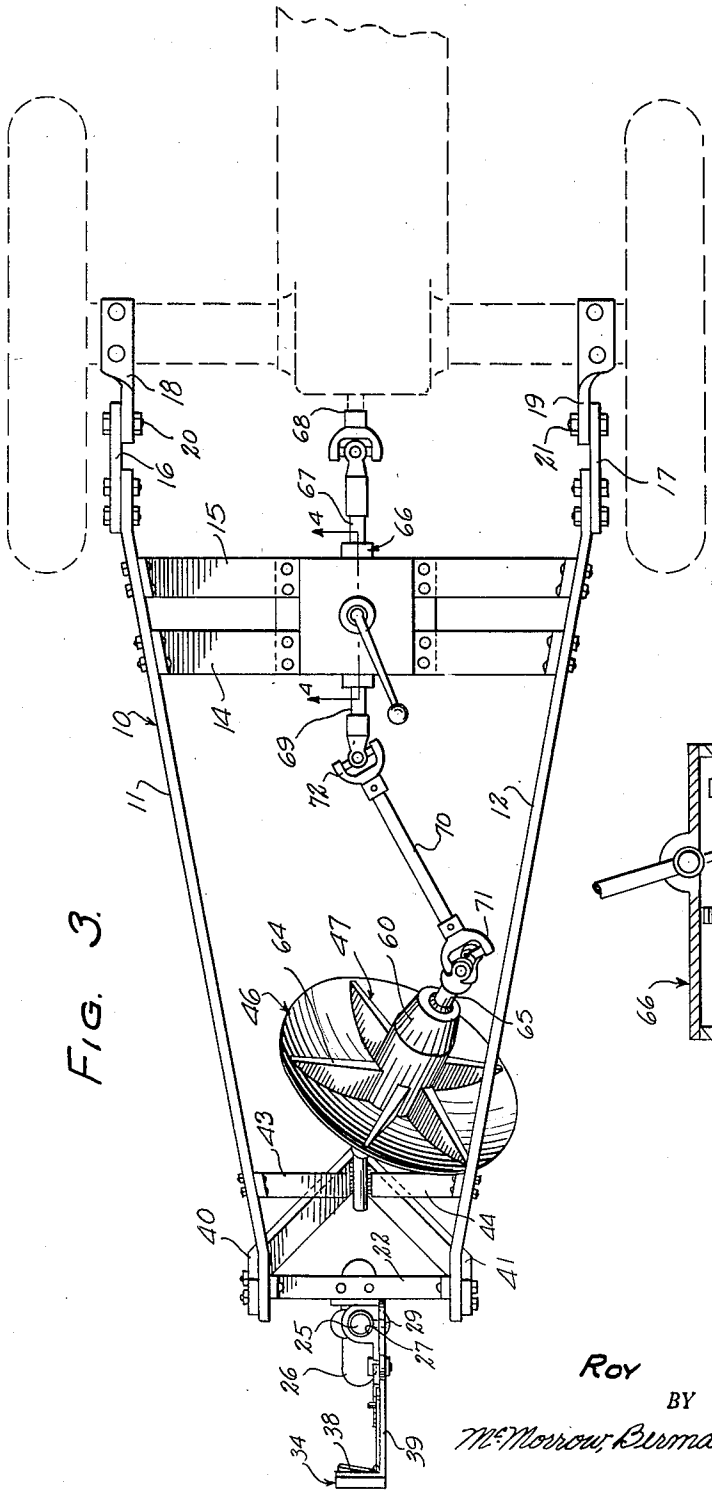


FIG. 3.

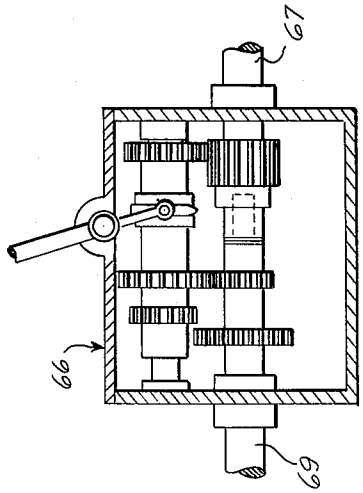


FIG. 4.

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TERRACING MACHINE

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1 Claim. (Cl. 37—92)

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This invention relates to an earth excavator, and more particularly to an excavator for forming farm terraces and drain ditches.

It is an object of this invention to provide a terracing and ditching machine for attachment to the power take-off of a tractor for quickly and accurately excavating terraces and ditches on a farm or the like. The excavator comprises a rotatably-mounted disc having a power-driven impeller mounted concentrically thereto and engaging in the cavity of the disc for moving the soil from the disc to one side for forming a terrace.

Another object of this invention is to provide an excavator of the kind to be more particularly described hereinafter adapted for swingable mounting on the rear end of a tractor, or separate carriage, and having an adjustable rear supporting wheel for supporting the disc at a selected depth relative to the general surface of the area to be worked.

With the above and other objects in view, my invention consists in the arrangement, combination and details of construction disclosed in the drawings and specification, and then more particularly pointed out in the appended claim.

In the drawings:

Figure 1 is a side elevation of the terracing machine constructed according to an embodiment of my invention;

Figure 2 is a longitudinal section through the disc and impeller, taken substantially on the line 2—2 of Figure 1;

Figure 3 is a top plan view;

Figure 4 is a fragmentary detail section, taken on the line 4—4 of Figure 3, showing the change-speed transmission gearing.

Referring to the drawings, the numeral 10 designates generally a supporting frame on which the plow blade and impeller of the terracing machine, constructed according to an embodiment of my invention, are mounted. The supporting frame 10 is substantially V-shaped in plan view, having the front end thereof pivotally mounted to the rear end of a tractor, or separate carriage.

The frame 10 is formed of a pair of side frame members 11 and 12 which are disposed in rearwardly-converging relation to each other. A pair of transverse frame members 14 and 15 are fixedly mounted between the forward ends of the side frame members 11 and 12 and the side frame members extend forwardly beyond the side edges of the transverse frame members 14 and 15. The extreme forward ends of the side frame members 11 and 12 are provided with bearing blocks

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or members 16 and 17 fixedly secured thereto for pivotal attachment to a pair of rearwardly-extending ears or bearing members 18 and 19, respectively. The bearing members or ears 18 and 19 are fixedly mounted on the axle of the rear wheels of the tractor and the pivot pins 20 and 21, which connect the side frame members 11 and 12 to the bearings 18 and 19, provide for the vertical swinging attachment of the frame 10 to the tractor.

A transverse bar 22 is fixed between the rear ends of the frame members 11 and 12 for securing the frame members together. The frame member 22 is disposed at the convergent ends of the side frame members 11 and 12 and a vertically-extending rear post 24 depends from the frame member 22.

A bearing or sleeve 25 is fixedly mounted on the rear end of the post 24 for supporting the axle of the rear wheel 26. The upwardly-extending shank or bar 27 of the rear yoke 28 is slidably supported within the sleeve or bearing 25 and a pin 29 fixed on the shank 27 extends outwardly through an elongated, upwardly-extending opening or slot 30 in the sleeve 25.

A segment 31 is fixedly mounted on the rear end of the sleeve 25, the segment being formed with a plurality of notches 32 along the arcuate edge thereof. A lever 34 is pivotally mounted on a pin 35 fixed on the segment 31, the pin 35 engaging the lever 34 intermediate the length thereof. The forwardly-extending arm 36 of the lever 34 is formed with an elongated slot 37 therein within which the pin 29 is adapted to be engaged. A locking member 38 is slidably carried by the other arm 39 of the lever 34 for engagement in a selected one of the notches 32 for locking the lever 34 in a selected pivoted position. The pivotal movement of the lever 34 about the pivot pin 35 will slide the shank 27 of the yoke 28 vertically in the sleeve 25 for positioning the wheel 26 in a selected vertical position relative to the frame 10. With the wheel 26 engaged on the ground, the pivotal movement of the lever 34 will effect the raising or lowering of the rear end of the frame 10.

A pair of downwardly and forwardly-extending side bars 40 and 41 are fixed at their upper ends to the opposite side frame members 11 and 12. The downwardly-converging side supporting arms 40 and 41 are fixed together at their bottom ends, and an upwardly and forwardly-extending sleeve or bearing 42 is fixedly mounted at the extreme lower ends of the side bars 40 and 41. A second pair of supporting arms 43 and 44 are fixed

at their upper ends to the side frame members 11 and 12 forwardly of the connection of the supporting members 40 and 41. The lower ends of the supporting arms 43 and 44 are fixedly connected to the lower ends of the bars 40 and 41 immediately adjacent the bearing 42.

An axle 45 is fixedly mounted in the bearing 42 for supporting the harrow disc 46 and impeller 47. The rear, enlarged end of the axle 45 is fixed in the bearing 42 by welding indicated by the numeral 48, or other suitable fastening means. The rear end of the axle 45 is disposed in an upwardly and forwardly-extending position relative to the side frame members 11 and 12. The forward, reduced portions of the axle 45 are bent outwardly relative to the rear end portion and a shoulder 49 is formed between the rear end portion 50 of the axle 45 and the intermediate portion 51.

The forwardly-concave harrow disc 46 is rotatably mounted on the intermediate portion 51 of the axle 45. The disc 46 is formed with a forwardly-concave disc body 52 having a hub portion 54 fixed on the rear side thereof. A pair of bearings 55 are carried by the hub portion 54 and engage on the intermediate section 51 of the axle. The axle extends through a central opening 56 in the center portion of the disc body 52 so that the disc 46 is freely rotatable on the axle 45. The rear end of the hub 54 is closed by a cover 57 which is fixedly mounted on the extreme forward end of the enlarged section 50 of the axle.

The impeller 47 is rotatably mounted on the extreme forward end 58 of the axle 45. The forward portion 58 is of a reduced diameter relative to the intermediate section 51 and a shoulder 59 is formed between the adjacent ends of the intermediate section 51 and the front section 58. The impeller 47 includes a hub 60. The hub 60 is formed with a rearwardly-opening bore 61 therein and a pair of longitudinally-spaced-apart bearings 62 are carried by the hub 60 for rotatable engagement with the forward section 58 of the axle 45. A plurality of radially-extending blades 64 are fixed to or formed on the rear end of the hub 60. The blades 64 are arcuate along their rear edges to provide a substantially convex surface for engagement within the concave front portion of the disc 46. The arc of the rear edges of the blades 64 is substantially the same as the arc of the concavity of the disc 46, and the blades 64 are spaced forwardly from the forward surface of the disc 46 only a slight distance, so that the blades 64 will move the earth from the disc. The extreme outer ends of the blades 64 are terminated within the disc 46 to leave the extreme marginal edges of the disc for cutting engagement in the earth.

A stub shaft 65 is fixed on the forward end of the hub 60 extending coaxially therewith. The rear end of the shaft 65 is fixed to the forward wall of the hub 60 and substantially closes the forward end of the bore 61.

A change-speed transmission 66 is mounted on the forward end of the frame 10 and includes a forwardly-extending shaft 67 which is adapted to be connected to a drive shaft 68, driven by the power take-off tractor. A driven shaft 69 extends from the rear end of the transmission 66 and is adapted to be connected to the stub shaft 65 of the impeller 47. An intermediate shaft 70, having universal joints 71 and 72 at the opposite ends thereof, is connected between the rear end of the shaft 69 and the forward end of the stub shaft 65.

In the use and operation of the terracing machine constructed according to an embodiment of this invention, the frame 10 is initially connected to the bearing members 18 and 19 of a tractor. The rear wheel 26 of the frame 10 is adjusted to the desired position for supporting the plow disc 46 at a selected depth relative to the surface of the earth to be worked. With the frame 10 mounted on the tractor, the plow disc 46 will be disposed at a forwardly, upwardly and outwardly-extending direction relative to the longitudinal axis of the frame 10 and to the line of travel of the tractor and the frame.

The disc 46 is freely rotatable on the axle 45 so that the forward movement of the frame 10, with the disc 46 in engagement with the work, will set the rotation of the disc. The impeller 47, being operatively connected to the power take-off of the tractor by way of the change-speed transmission 66, will be rotated at a selected speed for moving the earth out of the concavity of the disc 46 to one side thereof in a manner for forming terraces and the like. With the use of a plow disc, having an impeller mounted therein in the manner set forth above, the disposition of the plowed-up earth adjacent the trench formed by the disc may be controlled in a manner not provided for by agricultural implements of this type currently in use.

I do not mean to confine myself to the exact details of construction herein disclosed, but claim all variations falling within the purview of the appended claim.

I claim:

A farm terracing machine comprising a substantially V-shaped frame having rearwardly-converging side frame members for pivotal attachment to the rear end of a tractor having a power take-off, a vertically-adjustable wheel on the rear end of said frame, a change-speed transmission on the forward end of said frame and adapted for attachment to the power take-off of the tractor, a forwardly-extending axle fixed on said frame at the rear end at an oblique angle to the line of travel of the machine, a concave plow disc rotatably mounted on said axle and adapted to be rotated by engagement with the ground, an impeller rotatable on said axle having convex impeller blades positioned within the concavity of said disc, and a drive shaft operably connected between said impeller and said transmission for rotating said impeller from the power take-off.

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