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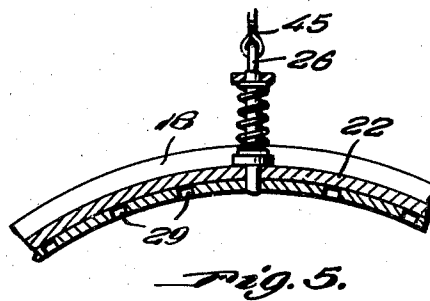
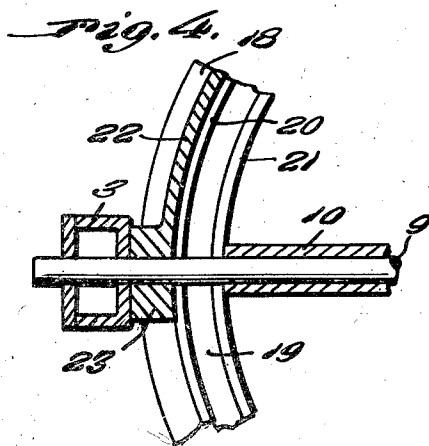
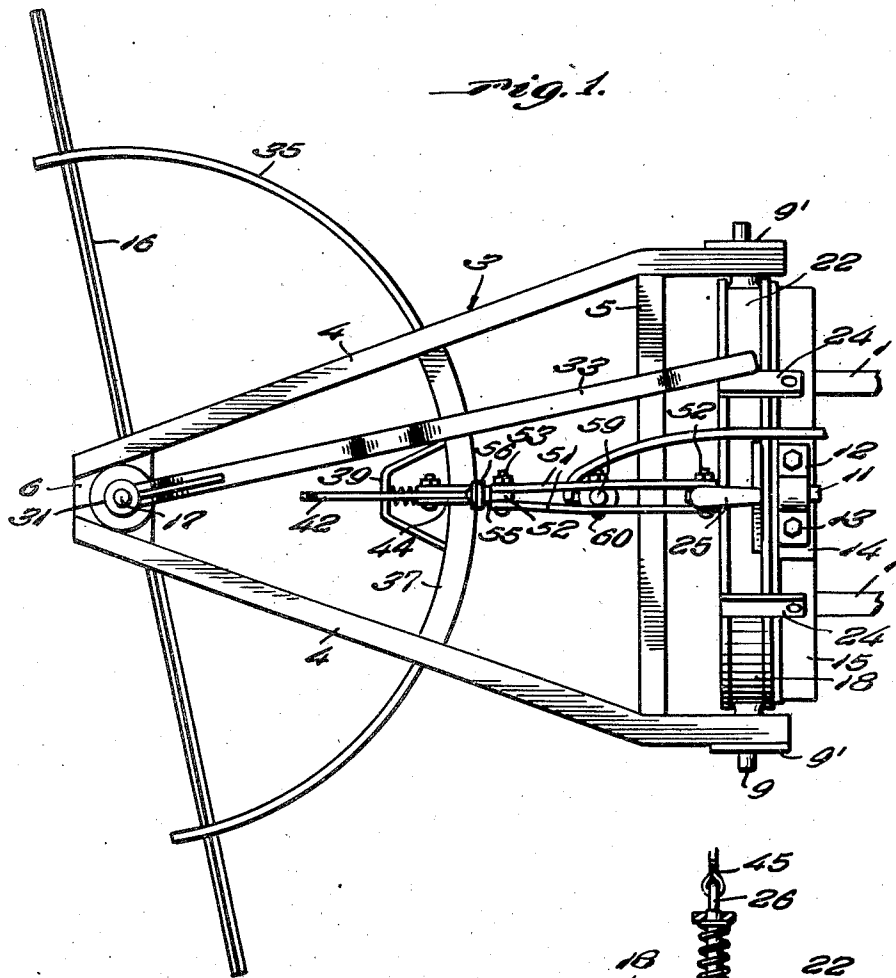
H. H. TAYLOR

2,434,818

TERRACING MACHINE

Filed March 29, 1946

2 Sheets-Sheet 1



Inventor

Herschel H. Taylor

By

*Almonce A. Brion
and Harway B. Jacobson*
Attorneys

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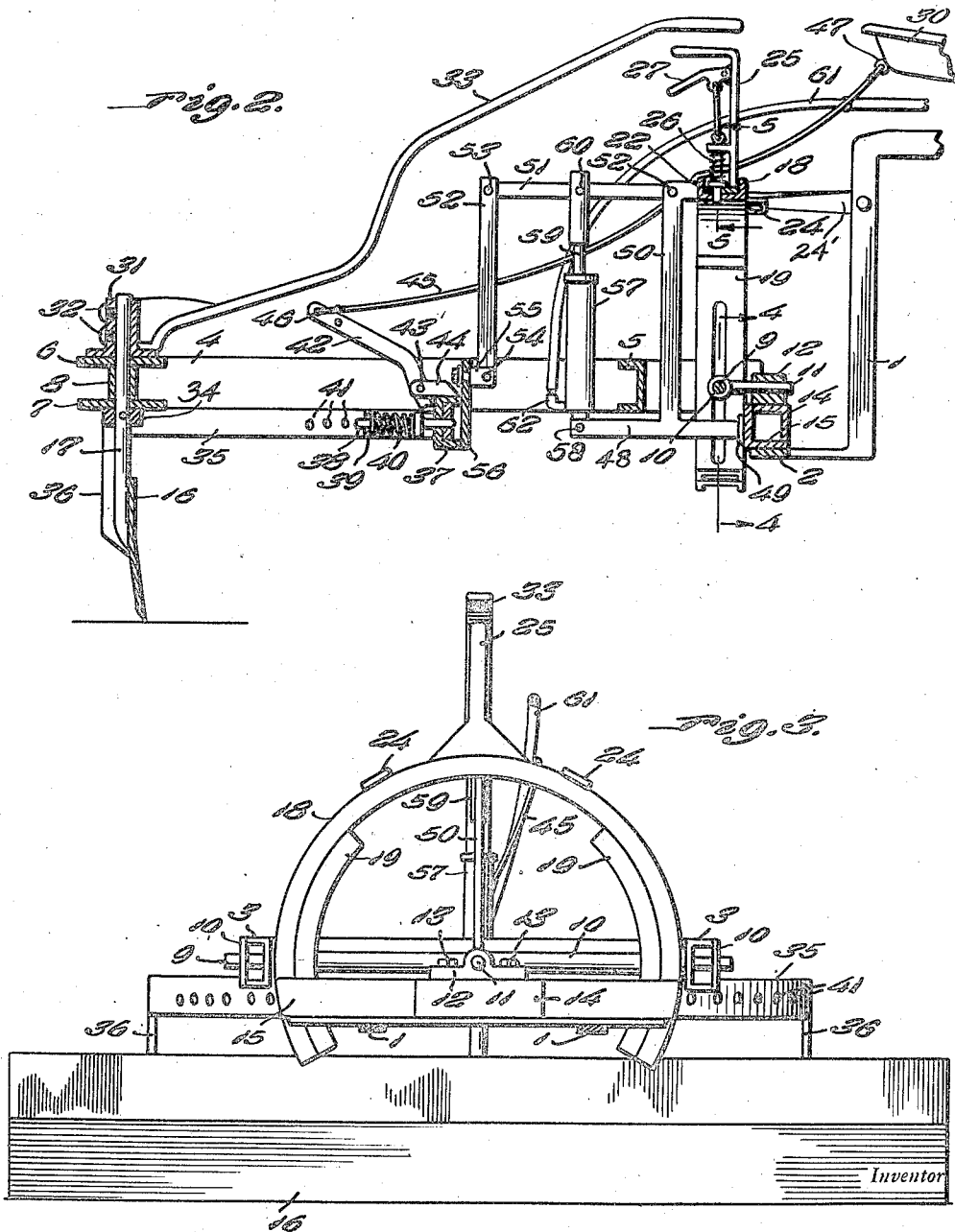
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Herschel H. Taylor

By *Clarence A. O'Brien*
and Harvey B. Jacobson
Attorneys

UNITED STATES PATENT OFFICE

2,434,818

TERRACING MACHINE

Herschel H. Taylor, Jefferson City, Mo.

Application March 29, 1946, Serial No. 658,087

3 Claims. (Cl. 37-159)

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My invention relates to improvements in terracing mechanism of the scraper blade tractor-drawn type.

The primary object of the invention is to provide a terracing mechanism adapted for attachment to the usual tractor, without altering the tractor, and in which a scraper blade is adjustable in accordance with all operating requirements in terracing, and easily from the seat of the tractor.

Another object is to provide mechanism of the character and for the purpose above set forth which is simple in construction, requires substantially no servicing, and will not readily get out of order.

Other and subordinate objects, also comprehended by my invention, together with the precise nature of my improvements, and the manifold advantages thereof will be readily understood when the succeeding description and claims are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in plan of my improved terracing mechanism in a preferred embodiment thereof,

Figure 2 is a view in vertical longitudinal section.

Figure 3 is a view in front elevation, with parts shown in section,

Figure 4 is a detail fragmentary view in vertical section taken on the line 4-4 of Figure 2 and drawn to an enlarged scale, and

Figure 5 is a detail fragmentary view in section taken on the line 5-5 of Figure 2 and also drawn to an enlarged scale.

Referring to the drawings by numerals, as shown therein, my improved terracing mechanism is designed especially for attachment to the usual pair of trailing side bars 1 of a tractor, not shown, and which form part of rigid draw-bar supporting means of certain well-known tractors of commerce and are connected by a cross-bar 2.

According to my invention, an elongated scraper blade carrying frame 3 is mounted on said cross-bar 2 to extend lengthwise rearwardly thereof and for oscillating adjustment about the longitudinal axis of the frame, and also for vertical swinging adjustment about an axis at a right angle to the axis of operation of said frame.

The frame 3 comprises a pair of side channel bars 4 connected together adjacent to the front ends thereof by a cross channel bar 5 suitably spaced from said ends and from which said side bars 4 converge rearwardly with rear ends rigidly

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connected together by suitable upper and lower plates 6, 7 having a bushing 8 rigidly imposed between the same.

For mounting the frame 3 on the cross-bar 2, the front ends of the side bars 4 are suitably fixed on the ends of a transverse rock shaft 9 extending through cheek plates 9' on said rear ends of the side bars 4. The rock shaft 9 is journaled in a tubular bearing 10 provided in its transverse center, and in the longitudinal axis of the frame 3, with a forwardly extending stub shaft 11 journaled horizontally in a bearing 12 bolted, as at 13, on top of an angle iron bracket 14 fixed upon a supporting angle iron beam 15 fixed flat on the cross-bar 2. The bracket 14 and the beam 15 may be fixed relatively, and the beam 15 fixed on the cross-bar 2, by welding, not shown.

The scraper blade 16, which is of the usual design, is mounted in the rear end of the frame 3 to extend endwise across said frame by means of a post 17 suitably fixed to said blade in the transverse center thereof with an intermediate portion extending through and journaled in the plates 6, 7 and the bushing 8, so that said post is rotatable in bearings for a purpose presently apparent.

Manually operative means are provided for oscillating the frame 3, now to be described.

An arcuate track member 18 extending transversely of the frame 3 between the front ends thereof is fixed in upright position adjacent to said ends to the rear side of the angle iron beam 15, as by welding not shown. The track member 18 is of channel form with its channel side outermost. A pair of channel iron segments 19 suitably secured in said track member 18 at opposite ends thereof reinforce said track member. Circumferentially extending slots 20, 21 in the track member and segments 19, through which the ends of the rock shaft 9 extends, permit oscillation of said shaft. The tubular bushing 10 is fitted endwise between the segments 19 for oscillation with the rock shaft 9. An arcuate yoke 22 is fitted in the channel of the track member 18 for endwise sliding movement therein, and is provided with end bearings 23 in which the ends of the rock shaft 9 are journaled. Cross-bars 24 on top of the track member 18 act to confine the yoke 22 in the channel of the track member 18 and also serve as anchors for attachment to suitable connections, as at 24', for bracing the track member 18 to the bars 1. A hand lever 25 arises from the yoke 22 in the transverse center thereof for use in sliding said yoke, and has suitably mounted thereon the usual spring-loaded detent bolt 26

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and bolt-retracting hand grip 27. The detent bolt 26 is suitably extended through the yoke 22 for entering into selected circumferentially spaced apertures 29 in the track member 18, whereby said yoke 22 may be adjusted in said member 18 into different set positions to variably oscillate said frame and lock the same in different, laterally tilted positions.

As shown in Figure 2, the described mounting for the frame 3, and the means for oscillating said frame are arranged immediately in the rear of the seat 30 of the tractor, whereby the hand lever 25 is within convenient, easy reach of the driver of the tractor.

The scraper blade 16 is swingable laterally about the axis of the post 17 to variably incline the same at different angles relative to the direction of travel of the mechanism.

For swinging the scraper blade 16 laterally, a collar 31 is fixed by set bolts 32 on the upper end of the post 17 with a hand lever 33 suitably fixed at one end to said collar and inclining forwardly and upwardly so that its front end is disposed above the hand lever 25, to clear the same, and is within easy reach from the driver's seat 30. A collar 34 suitably fixed on the post 17 beneath the lower plate 7 prevents sliding movement of said post upwardly in the plates 6, 7, and in the bushing 8. An arcuate brace bar 35 is provided for preventing flexing of the scraper blade 16, laterally, and which underlies the frame 3 with its ends suitably fixed to said scraper blade, adjacent to the ends of the blade, by depending arms 36 on said bar. The brace bar 35 is slidably fitted in an arcuate channel-type guide bar 37 extending across the frame 3 at an intermediate point and having its ends fixed to the side bars 4 in any suitable manner. A detent bolt 38 is slidably mounted in the guide bar 37 in the transverse center thereof and in a U-bracket 39 extending rearwardly from said guide bar 37. The detent bolt 38 is spring-loaded, as at 40, to be projected into selected circumferentially spaced apertures 41 provided in the brace bars 35, whereby the scraper blade 16 may be locked in differently swung positions. A forked retracting lever 42 is operatively connected to the detent bolt 38 and pivoted, as at 43, between ears 44 on the guide bar 37. A pull cord 45 is connected at its ends to said lever 42 and to the driver's seat 30, as at 46, 47, for operation by the driver of the tractor to swing said lever 42 and retract the detent bolt 37 out of the apertures 41.

Hydraulic means are provided for swinging the frame 3 and the scraper blade 16 upwardly about the axis of the rock shaft 9 comprising the following:

A horizontal arm 48 extends rearwardly from the beam 15 in the transverse center of said beam and with its front end suitably secured, as at 49, to said beam. An upright 50 rising from an intermediate part of the arm 48 with its upper end suitably connected rigidly to the rear side of the track member 18 braces said arm 48. As will be apparent, the arm 48 extends through the track member 18 and terminates in the rear of the cross-bar 5. A pair of parallel laterally spaced links 51 are pivoted at one end thereof, as at 52, to the upper end of the upright 50 to extend rearwardly therefrom. A link 52 is pivoted at its upper end, as at 53, to the other ends of the links 51 with its lower end pivoted, as at 54, to a stud 55 extending forwardly from a bearing plate 56 fixed to the front side of the guide

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bar 37 in the transverse center of said bar, said stud being journaled in the bearing plate 56 to rotate about an horizontal axis so that the frame 3 may oscillate relative to said stud. An hydraulic cylinder 57 is suitably pivoted, as at 58, at its lower end to the rear end of the arm 48 in upstanding position and is provided with a piston 59 pivoted, as at 60, between the links 51 midway between the ends of said links. An hydraulic pressure line 61 is suitably connected, as at 62, to the lower end of the hydraulic cylinder 57 for connection in the usual hydraulic system of the tractor for control of the line to admit hydraulic pressure to the cylinder 51 and relieve such pressure at will.

Referring now to the operation of the described invention: With the hydraulic cylinder 57 relieved of hydraulic pressure therein, the frame 3, together with the parts carried thereby, is free to swing downwardly about the axis of the rock shaft 9, under the influence of gravity, to engage the scraper blade 16 with the ground. In this downward swinging of the frame 3, the piston rod 59 is moved inwardly of the hydraulic cylinder 57 by means of the described link connections between said piston, said links, as will be understood, being connected to the frame 3 by the bearing plate 56 and guide bar 37. By operation of the hand lever 25, the yoke 22 may be slid in the track member 18 toward either side of the mechanism to oscillate the frame 3 and the scraper blade 16 about the axis of the stub shaft 11 so as to incline the scraper blade 16 from the horizontal at any desired angle. The machine may be set at the desired angle by means of the detent bolt 26 and parts associated therewith. By means of the hand lever 33 the scraper blade may be swung laterally about the axis of the post 17 in any angular position in which said blade has been adjusted vertically and locked in the selected lateral position by means of the detent bolt 38. By admitting hydraulic pressure to the hydraulic cylinder 57, the piston 59 may be caused to move upwardly to correspondingly swing the links 51 so that a lift is imparted to the link 52 whereby the frame 3 and the scraper blade 16 may be swung upwardly about the axis of the rock shaft 9 so that the scraper blade 16 may be lifted out of or off of the ground into idle position or to vary the depth of scraping operations, as desired.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.

Manifestly, the invention, as described, is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claims.

What I claim is:

1. In a terracing mechanism, for attachment to the rear of a tractor, a frame, means for attaching said frame to said tractor in rearwardly extending position for oscillation about the longitudinal axis of the frame and vertical swinging about an axis at a right angle to the axis of oscillation, manipulative means for oscillating the frame into different set positions, hydraulic means for swinging said frame, and a scraper blade mounted on the frame, the means first mentioned comprising an upwardly arched track member extending transversely of said frame and rigidly fixed to said tractor, an arcuate yoke slidably mounted on said bar for endwise movement longitudinally of the same, and means for mount-

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ing said frame on opposite ends of said yoke for vertical swinging on said ends.

2. In a terracing mechanism, for attachment to the rear of a tractor, a frame, means for attaching said frame to said tractor in rearwardly extending position for oscillation about the longitudinal axis of the frame and vertical swinging about an axis at a right angle to the axis of oscillation, manipulative means for oscillating the frame into different set positions, hydraulic means for swinging said frame, and a scraper blade mounted on the frame, the means first mentioned comprising an upwardly arched track member extending transversely of said frame and rigidly fixed to said tractor, an arcuate yoke slidably mounted on said track member for endwise movement longitudinally of the same, and means for mounting said frame on opposite ends of said yoke for vertical swinging on said ends comprising a rock shaft extending through said track member and having a stub shaft thereon extending at a right angle thereto and journaled for oscillation about an axis coincident with that of said track member.

3. In a terracing mechanism, for attachment to the rear of a tractor, a frame, means for attaching said frame to said tractor in rearwardly extending position for oscillation about the lon-

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gitudinal axis of the frame and vertical swinging about an axis at a right angle to the axis of oscillation, manipulative means for oscillating the frame into different set positions, hydraulic means for swinging said frame, a scraper blade mounted on the frame for lateral swinging thereon, and manipulative means to swing said blade into different set positions including a hand lever, an arcuate brace bar having the ends thereof fixed to said scraper adjacent the ends of the latter, an arcuate channeled guide bar forming a part of said frame and through which the brace bar is slidably extended, said brace bar having longitudinally spaced apertures therein, a retractable detent bolt mounted on said guide bar and spring-loaded for projection into said apertures when said blade is swung into different positions, and a retracting lever for said detent bolt.

HERSCHEL H. TAYLOR.

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The following references are of record in the file of this patent:

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