

Feb. 2, 1943.

G. E. CARRINGTON

2,309,750

EARTH MOVER

Filed Sept. 22, 1941

2 Sheets-Sheet 1

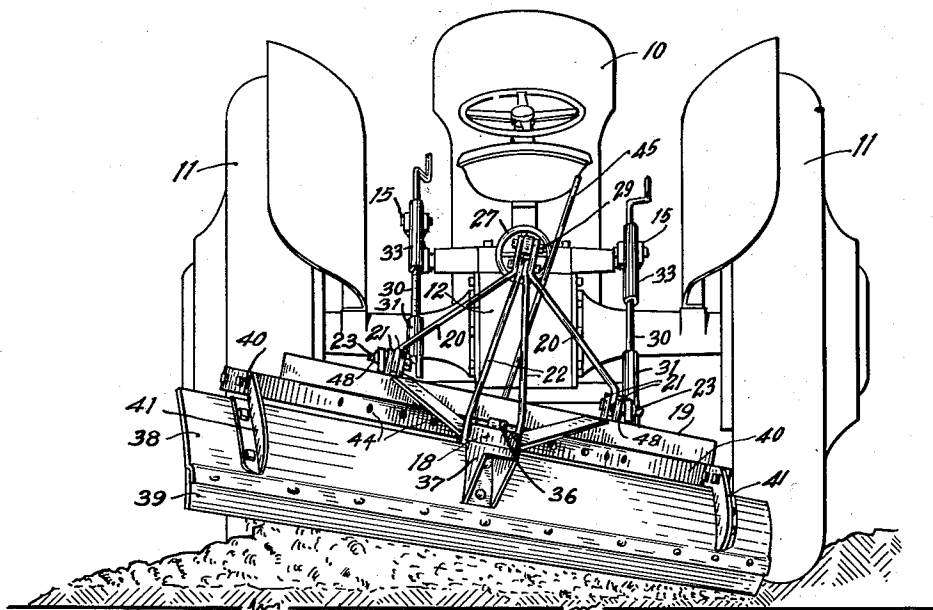


FIG. 1.

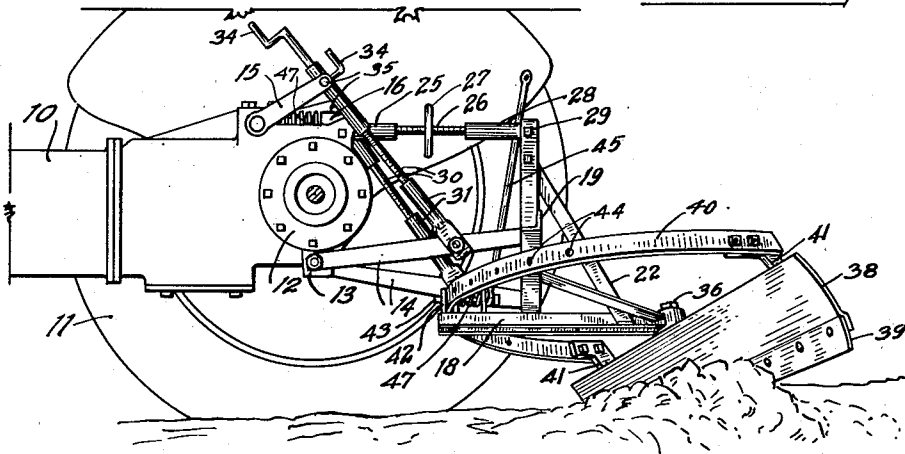


FIG. 2.

INVENTOR.  
GEORGE E. CARRINGTON.  
BY *[Signature]*  
ATTORNEY.

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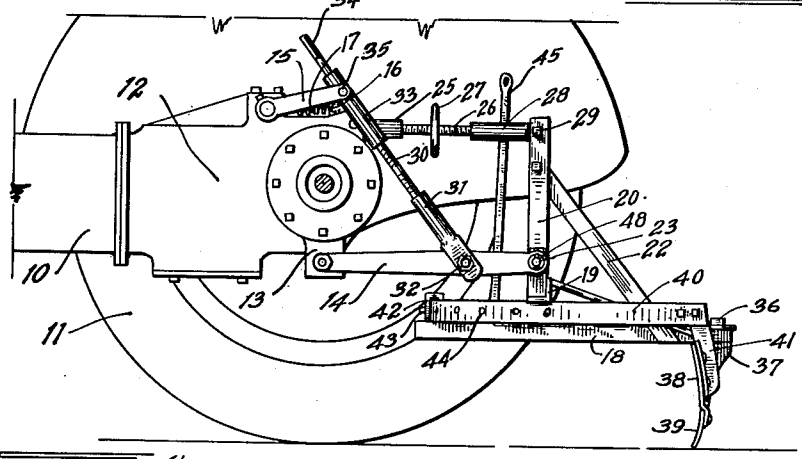
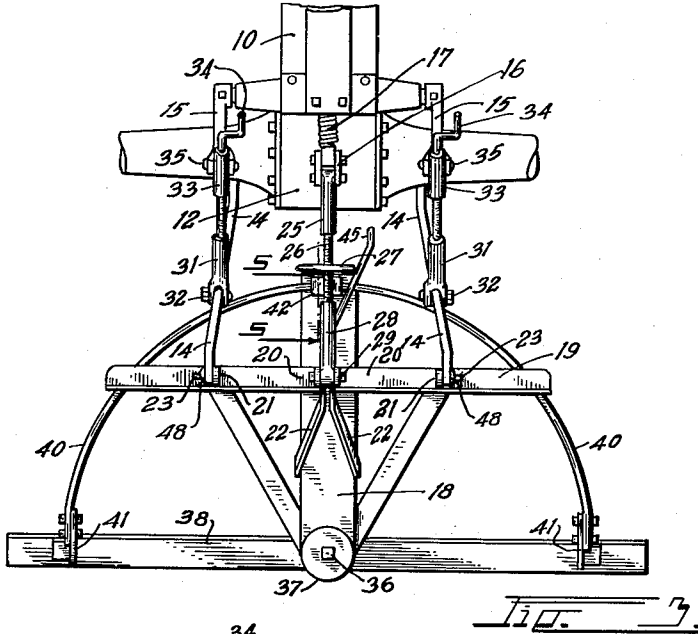


Fig. 3

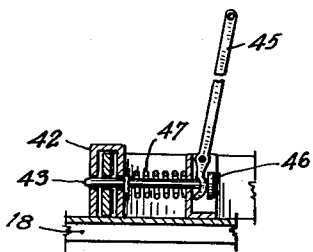


Fig. 5

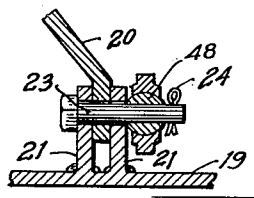


Fig. 6

INVENTOR.  
GEORGE E. CARRINGTON.

BY

ATTORNEY.

# UNITED STATES PATENT OFFICE

2,309,750

## EARTH MOVER

George E. Carrington, Fulton, Mo.

Application September 22, 1941, Serial No. 411,872

2 Claims. (Cl. 37-159)

This invention relates to an earth moving and grading attachment for tractors and has for its principal object the provision of a simple, compact, and efficient earth moving attachment which can be quickly attached to a tractor for leveling or terracing or banking earth which can be accurately and easily controlled from the operator's position on the tractor.

Another object of the invention is to provide a terracing or grading attachment of this type in which the grading blade can be inclined upwardly at either side of the tractor and can return along an inclined terrace or bank and continue grading the incline when traveling in either direction.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawings which form a part hereof. Like numerals refer to like parts in all views of the drawings and throughout the description.

In the drawings:

Fig. 1 is a rear view of a typical tractor of the "Ford" type illustrating the invention in place thereon and arranged for grading an inclined terrace or bank;

Fig. 2 is a cross sectional view of the tractor, illustrating the invention in side elevation;

Fig. 3 is a plan view of the improved earth moving and grading attachment;

Fig. 4 is a side view thereof;

Fig. 5 is a detail view, illustrating the angle latch employed in the attachment; and

Fig. 6 is a detail sectional view of the connection between the tension arms and the attachment.

In the drawings a typical "Fordson" tractor is illustrated at 10, its wheels at 11, transmission housing at 12, draw bar lugs at 13, tension links at 14, and hydraulic lifter arms at 15. The standard tension links carry socket balls 48 in their extremities.

In such a tractor, the lifter arms 15 are rotated upwardly by means of a hydraulic piston incorporated in the tractor. Such a tractor is provided with a compression rocking member 16 acting against a compression spring 17. The invention is designed to make use of the above standard parts of the tractor.

The improved attachment comprises a longitudinal frame member 18 to which a cross bar 19

is attached. A pair of upstanding lugs 21 arise from the opposite sides of the cross member 19. The legs of an A-shaped standard 20 are secured between each pair of lugs and rise vertically above the cross member 19 being braced in the vertical position thereon by means of diagonal brace members 22.

A bolt 23 passes through the two lugs 21 and through the legs of the standard 20 which are positioned therebetween. These bolts project outwardly at each side of each pair of lugs and extend through the socket balls 48 in the rear extremities of the two tension links 14. The balls 48 are maintained in place on the bolts by means of suitable cotter keys 24.

A threaded tube 25 is hingedly secured, at its forward extremity, to the compression rocking member 16 and extends rearwardly to receive the forward extremity of a right and left jack screw 26. The jack screw is provided with a convenient hand wheel 27 by means of which it may be rotated. The rear extremity of the jack screw 26 enters a threaded sleeve 28 which is pivoted in the upper extremity of the standard 20 upon a suitable pivot bolt 29.

The tension links 14 are suspended from the rear extremities of the lifter arms 15 by means of a right and left threaded shaft 30. The shaft 30 is threaded at its lower extremity into a socket member 31 which is hinged to the links 14 on a suitable hinge bolt 32. The upper extremity of the threaded shaft 30 passes through a threaded sleeve 33 and terminates in a hand crank 34. The sleeves 33 are hingedly mounted on suitable hinge pins 35 on the extremities of the lifter arms 15.

The rear extremity of the frame member 18 terminates in a pivot bolt 36 by means of which a blade bracket 37 is pivotally secured thereto. The blade casting is bolted to the middle of a mold board 38, the lower edge of which is provided with a removable scraper blade 39.

The mold board and scraper blade are maintained at any desired angle with reference to the frame member 18 by means of an arcuate brace bar 40 which is secured at each of its extremities to a bracket 41 adjacent the extremities of the mold board 38. The arcuate brace bar 40 rides upon the forward extremity of the frame member 18 where it passes through a yoke 42 which maintains it in place thereon.

The brace bar 40 is adjustable in the yoke 42 and is maintained in any desired circumferential position therein by means of a latch bolt 43 which enters any desired one of a series of

spaced-apart perforations 44 in the bar 40. The latch bolt can be withdrawn from the perforations by means of a lever 45, the lower extremity of which engages a head 46 on the bolt 43. A compression spring 47 constantly urges the bolt toward the bar 40.

Let us suppose that the operator desires to build a bank or terrace, as indicated in Fig. 1, by elevating earth upwardly along the terrace. For such a purpose he wishes the right extremity of the blade to be positioned forward of the left side. To change the angle of the blade he rotates the left crank to force the left end of the blade against the ground. He then releases the latch bolt 43 and drives the tractor forward to swing the blade forwardly on the right side. When the proper angle is reached, he releases the bolt 43 into one of the perforations 44. He now rotates the right hand crank 34 to force the blade 39 downwardly and rotates the left hand crank in the opposite direction to lift the blade upwardly. This tilts the entire attachment downwardly to the right with the right extremity of the blade forward of the left extremity thereof. He now drives along the terrace banking the earth to the right.

When the end of the terrace is reached, the operator releases the latch bolt 43 while the tractor continues forward this throws the left end of the mold board and blade forward to a position opposite its former position where it is again locked by the latch bolt 43. He now, by means of the cranks 34 raises the right end of the mold board and lowers the left end and returns along the terrace in the opposite direction.

The depth of cut is regulated by adjusting the hand wheel 27. The blade is completely lifted from the ground when turning or when not in use by operation of the hydraulic lift of the tractor which swings the rearward extremities of the arms 15 upwardly to swing the tension links 14 to an upward angle.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. An earth moving attachment for tractors comprising: a cross bar positioned transversely of the line of travel; a frame member extending forwardly and rearwardly of the mid-portion of

said cross bar; a vertical pivot bolt at the rear extremity of said frame members; a scraper blade pivotally mounted at its middle in said pivot bolt and extending transversely of said frame member; a semi-circular brace bar secured at its extremities to said blade and extending forwardly thereof; a yoke member on the forward extremity of said frame slidably receiving said brace bar; means for locking said brace bar in said yoke; a tension link extending forwardly from said cross bar at each side of said frame member for hinged connection to a tractor; a standard arising from the middle of said cross bar; a jack screw device extending forwardly from the upper extremity of said standard for connection to said tractor; and an extensible suspension shaft extending forwardly and upwardly from each tension link for connection to said tractor so that variation of the length of said jack screw will tilt the scraper blade forwardly and backwardly and so that relative variation of the length of the extensible shafts will raise or lower the extremities of said blade to tilt the latter.

2. An earth moving attachment for tractors comprising: a cross bar positioned transversely of the line of travel; a frame member extending forwardly and rearwardly of the mid-portion of said cross bar; a vertical pivot bolt at the rear extremity of said frame member; a scraper blade pivotally mounted at its middle on said pivot bolt and extending transversely of said frame member; a semi-circular brace bar secured at its extremities to said blade and extending forwardly thereof; a yoke member on the forward extremity of said frame slidably receiving said brace bar; means for locking said brace bar in said yoke; a tension link extending forwardly from said cross bar at each side of said frame member for hinged connection to a tractor; a standard arising from the middle of said cross bar; a jack screw device extending forwardly from the upper extremity of said standard for connection to said tractor; an extensible suspension shaft extending forwardly and upwardly from each tension link for connection to said tractor so that variation of the length of said jack screw will tilt the scraper blade forwardly and backwardly and so that relative variation of the length of the extensible shafts will raise or lower the extremities of said blade to tilt the latter; and universally moveable hinges between said tension links and the blade to allow the latter to tilt in all directions.

GEORGE E. CARRINGTON.