Aug. 5, 1941. R. TICHY, JR 2,251,506

DIRT LIFTING TRACTOR AUGER

Filed July 10, 1940 3 Sheets-Sheet 1

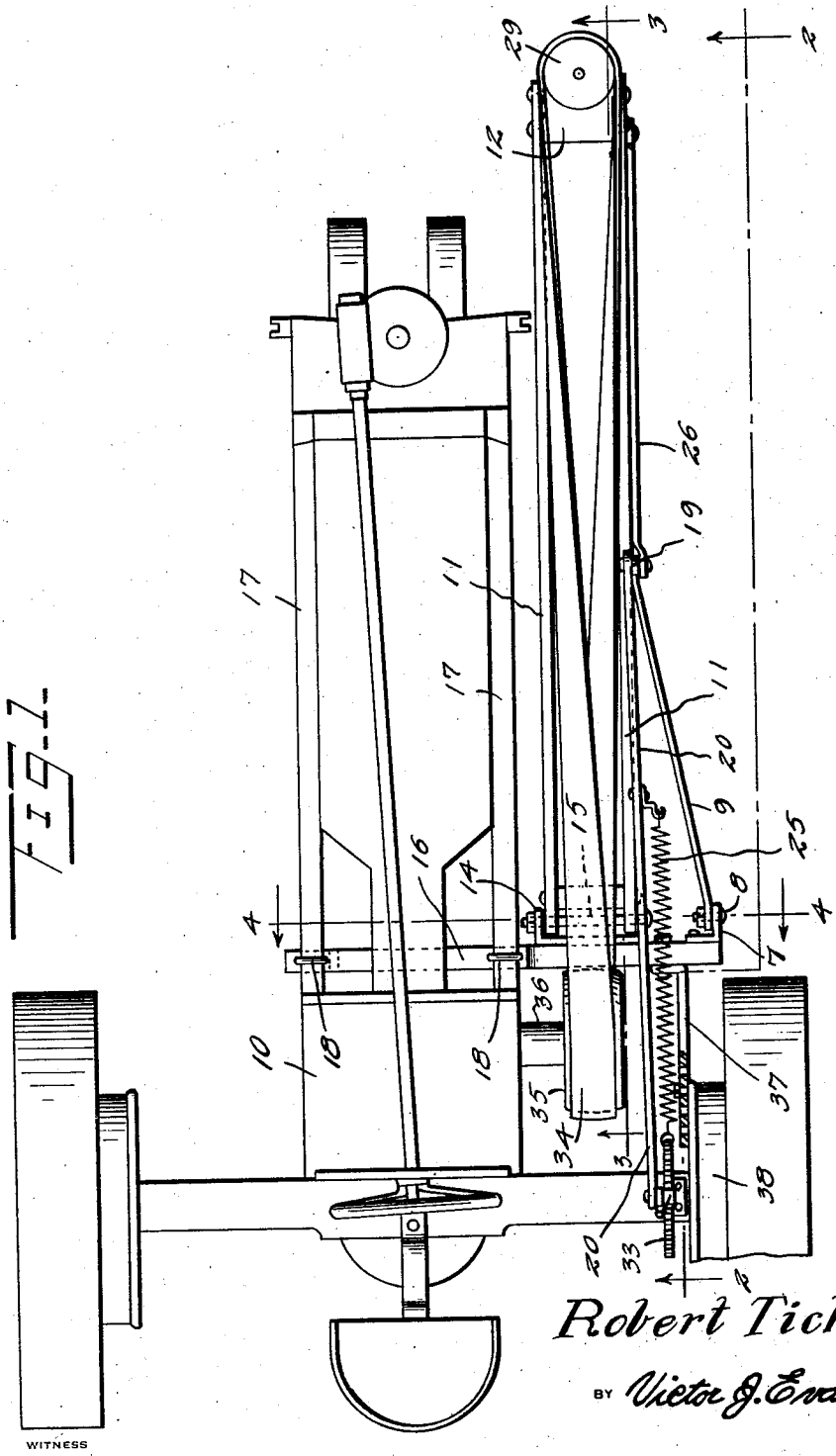


FIG. 1

Robert Tichy, Jr.
INVENTOR

BY Victor J. Evans & Co.
ATTORNEYS

WITNESS

Aug. 5, 1941. R. TICHY, JR 2,251,506

DIRT LIFTING TRACTOR AUGER

Filed July 10, 1940 3 Sheets-Sheet 2

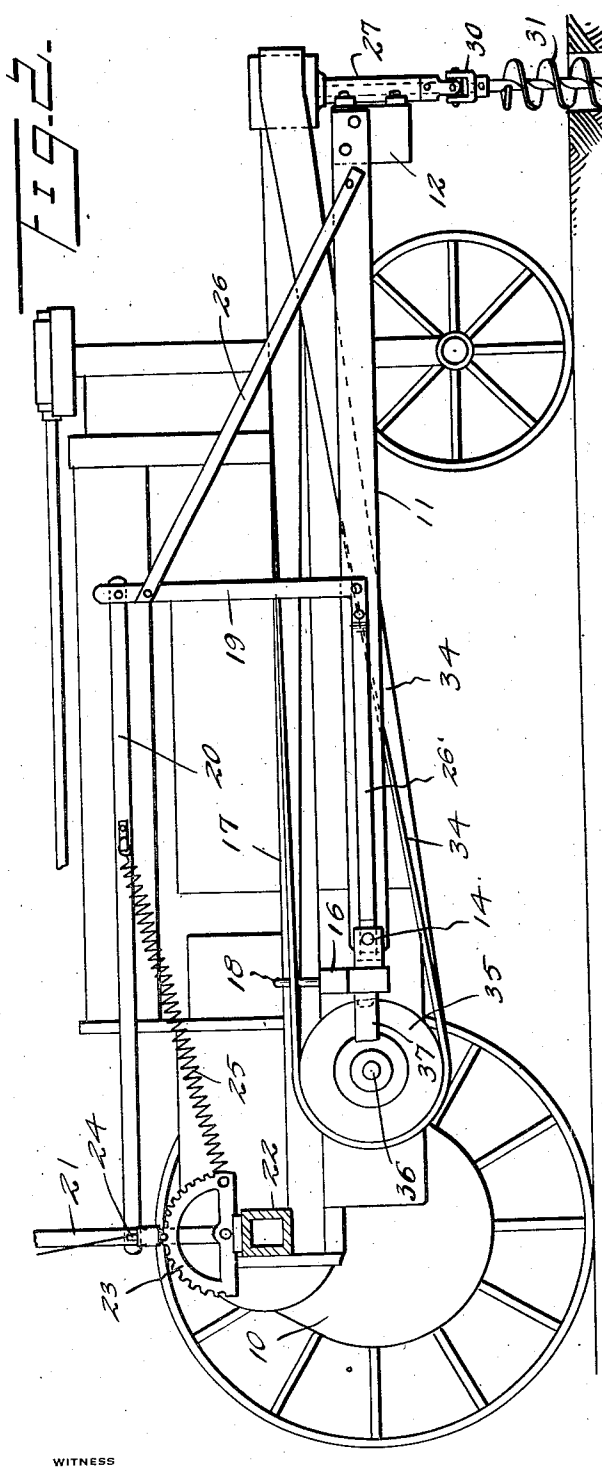


FIG. 2.

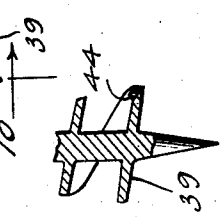


FIG. 10.

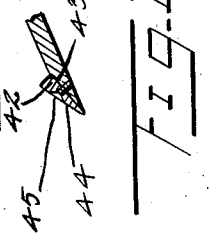


FIG. 9.

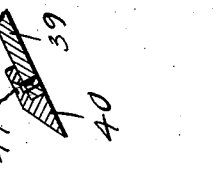


FIG. 8.

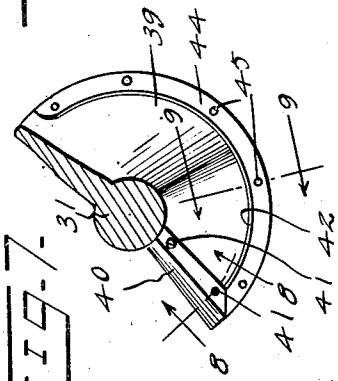


FIG. 7.

Robert Tichy, Jr.
INVENTOR

BY Victor J. Evans & Co.
ATTORNEYS

WITNESS

Aug. 5, 1941. R. TICHY, JR 2,251,506

DIRT LIFTING TRACTOR AUGER

Filed July 10, 1940 3 Sheets-Sheet 3

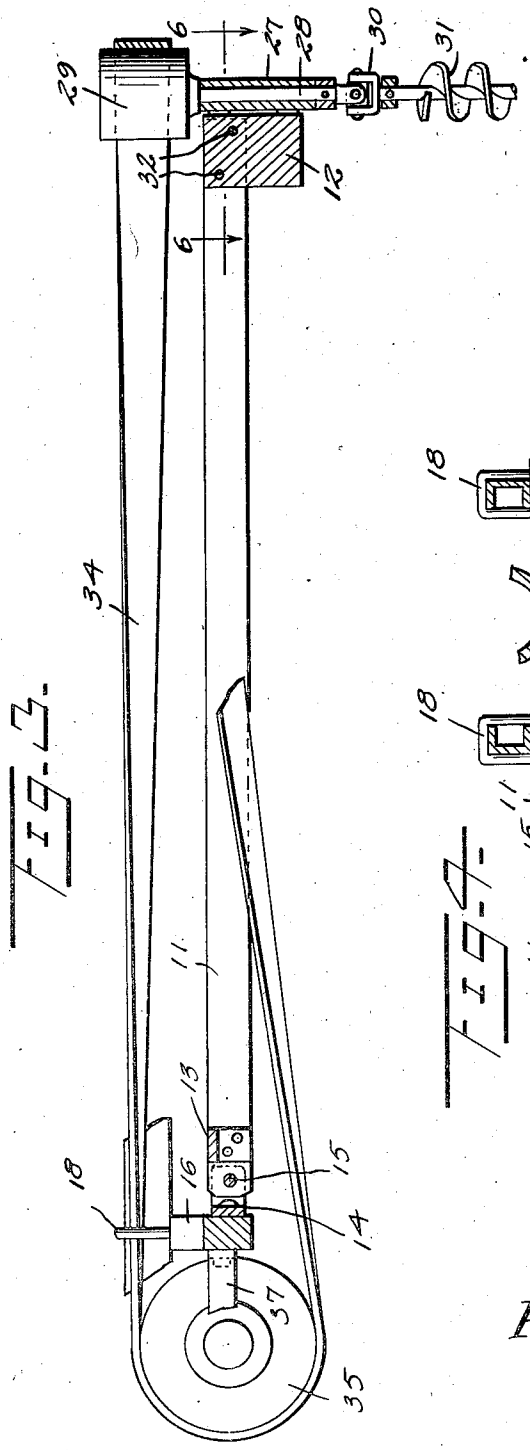


FIG. 3.

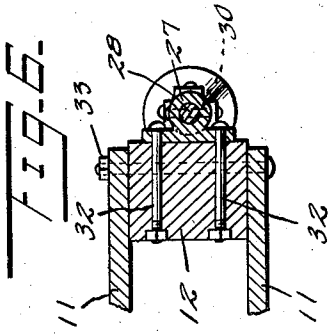


FIG. 5.

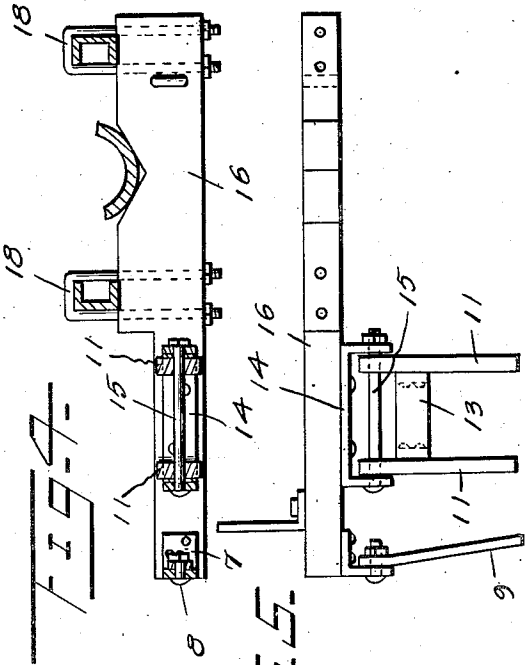


FIG. 4.

FIG. 5.

Robert Tichy, Jr.
INVENTOR

BY Victor J. Evans & Co.
ATTORNEYS

WITNESS

Patented Aug. 5, 1941 2,251,506

UNITED STATES PATENT OFFICE

2,251,506

DIRT LIFTING TRACTOR AUGER

Robert Tichy, Jr., Wilber, Nebr.

Application July 10, 1940, Serial No. 344,800

1 Claim. (Cl. 255—19)

This invention relates to a dirt lifting tractor auger and has for an object to provide a power driven auger having the initial convolution slightly larger in diameter than the convolutions higher up and having the space between it and the next higher convolution of less distance than the distance between the remaining convolutions to the end that the auger will lift the dirt from the pole or post pole so that when the auger is withdrawn the hole will be practically clean and free of dirt.

A further object is to provide a device of this character which is simple in construction, which can be operated by one man, which is inexpensive to manufacture, and which will not easily get out of order.

A further object is to provide a device of this character in which a universal joint connects the auger to the power shaft so that the auger will always hang straight and thus will drill straight holes even on slopes, and further the universal joint will permit the auger being driven at high speed and with stability, that is, absence of wabbling so that the hole will be dug true as well as freed of dirt during the digging operation.

With the above and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claim without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming part of this specification,

Figure 1 is a plan view of a tractor equipped with a power driven dirt lifting auger constructed in accordance with the invention.

Figure 2 is a longitudinal sectional view taken on the line 2—2 of Figure 1 and showing the auger and control means therefor in side elevation.

Figure 3 is a longitudinal sectional view taken on the line 3—3 of Figure 1 and showing the universal joint connecting the power shaft with the auger.

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 1 looking in the direction of the arrows and showing the pivot bolt of the auger supporting frame.

Figure 5 is a plan view of the parts shown in Figure 4.

Figure 6 is a detail longitudinal sectional view taken on the line 6—6 of Figure 3.

Figure 7 is a cross sectional view of the auger taken on the line 7—7 of Figure 2.

Figure 8 is a detail sectional view taken on the line 8—8 of Figure 7 showing the cutting blade.

Figure 9 is a cross sectional view taken on the line 9—9 of Figure 7 showing the shoulder formed on the initial convolution of the auger.

Figure 10 is a detail longitudinal sectional view taken on the line 10—10 of Figure 2.

Referring now to the drawings in which like character of reference designate similar parts in the various views, 10 designates a "Farmall" tractor. The dirt lifting auger mechanism comprising the subject matter of this invention includes a pair of spaced parallel side members 11 and having their front ends connected by a cross member 12 set flush therewith and having a cross brace 13 adjacent their rear ends. The frame thus provided is hinged to a U-shaped bracket 14, through the medium of a pivot pin 15, as best shown in Figure 5. The bracket is carried by a cross arm 16, which is secured to the longitudinal frame bars 17 of the tractor through the medium of U-bolts 18.

An upright arm 19 is secured at its lower end to one of the longitudinal side members 11 of the frame and to the upper ends of this arm is secured the forward end of a rod 20 which extends rearwardly to a lever 21 which is pivotally mounted on the tractor axle 22 and is held in adjusted positions by a rack 23 and pawl 24. A helical tension spring 25 is connected to the rack and to the rod. The purpose of this spring is to balance the frame and auger so that the same can be easily raised or lowered by one hand from the driver's seat when the auger is in operation. A brace 26 extends forwardly from the upright arm to a point adjacent the front end of the frame and a brace 9 extends rearwardly from the bottom of the arm and is pivotally connected by a pivot bolt 8 to a bracket 7 carried by the cross arm 16, as best shown in Figure 1.

By referring now to Figure 3 it will be seen that a tubular bearing 27 is secured to the front cross member 12 and receives a vertically disposed shaft 28 having a belt receiving pulley 29 at its upper end as best shown in Figure 3. The shaft is provided with a universal joint 30 at its lower end, immediately below the bearing.

An auger 31 is connected to one of the members of the universal joint and by virtue of the joint will hang in a vertical position regardless of the contour of the land or position of the tractor. At the same time the universal joint permits of the auger being rotated rapidly in a

vertical position to elevate the dirt from the pole or post hole as rapidly as it is dug. As best shown in Figure 6, the bearing is rigidly secured to the cross member 12 through the medium of a pair of bolts 32 while the cross member is secured to the longitudinal side members 11 through the medium of a bolt 33, thus forming a strong rigid structure.

A belt 34 is trained over the belt pulley 29 and over a belt pulley 35 secured to a shaft 36 which is power driven from the tractor. A brace bar 37 is secured to the cross bar 16 and to the master gear housing 38 of the tractor to prevent the cross arm accidentally shifting on the tractor since good belt tension must be maintained.

Referring more particularly to Figures 7 to 10 inclusive it will be seen that the initial convolution 39 of the auger is of greater diameter than the remaining convolutions and also that the distance between this convolution and the next uppermost convolution is greater than the distance between adjacent ones of the other convolutions. The purpose of this is to permit the initial convolution to first cut into the earth and then advance the earth upwardly longitudinally of the auger in the nature of a sparrow carrier so that when the boring operation is completed the hole will be clear and comparatively free from dirt.

The blade 40 is removably secured to the edge of the initial convolution through the medium of screw bolts 41, as best shown in Figures 7 and 8. The blade extends radially of the convolution from the hub to the peripheral edge thereof.

As best shown in Figure 9 a shoulder 42 is formed on the initial convolution of the auger beginning at the blade and extending throughout an angular arc of about 180 degrees. The shoulder is provided by bevelling the edge of the convolution as shown at 43 and securing thereto a plate 44 of substantially triangular cross section, the plate being mounted in place through the medium of a screw bolt 45 or other connector.

In operation the operator lowers the frame 11 by manipulating the handle lever 21 so that the tip of the auger is at the location the hole is to be bored. The pawl 24 is held disengaged from the rack while the power of the tractor is applied to the shaft 36 to rotate the auger through the medium of the belt drive 34. The auger is rotated at high speed and due to the universal joint 30 will bore a true vertical hole regardless of the inclination of the drive shaft 28 of the auger due to the contour of the land or position of the tractor. Furthermore, the novel construction of the initial convolution of the auger in practice will cut the earth and move the earth upward along the auger until it is discharged from the hole leaving the hole clear and practically free from dirt after the hole is bored to the desired depth. When the operation has been completed the operator may pull back on the handle lever 21 to raise the frame 11 and auger 31 into position for being transported to the next location.

From the above description it is though that the construction and operation of the invention will be fully understood without further explanation.

What is claimed is:

An earth boring device comprising a frame pivoted at one end to swing about a horizontal pivot, a driven shaft carried by the free end of the frame and extending perpendicular to the frame, an auger having the initial convolution of greater diameter than the remaining convolution and having the initial convolution spaced from the next succeeding convolution a greater distance than the remaining convolutions are spaced from each other so that dirt will be lifted from the hole during the boring operation, and a universal joint connecting said auger to said driven shaft.

ROBERT TICHY, JR.