

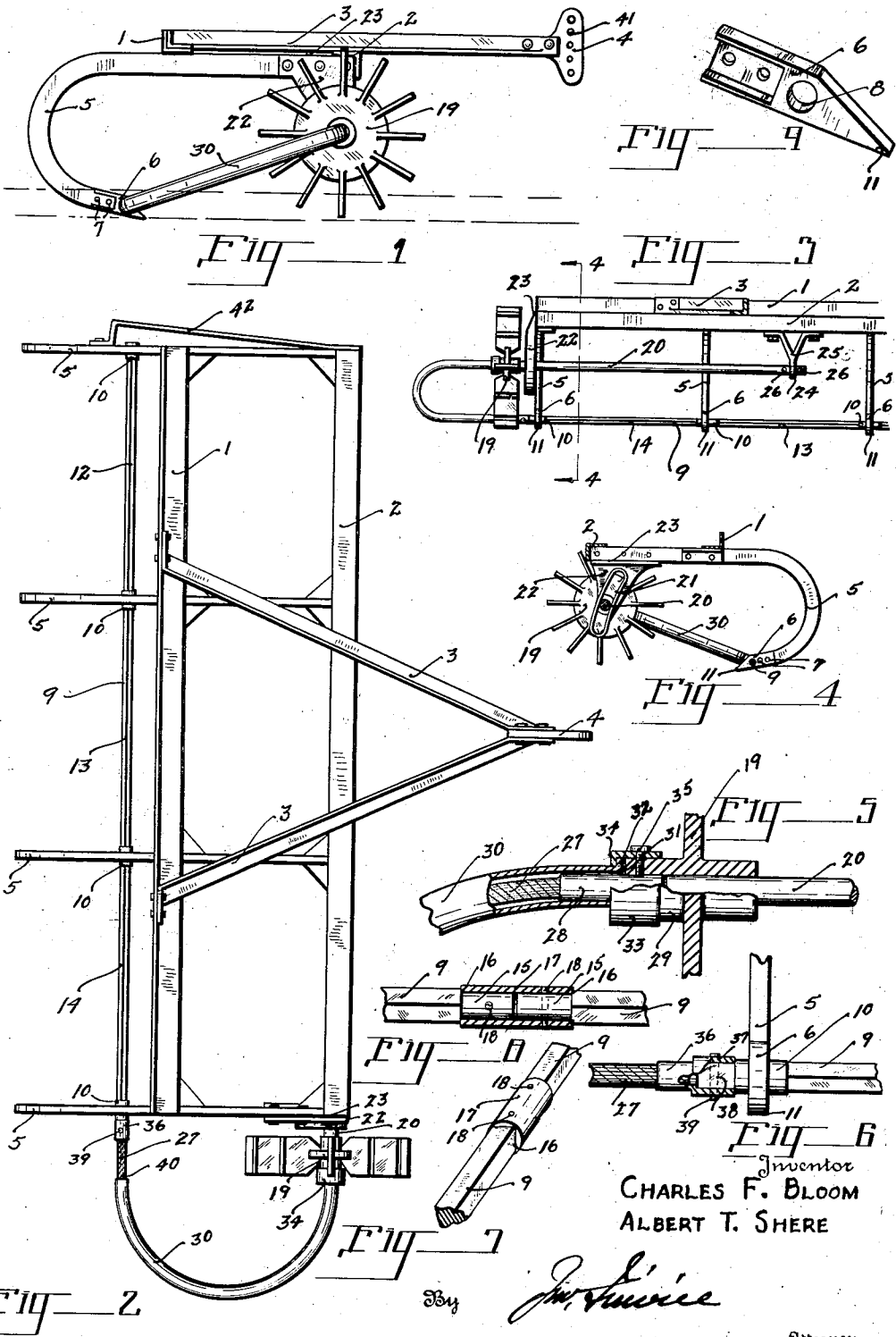
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DRIVE FOR WEEDERS

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DRIVE FOR WEEDERS

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This invention relates to weeders and the like, and is particularly adapted to rod weeders, wherein it is desired to rotate the rod in a reverse direction relative to the natural rotation of a driving wheel without having any reversing gears connected thereto.

The primary object of the invention is to drive the weeder rod in a weeder by a flexible drive shaft from a power or driving wheel, contacting the soil to be cultivated.

Another object of the invention is to provide a flexible reverse drive for weeders that will drive the weeder rod in the reverse direction without the use of any gears, clutches and the like.

A still further object of our invention is to provide means for easily replacing the bearing surfaces of the weeder rod without having to replace the complete rod.

Another object of our invention is to provide a fender or deflecting means for preventing the weeder rod from contacting obstructions such as trees, buildings and the like.

A still further object of our invention is to assemble the flexible drive so that it can be easily lubricated at the same time means is provided to prevent the clogging up of the same with dirt and foreign substances.

These and other objects will be apparent in the following specification, drawing and claims.

Referring to the drawing:

Figure 1 is an end view of the driving end of one of our weeders embodying our new and improved flexible drive.

Figure 2 is a plan view of the assembled weeder.

Figure 3 is a fragmentary front elevation of the weeder, illustrating the driven mechanism.

Figure 4 is a cross sectional end sectional view taken on line 4—4 of Figure 3, looking in the direction indicated.

Figure 5 is a fragmentary sectional view of the driving wheel showing the manner of connecting the drive thereon.

Figure 6 is a fragmentary sectional view of the weeder rod journaled within the supporting arm and the manner of connecting the driving shaft thereon.

Figure 7 is a perspective view of a portion of the weeder rod embodying one of the bearing sections.

Figure 8 is a detailed sectional view of the manner of assembly of the bearings upon the rods.

Figure 9 is a broken perspective view of one of the arm carried shoes.

In the drawing:

The cross frames 1 and 2 provide the main

frame of the weeder, having an A-frame 3 superposed thereon. The A-frame 3 provides the tongue of the weeder terminating in a draw bar 4. Rearwardly extending underneath and securely fastened to the frames 1 and 2 are hook-like arms 5, having shoes 6 fastened thereon by the fastening means 7. These shoes have a bearing 8 for receiving the weeder rod 9. The rod 9 is provided with bearings 10 for working within the shoes 6. The shoes are also pointed as best shown in Figure 9, as indicated at 11. We have provided a removable bearing 10 on the weeder rod that may be replaced.

The weeder rod is made up in sections 12, 13 and 14 being turned down to round ends 15 having shoulders 16. The round ends are inserted within the bearing sleeve 17 after which locking pins 18 are forced in place holding the whole assembly together. In this type of weeder it has been found desirable to rotate the weeder rod backwards relative to the direction of travel. To accomplish this other forms of weeders have used reverse gears and the like for accomplishing this reverse rotation, but in our new and improved weeder we have provided a direct drive from the driving wheel to the rod itself by a form of semi-flexible drive. A driving wheel 19 is mounted to the shaft 20. The shaft 20 passes through the bearing slot 21 of the guide bracket 22 extending downwardly from the end of the frame from the point 23. The opposite end of the shaft 20 fits into a loosely fitting bearing 24 on the lower end of the bracket 25, said bracket being mounted to the underneath side of the frame section 2. The shaft 20 is positioned within this bearing by the pins 26 or any other suitable form of retaining means such as collars and the like. In the drawing we have shown the driving wheel fixedly mounted to the shaft 20, but this need not be the form of attaching the same thereto. A flexible cable 27 having a sleeve 28 securely fixed thereon forms the main driving element between the wheel 19 and the weeder rod 9. The sleeve 28 is inserted in the hub 29 at the same time the housing 30 encircling the driving element 27 is placed against the end of the hub at 31, said sleeve having a shoulder 32 against which the locking cap 33, having a shoulder 34 engages in a turning fit. The cap 33 is then locked to the hub 29 by the set-screw 35 which also securely locks the sleeve 28 within the hub as best shown in Figure 5.

We wish it to be understood that any type of flexible drive shaft made of any suitable material may be used in lieu of the cable 27. The opposite

end of the cable 27 terminates in a sleeve 36, having a square socket 37 which fits over the squared end 38 of the weeder rod and is locked securely thereon by the pin 39 shown in Figure 6. The tube 30 does not extend to the sleeve 36 as shown in Figure 2. The twist in the cable, as illustrated in Figure 2, at 40 acts as a screw feed tending to force the dirt or accumulation out of the end of the tube 30 during the natural rotation of the drive shaft 27. In the operation of the weeder the drive wheel 19 floats up and down and around the weeder rod within the slot 21 of the bracket 22 at the same time the shaft 20 pivots within the bearing 24 of the bracket 25, this provides an equal distance from the weeder rod at all times. The depth of the weeder operation is controlled by the draw-bar hitch holes 41 within the draw bar 4. A fender or bumper is provided at 42 for guarding the weeder from catching onto obstructions.

Having thus described our invention we do not wish to be limited to the particular form of construction as our invention is adaptable to other mechanical embodiments still coming within the scope of the claims to follow.

What is claimed to be new is:

1. In a weeder, a frame, a driven shaft carried thereby, a ground wheel for operating the driven shaft, a weeder rod, and a flexible shaft connecting the ends of the driven shaft and weeder rod to compel reverse motion of the weeder rod with respect to that of the driven shaft, the ground wheel being mounted for limited floating movement concentric with the axis of the weeder rod.

2. A weeder including a frame, arms extending rearwardly therefrom and curved downwardly to present forwardly projecting lower ends, shoes removably connected to said lower ends of the arms, a weeder rod mounted for rotation in the shoes, a drive shaft swingingly mounted at one end to the frame, a ground wheel carried by the opposite end of the shaft, a bracket having a slotted support for the shaft to permit floating movement of the outer end of the shaft, a ground wheel secured on the shaft, and a flexible shaft intermediate the outer end of the drive shaft and the weeder rod, the flexible shaft compelling

the weeder rod to travel in a direction reverse to that of the drive shaft.

3. A weeder including a frame, supporting arms carried thereby, a sectional weeder rod rotatably mounted in the supporting arms, means for connecting the meeting ends of the sections of the weeder rod to insure their unitary movement, a driven shaft carried by the frame in advance of the arms, a flexible shaft connecting the ends of the driven shaft and weeder rod and compelling relatively reverse rotation of the latter, and a sheath for the flexible shaft terminating short of the connection of said shaft and weeder rod.

4. A construction as defined in claim 3, including a slotted bearing for one end of the driven shaft, with the slot concentric to the axis of the weeder rod.

5. A construction as defined in claim 3 including a ground wheel removably carried by the driven shaft for operating the latter in the movement of the frame.

6. A construction as defined in claim 3, including a ground wheel removably connected to the driven shaft for operating the latter, and means to permit a limited floating movement of said wheel on a path concentric with the axis of said weeder rod.

7. In a weeder, a frame, arms projecting rearwardly from and terminating below the frame, ground engaging shoes carried by the arms, a weeder rod mounted for rotation in the shoes, said weeder rod being made up in sections, a sleeve removably secured to the meeting ends of the sections to define a unitary structure, the sleeve providing the bearing support for the weeder rod in the shoes, and a driving means for the weeder rod, said driving means comprising a flexible shaft mounted to compel the weeder rod to rotate in the reverse to the direction of travel of the frame.

8. A construction as defined in claim 7, wherein the flexible shaft is driven by ground engaging means capable of limited flotation about the weeder rod as a center.

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