Déc. 24, 1929. C. B. POLHEMUS ET AL 1,740,874

RIDGER

Filed Jan. 26, 1927

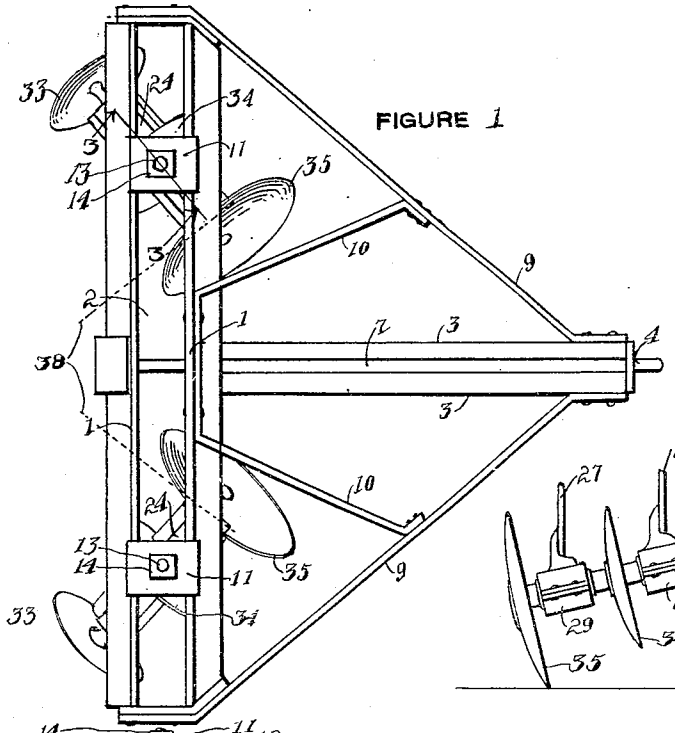


FIGURE 1

FIGURE 5

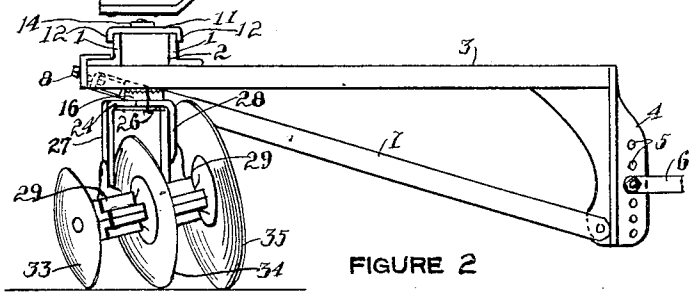


FIGURE 2

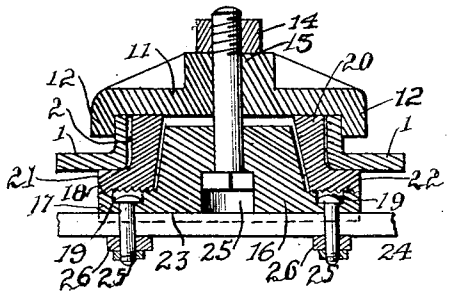


FIGURE 3

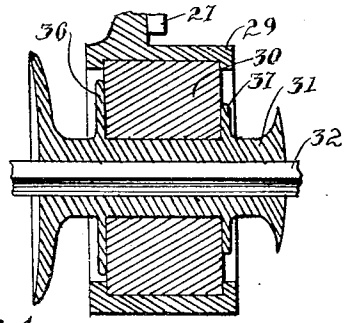


FIGURE 4

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UNITED STATES PATENT OFFICE

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Application filed January 26, 1927. Serial No. 163,755.

Our invention relates particularly to a machine for throwing up ridges in orchards for irrigating purposes, and for again levelling the ground after irrigating.

It is the object of our invention to provide a machine of the character indicated wherein the desired angular position of the several discs relative to the ground level may be secured quickly and easily without the necessity of adjusting the axle of the discs relative to the frame of the machine.

It is also an object of the invention to provide a soil manipulating machine of the disc type that may be easily adjusted for throwing up a ridge and as easily adjusted for levelling the same when desired, as well as adaptable for general soil manipulation.

Finally it is an object of the invention to provide a machine of the nature indicated that will be economical to manufacture, of few parts, quickly and easily assembled, and highly efficient in its practical application.

And finally it is an object of the invention to provide a structure of the character indicated in which a novel form of bearing is provided whereby to render the structure more durable.

In the drawing:

Figure 1 is a plan view of a machine embodying our invention.

Figure 2 is a side elevation of the same.

Figure 3 is an enlarged detail section on the line 3—3 of Figure 1.

Figure 4 is an enlarged sectional detail of the bearing and sleeve structure.

Figure 5 is a detail illustration of another embodiment of the invention.

Referring more particularly to the drawing, we show first a frame-work built up of a pair of parallelly arranged angle irons 1—1 to form a guideway 2. Connected to the center of one of these irons 1 are a pair of spaced and parallel tongue members 3—3, and from the forward end of these members depends a coupling plate 4 provided with orifices 5 by means of which the machine may be attached to the draw bar 6 of a tractor. A brace is shown at 7 extending to the lower end of plate 4 to the outer member 1 where it is fitted with an adjusting screw 8. Side braces are inserted between the bars 1—1 and tongue parts 3—3 as shown at 9—9 and 10—10. This arrangement of the several parts makes an exceptionally light, strong, and durable machine.

Each of the disc structures comprises a top plate 11 adapted to hook over the opposite edges of members 1—1 as at 12 so that it may be readily moved along the same. Through this plate is passed a bolt 13 provided with a nut 14 at its upper end. The lower end of the bolt engages a recess 15 in a conical member 16, this member having a laterally extending flange 17 the upper surface of which is provided with a roughened or toothed surface as indicated at 18 and a pair of recesses as at 19. At 20 we show a hollow conical member adapted to receive the conical member 16 and provided with an outwardly extending flange 21 to engage the under side of the bars 1—1 and having its lower surface toothed as at 22 to engage the similar opposing surface in the part 17. The member 16 with its flange 17 also has a slot 23 extending diametrically across its lower surface to receive a saddle piece 24 which is securely fastened in position by bolts 25 and plates 26 as shown.

The central portion of the piece 24 lies parallel with the plane of the frame and has its two ends bent downwardly as at 27 and 28, and these ends are of unequal length, one leg as 27 being lengthened relative to the leg 28 so that the axes of the bearings mounted thereon as 29, lies at an angle to the plane of the frame, and an angle of seven degrees permits operation of the device as hereinafter set forth.

In each bearing 29 is mounted a wood boxing 30, and in the boxing 30 is revolubly mounted a sleeve 31 fitted to a square shaft 32 upon which the discs 33, 34 and 35 are mounted. The sleeve 31 is provided with a pair of outwardly extending annular flanges as 36 and 37, and the flange 36 is of greater diameter than the flange 37. These flanges are designed to prevent longitudinal movement of the boxing on the sleeve, and are of different sizes so that when the boxing becomes worn upon one side it may be reversed

and used again since practically all of the wear comes upon one side. It is desirable to use three discs upon each shaft, and of graduated sizes so that when the machine frame is in a horizontal position the three discs will rest upon the ground.

Assuming that it is desired to throw up a ridge, the two sets of discs are arranged at the desired angle to the draft line of the machine as shown in Figure 1 and spaced apart as desired by moving in slot or guideway 2. Having been properly positioned the bolt 13 is tightened up thereby drawing the plate or member 16, 17 upwardly into firm engagement with member 20, 21, and the whole into firm engagement with the bars 1—1 and securely locking the discs and all the parts mounted thereon from shifting relative to the frame. This is the only mechanical adjustment required.

The machine is now connected to the drawbar of the draft machine in the normal horizontal position if a low ridge is desired, or it may be tilted upwardly a little at its forward end if a heavy ridge is desired. While the large inner disc throws up the bulk of the earth for the ridge the other two discs operating in conjunction with it build up the bottom of the ridge.

While the discs would normally be mounted as above described for working soil in good condition, where the ground is hard they may be reversed as to sizes as shown in Figure 5. This arrangement throws the largest discs on the extreme outside and the full draft is exerted upon them.

By simply loosening the nuts 14 the discs may be spaced as desired and made to straddle any crop.

Another advantage of this construction is that by loosening the nut 14 and plate 11 on each set of discs they may be reversed as to their positions relative to the draft line of the machine, that is swung into the positions indicated by the dotted lines 38, in which position they may be used for levelling a ridge if the frame is drawn in a substantially horizontal position, or for forming a ditch if the frame is tilted somewhat.

It is to be understood, of course, that while we have herein shown and described but one specific embodiment of our invention, changes in form, construction and method of assembly and operation may be made within the scope of the appended claims.

We claim:

1. In a machine of the type set forth, a frame having a guide way composed of spaced angle irons having one of their sides extending upwardly, a plate seated upon the upper edges of said angle irons and having flanged sides engaged over said sides of the angle irons, a hollow conical member engaged with the angle irons and arranged in the space therebetween and having an outwardly extending flange engaged with the under faces of the other sides of the angle irons and having its lower face serrated, a second conical member in the first conical member having an outwardly extending flange the upper face of which is serrated and engaged with the serrations of the flange of the hollow conical member, a bolt extending through the plate and into the second conical member and having its head received in a recess provided therefor in the second conical member and having a nut engaged with the plate, a disk carrying frame, and means to secure the disk frame to the second conical member.

2. In a machine of the type set forth, a frame having a guide way composed of spaced bars, a plate seated on the bars, a hollow conical member in the space between the bars having an outwardly extending flange, a second conical member within the first conical member having an outwardly extending flange, said flanges having their confronting faces formed with interengaging parts, a disk carrying frame secured to the second conical member, and a bolt having its head received in the second conical member and extending through the plate and having a nut engaged with the plate.

3. In a machine of the type set forth, a frame having a guide way composed of spaced bars, a plate seated on the bars, a hollow member in the space between the bars, a second member in the hollow member, said members having parts which confront and which are formed to interengage, a disk carrying frame secured to the second member, and a bolt for connecting the plate and the second member and having a nut thereon to adjustably clamp the second named member against rotation.

4. In combination with a frame and a bearing carried thereby, a boxing mounted in the bearing and having opposite exposed ends, a shaft, a sleeve mounted on the shaft, said sleeve having disks thereon on opposite sides of the boxing and having outwardly extending annular flanges, one of said flanges being of greater diameter than the other, the flanges being engaged with the respective ends of the boxing, and means to mount the boxing in the bearing so as to enable the ends of the boxing to be reversed relative to the bearing.

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