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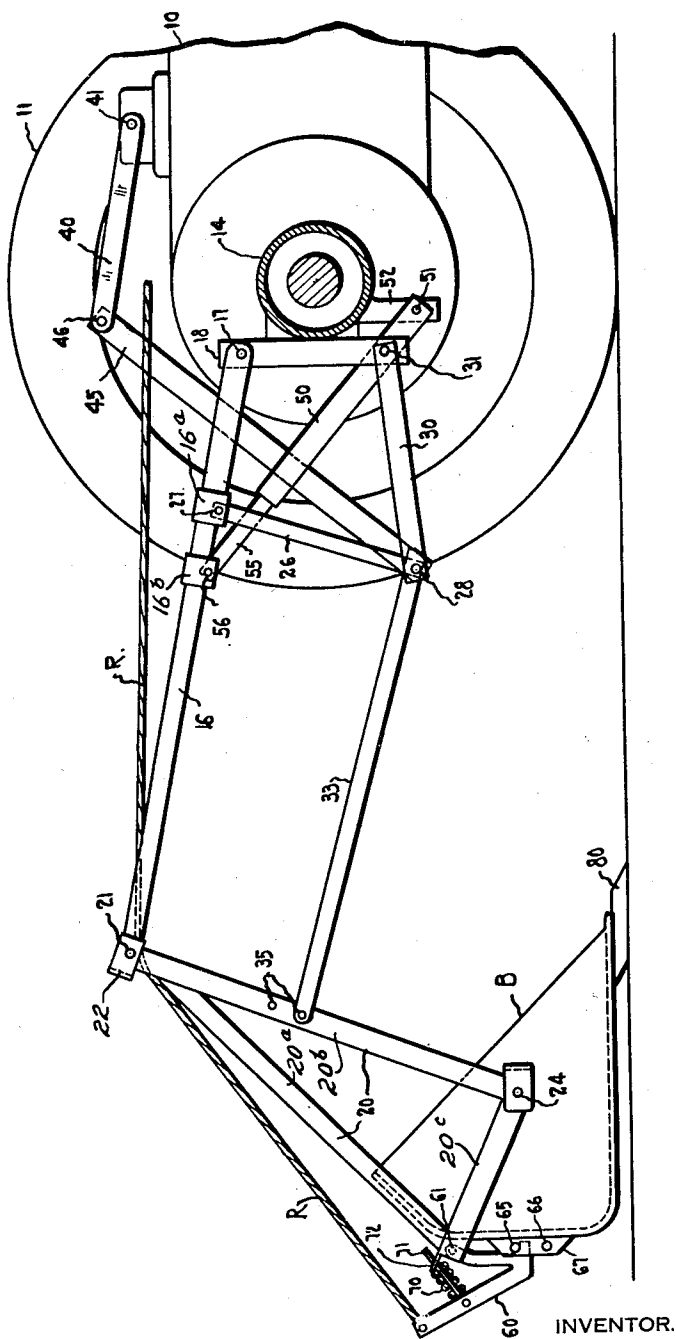
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DITCHDIGGING ATTACHMENT FOR TRACTORS

Filed June 25, 1947

3 Sheets-Sheet 1

Fig. 1



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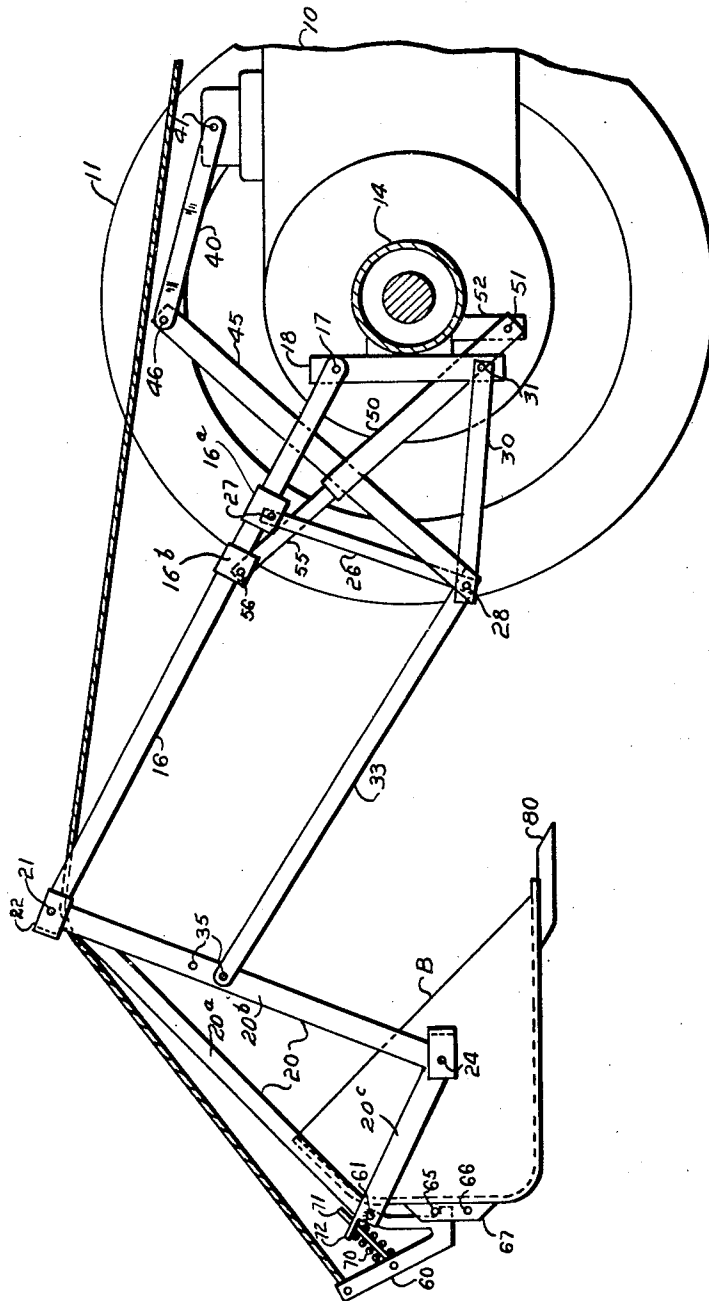
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Fig 2



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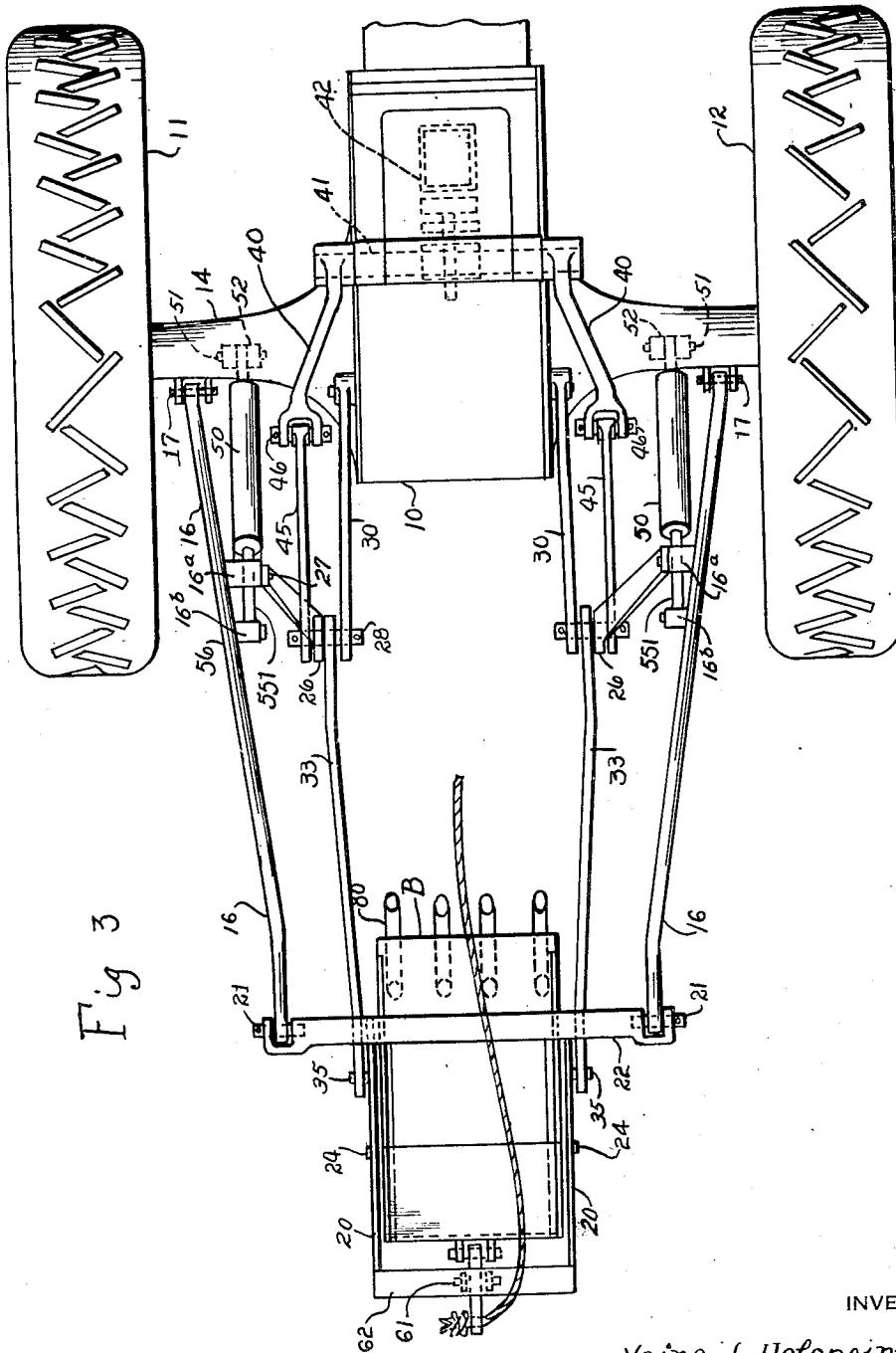


Fig 3

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UNITED STATES PATENT OFFICE

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DITCHDIGGING ATTACHMENT FOR
TRACTORS

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Application June 25, 1947, Serial No. 756,850

1 Claim. (Cl. 37—126)

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This invention relates to a ditch-digging attachment to be mounted at the rear of a small or farm type tractor.

It is the general object of the invention to provide a ditch-digging attachment having a bucket which may be filled by forward movement of the tractor while the tractor is on firm ground, and which may be raised without substantial angular displacement, so that the contents will not be prematurely discharged.

A further object is to provide a simple and inexpensive attachment for the defined purpose which may be easily manipulated and installed and which is convenient and reliable in operation.

The invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claim.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a side view of the attachment in lowered or digging position;

Fig. 2 is a view similar to Fig. 1 but showing the bucket raised; and

Fig. 3 is a plan view of the digging attachment with certain parts omitted and also showing parts of the tractor on which it is mounted.

Referring to the drawings, I have shown parts of a commercial tractor including a portion of the body 10, the rear wheels 11 and 12, and the rear axle casing 14. Lifting arms 16 are pivoted at 17 to supporting bars 18, which are clamped or otherwise secured to the rear axle casing 14.

Rigid triangular frame members 20 comprising parts 20a, 20b, and 20c are fixed to a cross bar 22 which is pivoted at 21 to the outer ends of the arms 16, and a bucket B is pivoted on studs 24 which project through holes in the lower front corners of said triangular frame members 20. Links 26 are pivoted at their upper ends at 27 to blocks 16a secured at intermediate points on the arms 16, and the lower ends of the links 26 are pivoted at 28 to arms 30, which in turn are pivoted at 31 on the lower ends of the supporting bars 18.

Links 33 are pivoted at 28 to the links 26 and 30 and are pivoted to the frame members 20 at one or the other of two intermediate openings 35. The supporting bars 18, arms 16, frame members 20, and the associated links 30 and 33 thus roughly constitute parallelograms on which the bucket is supported, and these parallelograms are cross-braced by the links 26.

Arms 40 are pivoted at 41 on the tractor body 55

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10 and may be swung up or down by hydraulic mechanism 42 (Fig. 3) forming part of the regular equipment of the commercial tractor. Links 45 have their upper ends pivoted at 46 to the swinging arms 40, and at their lower ends they are connected at 28 to the parts 26, 30 and 33 previously described.

Hydraulic cylinders 50 are hinged at 51 to fixed arms 52 projecting downward from the axle casing 14, and pistons 55 are slidable in the cylinders 50 and are pivoted at 56 to blocks 16b on the arms 16.

A latch 60 is pivoted at 61 on a cross bar 62 (Fig. 3) which is fixed between the frame members 20. The latch 60 cooperates with a cross pin 65 inserted in a selected opening 66 in a bracket 67 secured to the rear wall of the bucket B.

A coil spring 70 is loosely mounted on a rod 71 pivoted to the latch 60 and extending through a slotted plate 72 fixed between the frame members 20. A rope R is connected to the outer end of the latch 60 and is brought forward within convenient reach of the operator.

At its front end, the bucket B is preferably provided with forwardly projecting teeth or prongs 80 by which the soil can be more readily loosened.

The method of operation of my improved ditch digger is as follows: The bucket B is mounted behind the tractor and is shown in lowered position in Fig. 1. As the tractor moves forward, the teeth 80 dig into the ground and fill the bucket. Oil is then admitted to the cylinder 42 (Fig. 3) to swing the arms 40 upward, and at the same time oil is admitted to the auxiliary cylinders 50 to force the pistons 55 upward.

The combined effect of the swinging upward movement of the arms 40 and of the upward push of the piston rods 55 is to swing the apparatus to the raised position shown in Fig. 2 but the linkage is such that the bucket B is maintained in substantially the same orientation, so that the load is not spilled or dumped. After the bucket is raised to the desired position, the tractor may be swung around or put in motion to transfer the load to any desired point of deposit.

It will be understood that the bucket may be lowered substantially below the ground level shown in Fig. 1 and that it may also be raised substantially above the elevated position shown in Fig. 2. Oil for the cylinders 42 and 50 is derived from the regular hydraulic system of the tractor and may be controlled by any suitable commercial valves. A detailed description of one form of control devices will be found in

my prior application Serial No. 676,486, filed June 13, 1946.

It will be noted that the bucket B is slightly wider at the front than at the back, to provide clearance and facilitate dumping of the load.

From the foregoing description, it will be apparent that my improved ditch digger is extremely simple in construction and operation and that it is particularly adapted for its intended purposes.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

A ditch-digging attachment for a tractor comprising a pair of rearwardly extending upper arms pivoted on the tractor, depending rigid frame members pivoted to the rear ends of said arms, a bucket pivotally mounted on said depending frame members and open forwardly, means to latch said bucket to said frame members, a pair of lower arms pivoted to said tractor substantially below said first pair of arms and also extending rearwardly, links connecting the

rear ends of said lower arms to intermediate points on said upper arms, additional links connecting the rear ends of said lower arms to intermediate points on said rigid frame members, fluid-operated mechanism effective to swing said upper arms up and down, and auxiliary fluid-operated devices pivoted to said tractor at their lower ends and to intermediate points on said upper arms at their upper ends and effective to supply auxiliary power to move said upper arms and bucket, and said arms and links being so proportioned that they maintain the orientation of said bucket substantially unchanged as said bucket is raised and lowered by said upper arms.

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

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