

G. Y. McMURRY.  
DITCHING MACHINE.

(Application filed Jan. 5, 1900.)

(No Model.)

2 Sheets—Sheet 1.

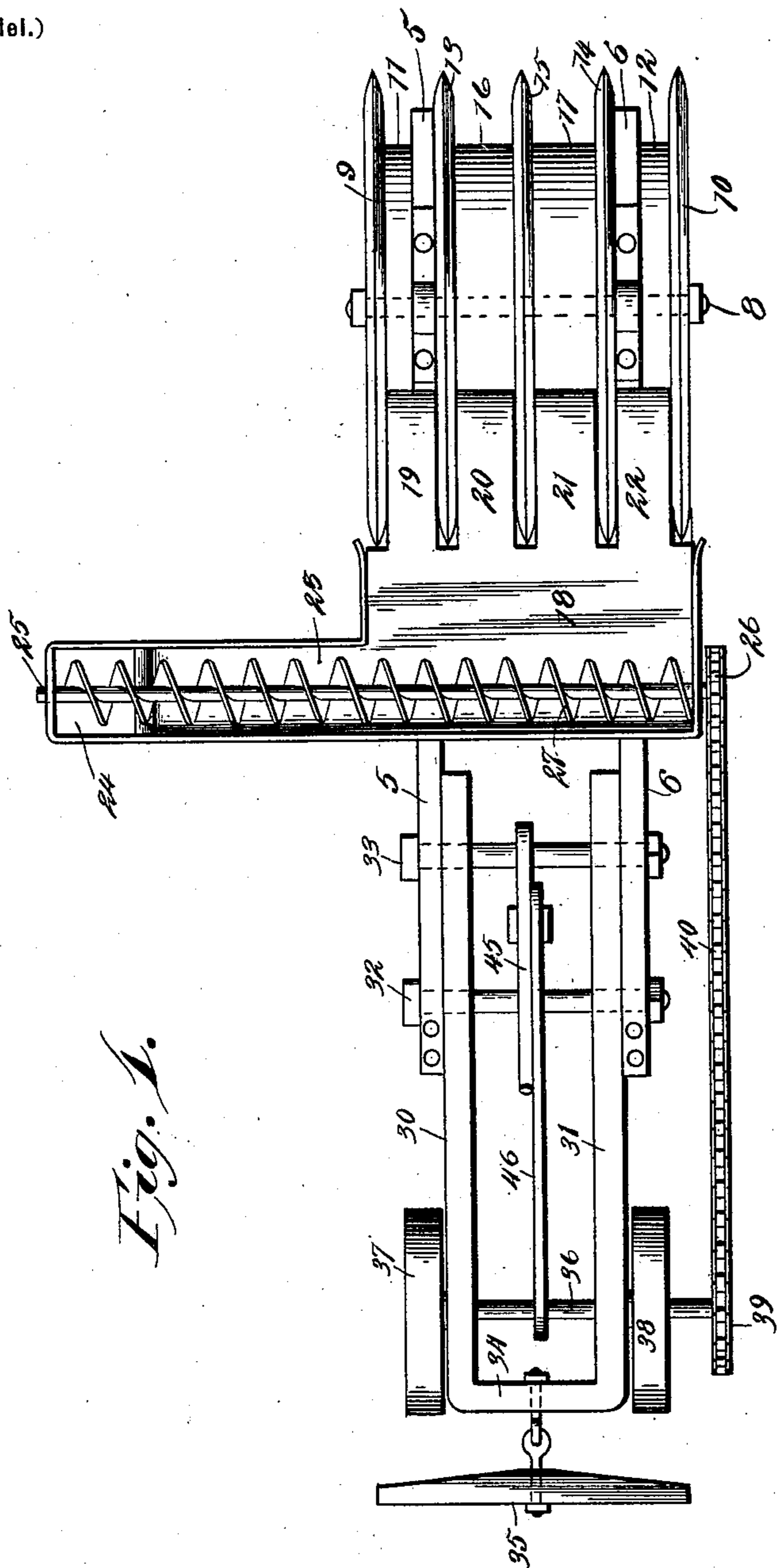


Fig. 1.

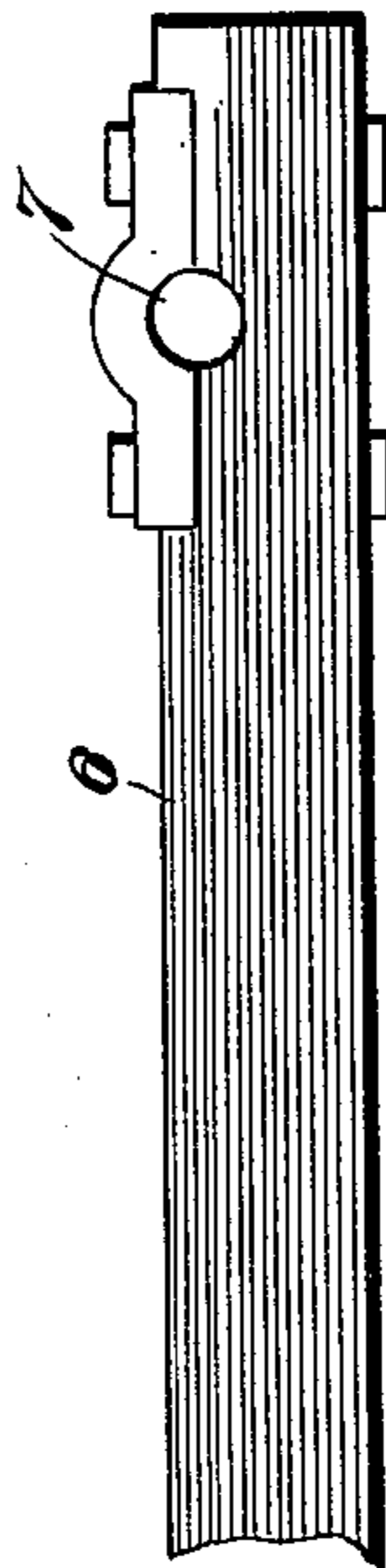


Fig. 4.

Witnesses  
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G. Y. McMurry Inventor  
By *His* Attorneys,

*C. A. Snow & Co.*

No. 657,954.

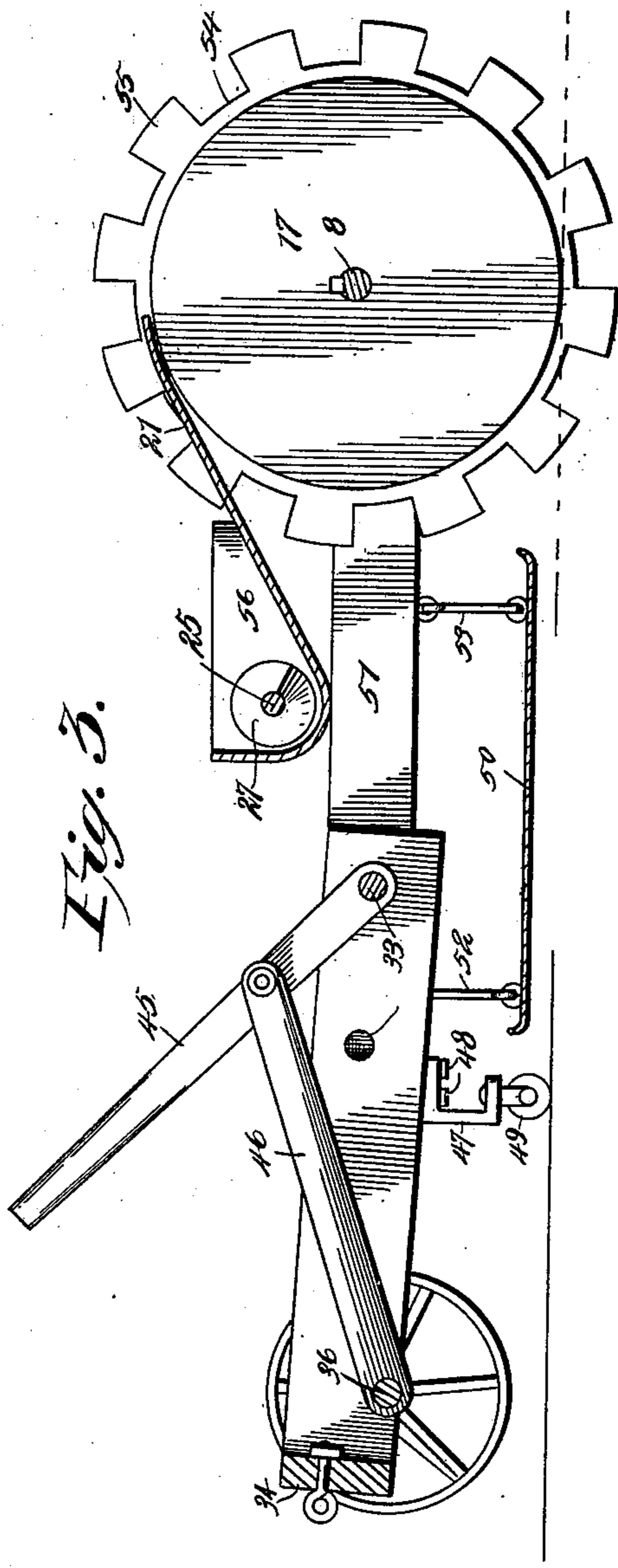
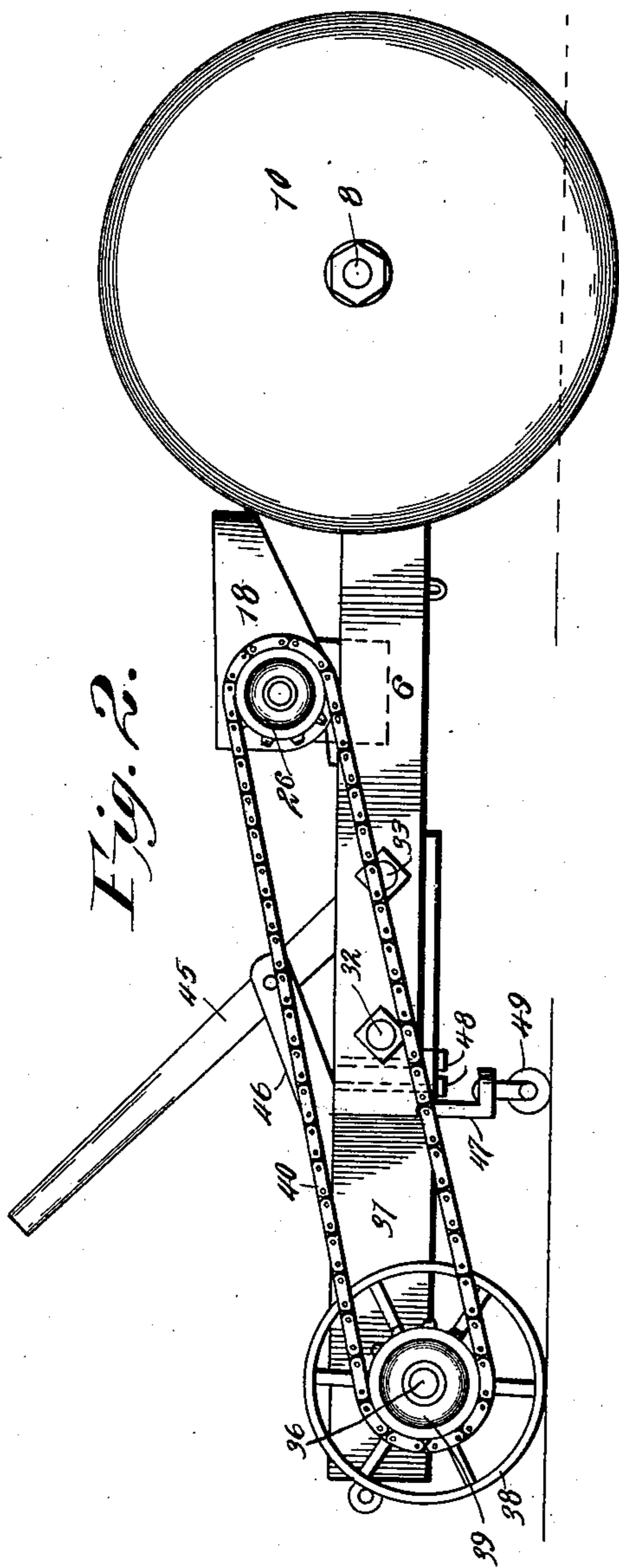
Patented Sept. 18, 1900.

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(Application filed Jan. 5, 1900.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses

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By *his* Attorneys,

G. Y. McMurry. Inventor

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# UNITED STATES PATENT OFFICE.

GRAVES YANCEY McMURRY, OF SILVER CITY, GEORGIA.

## DITCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 657,954, dated September 18, 1900.

Application filed January 5, 1900. Serial No. 507. (No model.)

*To all whom it may concern:*

Be it known that I, GRAVES YANCEY McMURRY, a citizen of the United States, residing at Silver City, in the county of Forsyth and State of Georgia, have invented a new and useful Ditching-Machine, of which the following is a specification.

This invention relates to ditching-machines in general, and more particularly to that class operated by any power and in which the earth is elevated to a hopper and then conveyed transversely and discharged, the object of the invention being to provide a construction in which the ditch will be quickly cut and from which the earth will be raised and discharged either to one side of the machine or to a conveyor, from which it will be discharged to a carrier upon the frame of the machine.

In the drawings forming a part of this specification, and in which similar characters of reference designate like and corresponding parts in the several views, Figure 1 is a plan view showing a form of the invention adapted to discharge to the ground at one side of the machine. Fig. 2 is a side elevation of the construction shown in Fig. 1. Fig. 3 is a longitudinal section showing a structure provided with a carrier to receive and carry the dirt discharged from the conveyor. Fig. 4 is a side elevation showing the rear portion of one of the sills.

Referring now to the drawings, 5 and 6 represent sills, at the rear ends of which are formed bearings 7 for an axle 8. Upon this axle 8 and exteriorly of the sills 5 and 6 are loosely disposed two cutting-disks 9 and 10, between which and the outer faces of the sills are disposed disks 11 and 12, of suitable width and the diameters of which are less than the diameters of the disks 9 and 10. Between the sills 5 and 6 disks 13 and 14 are loosely disposed upon the shaft 8, directly adjacent to the sills 5 and 6, respectively, while midway of the disks 13 and 14 is another disk 15, separated from the disks 13 and 14 by interspaces, in which are disposed disks 16 and 17, in contact with the disks at each side thereof, and the diameters of which are equal to the diameters of the disks 11 and 12. The cutting-disks 9, 10, 13, 14, and 15 are equal in diameter and are disposed equidistant.

Upon the sills 5 and 6 and in advance of the cutting-disks is disposed a hopper 18, from the upper rear edge of which extend fingers 19, 20, 21, and 22, which lie between the disks 9, 10, 13, 14, and 15 and are disposed substantially tangent to the disks 11, 12, 16, and 17 and in contact therewith. At the bottom of the hopper 18 is formed a trough 23, extending transversely of the hopper and the sills, which form the frame of the machine, and projecting laterally beyond the sill 5. At one end of the trough 23, which projects beyond the frame of the machine, there is formed an opening 24 through the bottom of the trough and through which opening the contents of the hopper is discharged after passing through the trough. A shaft 25 is journaled in the ends of the trough and projects beyond one end thereof, this projecting end being provided with a sprocket-wheel 26, through the medium of which the shaft 25 is rotated, as will be hereinafter described. A conveyor-worm 27 is fixed upon the shaft 25, so that as the shaft is rotated the contents of the trough will be conveyed longitudinally thereof and discharged through the opening 24.

Against the inner faces of the sills 5 and 6 are disposed additional sills 30 and 31, respectively, which are connected with the sills 5 and 6 through the medium of bolts 32 and 33, passed through alining perforations in the sills. The outer ends of the sills 30 and 31 have a mutual connection 34, to which is attached a tree 35 to permit hitching of draft-animals to the machine. Bearings are provided in the sills 30 and 31, and in these bearings is journaled an axle 36, upon which are fixed wheels 37 and 38, which lie upon the outer sides of the sill. Upon the axle 36 and exteriorly of the wheel 38 is mounted a sprocket-wheel 39, with which is engaged a chain 40, engaging also the sprocket 26.

The operation of this portion of the invention is as follows: The machine is drawn over the earth where the ditch is to be cut and the cutting-disks sink into the earth to an extent equal to their projection beyond the peripheries of their intermediate disks. As the cutting-disks rotate the earth that passes between them in the cutting operation remains between the cutting-disks, due to friction

thereagainst, and rises with the disks and travels forwardly therewith until the fingers 19, 20, 21, and 22, respectively, are engaged, when dirt passes onto the fingers and slides  
 5 downwardly thereof and into the hopper 18, from which it passes into the trough 23 and into engagement with the conveyer 27. The conveying-worm is rotated by the wheels 37 and 38 as the machine is drawn, and thus it  
 10 acts to convey the dirt longitudinally of the trough through the opening 24, from which it is discharged.

To permit turning of the machine, it is necessary to raise the wheels 37 and 38 from the  
 15 ground, and to permit this operation the bolt 32 is withdrawn and the sills 30 and 31 raised on the bolt 33 of the pivot. A handle 45 is pivoted upon the bolt 33, and a link 46 is connected at one end to this handle and at the  
 20 opposite end to the axle 36, so that by pulling on the handle 45 the front wheels will be lifted from the ground. The main and supplemental frames are pivotally connected for movement in a vertical plane only, and hence  
 25 when it is desired to turn the machine it is necessary to raise the front wheels from the ground through the medium of the lever or handle 45 and the connected mechanism above described.

30 In order to support the main frame of the machine, comprising the sills 5 and 6, when the wheels 37 and 38 are raised from the ground, brackets 47 are fixed to the ends of the sills 5 and 6, through the medium of bolts  
 35 48, and in these brackets are mounted casters 49, which bear upon the ground. These casters then form the pivot-wheels for the machine, and after the machine is turned the supplemental frame is lowered and the bolt  
 40 32 is returned to hold the parts of the frame rigid.

In the construction shown in Fig. 3 of the drawings, in which the front wheels are shown as elevated, there is employed a carrier 50,  
 45 hung from the sills 51 of the main frame through the medium of hangers 52 and 53 and which carrier is adapted to receive the dirt as it is discharged from the trough. Also in this construction the cutting-disks 54 are provided with cogs 55 at their peripheries instead  
 50 of having the unbroken structure shown in Figs. 1 and 2. With this construction the dirt is not only held between the faces of the disks, but it enters between the cogs or projections of the peripheries thereof, and is thus more securely engaged to facilitate the operation of the cutters. The recesses between  
 55 the cogs, as shown, are tapered inwardly, and the bases of these recesses are so positioned  
 60 that the fingers will enter below the bases, as shown in Fig. 3, and the dirt is thus easily disengaged. It will of course be understood that, if desired, an opening may be formed in the bottom of the hopper 56, through  
 65 which the dirt may be discharged to the carriers 50 without engaging the conveyer 57, and this opening may be provided with a

slidable closure in order that the dirt may be passed to the conveyer when desired.

What is claimed is—

1. A ditching-machine comprising a main frame, a supplemental frame pivoted to the main frame, an axle mounted upon the main frame, cutting-disks mounted upon the axle and separated by interspaces, said disks having peripheral cutting-cogs, fingers disposed between the disks and adapted to receive and convey dirt therefrom, supporting-wheels upon the supplemental frame, means for moving the supplemental frame upon its pivot to  
 75 raise and lower the wheels carried thereby, and casters upon the main frame for supporting it when the supplemental frame is raised upon its pivot. 80

2. A ditching-machine comprising a main frame, cutting-disks carried by the main frame and adapted to cut and raise the dirt from the ditch, means for removing the dirt from the disks, a conveyer adapted to discharge the dirt, a supplemental frame pivoted to the main frame, supporting-wheels upon the supplemental frame, means for holding the supplemental frame normally with its supporting-wheels in operative position, connections between the supporting-wheels and the conveyer for operating the latter, means for moving the supplemental frame upon its pivot, and casters upon the main frame for supporting the main frame when the supplemental frame is raised upon its  
 85 pivot. 90 95 100

3. A ditching-machine comprising a frame, an axle carried by the frame, cutting-disks mounted upon the axle and separated by interspaces, said disks having peripheral lugs separated by recesses, additional disks disposed in said interspaces and lying with their peripheries within the inclosure of the lines of the bases of the recesses, and fingers disposed between the cutting-disks with their  
 105 ends upon the second disks and below the bases of the recesses, said fingers extending beyond the peripheries of the cutting-disks. 110

4. A ditching-machine comprising a main frame, cutting-disks carried by the main frame and adapted to cut and raise the dirt from the ditch, means for removing the dirt from the disks, a conveyer adapted to discharge the dirt, a supplemental frame pivoted to the main frame, supporting-wheels upon the supplemental frame, means for holding the supplemental frame normally with the supporting-wheels in operative position, connections between the supporting-wheels and the conveyer for operating the latter, and means for moving the supplemental frame upon its pivot. 115 120 125

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GRAVES YANCEY McMURRY.

Witnesses:

R. L. HUNTER,

G. W. McMURRY.