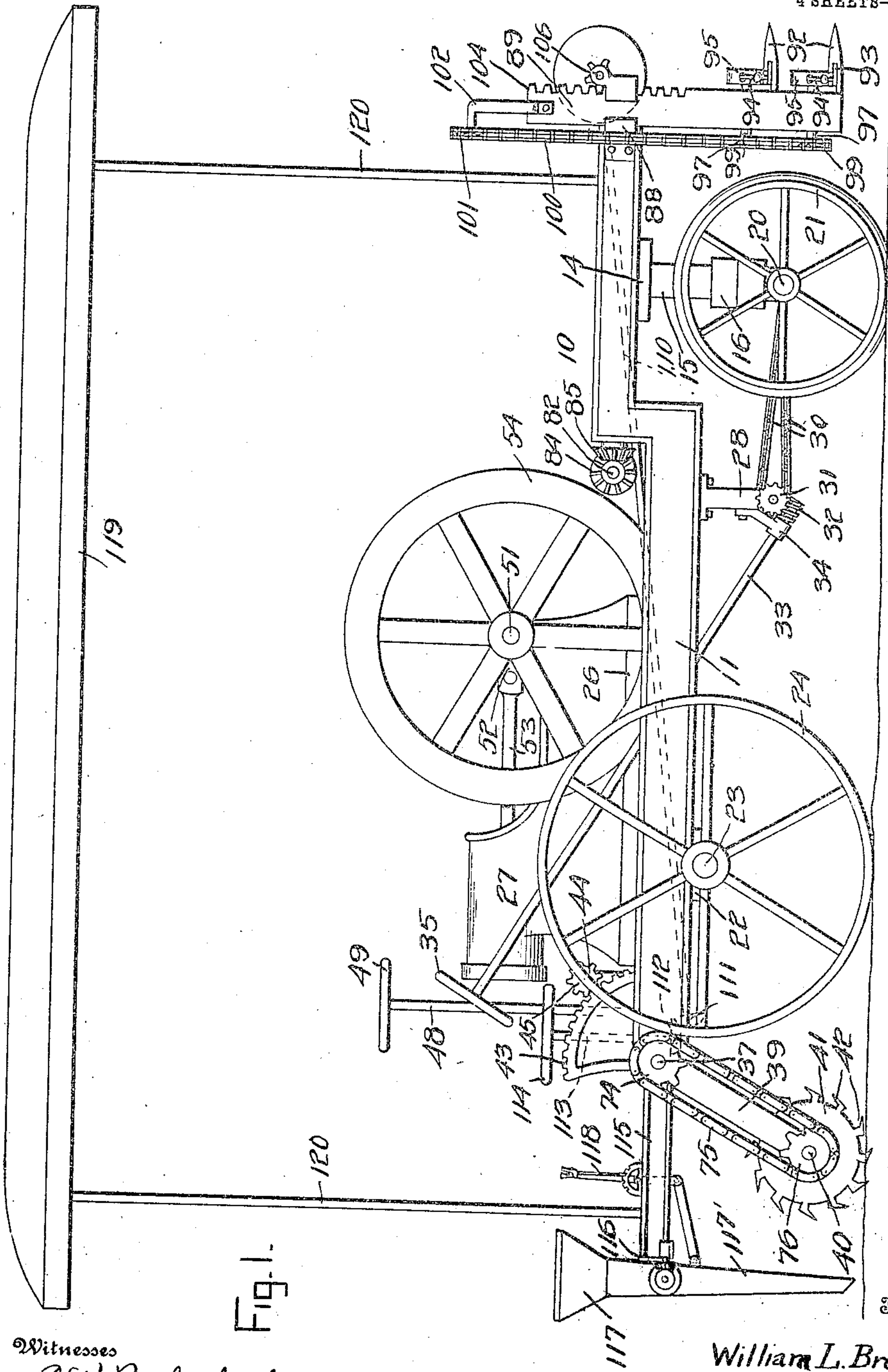


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APPLICATION FILED JUNE 12, 1908.

Patented Mar. 8, 1910.  
4 SHEETS—SHEET 1.



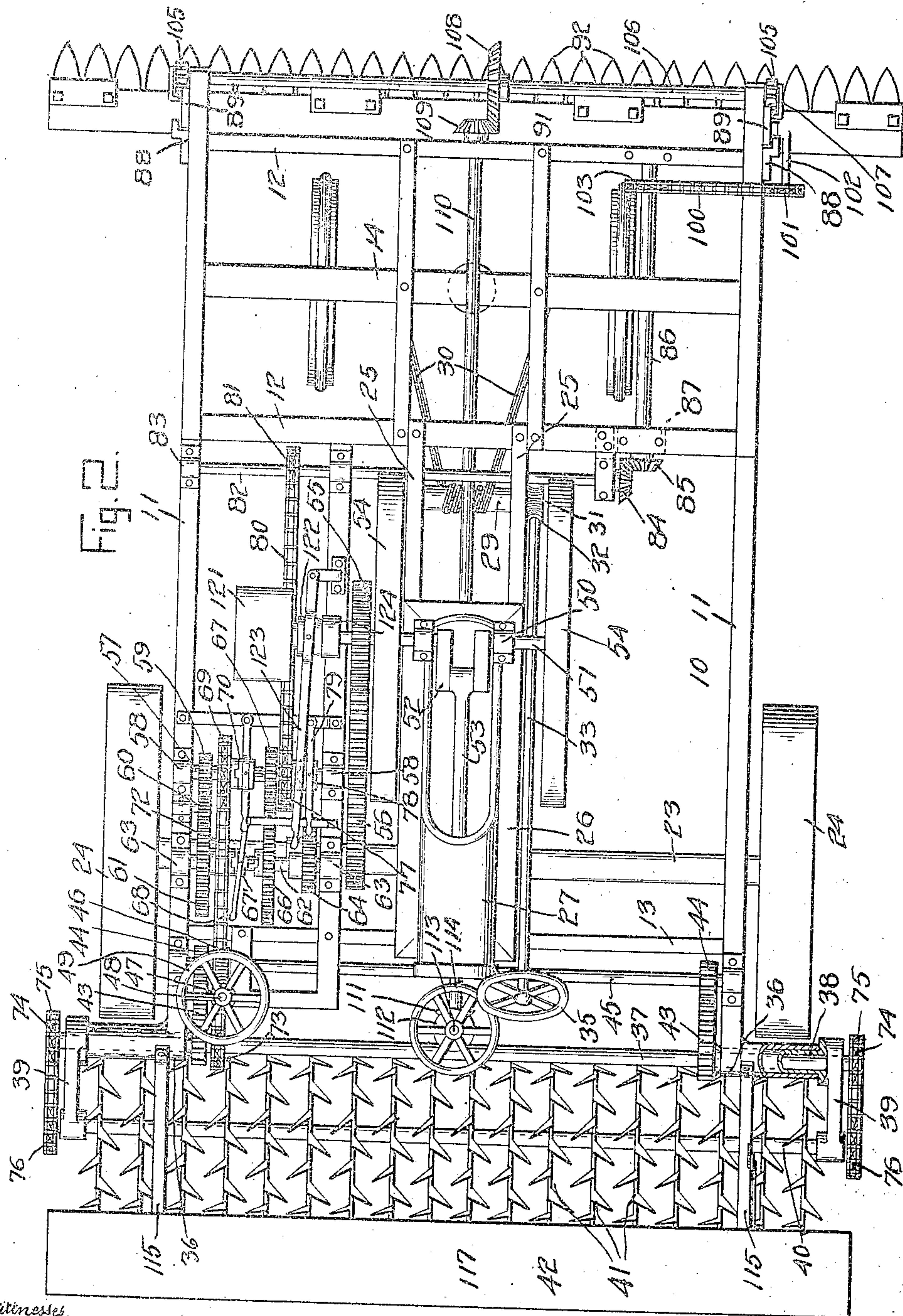
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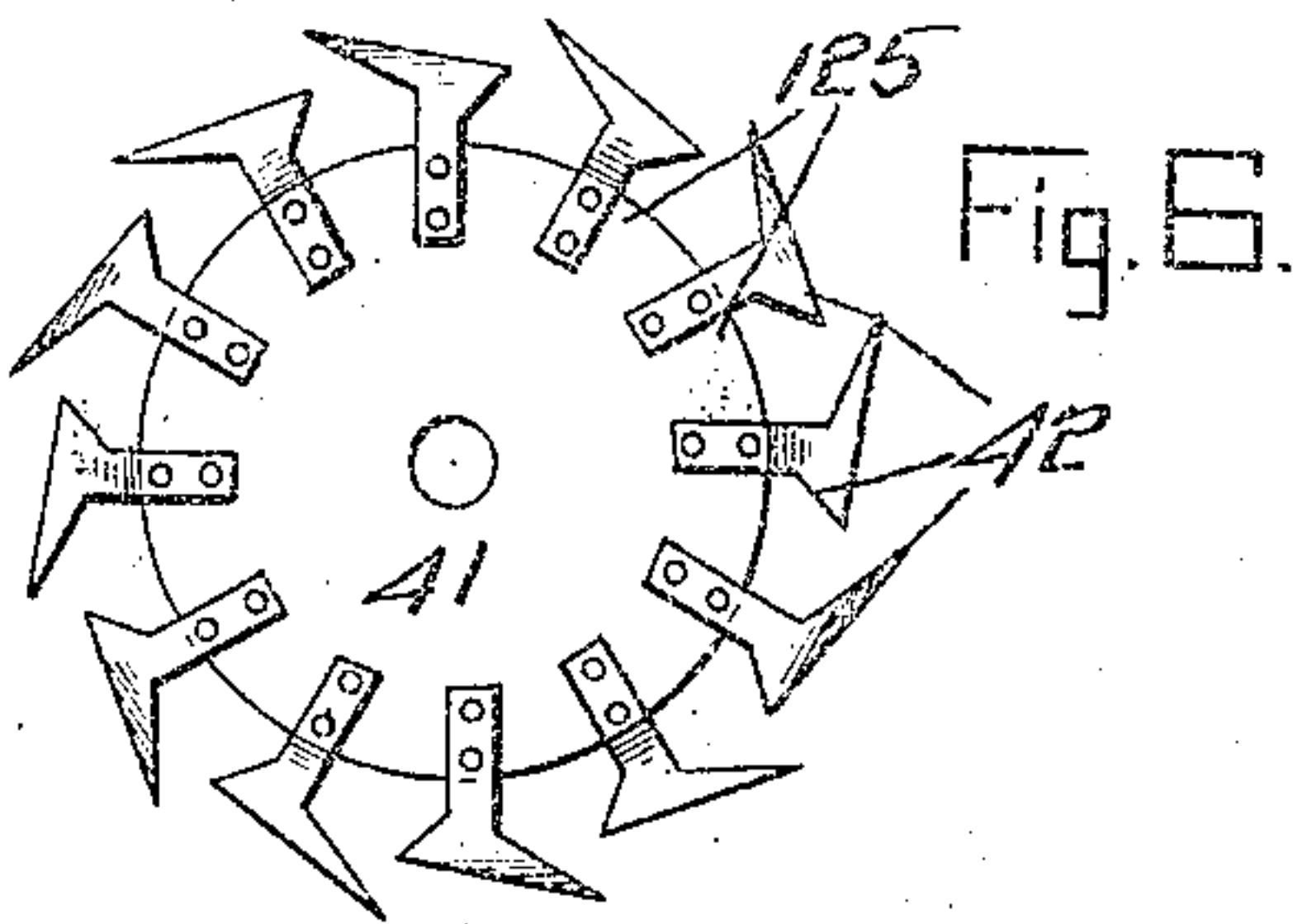
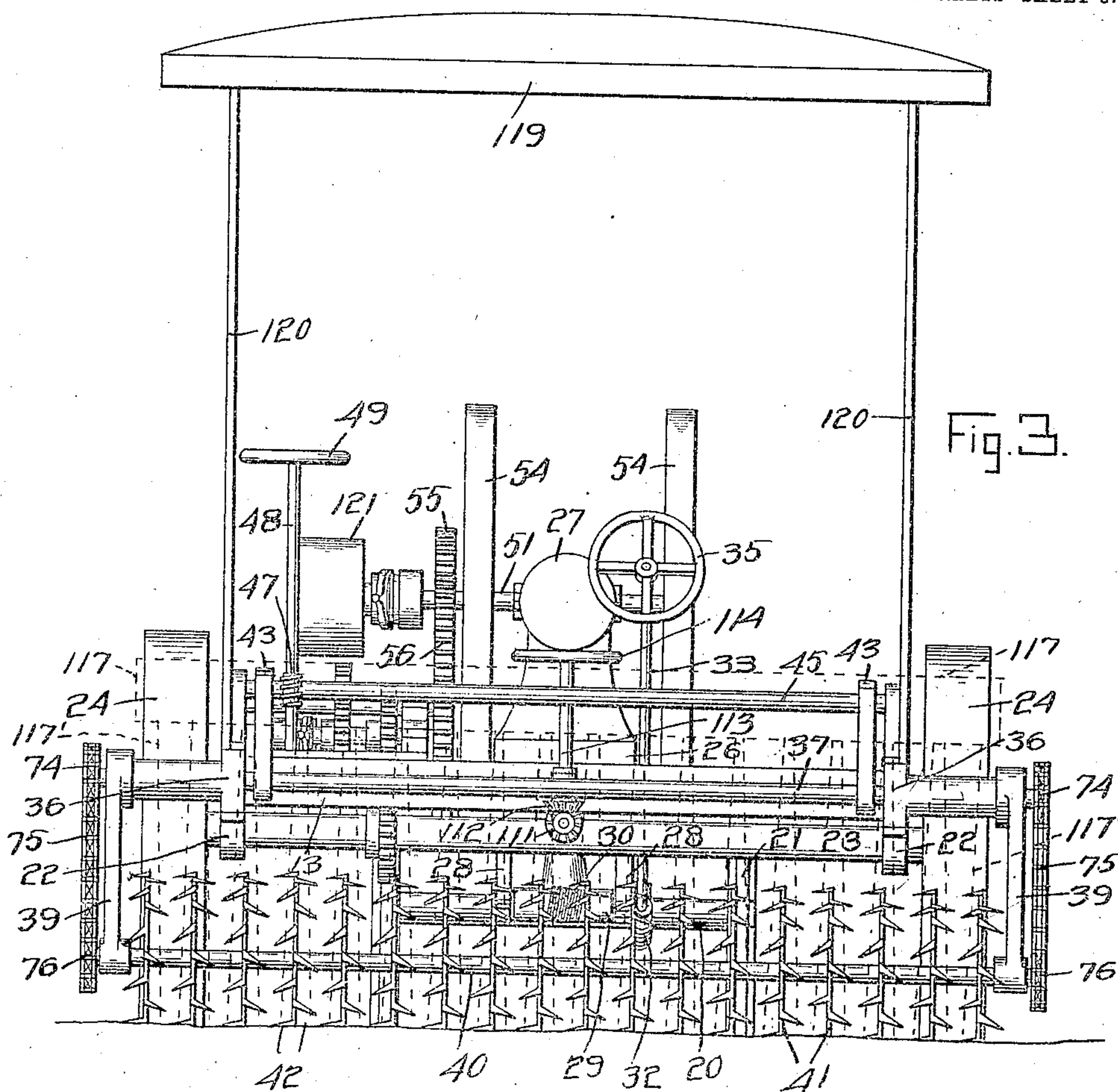


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4 SHEETS—SHEET 3.



Witnesses

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## SOIL TILLER.

Patented Mar. 8, 1910.

4 SHEETS—SHEET 4.

Fig. 4.

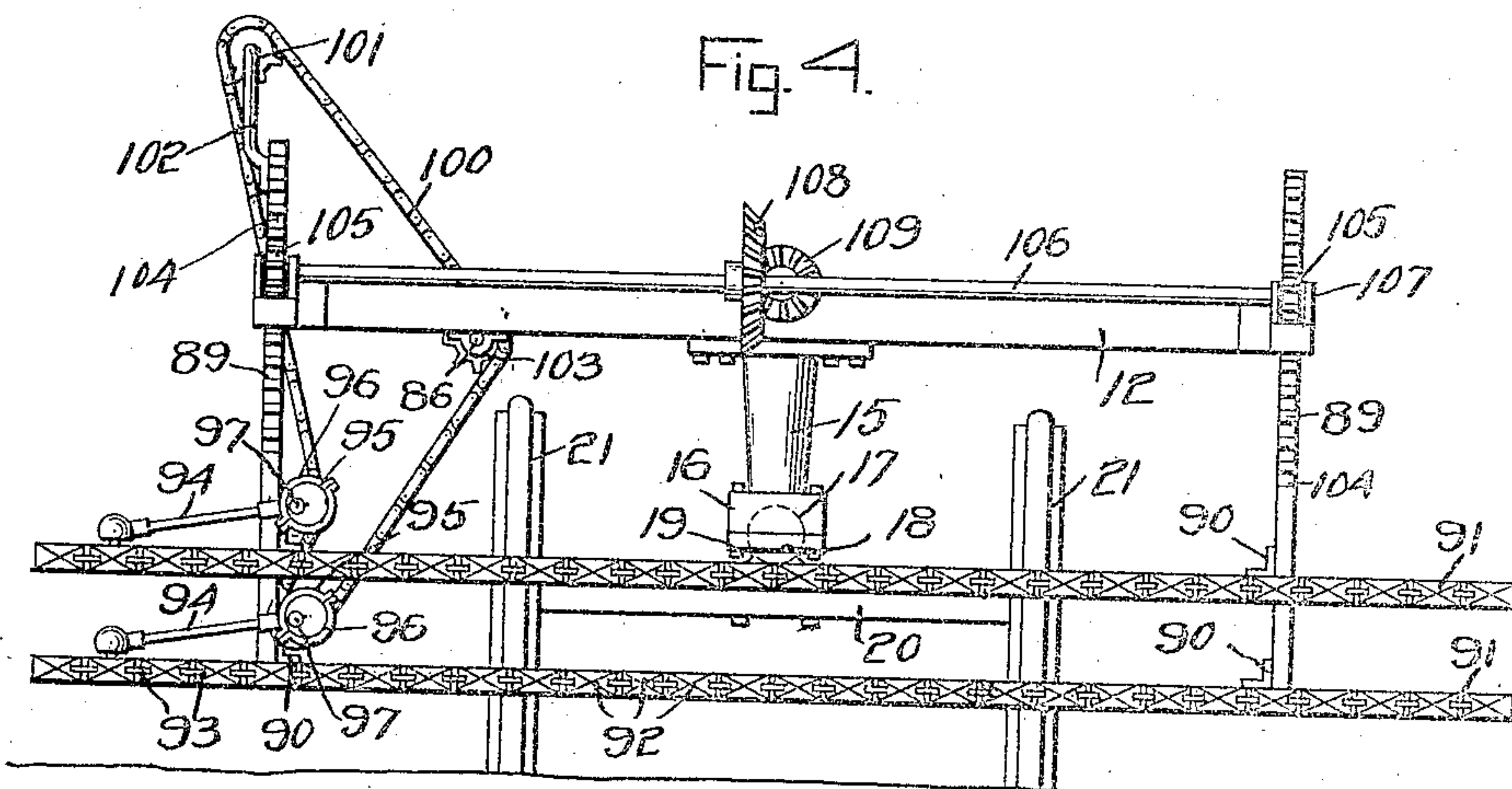
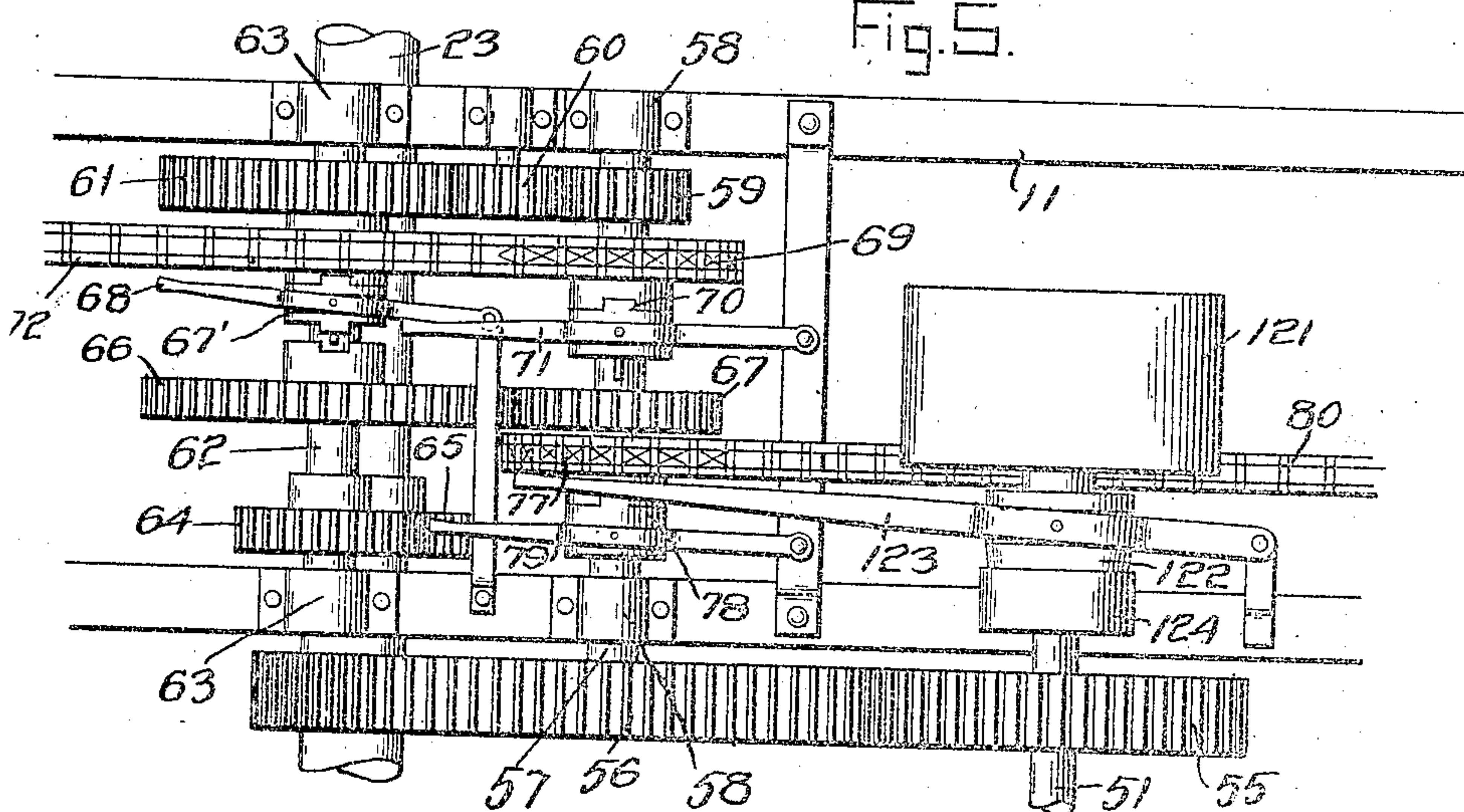


Fig. 5.



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# UNITED STATES PATENT OFFICE.

WILLIAM L. BROWN, OF MANNINGTON, WEST VIRGINIA.

## SOIL-TILLER.

951,522.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed June 12, 1908. Serial No. 438,229.

*To all whom it may concern:*

Be it known that I, WILLIAM L. BROWN, a citizen of the United States, residing at Mannington, in the county of Marion, State of West Virginia, have invented certain new and useful Improvements in Soil-Tillers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to a soil tiller and more particularly to the class of traction motors having a soil tiller.

The primary object of the invention is the provision of a soil tiller mounted or carried by a traction motor, the said soil tiller being mounted at the rear of the same, and the motor of the traction machine adapted to actuate the soil tiller.

Another object of the invention is the provision of a traction motor having combined therewith an adjustable soil tiller, the soil tiller being adapted to pulverize and air the soil operated upon thereby.

A further object of the invention is the provision of a soil tiller mounted upon a self-propelling vehicle, the motor thereof actuating said soil tiller and which self-propelling vehicle is also equipped with steering means whereby its course may be changed as found necessary.

A still further object of the invention is the provision of a machine which is simple, efficient and adapted to facilitate and quicken the operation of this class of machines.

In the drawings, accompanying and forming part of this specification is illustrated one form of embodiment of the invention which, to enable those skilled in the art to practice said invention, will be set forth at length in the following description while the novelty of the invention will be included in the claims succeeding said description.

In the drawings:—Figure 1 is a side view of the invention. Fig. 2 is a top plan view with the canopy cover or top removed. Fig. 3 is a rear end view, with the seed hopper removed. Fig. 4 is a front end view. Fig. 5 is a fragmentary view showing in detail the clutch change gear mechanism. Fig. 6 is a detail plan view of one of the soil tiller disks.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

In the drawings, the numeral 10 designates generally the main traction frame including side beams 11 united at their front ends by spaced transverse beams 12 and at their rear ends by a transverse beam 13 to form the open frame structure.

Secured to the side beams 11 near the front end of the traction frame is a transverse bolster 14 having secured to it centrally thereof a depending post 15 the latter having at its end a split boxing 16 forming a ball socket 17 which receives a ball terminal 18 of a central bearing 19 in which is mounted a front axle 20 carrying at its end traction wheels 21. Near the opposite end of the traction frame 10 and depending from the side beams 11 are bearings 22 in which is mounted a rear axle 23 having rear traction wheels 24 mounted at opposite ends of the said axle.

Centrally of the main traction frame 10 are spaced supporting bars 25 connected to one transverse beam 12 and to the rear transverse beam 13 of said frame and upon which is mounted the base 26 of a gasoline or other motor 27 the function of which will be hereinafter described.

Depending from the spaced supporting bars 25 at their forward ends are bearing brackets 28 in which is journaled a winding drum or roller 29 having secured thereto the ends of guide chains 30, the opposite ends of which are connected to the front axle 20 and which chains are adapted to be reversely wound upon the said roller for steering or guiding the machine. Fixed to one journal end of the roller or drum 29 is a worm gear 31 in mesh with the worm screw 32 at the free end of a steering shaft 33 journaled or rotatably mounted in an angular bearing bracket 34 near the worm screw end of said shaft. At the opposite end of the steering shaft 33 is a hand wheel 35 whereby an operator may actuate the steering shaft for the purpose of guiding the traction machine in its travel.

The rear extremities of the side beams 11 terminate in bearings 36 projecting outwardly at right angles thereto beyond the frame and mounted in said bearings is a rotatable shaft 37 surrounded near its ends by sleeves 38 fitted within the said bearings 36 and each of which at its outer end carries a swinging arm 39 and journaled in the said arms at their lower ends is a rotatable disk supporting shaft 40 having fixed



thereto a gang of spaced disks 41 forming cutters and each of which has detachably mounted at its periphery on opposite sides thereof a series of right-angularly disposed  
5 curved cutter blades 42 which form the soil tillers and are adapted to lift the earth in their operation to air and pulverize said earth.

Mounted upon the opposite extremities of  
10 the sleeves 38 are toothed segments 43 in engagement with cog wheels 44 fixed to a shaft 45 suitably journaled in the traction frame and said shaft is provided with a worm gear 46 in mesh with a worm thread  
15 or screw 47 on a vertical shaft 48 having a hand wheel 49 whereby an operator upon turning the hand wheel to rotate the vertical shaft 48 will actuate through the medium of the worm thread and gear the said shaft 45  
20 to move the segments so that the swinging arms 39 will be raised and lowered to position the disks relative to the ground to increase or decrease the depth of the cutting action thereof.

Mounted upon the base 26 of the motor  
25 27 in bearings 50 is a main drive shaft 51 having a crank 52 connected to a driving piston rod 53 of the motor and upon said drive shaft 51 at opposite sides of its crank  
30 are balance wheels 54. Said drive shaft 51 has fixed thereto a pinion 55 in mesh with a large toothed gear 56 on the end of a shaft 57 mounted in bearings 58 and carrying at its outer end a fixed pinion 59 in mesh with  
35 an idle gear 60 which latter is in mesh with a gear wheel 61 loosely mounted upon a shaft 62 journaled in bearings 63 and which latter shaft, carries a fixed pinion 64 in mesh with a gear wheel 65 fixed to the rear axle  
40 23 of the traction machine. Upon the shaft 62 is loosely mounted a gear wheel 66 in mesh with a gear 67 fixed to the said shaft 57 and between the said loose gear wheel 66 and said loose gear wheel 61 upon the shaft  
45 62 is keyed a slidable double-clutch member 67' operated by a throw lever 68 so as to alternately lock either the gear 66 or the gear wheel 61 to the said shaft 62 at the will of the operator. Upon the shaft 57 between  
50 the gear 67 and the pinion 59 is a loose sprocket wheel 69 which latter is adapted to be locked to said shaft 57 by a single clutch 70 rotatable with and slidable upon the latter and actuated by a throw lever 71 controlled by the operator. Trained over the  
55 sprocket wheel 69 is a sprocket chain 72 the latter being also trained over a sprocket wheel 73 fixed to the rotatable shaft 37 carrying at its ends sprocket wheels 74 over  
60 which are trained sprocket chains 75 which latter are also trained over sprocket wheels 76 fixed to the ends of the rotatable disk supporting shaft 40 at the rear end of the traction machine.

65 Loosely mounted upon the shafts 57 is a

driving sprocket wheel 77 adapted to be locked to the said shaft at will by a single clutch 78 controlled by a throw lever 79 and over this sprocket wheel 77 is trained a sprocket chain 80 which latter is also trained  
70 over a fixed sprocket wheel 81 on a shaft 82 mounted in bearings 83 and which latter shaft has at one end a beveled gear 84 in mesh with a corresponding beveled gear 85 on the end of a shaft 86 rotatably mounted  
75 in bearings 87 upon the transverse bars of the main frame of the machine.

At the front end of the frame of the machine and on the outside faces of the side beams 11 are guides 88 in which are mounted  
80 vertically adjustable bars 89 to which are connected by brackets 90 superposed horizontally arranged plates or bars 91 having forwardly projecting guard fingers 92 in which are slidably mounted mower or sickle  
85 blades 93 and pivotally connected to the latter at one end thereof are eccentric rods 94 the opposite ends of which are connected by eccentric straps 95 to eccentric disks 96 fixed to short shafts 97 transversely disposed in  
90 suitable bearings on one of the bars 89 and which latter shafts have fixed thereto sprocket wheels 99 engaging an endless sprocket chain 100 which latter is trained over an idle sprocket wheel 101 rotatably  
95 mounted upon a bracket 102 secured at the top of said bar 89 and the said sprocket chain 100 is also trained over a sprocket wheel 103 mounted upon the shaft 86 through the medium of which the sickle  
100 blades are actuated for cutting weeds and the like. The bars 89 have for a portion of their length rack teeth 104 in engagement with cog wheels or rack gears 105 fixed to a shaft  
105 106 journaled in bearings 107 upon the front end of the frame of the machine. Centrally mounted on the said shaft 106 is a beveled gear 108 in mesh with a beveled pinion 109 on the end of a shaft 110 extending longitudinally throughout the length of the machine and terminates at its opposite end in a  
110 beveled gear 111 in mesh with a beveled gear 112 on the end of a vertical shaft 113 having a hand wheel 114 to be actuated by the operator for rotating the said vertical shaft 113  
115 whereby the bars 89 carrying the sickle blades may be adjusted vertically on the frame of the machine.

Extending rearwardly of the main frame and secured to the bearings 36 of the main  
120 frame 10 are brackets or arms 115 to which is hingedly connected as at 116 a seed hopper 117 which latter is preferably adapted for a fertilizer distributor and which hopper is shifted by a lock throw lever 118 whereby it  
125 may be brought to and from the soil tiller at the will of the operator.

Over the main frame 10 is a canopy top or cover 119 supported by uprights 120 at opposite extremities of the machine.



Upon the driving shaft 51 is loosely mounted a band wheel 121 having a friction clutch 122 controlled by a throw lever 123 to bring the said clutch into frictional engagement with a friction wheel 124 fixed to the said driving shaft whereby the band wheel may be rotated therewith for driving and imparting power to other implements or machines at the will of the operator if found desirable.

Presuming that the motor 27 has been started and to set the traction machine in motion for the traveling thereof, it is necessary for the operator to move the throw lever 68 to slide the clutch member 67 into engagement with the loose gear 66 which latter will be locked to the shaft 62 carrying the fixed pinion 64 in mesh with the gear wheel 65 on the rear axle and in this manner the drive shaft 51 having its pinion 55 engaging the gear wheel 56 will transmit motion from the motor to the shaft 57 and through its pinion 59 engaging the idle gear 60 which latter meshes with the gear wheel 61 and by it being locked to the shaft 62 the latter will drive or rotate the rear axle through the medium of the meshing gears 64 and 65 so that the rear traction wheels on the said rear axle 23 will cause the forward travel of the machine. Now, if it is desired to set in motion the disks 41 the operator moves the throw lever 71 to lock the sprocket wheel 69 by the engagement of the thrown clutch 70 to the shaft 57 whereby the said sprocket wheel will be rotated to actuate the sprocket chain 72 to impart rotary motion to the shaft 37 which will actuate the sprocket chain 75 and these will cause the rotation of the disk supporting shaft 40 and thereby setting the gang of disks 41 into action to till the soil. The sickle blades 93 are set into action or driven by the shafts 86 and 82 which latter receives its motion through the chain 80 when the throw lever 79 is moved by the operator to bring the clutch 78 into engagement with the sprocket wheel 77 to lock the latter to the shaft 57 driven by the motor of the traction machine.

Again with reference to the seed hopper 117 there are depending therefrom a series of seed dropper tubes 117' having seed drills at the extremity of each of the latter.

The detachable blades 42 at the periphery

of each disk 41 are detachably connected by bolt fasteners or rivets 125 whereby the said blades 42 can be detached when dull, so that the same may be resharpened and also permit replacing new blades on said disks of the soil tiller. It is to be understood that these disks 41 when actuated by the machine will rotate in the direction of the line of travel of said machine.

What is claimed is—

1. In a machine of the class described, a wheeled frame having side bars, bearings fixed to the side bars and extending therefrom outwardly at right angles thereto, a shaft journaled in said bearings, sleeves interposed between the shaft and said bearings, a toothed segment formed at the inner end of each sleeve, arms formed at the outer ends of the sleeves, a rotatable disk supporting shaft journaled at the free ends of said arms, a gang of spaced disks fixed to the last named shaft, angularly disposed cutter blades fixed to the peripheries of the disks, driven connections between the two named shafts at opposite extremities thereof, and manually controlled mechanism actuating the toothed segment for raising and lowering the arms.

2. In a machine of the class described, a wheeled frame having side bars, bearings fixed to the side bars and extending therefrom outwardly at right angles thereto, a shaft journaled in said bearings, a toothed segment formed at the inner end of each sleeve, arms formed at the outer ends of the sleeves, a rotatable disk supporting shaft journaled at the free ends of said arms, a gang of spaced disks fixed to the last named shaft, angularly disposed cutter blades fixed to the peripheries of the disks, driven connections between the two named shafts at opposite extremities thereof, manually controlled mechanism actuating the toothed segment for raising and lowering the arms, a motor carried by the frame, and a train of gearing between the motor and first named shaft for rotating the same.

In testimony whereof, I affix my signature, in presence of two witnesses.

WILLIAM L. BROWN.

Witnesses:

ANDREW MURPHY,  
ROBERT PETERS.