

No. 818,952.

PATENTED APR. 24, 1906.

J. B. GORDON.
EXCAVATING MACHINE.
APPLICATION FILED SEPT. 1, 1904.

2 SHEETS—SHEET 1.

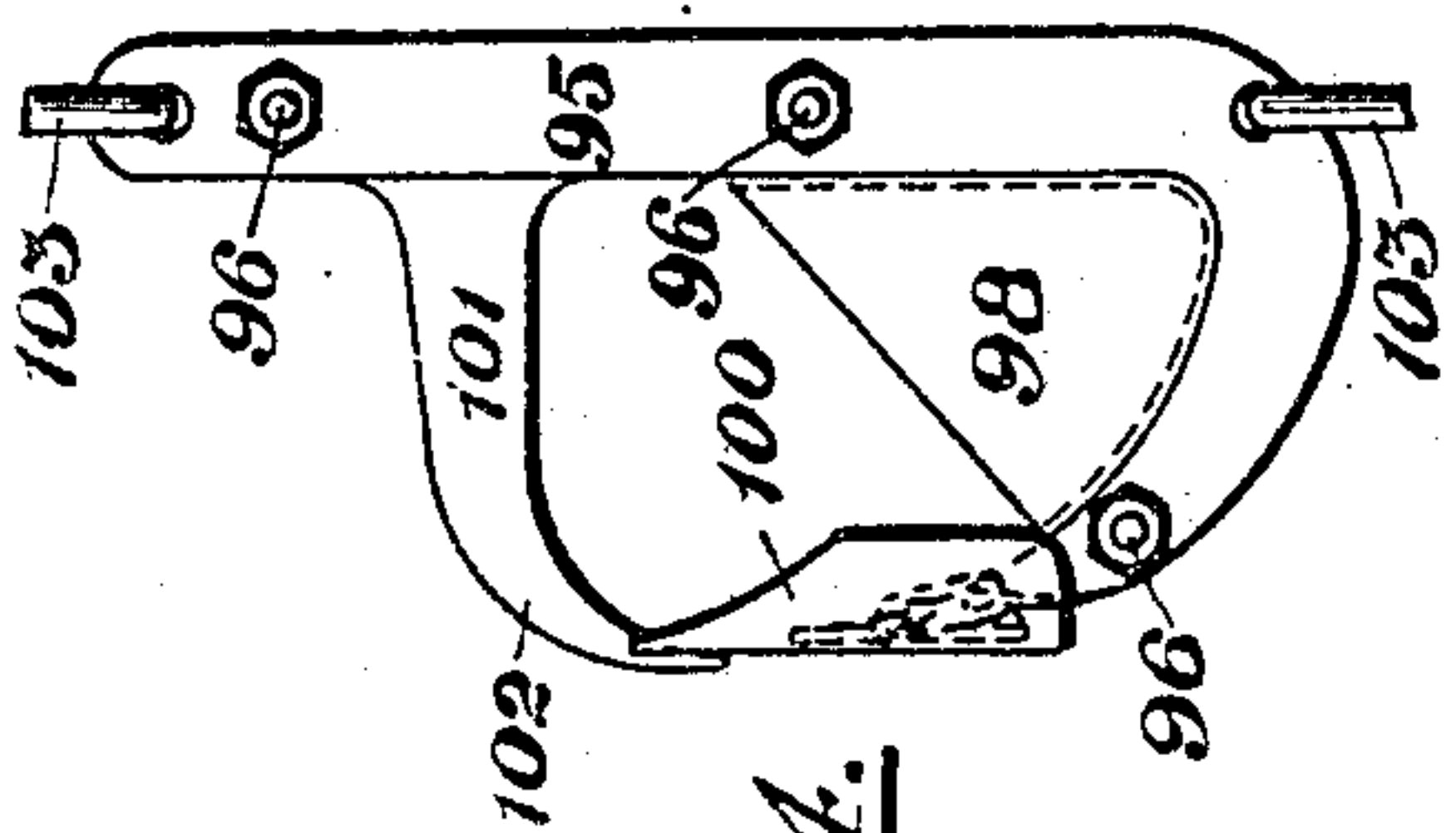


Fig. 4.

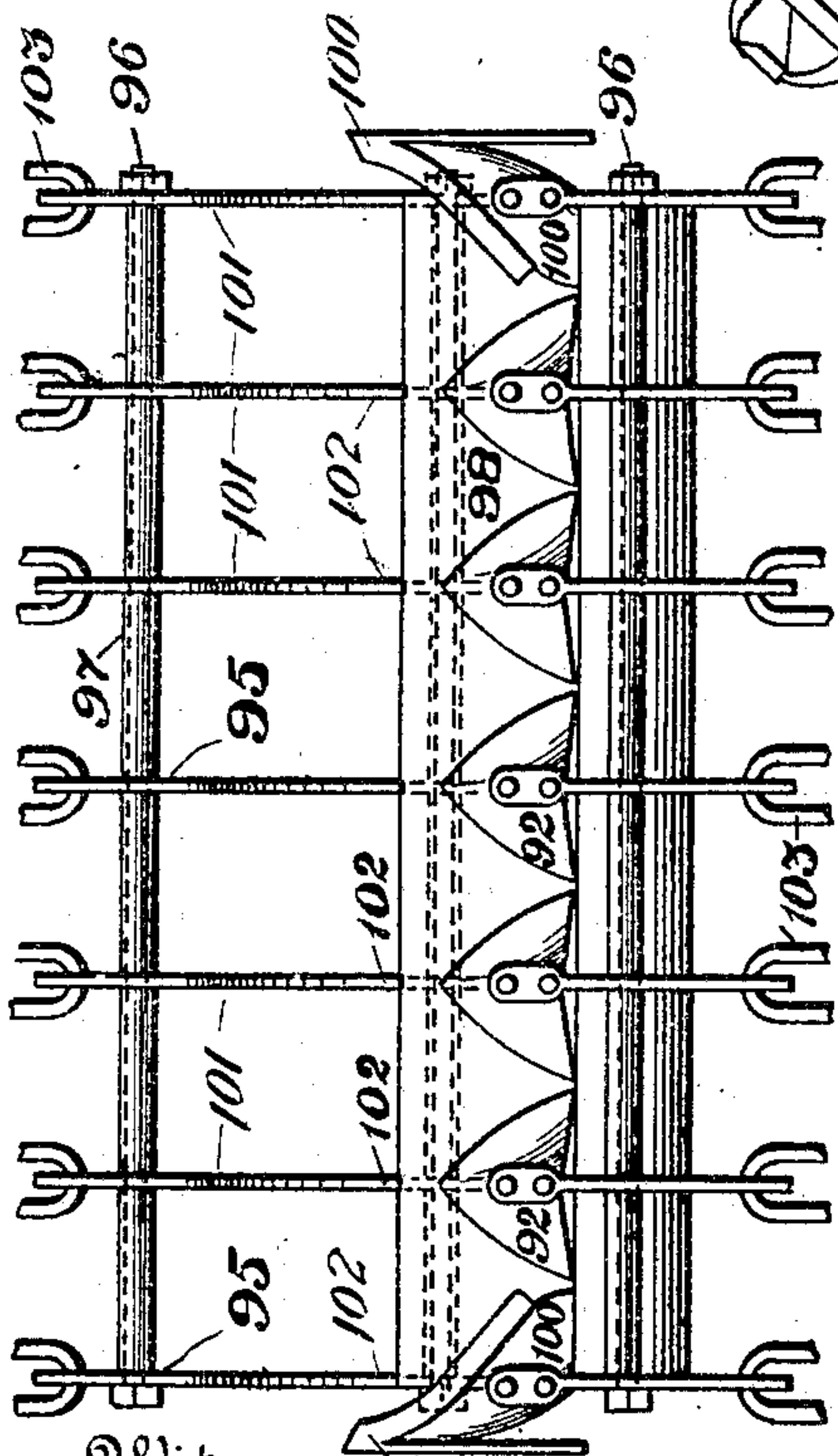


Fig. 3.

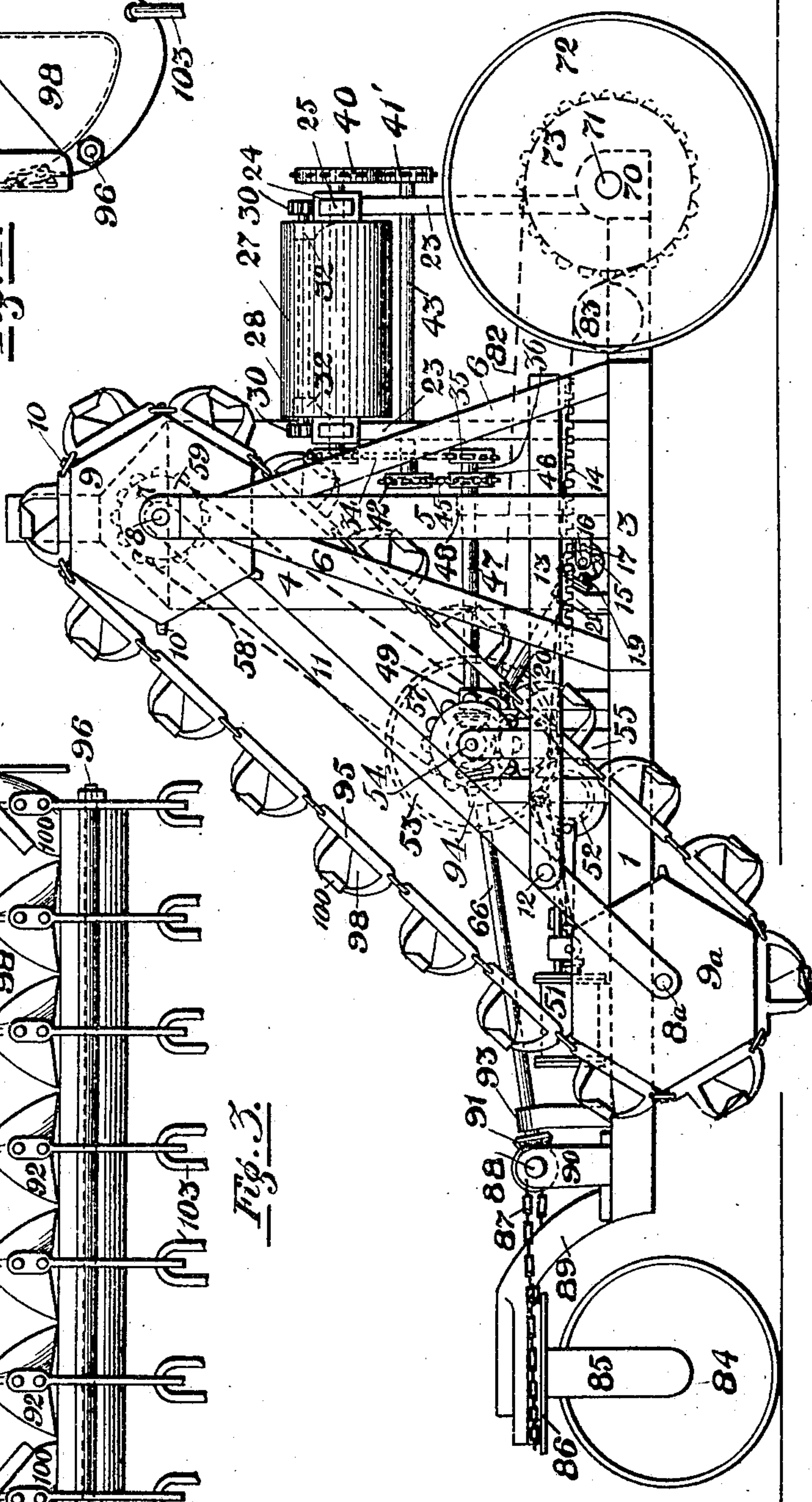


Fig. 1.

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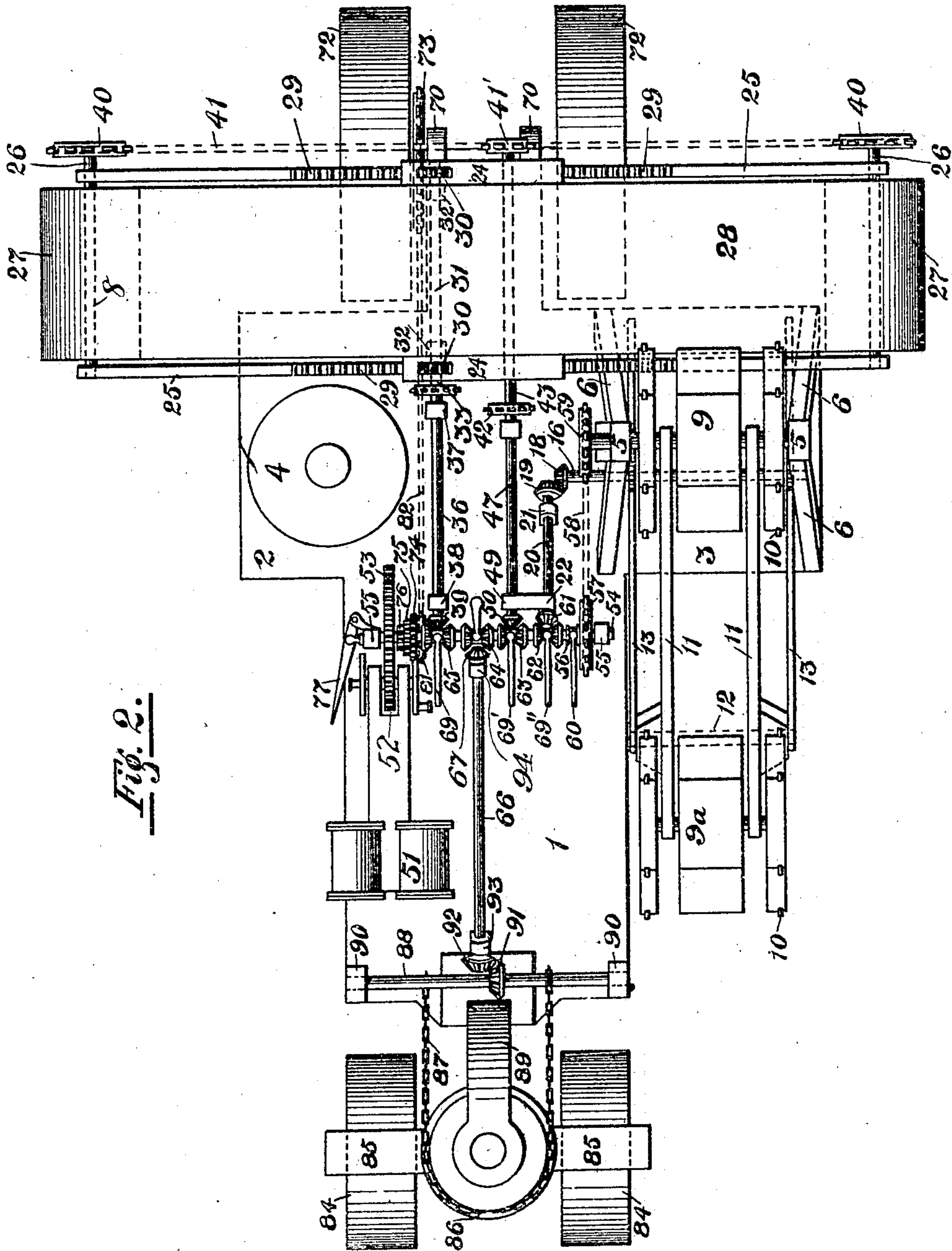


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN B. GORDON, OF MERIDIAN, MISSISSIPPI.

EXCAVATING-MACHINE.

No. 818,952.

Specification of Letters Patent.

Patented April 24, 1906.

Application filed September 1, 1904. Serial No. 222,959.

To all whom it may concern:

Be it known that I, JOHN B. GORDON, a citizen of the United States of America, and a resident of Meridian, in the county of Lauderdale and State of Mississippi, have invented certain new and useful Improvements in Excavating - Machines, of which the following is a specification.

The invention relates to that class of machine adapted to dig a trench and to throw the dirt to a great distance, and more particularly it relates to the buckets used for such machines.

Without defining the various scopes of novelty, which are attended to in the claims, the general nature of the invention comprises parallel hooks, sleeves separating the same, bolts passing through said hooks and said sleeves, sheet metal connecting said hooks and bent to form a bucket, turning-plows on the end hooks, cultivator-points on the intermediate hooks, and guards extending from the shanks of said hooks and bent toward the points of said hooks.

Figure 1 is a side elevation of the machine. Dotted lines represent hidden parts or else parts that are behind other parts. The essential parts which are omitted for the sake of clearness in one of the figures are shown in some of the other figures. Fig. 2 is a plan of the machine. Figs. 3 and 4 are different views of the construction of one of the buckets.

The machine consists of a platform 1, having lateral extensions 2 and 3, the former carrying the boiler 4 and the latter the standards 5 with their braces 6.

The standards 5 are provided at the top with bearings 7, supporting the shaft 8, upon which is axially mounted a three-section hexagonal drum 9. The smaller or lateral sections are provided with sprockets 10 to afford additional grip to the endless excavating-chain. Journaled upon the shaft 8 and depending therefrom are two carrier-bars 11, carrying journaled in their lower ends a shaft 8^a, mounted upon which is a three-section drum 9^a similar to the upper ones.

Pivotaly connected to the carrier-bars 11 by means of a shaft 12 are two thrust-bars 13, provided upon their under sides with racks 14, meshing with pinions 15, mounted upon the shaft 16 and journaled in bearings 17. A rotation of the shaft 16 thus advances or retracts the lower hexagonal drum 9^a and when rotating to the left thrusts same forward and upward and when rotating to

the right backward and downward. By these means the depth of excavation is varied. The inner end of the shaft 16 is provided with a miter-gear 18, meshing with another 19, mounted upon a shaft 20 at right angles to the shaft 16, and provided with bearings 21 and 22. In the rear, mounted upon the platform, are standards 23, carrying upon their upper extremities box-like bearings 24, open at both ends and through which are adapted to travel the carrier-bars 25, having journaled in their outer ends the shafts 26 of the rollers 27, over which passes the endless conveyer-belt 28. Upon the upper faces of the bars 25 are fastened racks 29, meshing with the pinions 30, mounted upon the shaft 31 in the bearings 32, which are rigidly attached to the box-like frames 24. Upon the inner end of the shaft 31 is mounted a sprocket 33, driven by means of a chain 34 and the sprocket 35, mounted upon the shaft 36, journaled in bearings 37 38, the shaft carrying at its other extremity the miter-gear 39.

When the shaft 31 is rotated in one direction or the other, the carrier-bars 25, carrying the rollers 27 with their endless belt 28, are carried bodily to one side or the other and project to a greater or less extent beyond the sides of the platform 1, so as to deliver the excavated material to any desired position.

Exterior to the carrier-bars 25 and mounted upon the shafts 26 are two sprocket-wheels 40, surrounding which is an endless chain 41, which causes both to rotate in unison when same is driven by the sprocket-wheel 41', which meshes with the chain 41 and is mounted upon the shaft 43. The sprocket-wheel 42 on shaft 43 is driven by the chain 45 from the sprocket-wheel 46 upon the shaft 47 in its bearings 48 49 and other end of the shaft having the miter-gear 50 attached thereto.

The engine 51 is reversible and may be of any approved construction. It is provided with a pinion 52, which meshes with a large gear-wheel 53, through the medium of which the shaft 54 is driven. The shaft 54 is supported in bearings 55 and is provided with a clutch 56 to engage or disengage the sprocket-wheel 57, which drives the excavator-shaft 8 through the medium of the chain 58 and the sprocket-wheel 59 upon the shaft 8. The clutch 56 is operated by means of the lever 60.

Mounted upon the shaft 54 are the reversing-gears 62, 63, 64, and 65 formed of opposed

miter-gears with shifter between and operating the shifts 20, 47, 66, and 36, respectively, through the medium of the miter-gears 61, 50 67, and 39. Each reversing-gear is operated
5 by means of a lever 69. At the rear the machine is provided with bearings 70 for the axle 71 of the driving-wheels 72. To the axle is attached a sprocket-wheel 73. Mounted
10 upon the shaft 54 is a speed-changing device consisting of the gear-wheels 74 75 76, which revolve loosely upon the shaft until a sliding key operated by means of the lever 77 is caused to lock one or other of them upon
15 the shaft. Immediately below these gears are others 78 79 80 in mesh with them and mounted upon a short shaft carrying a sprocket-wheel 81, over which passes the chain 82 to the rear of the machine and over the idler 83. By this means the machine
20 may be propelled fast or slowly.

Steering is attained by means of the front wheels 84, mounted upon a swiveling frame 85 and provided with a flanged circular upper portion 86, to which is attached the chain 87,
25 which at opposite ends is wrapped over and under the shaft 88, a rotation of the latter one way or the other causing the machine to travel to one side or the other.

The swiveling frame is supported on the bracket 89. The shaft 88 is journaled in bearings 90 and provided with the miter-gear 91, which meshes with the miter-gear 92 upon the shaft 66, which is journaled in the bearings 93 94.

35 The excavator-buckets which form the endless excavating and elevating belt are in detail as follows: They are formed by a number of flat sections of metal 95, laid parallel and held in that relation by means of rods
40 96 passing through all of them and having sleeves 97 between each pair.

The lower ends of the pieces 95 are curved to form hook-supports and are lined with sheet metal 98, as also are the ends, so as to
45 form a trough or bucket. The hooks 95 extend beyond the trough portion and all of them except the two outer ones are provided with cultivator-points 92. The two outer ones have short turning-plows 100 attached.
50 There is a guard 101 in front of each cultivator-point having a rearwardly-curved point 102, whereby the buckets are enabled to jump over any obstruction too hard to cut through. The hooks are thin to cut through the dirt
55 easily to break it up for the buckets. Each piece 95 is attached to the next one above and below by means of links 103. The dirt is picked up by the buckets 98 and dumped upon the conveyer-belt 28, which is adjusted,
60 as before described, to drop the dirt at different distances laterally of the machine.

I claim as my invention—

1. In an excavator, a chain of buckets con-

sisting of the combination of hooks linked together, sheet metal carried by the hooks, and 65 bolts and sleeves fastening said hooks together in groups.

2. In an excavator, the combination of parallel hooks, sleeves separating the same, bolts passing through said hooks and said sleeves, 70 sheet metal connecting said hooks and bent to form a bucket, turning-plows on the end hooks, and cultivator-points on the intermediate hooks.

3. In an excavator, the combination of parallel hooks, sleeves separating the same, bolts passing through said hooks and said sleeves, sheet metal connecting said hooks and bent to form a bucket, and turning-plows on the end hooks. 80

4. In an excavator, the combination of hooks, rods connecting the same at certain distances apart, a bucket carried by the hooks, and guards in front of the hooks.

5. In an excavator, the combination of 85 hooks, rods connecting the same at certain distances apart, a bucket carried by the hooks, and guards in front of the hooks, and attached thereto.

6. In an excavator, a chain of buckets consisting of the combination of hooks linked together, sheet metal carried by the hooks, bolts and sleeves fastening said hooks together in groups, and guards extending from the shanks of said hooks and bent toward the points of 95 said hooks.

7. In an excavator, the combination of parallel hooks, sleeves separating the same, bolts passing through said hooks and said sleeves, sheet metal connecting said hooks and bent 100 to form a bucket, turning-plows on the end hooks, cultivator-points on the intermediate hooks, and guards extending from the shanks of said hooks and bent toward the points of said hooks. 105

8. In an excavator, the combination of parallel hooks, sleeves separating the same, bolts passing through said hooks and said sleeves, sheet metal connecting said hooks and bent to form a bucket, turning-plows on the end 110 hooks, and guards extending from the shanks of said hooks and bent toward the points of said hooks.

9. In an excavator, a chain of buckets consisting of the combination of hooks linked together, sheet metal carried by the hooks, bolts and sleeves fastening said hooks together in groups, guards extending from the shanks of said hooks and bent toward the points of said hooks, drums for supporting the upper and 120 lower ends of the chain of buckets and means for rotating the upper drum.

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Witnesses:

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