

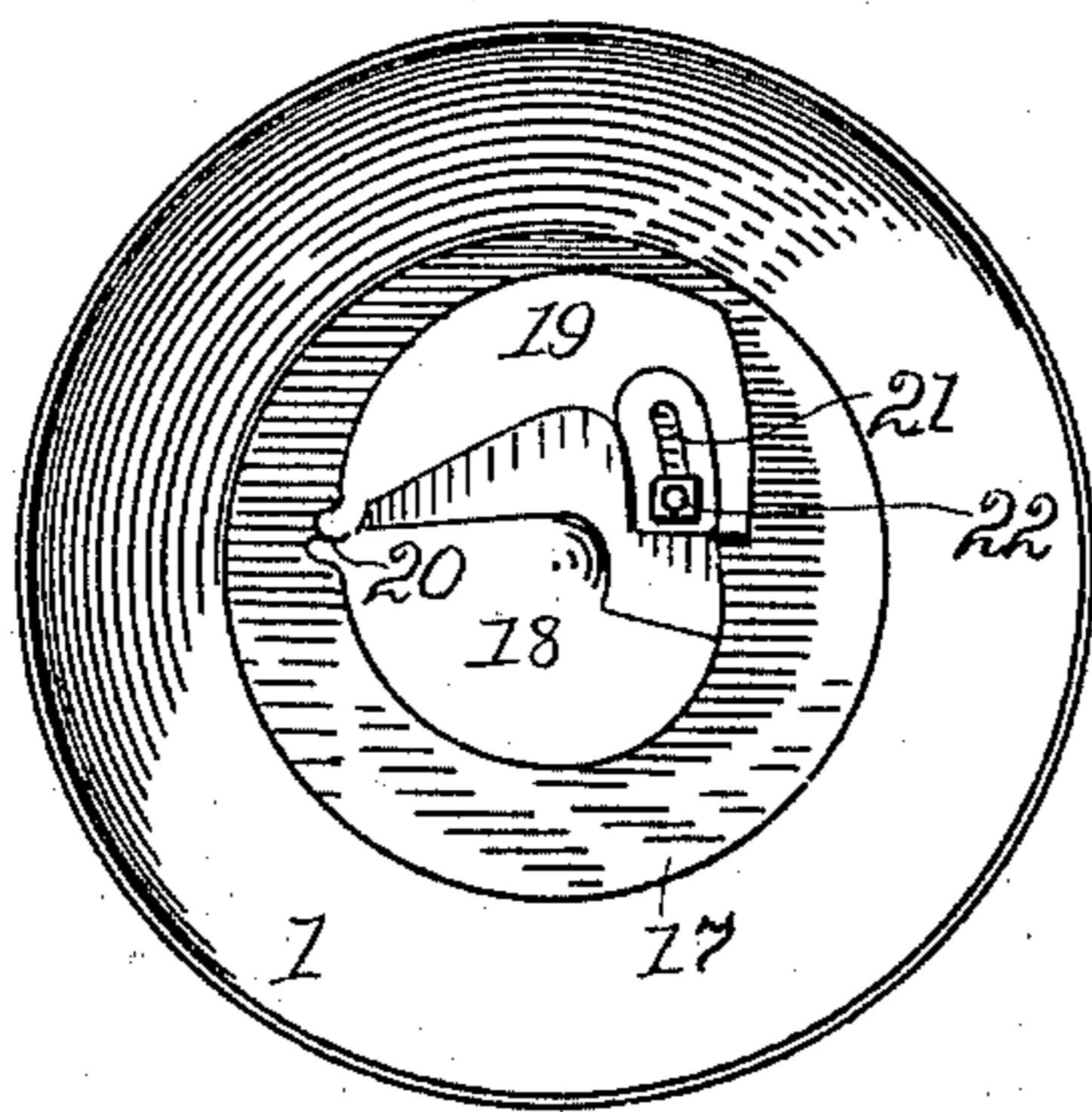
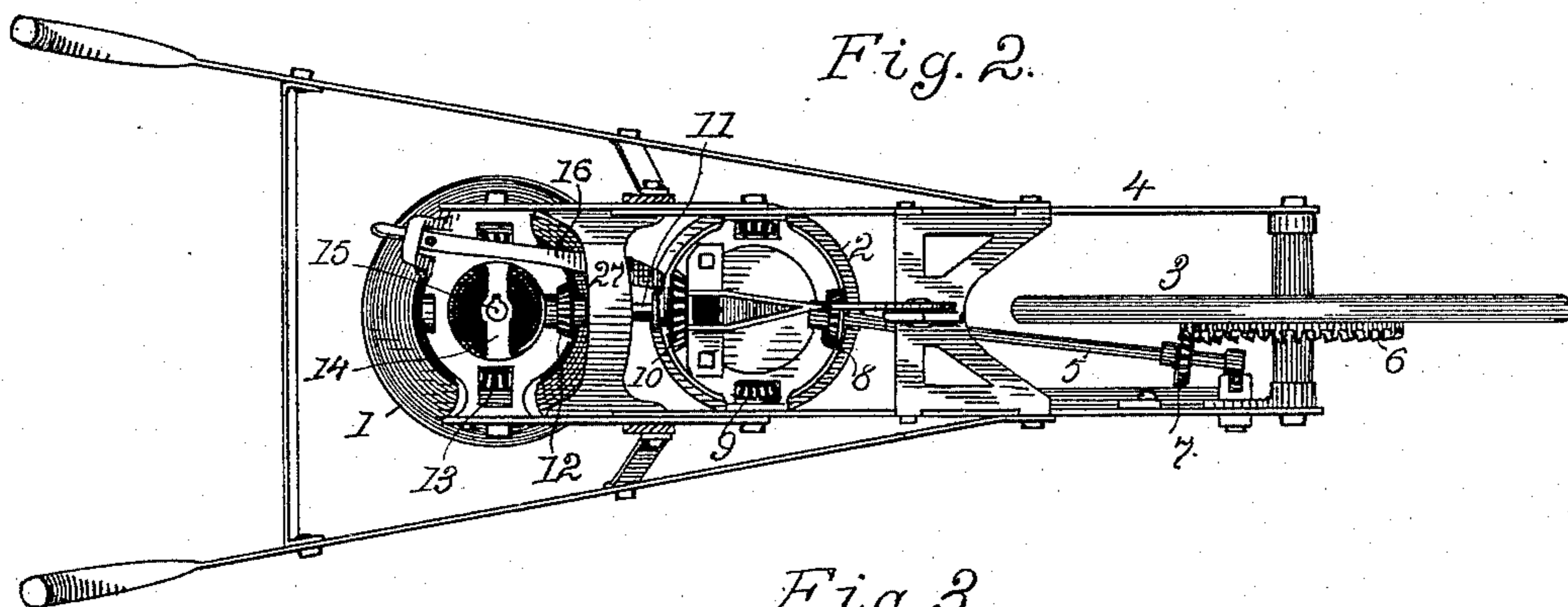
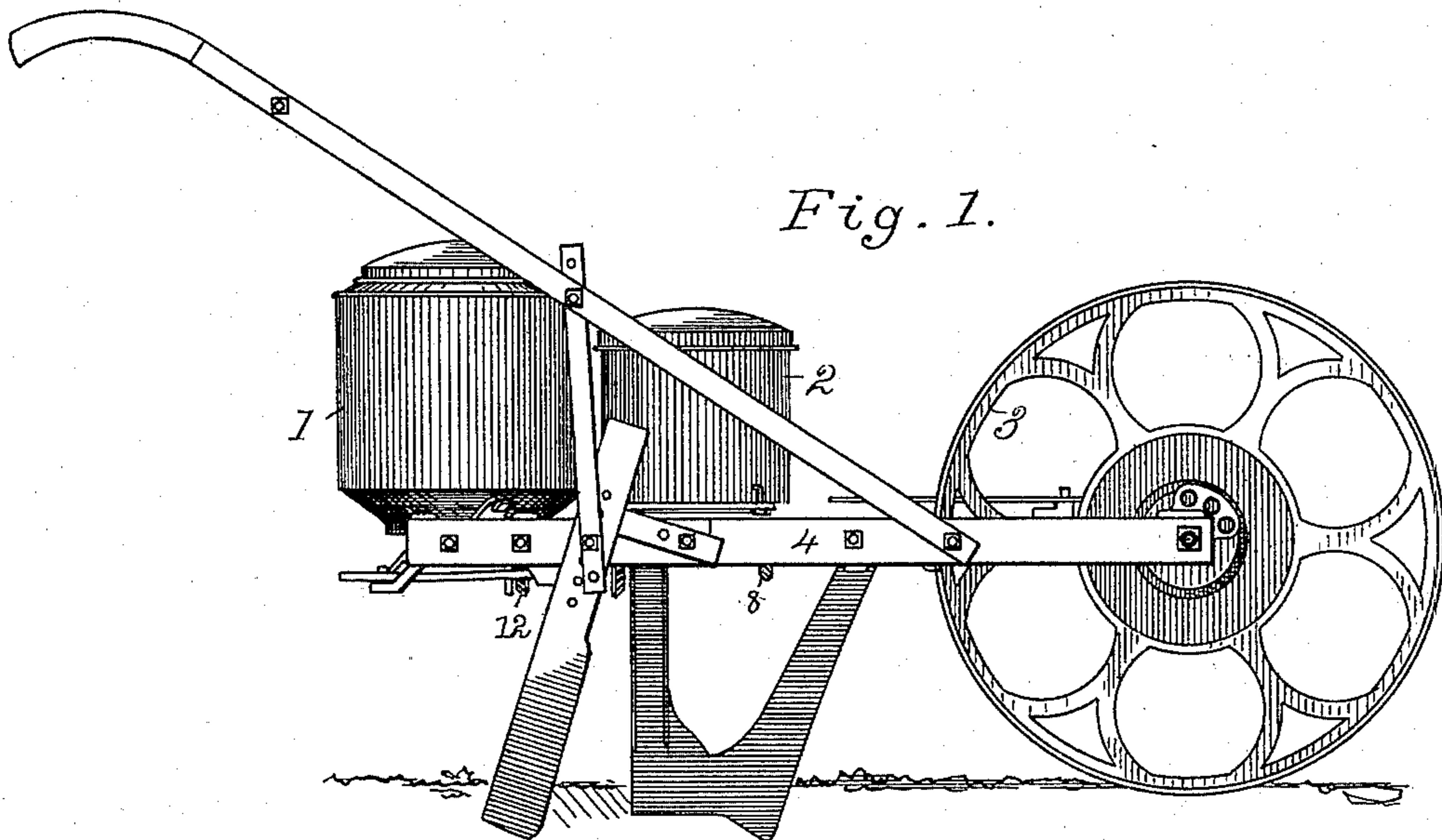
(No Model.)

2 Sheets—Sheet 1.

J. E. BERING.  
FERTILIZER DISTRIBUTER.

No. 582,165.

Patented May 11, 1897.



Attest,  
Nora Graham  
Lina Graham.

Inventor,  
J. Edw. Bering  
by L. P. Graham  
his attorney

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

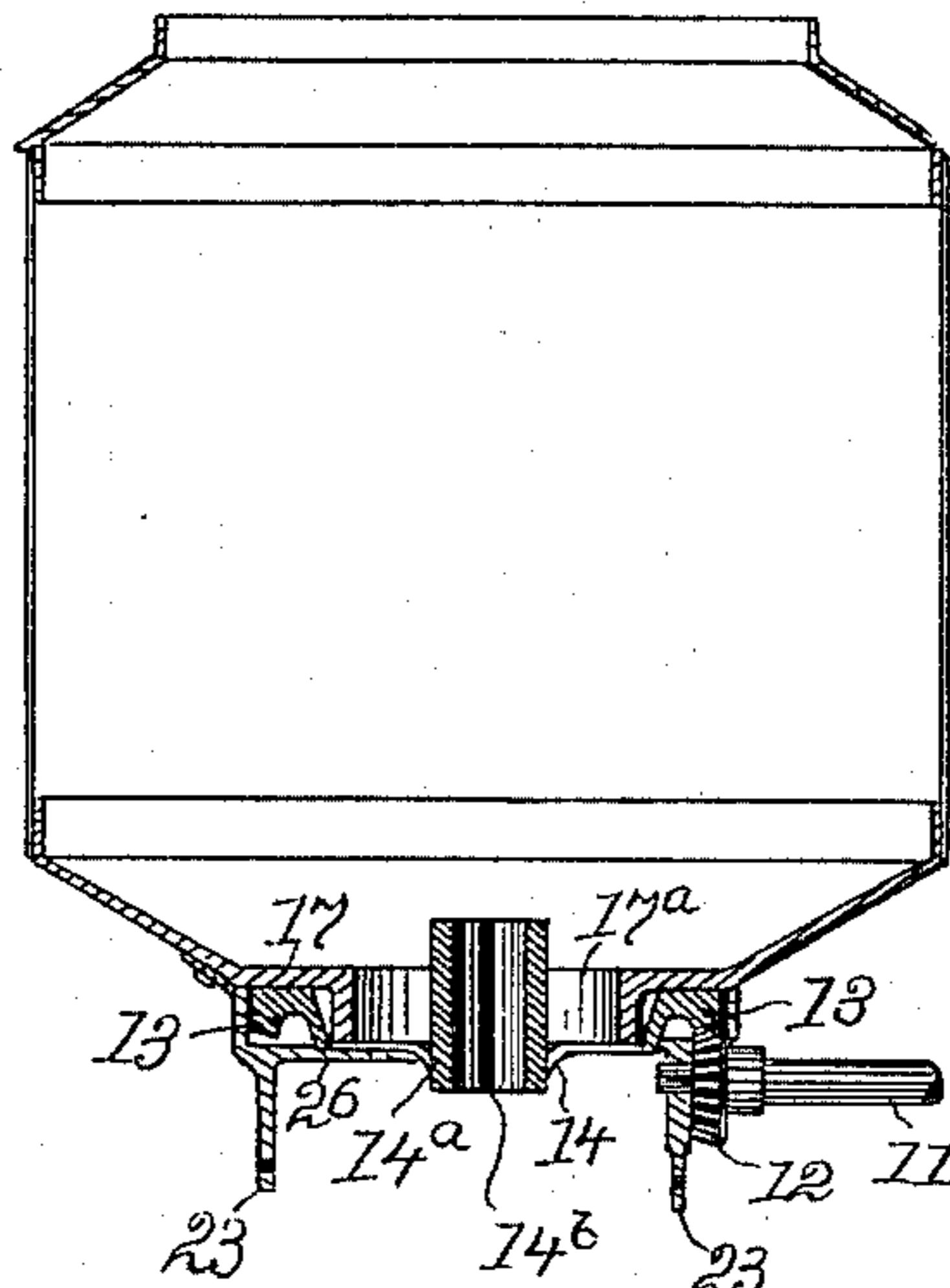


Fig. 7.

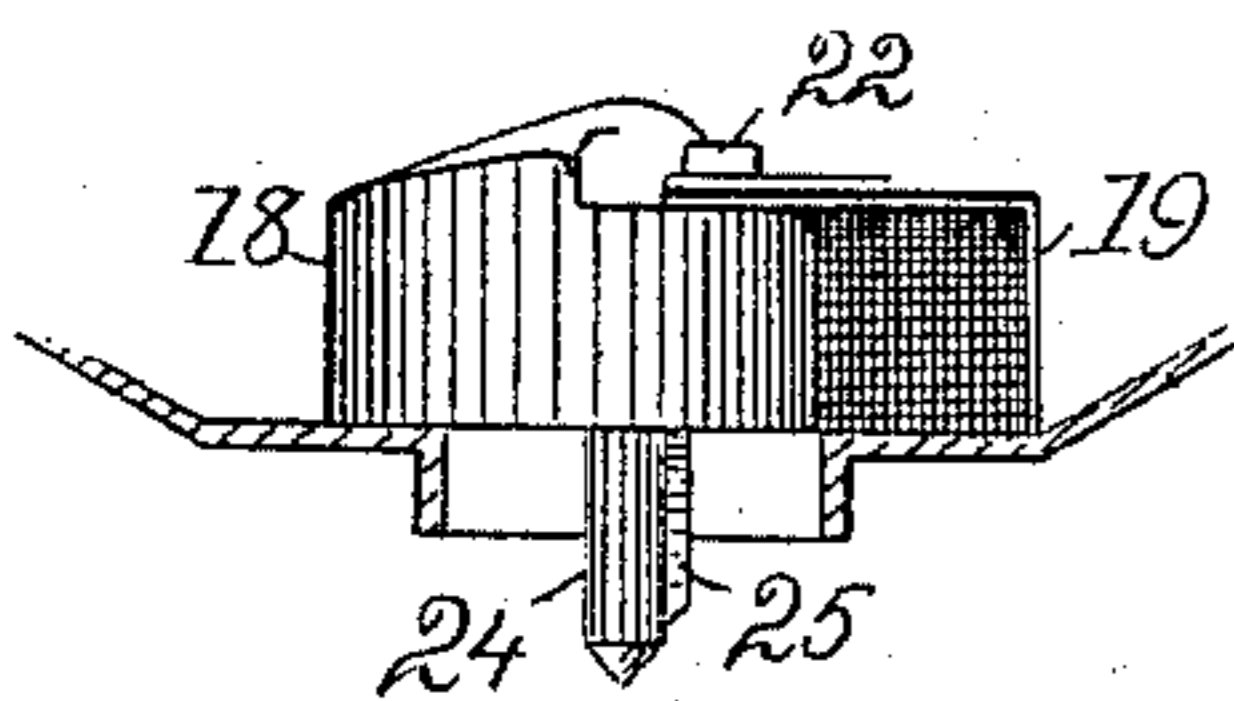


Fig. 8.

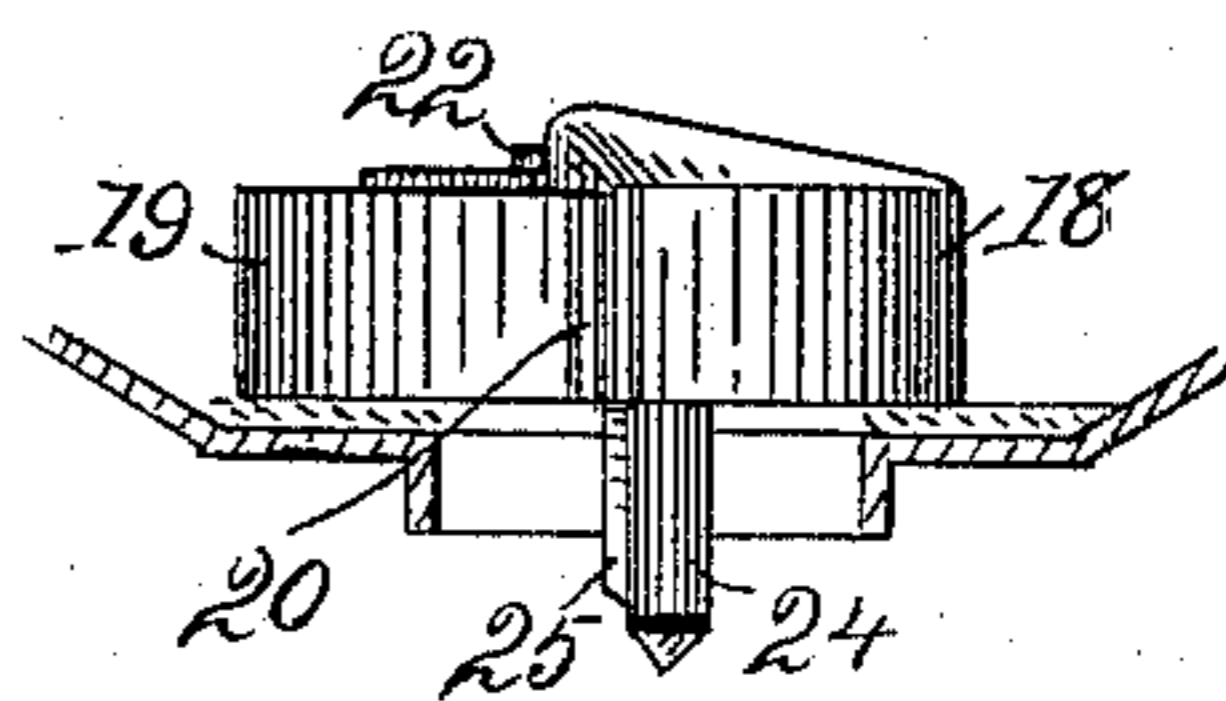


Fig. 5.

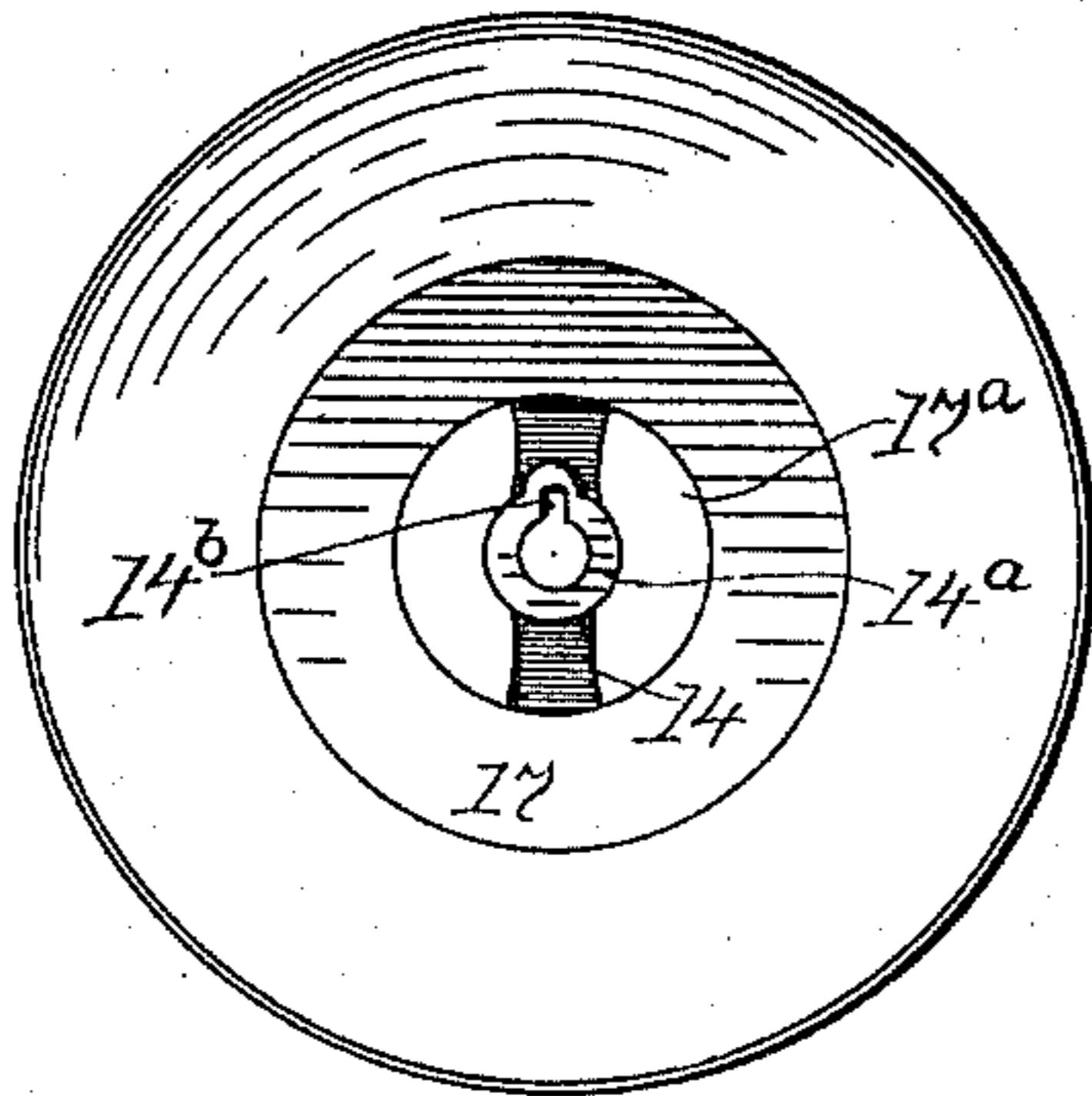
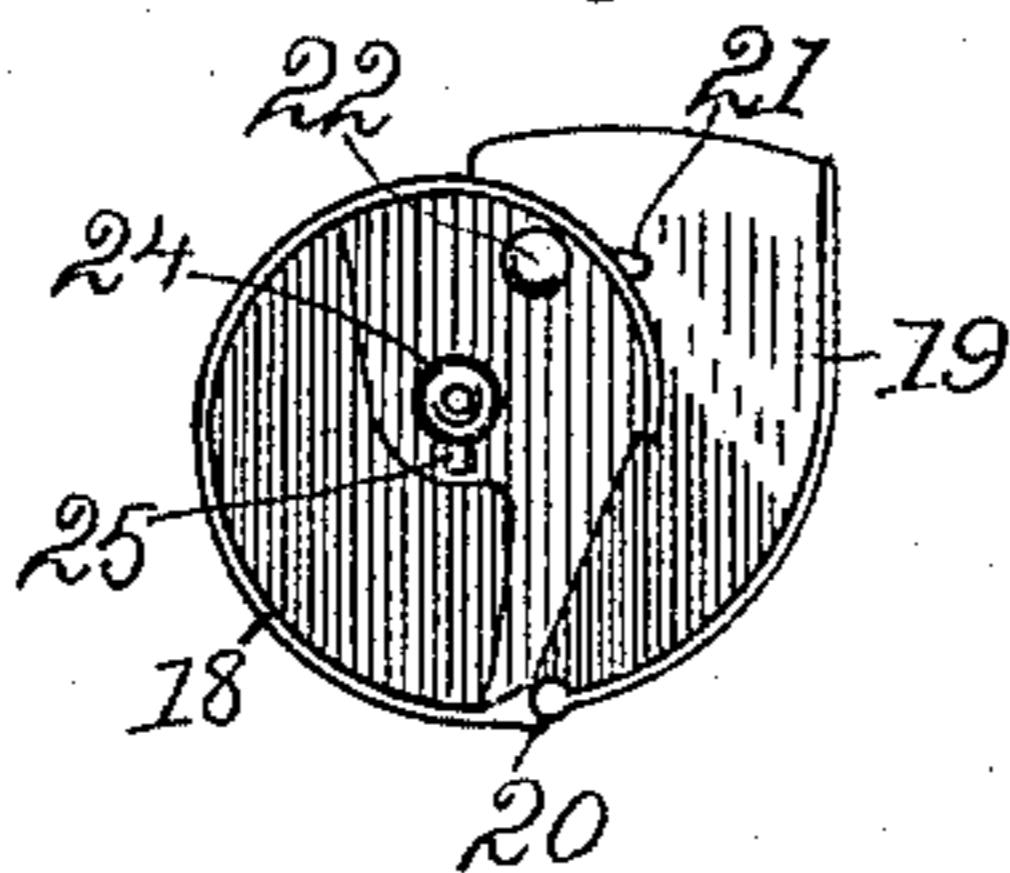


Fig. 6.



Attest,  
Nora Graham  
Sna Graham

Inventor  
James Edward Bering  
by L. P. Graham  
his attorney

# UNITED STATES PATENT OFFICE.

JAMES EDW. BERING, OF DECATUR, ILLINOIS.

## FERTILIZER-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 582,165, dated May 11, 1897.

Application filed January 25, 1897. Serial No. 620,545. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES EDWARD BERING, of Decatur, in the county of Macon and State of Illinois, have invented certain new and useful Improvements in Fertilizer-Distributers, of which the following is a specification.

This invention relates to fertilizer-distributers that automatically distribute the fertilizing material as they are drawn along. Its object is to provide improved means for regulating the quantity of fertilizing material discharged in a given distance of travel, to make provision whereby packing of the fertilizer in the bottom of the hopper will not interfere with the action of the discharger, and to provide for conveniently driving the discharger of the distributor from the dropping mechanism of the planter. It is exemplified in the structure hereinafter described, and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a single-row drill-planter provided with a fertilizer-distributor constructed in accordance with my invention. Fig. 2 is a plan of the planter shown in Fig. 1, the same being inverted and the covering-blades being broken away. Fig. 3 is a plan of the interior of the fertilizer-distributor hopper. Fig. 4 is a central vertical section through the fertilizer-hopper, showing the discharger removed and illustrating the arrangement and construction of the mechanism that is used to drive the discharger. Fig. 5 is a plan of the interior of the hopper with the discharger removed. Fig. 6 is a plan of the discharger inverted. Fig. 7 is an elevation showing one side of the discharger and illustrating the position it ordinarily occupies with relation to the bottom of the hopper. Fig. 8 is an elevation showing the opposite side of the discharger and illustrating the relation the discharger bears to the bottom of the hopper when the fertilizing material becomes packed around such bottom.

The construction of the planter is largely immaterial, but in this particular instance it has a frame 4, on which the seedbox 2 and the fertilizer-hopper 1 are mounted. A drive-wheel 3 is journaled in the front end of the frame, and it has a gear-wheel 6 on one of its faces. The seedbox of the planter has a hori-

zontal wheel 9, that is toothed in its under surface and that carries a seed-disk in its upper face in a not unusual manner. A shaft 5 has a bearing at its front end in a bracket attached to a side of the frame, and its rear end journals in a lug depending from the bottom of the seedbox. A pinion 7 on the front end of shaft 5 meshes with the gear-wheel 6, and a pinion 8 on the rear end of the shaft meshes with the drive-wheel of the seedbox. The fertilizer-hopper 1 has a bottom plate 17, through which a central circular opening 17<sup>a</sup> extends. That portion of the upper surface of the bottom plate immediately surrounding the opening constitutes a circular horizontal ledge, from which the fertilizing material is forced by the discharger into the central opening. The rim of the opening extends downward below the under surface of the plate, and a toothed annular band 13 encircles the downward-extended rim. The toothed band 13 has spokes 14, that connect it with a hub 14<sup>a</sup>, which stands vertically in the center of the opening in plate 17. The hub is bored vertically, and it has a vertical groove 14<sup>b</sup> in its inner surface or is otherwise shaped to destroy the continuity of the inner circle and provide a bearing in which a pin may slide, but not turn. A plate 26 is fastened to the bottom of plate 17. It sustains the toothed band 13, and it preferably has depending lugs 23, with which a chute to guide the discharge of the fertilizing material may be connected.

A shaft 11 has a pinion 12, that meshes with the toothed band that constitutes the rim of the wheel of which 14<sup>a</sup> is the hub. The rear end of shaft 11 is journaled in one of the lugs 23, and its intermediate portion has bearings in the cross-bar 27. (Seen only in Fig. 2.) A pinion 10 is splined on the front end of shaft 11, and it meshes with the wheel of the seedbox at the rear side of the periphery thereof. A bar 16 engages pinion 10, as shown in Fig. 2, and provides means for drawing out of mesh with the wheel of the seedbox.

The discharger for the fertilizer comprises a convolute vertical wall covered over and provided with a downward-extending pin. The wall and cover are in two parts 18 and 19, which parts are joined pivotally on the line of the wall, as shown at 20, and are ad-

justable on such pivot. The movable parts of the cover overlap to an extent sufficient to provide desired adjustment in the parts without separating them. One of them has a slot 5 21, which forms an arc of a circle drawn with point 20 for a center, and a bolt 22 extends through the slot and through a hole in the other part of the cover, and provides means for securing the parts together in any desired 10 correlation. The convolute wall describes somewhat more than a complete turn, and the space between the outer end and the opposing inner end determines the capacity of the device for receiving the fertilizer material and discharging it through opening 17<sup>a</sup>. 15 The hinged conjunction of the two parts of the wall is at the back of the main curve of the convolute, as shown in Figs. 3 and 6, and any adjustment of the parts causes the outer 20 or front end of the wall to swing outward or inward with relation to the center of the convolute and to increase or diminish the size of the receiving-opening. A pin 24 is rigidly connected with or formed as a part of the 25 cover of part 18. It is distant from the inner end of the wall of the convolute a space about equal to a radius of opening 17<sup>a</sup>, it extends below the lower edge of the wall, it is of a size to fit somewhat loosely in the bore of hub 30 14<sup>a</sup>, and it has a longitudinal rib 25, that is adapted to slide freely in groove 14<sup>b</sup> of the hub.

The discharger is placed in the hopper with its pin extended through the bore of the hub 35 14<sup>a</sup> and with its lower edge resting on the horizontal ledge surrounding opening 17<sup>a</sup>. As the planter is drawn forward the toothed wheel of the plate of the planter is driven from the main wheel 3, and the motion of the seed- 40 plate is imparted to the toothed band of the fertilizer-hopper through pinion 10, shaft 11, and pinion 12. As the hub of the band is turned it carries with it the discharger, force being applied to the pin of the discharger 45 through rib 25. The discharger travels with the outer end of its convolute wall presented forward, it describes a larger or smaller circle according as the forward end is set outward or inward, and it engages the fertiliz- 50 ing material on the ledge of the bottom of the hopper that is within its reach and conveys it by inclined-plane action to the central discharge-opening.

Should it be required to increase the quantity of fertilizer discharged in a given distance, the bolt 22 is loosened, the outer end of the wall is swung outward, and the bolt is retightened. If the rate of discharge should be too great, the outer end of the wall is 60 swung inward by a similar operation.

The discharger rests on the bottom of the hopper by its own weight merely. Its pin is free to move vertically in the hub, and whenever the fertilizing material becomes packed 65 on the ledge surrounding the discharge-opening the discharger will rise, as suggested in

Fig. 8 of the drawings, and use the packed fertilizer as a substitute for the metallic surface of the ledge.

So far as the operation of the discharger is 70 concerned it is immaterial by what means hub 14<sup>a</sup> is driven, but when the device is attached to a planter of the character shown it is a matter of considerable convenience and economy to take motion directly from the 75 seed-wheel of the planter.

What I claim as new, and desire to secure by Letters Patent, is—

1. A discharger for fertilizer-distributers, comprising a rotatable convolute the outer 80 part of which is adjustable to and from the inner portion.

2. A discharger for fertilizer-distributers, comprising a rotatable two-part convolute the outer part of which is swingingly adjustable 85 with relation to the inner part.

3. A discharger for fertilizer-distributers, comprising a rotatable, covered, two-part convolute wall, joined together pivotally on the line of the wall and having the parts of the 90 cover overlapping, and a bolt to secure the lapping portions together, substantially as set forth.

4. In a discharger for fertilizer-distributers, the combination of a hopper having a 95 circular discharge-opening in its bottom and a horizontal ledge surrounding the opening, a rotatable convolute, the outer portion of which is adjustable to and from the inner portion, resting on the ledge surrounding the 100 opening, a pin extending from the convolute through the center of the opening, and means for rotating the convolute through the instrumentality of the pin.

5. In a fertilizer-distributor, the combination of a hopper having a circular discharge-opening in its bottom, a horizontal wheel under the hopper having a hub concentric with the discharge-opening, and a two-part, adjustable convolute resting on the bottom of 110 the hopper and having a drive-pin splined in the hub.

6. In a fertilizer-distributor, the combination of a hopper having a discharge-opening in its bottom, and a rotatable discharger resting on the bottom and having free vertical 115 motion, whereby it may rise as the fertilizer becomes packed.

7. In a planter, the combination of a seed-box having a toothed seed-wheel, a fertilizer- 120 hopper having rotatable discharge mechanism, and gearing, meshing directly with the seed-wheel and connecting the discharging mechanism of the fertilizer-distributor with the seed-wheel of the planter, substantially 125 as set forth.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

J. EDW. BERING.

Attest:

L. P. GRAHAM,  
R. J. SIMPSON.