

No. 814,079.

PATENTED MAR. 6, 1906.

O. C. RAWLEY.
FERTILIZER DISTRIBUTER.
APPLICATION FILED SEPT. 26, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

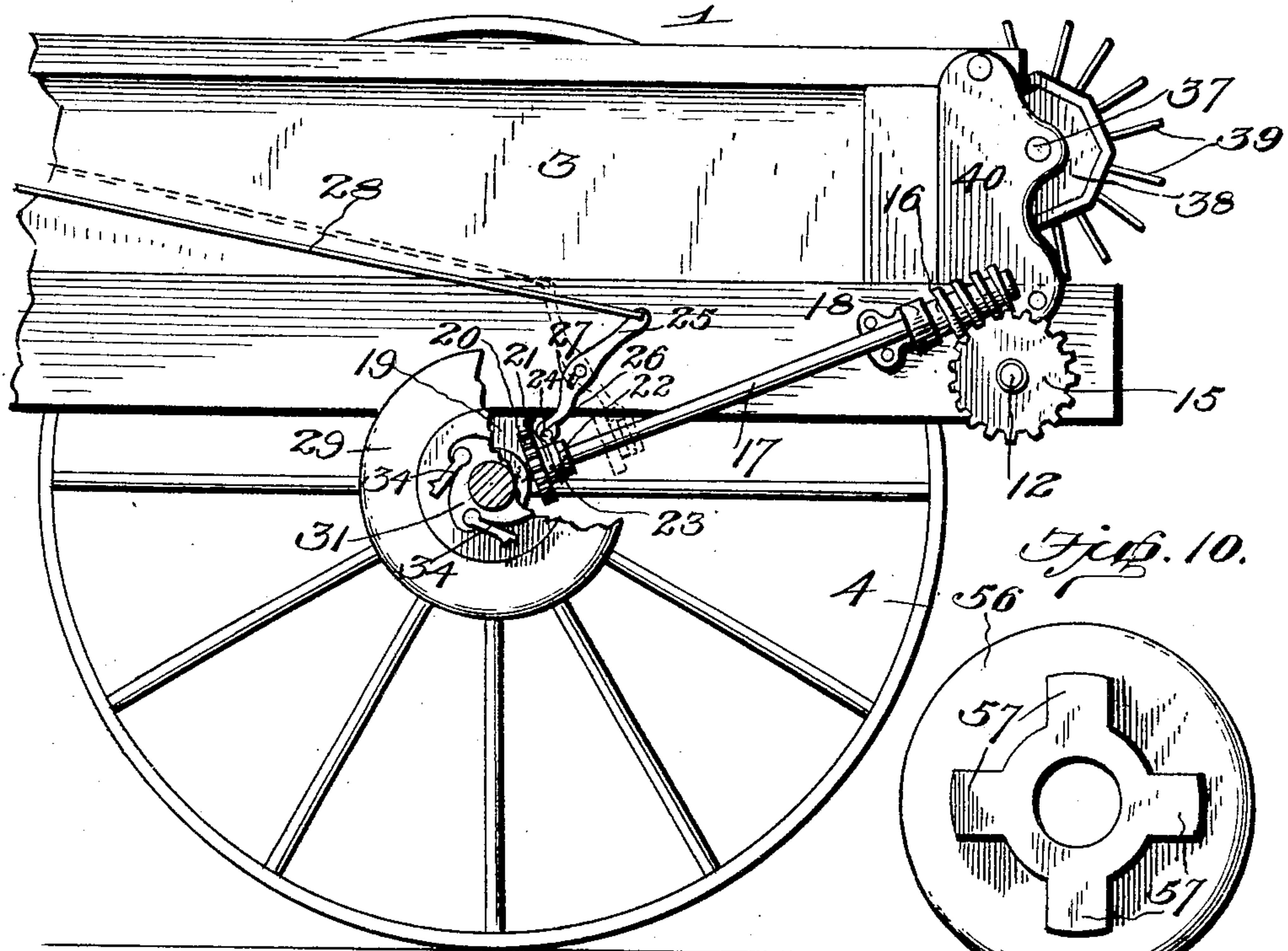


Fig. 10.

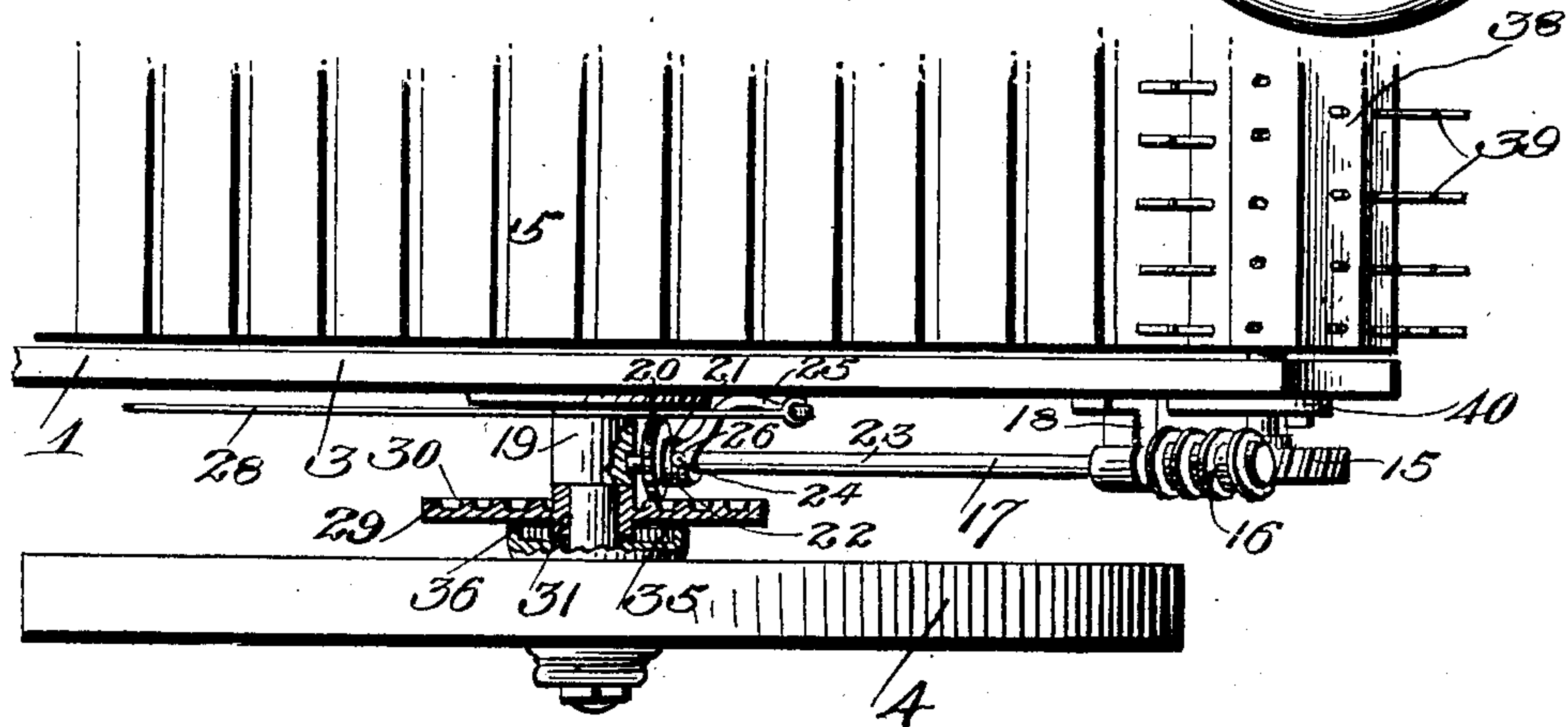
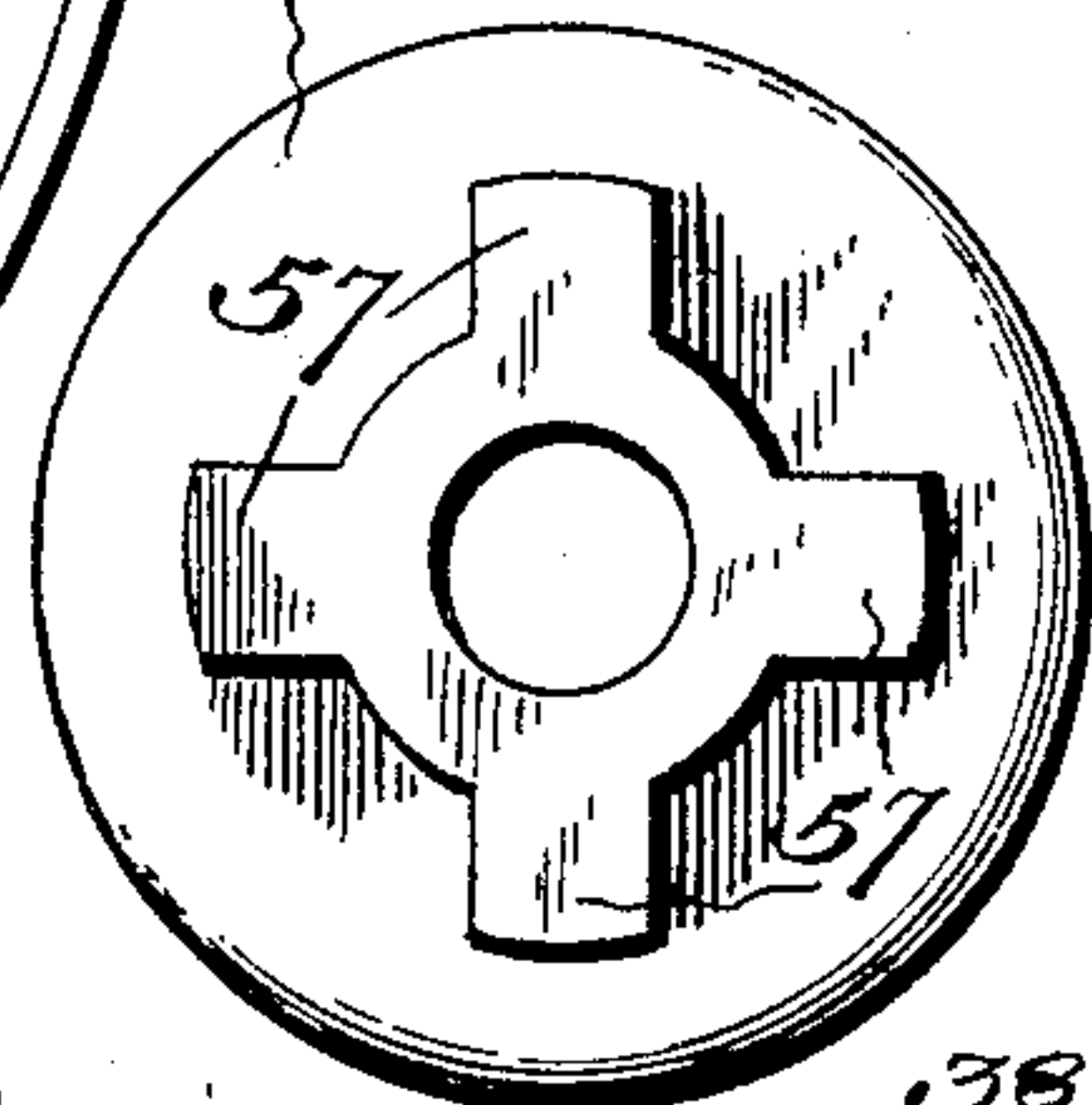


Fig. 5.

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Witnesses

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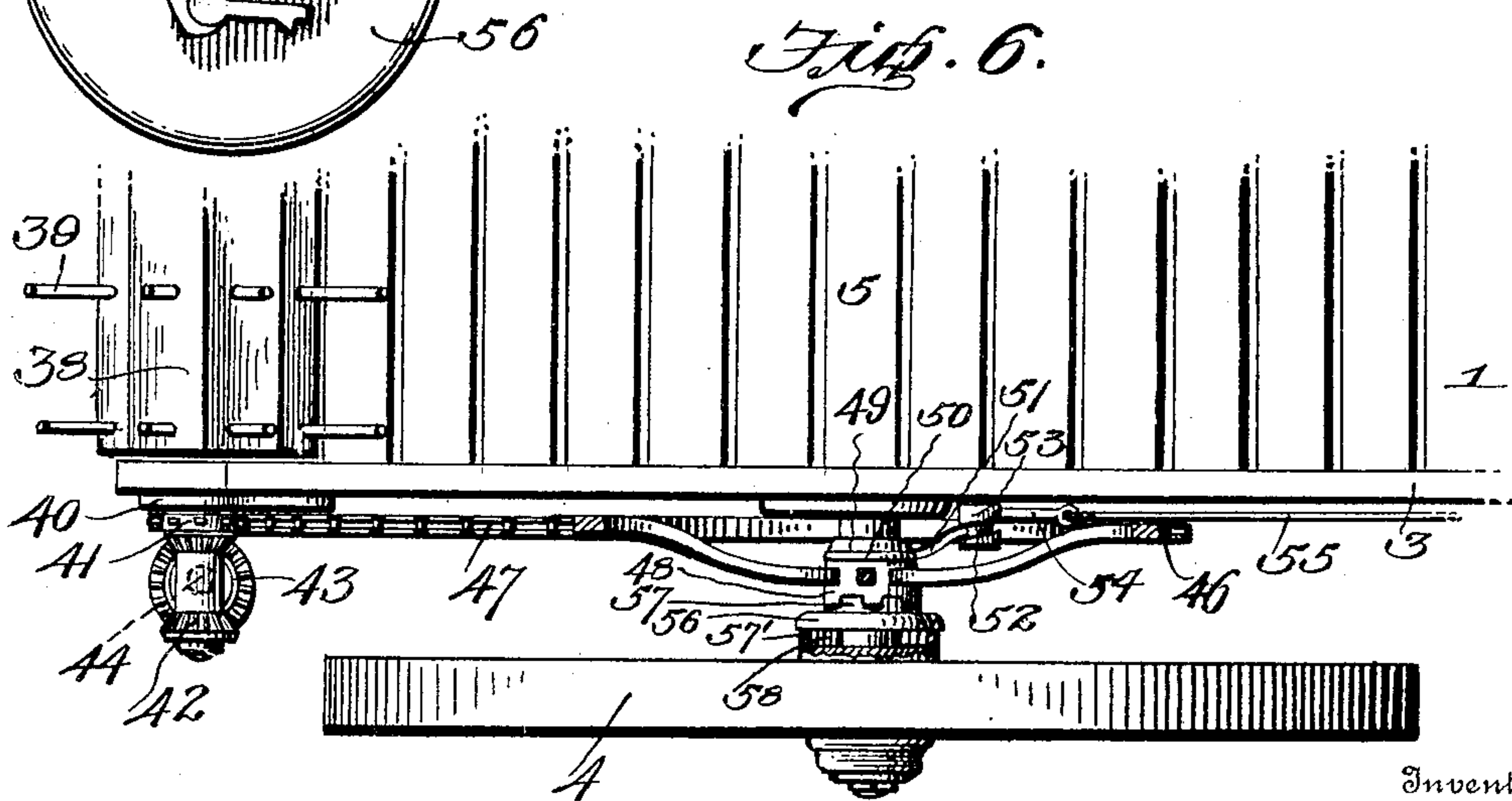
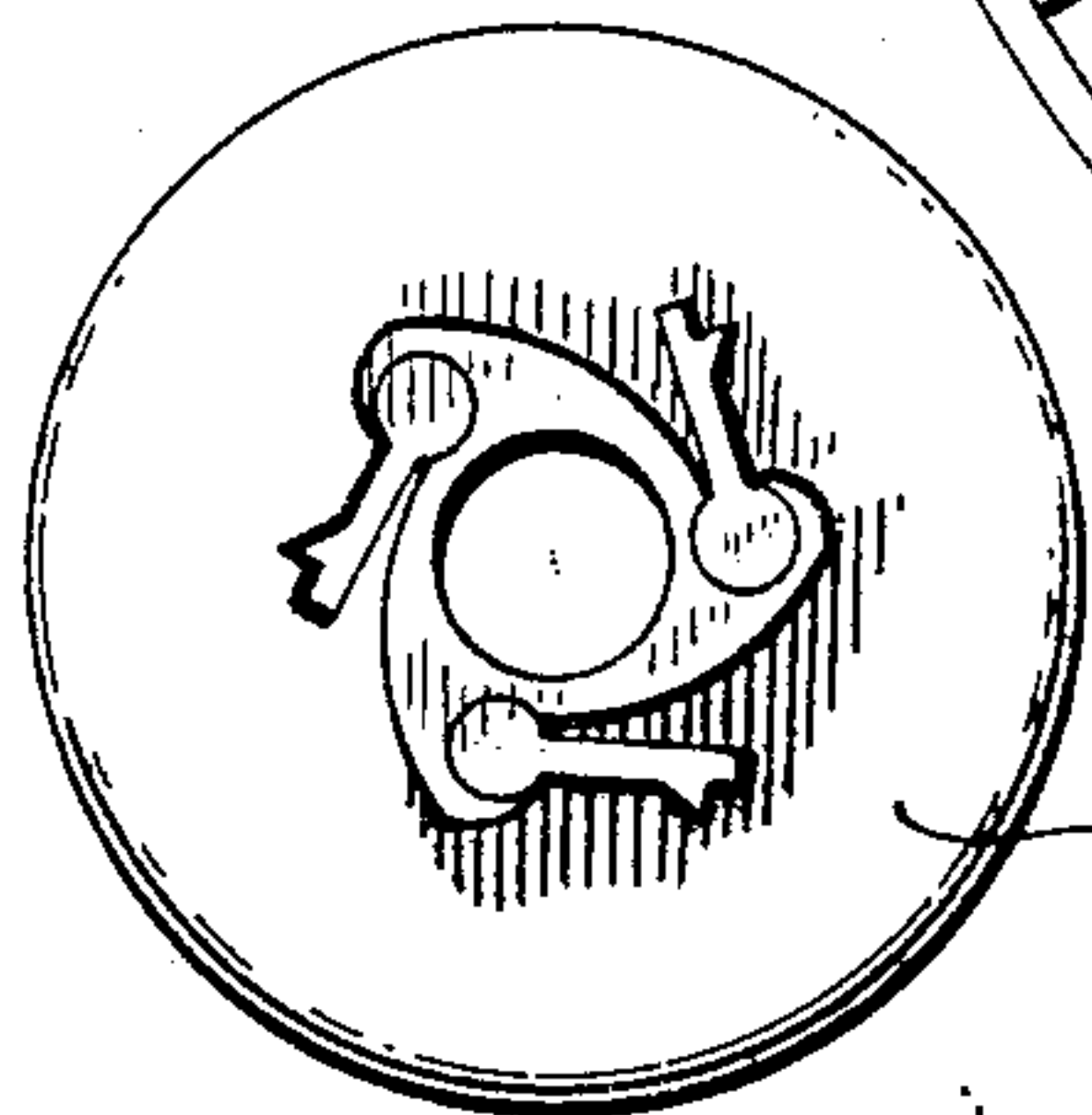
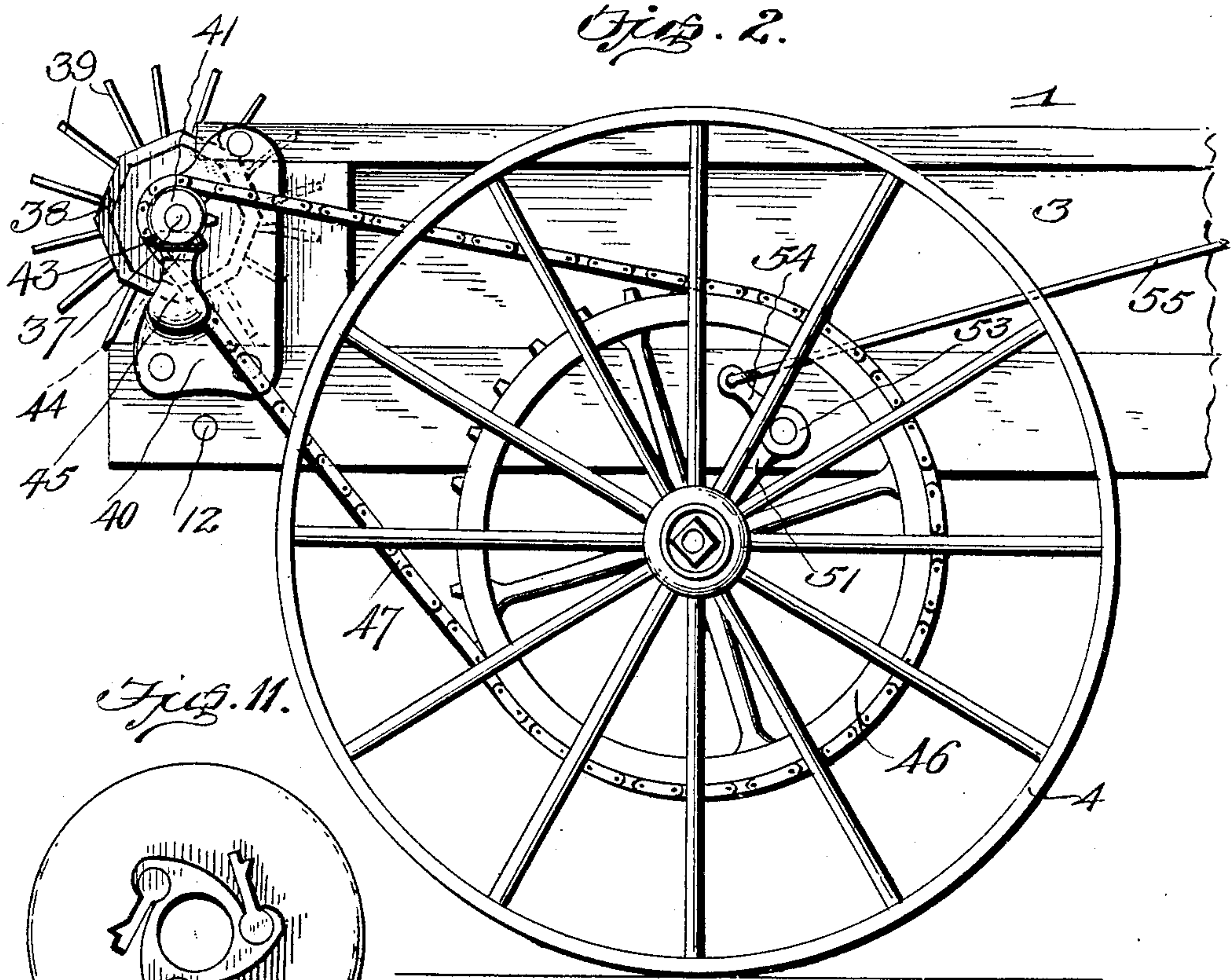
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3 SHEETS—SHEET 2.



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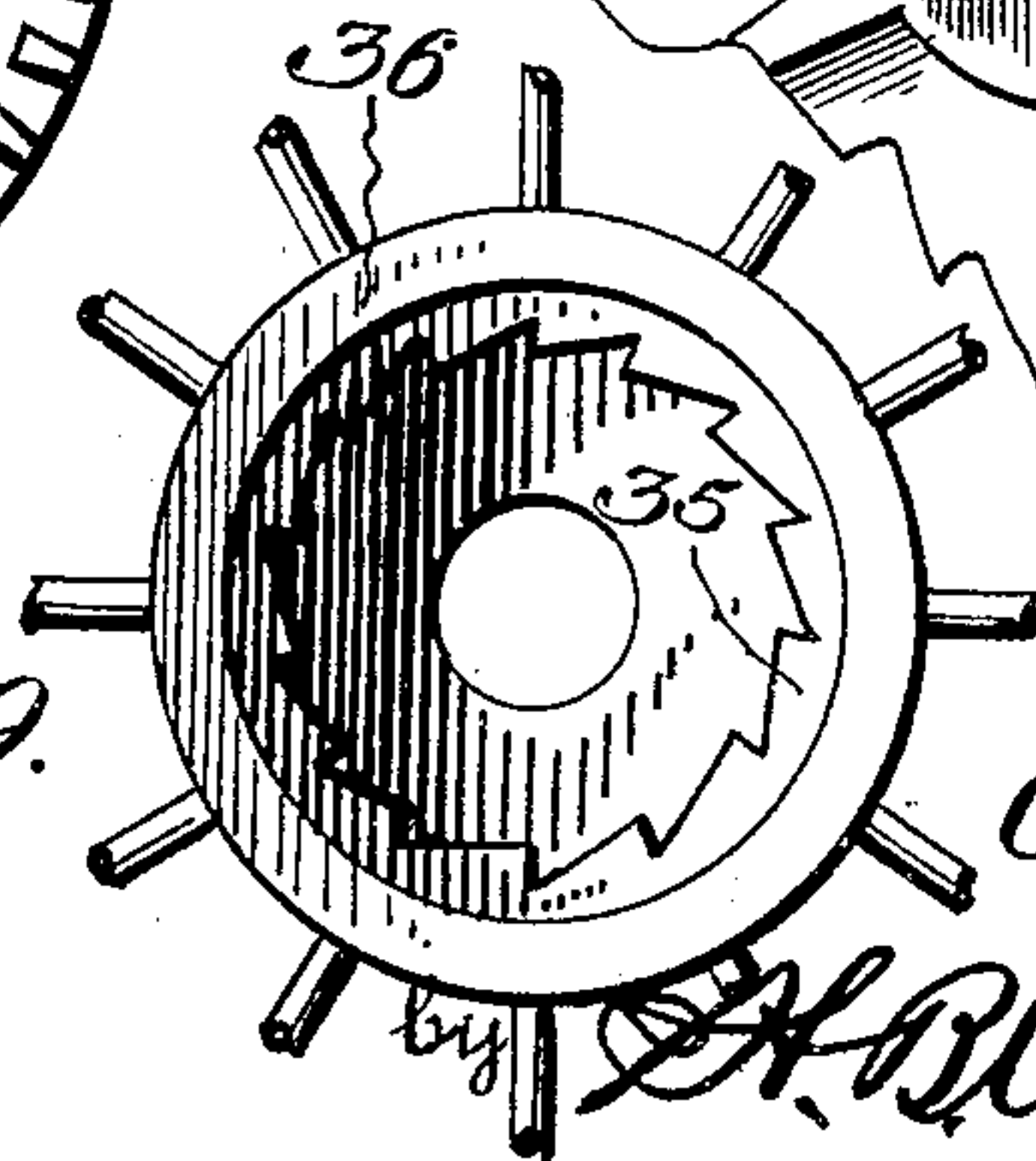
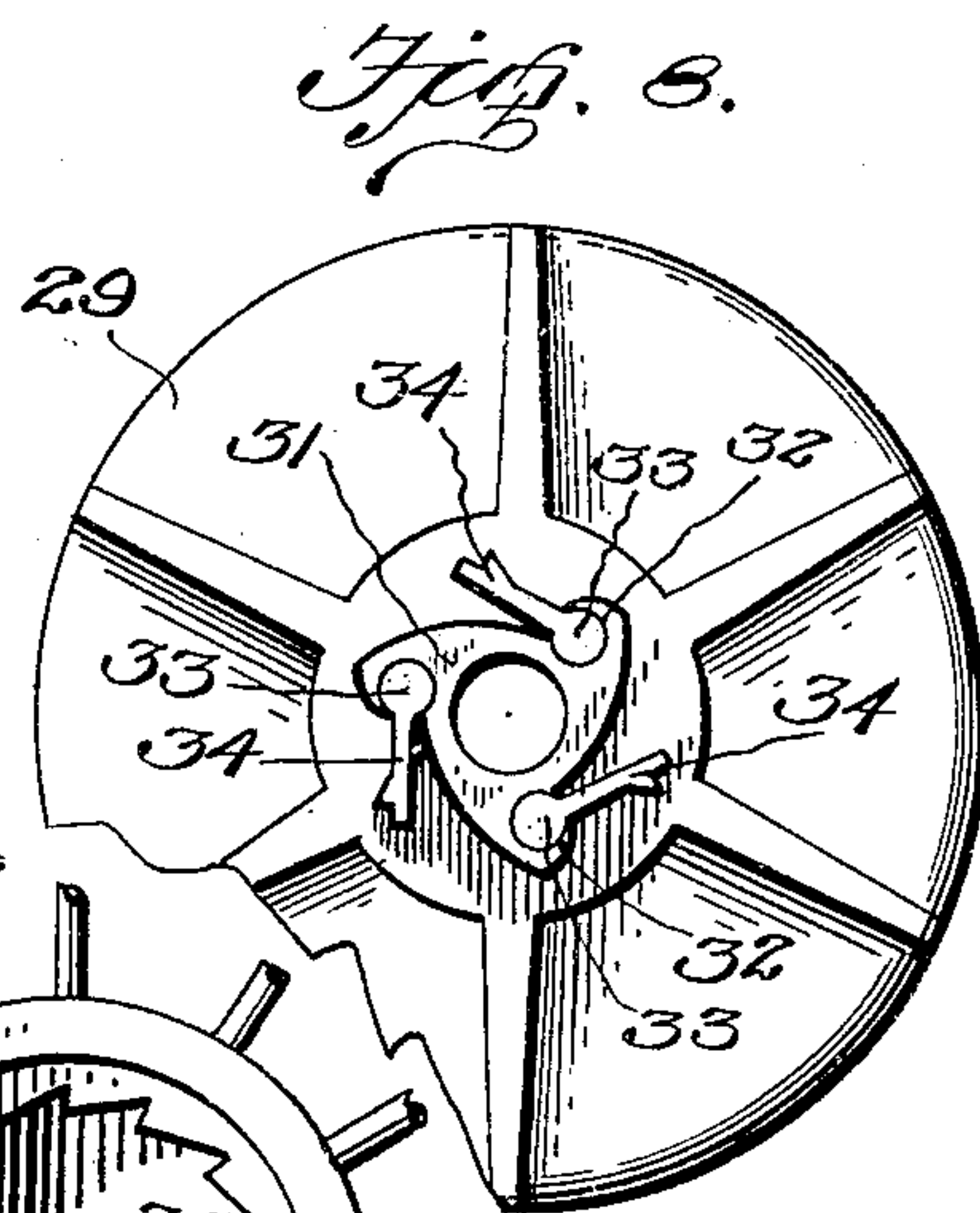
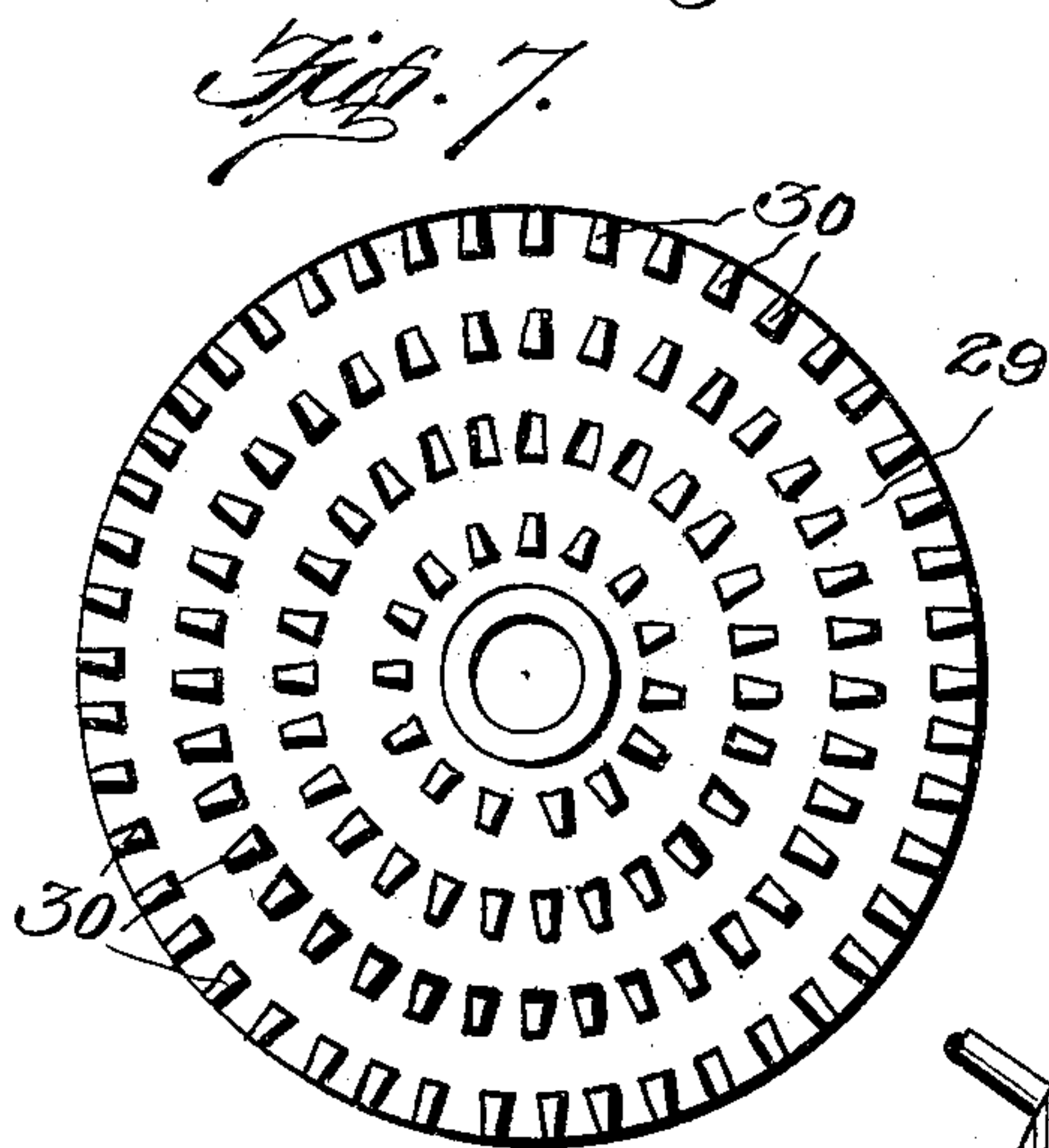
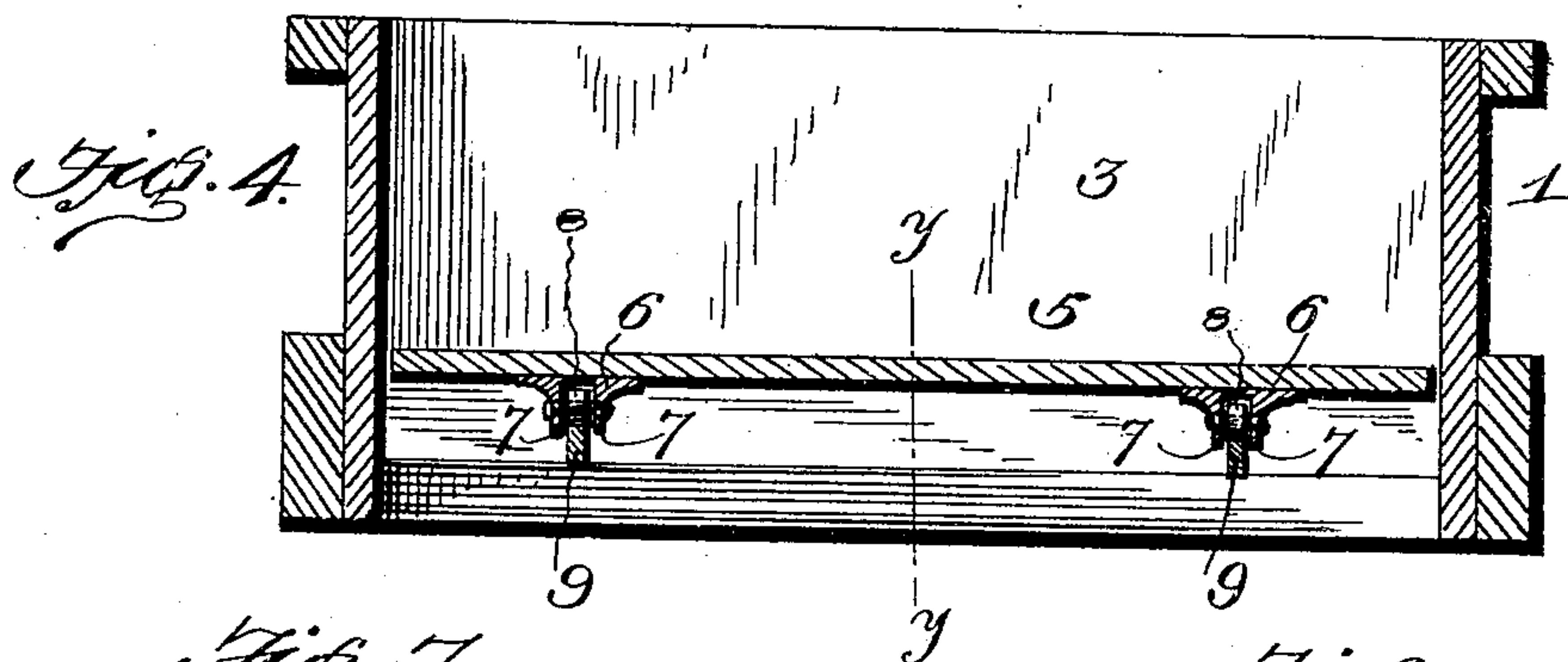
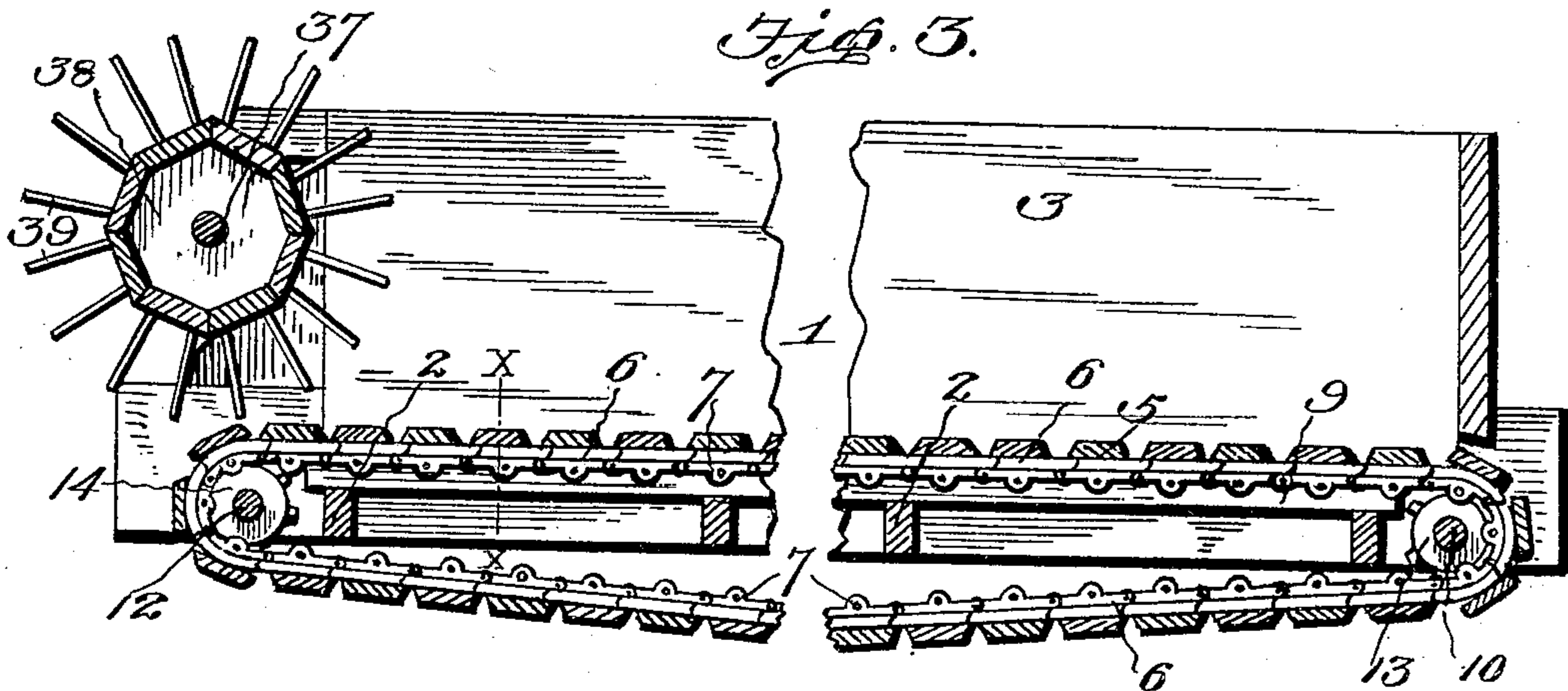
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

OREN C. RAWLEY, OF CORTLAND, NEW YORK.

FERTILIZER-DISTRIBUTER.

No. 814,079.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed September 26, 1904. Serial No. 225,997.

To all whom it may concern:

Be it known that I, OREN C. RAWLEY, a citizen of the United States, residing at Cortland, in the county of Cortland and State of New York, have invented certain new and useful Improvements in Fertilizer-Distributers; and I do 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.

This invention relates to improvements in fertilizer-distributers.

The object of the invention is to provide a machine of this character in which the operating mechanism is driven directly from the rear supporting-wheels.

Another object is to provide means whereby the speed of the feeding or distributing apparatus may be quickly changed by the driver without leaving his seat or stopping the machine.

Still another object is to provide means whereby the beater-operating mechanism may also be thrown into and out of gear by the driver without leaving his seat or stopping the machine.

A further object is to improve the construction and arrangement of the feed-apron or endless bottom of the machine, whereby the same will run more easily and smoothly.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of the rear end of the left-hand side of the machine, showing the mechanism for operating the feed-apron or endless bottom, parts being broken away to more clearly illustrate the construction. Fig. 2 is a similar view of the rear end of the opposite side of the machine, showing the beater-operating mechanism. Fig. 3 is a vertical longitudinal sectional view through the machine on the plane indicated by the line *y y* in Fig. 4, showing the manner of constructing and supporting the feed-apron or endless bottom. Fig. 4 is a transverse vertical sectional view through the same on the plane indicated by the line *x x* in Fig. 3, showing the manner of forming the chain-links, the rollers mounted in said links, and the tracks upon which said rollers travel. Fig. 5 is a top plan view, partly

in section, of the rear end of the left-hand side of the machine, showing the arrangement and construction of the mechanism for operating the feeding or delivery apparatus. Fig. 6 is a similar view of the right-hand side of the machine, showing the mechanism for driving the beater. Fig. 7 is a detail view of the inner side of the speed-changing-gear disk for operating the endless bottom. Fig. 8 is a similar view of the outer side thereof, showing the manner of connecting the same with the hub of the rear supporting-wheel. Fig. 9 is a detail view of the inner side of one of the rear-wheel hubs. Figs. 10 and 11 are detail views of the inner and outer sides of the combined clutch and pawl-carrying disk by which motion from one of the rear supporting-wheels is imparted to the beater-operating mechanism.

Referring to the accompanying drawings, the numeral 1 denotes the wagon bed or body consisting of sills 2 and a box 3. The rear end of the bed 1 is supported upon an axle on which is loosely mounted rear supporting-wheels 4. On the wagon-bed is arranged an endless bottom 5, which forms a feed-apron to support the load and feed the same toward the rear end of the machine. The bottom 5 is preferably made up of a series of slats which are secured to a pair of endless chains 6, one of which is arranged near each end of the slats. The chains 6 are made up of links, on the inner side of which are formed lugs 7. Between said lugs are journaled rollers 8, which are adapted to run on tracks 9, which are mounted on the sills of the wagon-bed. The lugs 7 on the links are adapted to project down on each side of the tracks, thereby preventing the rollers from slipping off the same and holding the bottom against lateral movement, thus preventing the edges of the same from binding against the sides of the wagon-body.

At the front and rear ends of the wagon-bed are arranged shafts 10 and 12, and on said shafts are fixed sprocket-wheels 13 and 14, over which are adapted to run the chains 6. On the end of the rear shaft 12, adjacent to the left-hand side of the wagon, is fixed a worm gear-wheel 15, with which is adapted to mesh a worm 16, fixed on the end of an inclined shaft 17, which is mounted at its upper end in a bracket 18, fixed on the side of the wagon-body, the lower end of said shaft being journaled in the bearing bracket or hanger 19 of the axle of the rear supporting-wheels 4.

On the lower end of the shaft adjacent to the bracket 19 is splined or otherwise slidably mounted a spur-gear pinion 20, having a hub 21, in which is formed an annular groove 22. In said groove 22 is loosely mounted a ring or collar 23, having on its upper side a spherical lug or ball 24, with which is adapted to be connected the lower end of a shifting lever 25, said lower end of the lever being provided with a socket 26, by which the same is hingedly connected to the ball 24 on the collar 23. The lever 25 is provided with a slot 27, whereby said lever is adapted to have a sliding pivotal connection with the side of the wagon-bed. To the upper end of the lever is connected the end of an operating-rod 28, which extends to within convenient reach of the driver.

On the rear axle, adjacent to the gear-pinion 20 and between the same and the inner end of the hub of the adjacent rear supporting-wheel, is loosely mounted a circular disk 29, on the inner face of which is formed an annular series of teeth 30, arranged in concentric rings which increase in diameter from the center or hub of the disk outwardly to the outer edge of the same. The pinion 20 is adapted to be brought into engagement with one or the other of said rings of teeth on the disk and to be thereby driven at a greater or less speed, according to the ring or series of teeth with which the same is engaged. When the pinion is brought opposite to the space between any of said series of teeth, said pinion and the parts operated thereby will be thrown out of gear.

On the outer side of the disk 29 is formed a substantially triangularly-shaped hub or projection 31, near each apex or corner of which is formed a circularly-shaped socket or recess 32, in which is loosely mounted the circular-shaped heads 33 of a series of pawls 34, the opposite ends of which are adapted to engage a series of ratchet-teeth 35, arranged on the inner wall of a flange 36, which is formed on the inner end of the hub of the supporting-wheel and which projects over the triangularly-shaped hub or projection 31 on the disk 29, so that when said supporting-wheel is turned in a forward direction by the forward movement of the machine one or more of said pawls will engage with said teeth, and thereby turn the disk 29 and the parts driven thereby. Should the machine be backed or the wheel revolved in a backward direction, as by the turning of the machine, the pawls will play loosely over the teeth in the hub, thus preventing the operating mechanism from being driven backward.

On the rear end of the wagon-body is mounted a beater-shaft 37, on which is supported a beater 38, which may be of any suitable construction, but which is here shown as consisting of an octagonal-shaped drum, to the sides of which are fixed radially-project-

ing fingers 39, which are adapted to thoroughly break up the manure and to evenly distribute the same from the rear end of the machine. The shaft 37 is journaled in bearing-brackets 40, secured to the outer end of the sides of the wagon-body. On the shaft 37, adjacent to the right-hand side of the machine, is loosely mounted a combined sprocket-wheel and beveled gear 41, and on the outer end of the shaft is fixedly mounted a beveled gear 42, the beveled gear-teeth on the wheel 41 and the beveled gear 42 being connected by an idle beveled gear-wheel 43, which is loosely mounted on a vertically-disposed stud-shaft 44, which projects upwardly from a laterally-projecting armor-bracket 45, formed on the side of one of the bearing-brackets 40.

Loosely mounted on the rear axle adjacent to the right-hand side of the machine is a sprocket-wheel 46, which is connected to the sprocket-teeth of the wheel 41 by a sprocket-chain 47. On the outer face of the hub of the wheel 46 are formed clutch-teeth 48 and on the inner side of said hub is formed an annular groove 49, with which is loosely engaged a ring or collar 50, having a laterally-projecting arm 51, the end of which is adapted to engage a cam-shaped groove 52, formed in a shifting-block 53, which is pivotally mounted on the side of the machine, and to said block is fixed a laterally-projecting arm or lever 54, to the outer end of which is connected the end of an operating-rod 55, which is adapted to extend to within convenient reach of the driver of the machine.

On the rear axle, adjacent to the hub of the sprocket-wheel 46 and between the same and the hub of the adjacent rear supporting-wheel, is loosely mounted a clutch-disk 56, having on its inner side clutch-teeth 57, with which the clutch-teeth 48 on the hub of the sprocket-wheel 46 are adapted to be engaged and disengaged as the sprocket-wheel 46 is shifted on the rear axle by the shifting block and lever 53 and 54, and by which means the sprocket-wheel is connected to and driven by the adjacent rear supporting-wheel.

On the outer side of the clutch-disk 56 is mounted a series of pawls which are similar in construction and operation to the pawls 34 of the disk 29 on the opposite end of the rear axle and are adapted to engage ratchet-teeth 57, formed on the projecting annular flange 58 of the adjacent supporting-wheel, whereby said clutch-disk will be turned by said supporting-wheel when the machine is going in a forward direction, but which will not be turned when the wheel is backed.

By the arrangement of the shifting mechanism connected with the sprocket-wheel 46 the beater may be quickly thrown into and out of operation.

From the foregoing description, taken in connection with the accompanying drawings,

the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a fertilizer-distributor, the combination with the rear supporting-wheels, of a wagon-bed supported by said wheels, a movable endless bottom arranged on said wagon-bed, mechanism whereby said endless bottom is driven directly from one of said rear supporting-wheels, means whereby the speed of said driving mechanism may be changed, a beater rotatably mounted at the rear end of said machine, a combined sprocket and beveled gear loosely mounted on said beater-shaft, a beveled gear fixedly mounted on the end of said shaft and spaced from said combined sprocket and beveled gear, an idle beveled gear connecting said fixed and loose gears, a sprocket-wheel loosely mounted on the rear supporting-wheel, a chain connecting said sprocket-wheel with the sprocket-teeth of the combined sprocket and beveled gear on said beater-shaft and means whereby said sprocket-wheel is thrown into and out of engagement with the adjacent rear supporting-wheel, substantially as described.

2. In a fertilizer-distributor, the combination with the rear supporting-wheels, of a wagon-bed supported by said wheel, a movable endless bottom arranged on said wagon-

bed, mechanism whereby said endless bottom is driven directly from one of said rear supporting-wheels, means whereby the speed of said driving mechanism may be changed, a beater rotatably mounted at the rear end of said machine, a combined sprocket and beveled gear loosely mounted on said beater-shaft, a beveled gear fixedly mounted on the end of said shaft, and spaced from said combined sprocket and beveled gear, an idle beveled gear connecting said fixed and loose gears, a sprocket-wheel loosely mounted on the rear supporting-wheel, a chain connecting said sprocket-wheel with the sprocket-teeth of the combined sprocket and beveled gear on said beater-shaft, a clutch member mounted on said rear axle, clutch-teeth arranged on said clutch member, clutch-teeth formed on the hub of said sprocket-wheel, a shifting arm mounted on said hub, a cam-shifting element mounted on the wagon-bed with which the end of said shifting arm is engaged an operating-lever connected to said cam element, an operating-rod connected to said lever whereby the same may be turned to throw said sprocket-wheel into engagement with said clutch member and means whereby said clutch member is driven in a forward direction by the adjacent, rear supporting-wheel, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

OREN C. RAWLEY.

Witnesses:

OLIVER L. INGRAHAM,
GEORGE O. SQUIRES.