

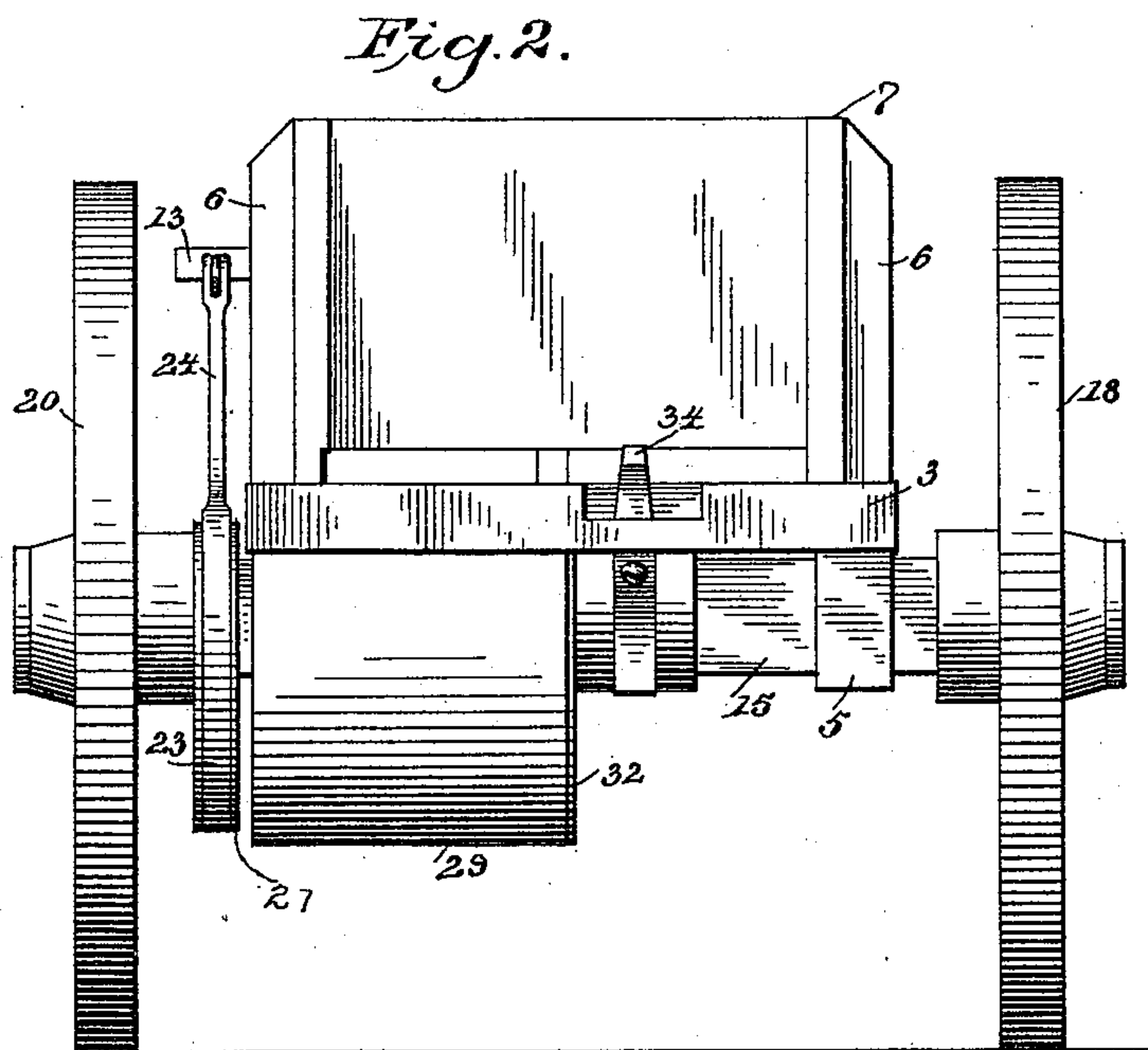
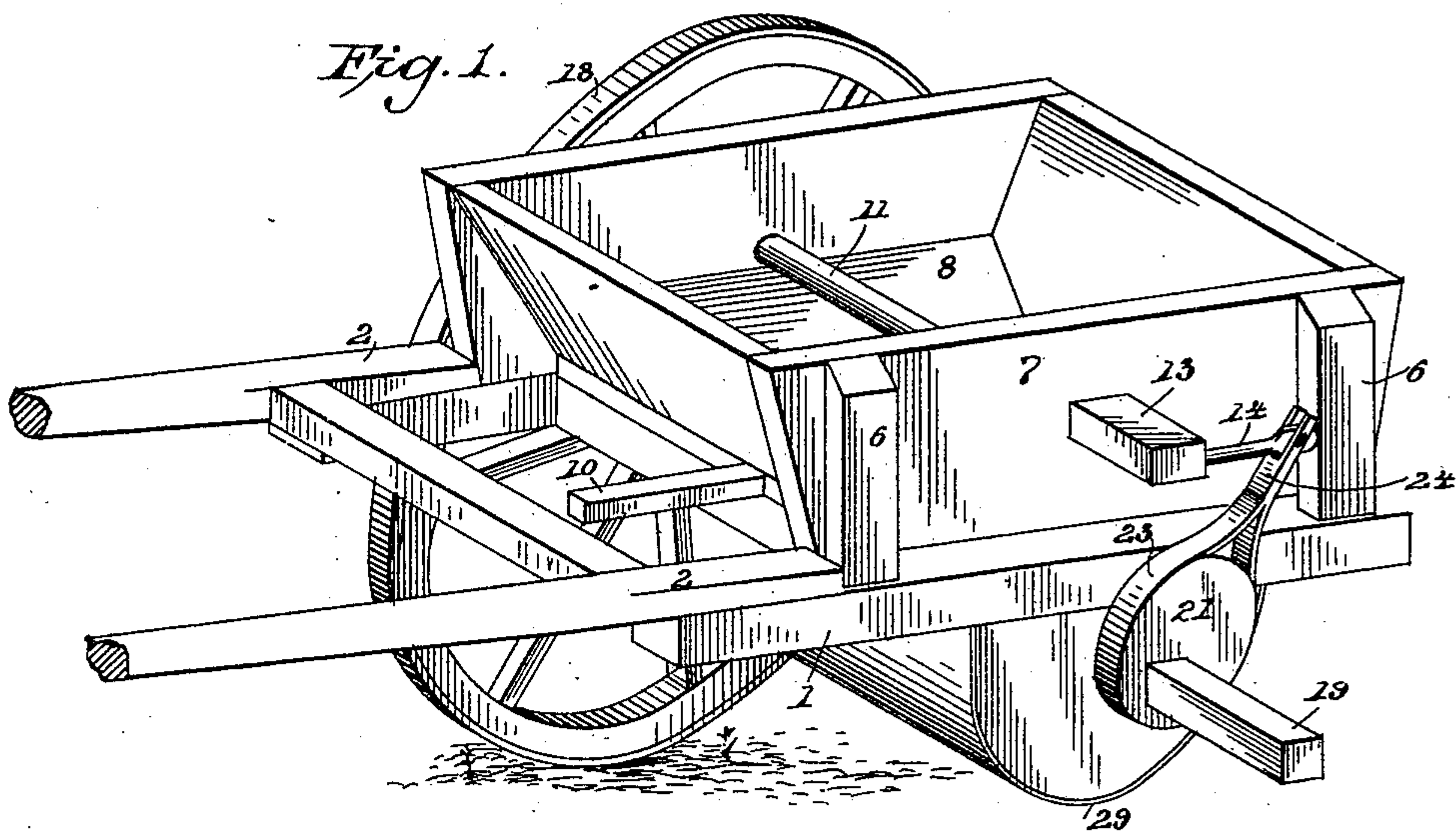
(No Model.)

2 Sheets—Sheet 1.

R. F. ORR.  
FERTILIZER DISTRIBUTER.

No. 454,977.

Patented June 30, 1891.



Witnesses:

E. B. Hallahan

W. J. Duane

Inventor

Robt. F. Orr.

By his Attorneys,

C. A. Snow & Co.

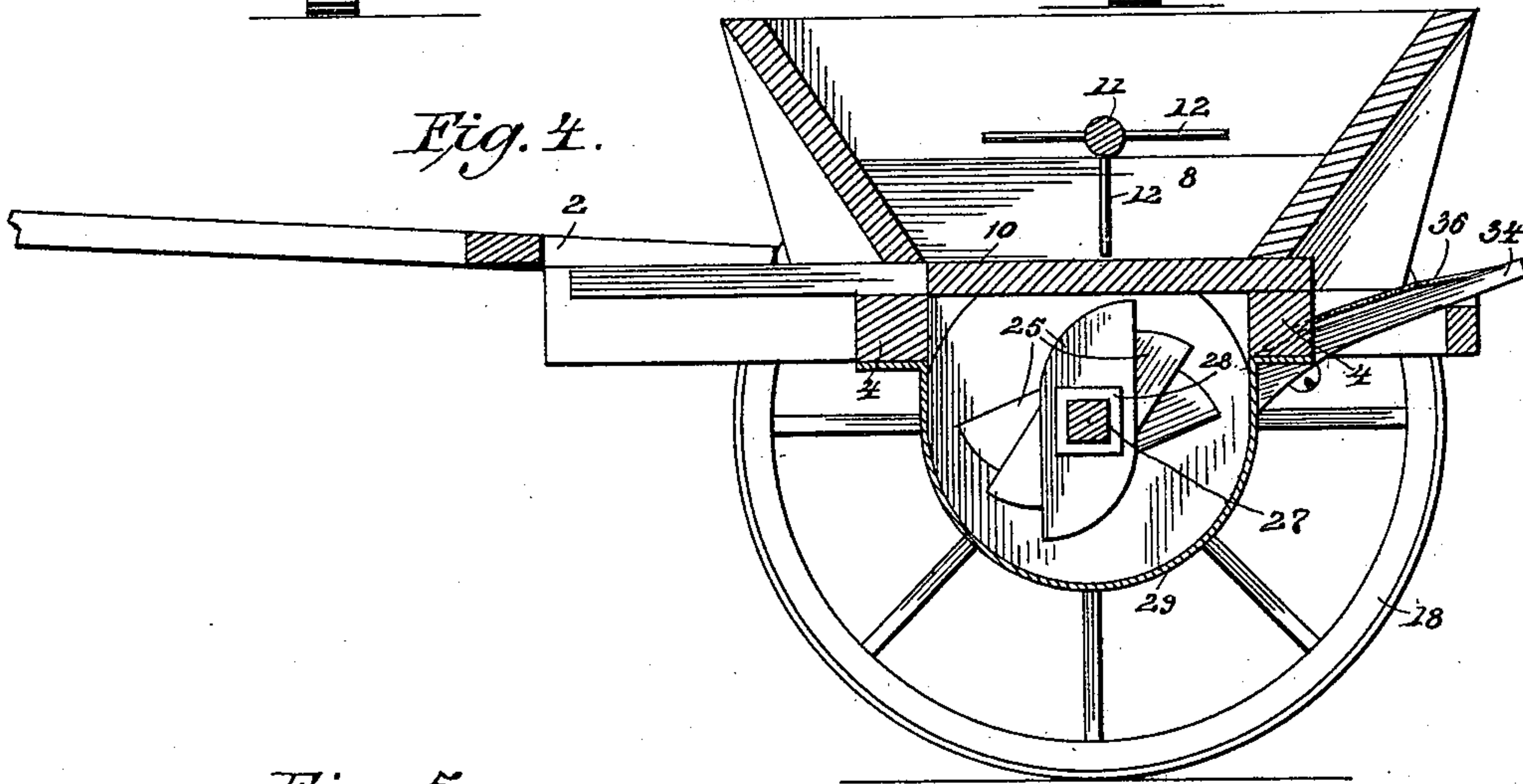
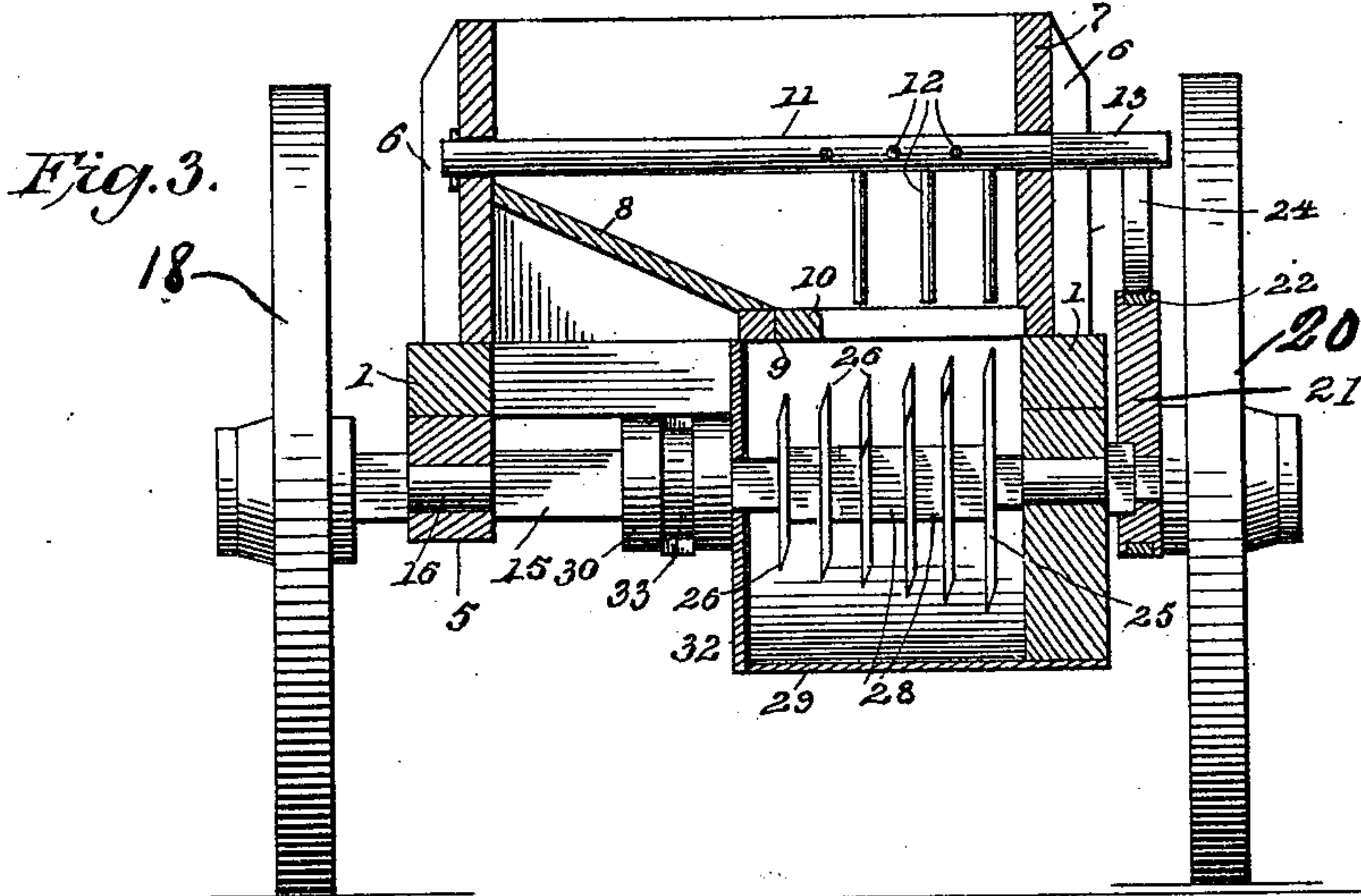
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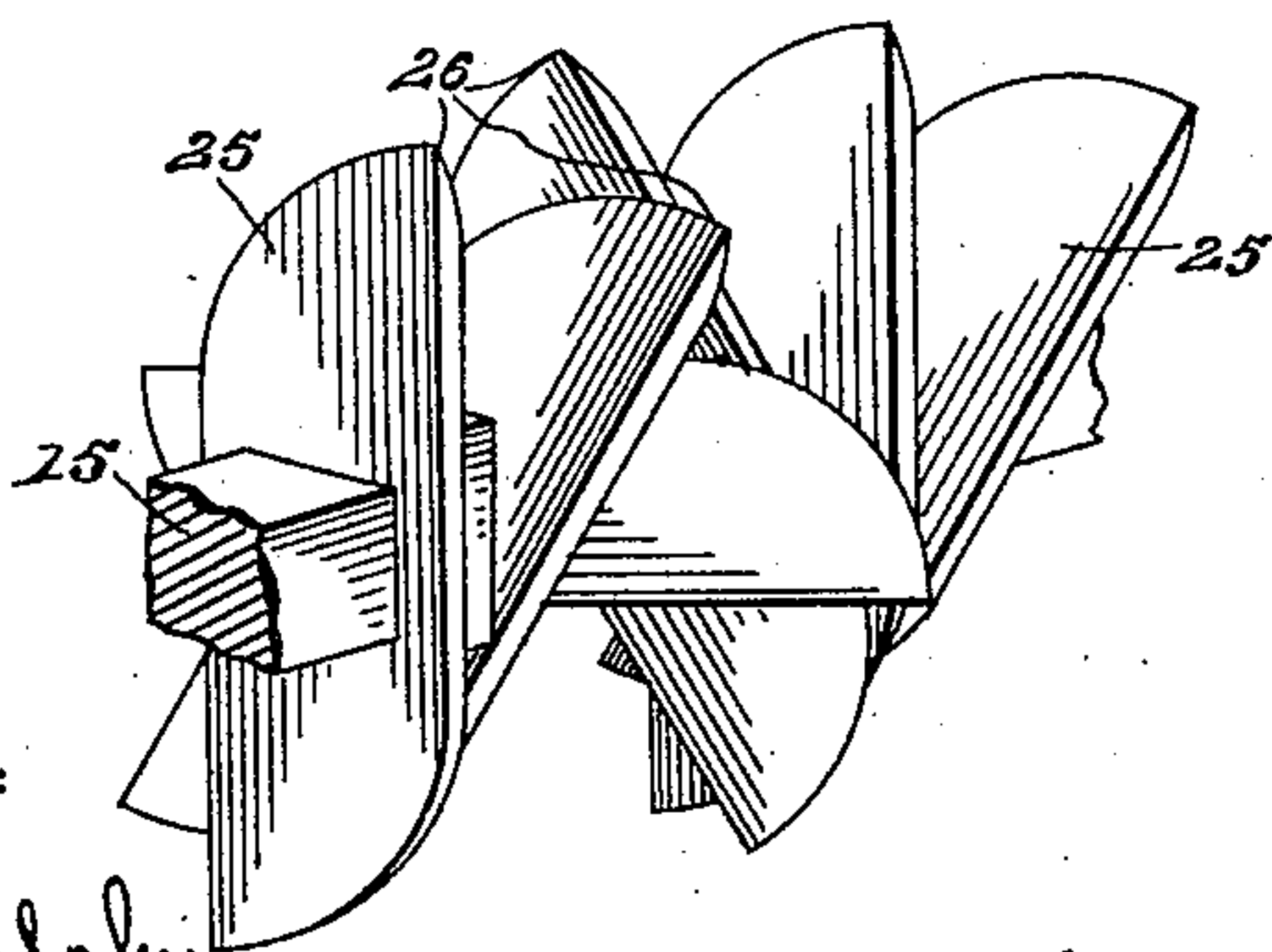
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*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

ROBERT FRANKLIN ORR, OF MASSEY, ALABAMA.

## FERTILIZER-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 454,977, dated June 30, 1891.

Application filed October 21, 1890. Serial No. 368,825. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT FRANKLIN ORR, a citizen of the United States, residing at Massey, in the county of Morgan and State of Alabama, have invented a new and useful Fertilizer-Distributor, of which the following is a specification.

This invention has relation to fertilizer-distributors, the objects in view being to provide a machine adapted for employment in connection with the ordinary unground fertilizer, which machine is capable of thoroughly pulverizing the fertilizer and provided with means for adjusting the discharge of the same while the machine is in motion and for turning the machine without operating the discharging mechanism.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a fertilizer constructed in accordance with my invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a transverse section. Fig. 4 is a longitudinal vertical section. Fig. 5 is a detail of the pulverizers or cutters.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the opposite longitudinal side bars of the frame-work, to the front ends of which are secured the rear ends of the thills 2. The side bars are connected at their rear ends by a transverse bar 3 and between their ends by the two cross-bars 4, spaced a suitable distance apart, and upon their under sides are provided with the bearings 5. Upon the frame-work thus constructed are located the vertical standards 6, which embrace the opposite sides of the fertilizer-receiving hopper 7, which is provided with front and rear inclined walls and an inclined half-bottom 8, forming an opening 9 at one side of the machine. In the opening there is mounted a cut-off 10. In the side walls of the hopper is journaled an agitating-shaft 11, from which radiates a series of stirring-arms 12, which latter are located directly over the opening 9 in the bottom of the hopper. One end of the shaft 11 terminates in a head 13, and to the same is rigidly connected a rod 14.

15 designates the axle, square in cross-section between the bearings and reduced, as at 16, at said bearings, so that it is adapted to revolve. One end of the axle is reduced to form a cylindrical bearing 17, and upon the same is mounted a ground-wheel 18. The opposite end of the axle is squared, as at 19, and upon the same is mounted a ground-wheel 20, so that the same revolves with the axle. An eccentric-disk is mounted upon the square end of the axle at one side of the wheel 20, and the periphery of the disk is provided with a groove 22, which is encircled by a metal strap 23, the terminals of which are secured to the opposite sides of a bar 24, bifurcated at its upper end and having pivoted thereto the outer end of the rod 14.

Under the opening in the hopper upon the shaft is located a series of cutters or knives 25, the diagonally-opposite sides of which are curved and ground to a cutting-edge, as at 26. These knives are provided with square openings 27, arranged at different angles with relation to the length of the knives, so that when assembled upon the shaft and spaced apart by spacing-collars 28 a spiral screw is formed. This screw is nearly surrounded by a hood 29, the outer end of which is closed, the inner end of which is open.

30 designates a sleeve mounted for sliding upon the axle opposite the open side of the hood, or what is in reality a pulverizing-chamber. The sleeve carries at its front end a disk or cover 32, corresponding to the shape of the open end of the pulverizing-chamber, and in an annular groove formed in the sleeve takes the bifurcated or forked end 33 of the lever 34, pivoted to the under side of the rear bar 4 and having interposed between its upper side and the under side of the bar a spring 36, whereby the lever is maintained in any of its adjusted positions. By manipulating the slide in the bottom of the hopper all communication between the hopper and the pulverizing-chamber may be cut off, and by operating the lever at the rear end of the machine the disk or cover may be moved toward or away from the opening, and thus the flow of fertilizer increased or diminished.

The operation of the invention will be readily understood from the foregoing description, but may be briefly stated as follows:



The fertilizer in an unground state is dumped into the hopper and its delivery into the pulverizing-chamber governed by the slide in the bottom of the hopper, the mass of fertilizer being constantly stirred and loosened by the stirring-arms, which receive motion from the shaft upon which they are mounted, which latter is oscillated or rocked by reason of the connection between the same and the eccentric 21 upon the axle. The cutters thoroughly grind and pulverize the fertilizer as the same is delivered, and by reason of their screw arrangement constantly feed the same in a steady unbroken stream toward the open end of the chamber, where the flow is governed, being either thin or thick, by a manipulation of the hand-lever at the rear end of the machine. In turning the machine the same is made on the wheel 18, so that the operating-wheel 20 is to the pivot-wheel and does not impart motion to the mechanism until the machine starts on its return-trip.

It will be observed that a fertilizer-distributor thus constructed may be produced at a small cost, is extremely durable, and has immense capacities for the distribution of fertilizing material, thus saving both time and labor.

Having described my invention, what I claim is—

1. In a fertilizer-distributor, the combination, with the frame-work, a hopper mounted thereon, and bearings under the frame-work, of an axle mounted in the bearings, a chamber inclosing the axle, which latter is squared between its bearings at that end adjacent to the chamber and cylindrical at its opposite end, a fixed wheel mounted on the square end, a loose wheel mounted on the cylindrical end, knives mounted on the axle within the chamber, a sleeve mounted on the axle at the open end of the chamber, and a lever pivoted to the frame-work engaging the sleeve, and a disk mounted on the sleeve and adapted to be adjusted to and from the open end of the chamber, substantially as specified.

2. In a fertilizer-distributor, the combina-

tion, with the frame-work, a hopper, a pulverizing-chamber located under the hopper and having its open end under the center of the frame-work, said frame-work having bearings, of an axle reduced opposite the bearings, squared between the bearings, and having that end near the hopper squared and its opposite end cylindrical, and a wheel mounted rigidly upon the square axle and loosely upon the cylindrical axle, substantially as specified.

3. In a fertilizer-distributor, the combination, with the frame-work, the hopper mounted thereon, and the bearings under the frame-work, of the axle, the ground-wheels mounted thereon, one of which is rigid with the axle, a disk eccentrically mounted on the axle and provided with a peripheral groove, a band mounted in the groove and having its terminals secured to the bar, an agitating-shaft journaled in the opposite sides of the hopper, having radiating arms, and outside of one of its bearings connected with the connecting-rod, which latter is pivotally connected with the aforesaid bar, substantially as specified.

4. In a fertilizer-distributor, the combination, with the frame-work, the hopper, the bearings, and the hood inclosing the same and forming a pulverizing-chamber, of the square axle mounted in the bearings, the series of cutters, the diagonally-opposite sides of which are curved and reduced to form cutting-edges, each of said cutters having formed therein a square opening agreeing with the axle, the opening of each successive cutter being formed upon an angle with relation to its length greater than the next succeeding cutter, whereby a spiral feed is formed, and collars located upon the shaft between the cutters, substantially as specified.

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

ROBERT FRANKLIN ORR.

Witnesses:

J. H. CORSBIE,

J. L. DAY.