

2 Sheets—Sheet 1.

No. 444,521.

Patented Jan. 13, 1891.



Inventor

Lyman L. Cowles

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(No Model.)

2 Sheets—Sheet 2.

L. L. COWLES.
POTATO PLANTER.

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FIG. 3.

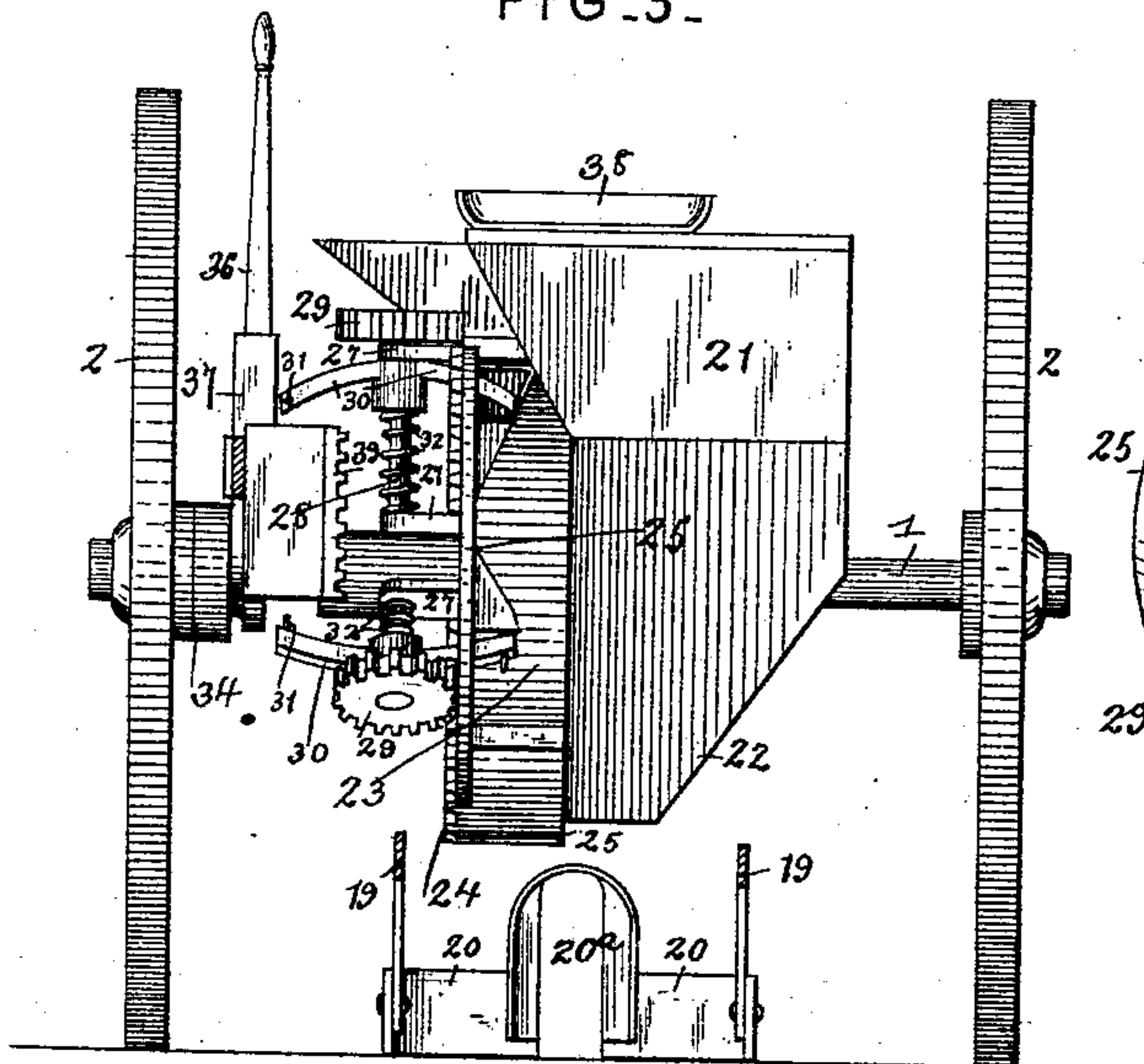


FIG. 5.

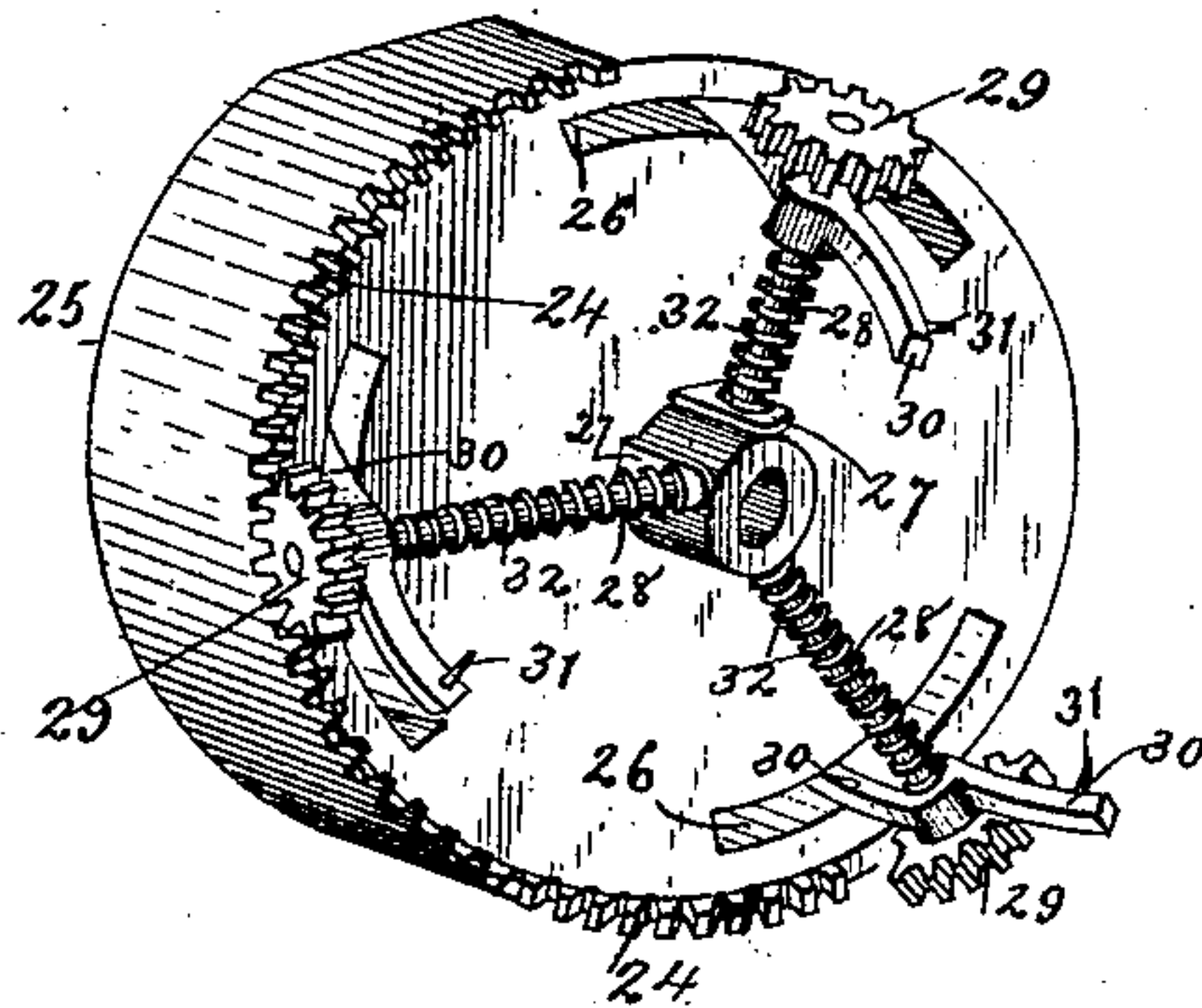
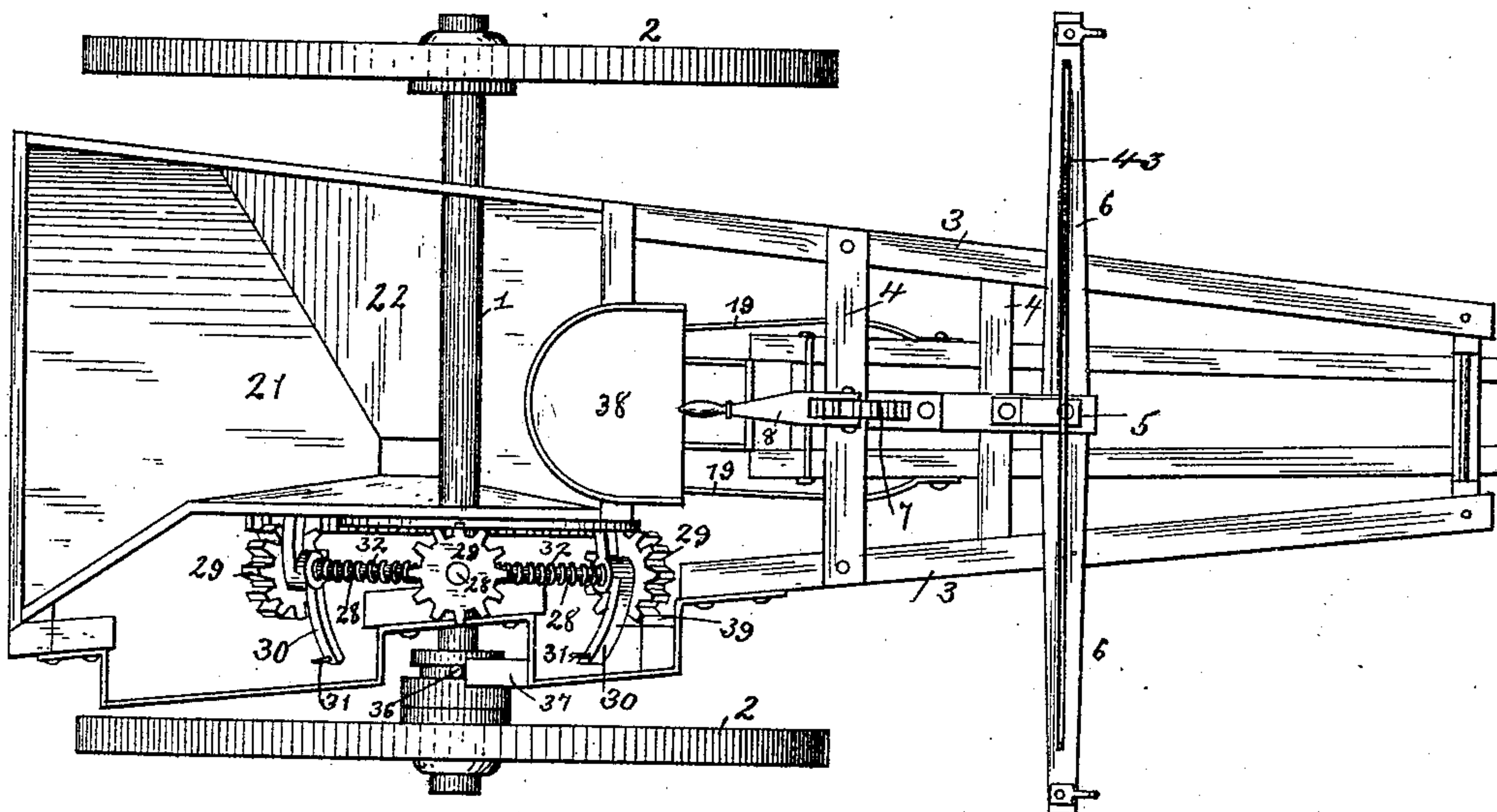


FIG. 4.



Witnesses:

Jas. K. McLaughlin

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By his Attorneys,

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UNITED STATES PATENT OFFICE.

LYMAN LEANDER COWLES, OF VALLEY, NEBRASKA, ASSIGNOR TO MARY S. COWLES, OF SAME PLACE, AND CARRIE V. HOLLISTER, OF SALT LAKE CITY, UTAH TERRITORY.

POTATO-PLANTER.

SPECIFICATION forming part of Letters Patent No. 444,521, dated January 13, 1891.

Application filed July 9, 1890. Serial No. 358,167. (No model.)

To all whom it may concern:

Be it known that I, LYMAN LEANDER COWLES, a citizen of the United States, residing at Valley, in the county of Douglas and State of Nebraska, have invented a new and useful Potato-Planter, of which the following is a specification.

This invention has relation to potato-planters; and the objects and advantages of the invention, together with the novel features thereof, will hereinafter appear, and be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a planter constructed in accordance with my invention, the adjacent ground-wheel being removed. Fig. 2 is a central vertical section. Fig. 3 is a transverse section in front of the shaft or axle. Fig. 4 is a plan. Fig. 5 is a detail in perspective of the picking-arms, their shafts, and the operating-disk to which they are connected.

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

1 designates the axle, provided near its opposite end with the ground-wheels 2, and upon said axle are mounted opposite side beams 3, connected at their rear and near their front ends by cross-beams 4. The two front cross-beams are connected by a short draft-beam 5, to which is pivoted a doubletree 6, adapted to receive at its outer ends the opposite singletrees. A toothed sector 7 is mounted upon the draft-beam 5 near its rear end, and pivoted to the sector is a bell-crank lever 8, provided with a locking-bolt 9, designed to engage the teeth of the sector. An inverted-U-shaped bail 10 depends from the free end of the lever and has its lower end pivoted to a longitudinally-disposed oblong frame 11, consisting of a pair of longitudinal bars connected at their front ends by a cross-bar 12, having a pair of vertical bearing-lugs 13, through which is passed the bearing-pin 14, said pin being secured to the opposite front ends of the side beams 3. It will be observed that the frame 11 is pivotally connected to the front end of the frame of the machine, and its rear end may be raised and lowered and maintained in any of the adjusted posi-

tions desired through the medium of a bell-crank lever 8. The rear end of the frame 11 has secured thereto the delivery-chute 15, in front of which is located the furrow-opener 16. Bolted to the side bars of the oblong frame 11 in a pivotal manner, as at 18, is a pair of oppositely-curved and at their ends converging bars 19, terminating in shovels or covering-blades 20.

In rear of the delivery-chute there is secured within the frame of the apparatus a hopper 21, provided with an inclined rear wall constituting a bottom, and through said hopper passes the axle 1. The bottom of the hopper is provided with an inwardly-disposed or lateral discharge 22, and secured to the side wall is a curved or semicircular-shaped secondary hopper 23, which latter is concentric with the shaft 1 and has its outer edge provided with a series of teeth 24.

25 designates a disk, which near its periphery is provided with slots 26, running parallel with said periphery. The disk is rigid upon the shaft 1, and at intervals has radially-opposite pairs of bearing-lugs 27, in each pair of which is mounted a radial shaft 28, which extends beyond the outer lug, and is there provided with a pinion 29, which engages and is operated by the teeth 24, secured to the side of the hopper. Each of the shafts 29 is provided with a pair of oppositely-disposed twin picking-arms 30, said arms being curved to agree with the slots and provided at opposite sides with picking-pins 31. The arms are loosely mounted on the shafts 29 and are given sufficient tension, so as to move in unison therewith, by means of coiled springs 32, encircling the shafts and somewhat snugly fitting the same and secured to the arms. The ground-wheels are loose upon the axle, and one of the same is provided upon the inner side of the hub with openings, into which are adapted to be projected pins 33, extending from the outer face of the sliding collar 34, which collar is splined upon the axle and adapted to be shifted by a hand-lever 36, pivoted to the standard 37, located at one side of the driver's seat 38, which is mounted upon the hopper 21.

The operation of my invention is as follows: The potatoes are emptied into the hopper 21 and are gradually fed into the curved secondary hopper 23 by passing through the slot 22 of the first-mentioned hopper. The machine being in motion, the disk 25 is rotated, and through the medium of a series of cups 36, one for each of the shafts 28 and located opposite the slot 26, said potatoes are gathered and carried with the disk from the hopper and other potatoes passed through the slot 22 to take their places. As the disk rotates, the pinions 29 are rotated by the teeth 24 of the hopper 23, so that the shafts 28 are rapidly rotated, and with them the twin picking-arms 30, the picking-pins 31 of which pass in and out through the mass of potatoes contained in the cup adjacent thereto. After a shaft 28 has passed beyond the teeth 24 the said shaft remains inactive, and the pinion 29 then comes in contact with a stationary vertical rack-bar 39, secured to one of the side bars 3. Said rack-bar is opposite to the teeth upon the hopper 23, so that the shaft is suddenly given a series of reverse rotations, the picking-arms being thrown across the delivery-chute heretofore described, and the potatoes from the picking fingers and pins are by said reverse rotation of the arms thrown into the chute and dropped into the furrow in rear of the furrow-opener. In this way the series of potato-seeds are planted at intervals and evenly throughout the length of the furrows. The covering-blades 20 next turn the earth back into the furrow, and inasmuch as they are arranged a short distance apart they form the hill. These blades are yieldingly connected by an inverted-U-shaped spring 20^a, the ends of which are connected to the blades.

40 designates the marker-bar, pivoted at its inner end, as at 42, to the rear end of the hopper and provided at its outer end with an ordinary marker.

A guide-rod 43 is mounted upon the double-tree of the machine, and a traveling ring 44 is adapted for movement thereupon. The ring is connected to the free end of the bar 40 by a rope or chain 45, and is thus braced. The marker-bar may be swung to either side of the machine and the ring travels along the guide-rod to the corresponding end thereof.

Having thus described my invention, what I claim is—

1. In a potato-planter, the combination, with the frame and axle and its wheels, of a curved hopper, a delivery-chute arranged in front of the same, said hopper being provided with a series of teeth, an annularly-slotted

disk mounted on the shaft and provided with a series of potato-gathering cups adapted to travel over the hopper, a series of shafts radiating from the center of and secured to the disk, picking-arms mounted on the shafts and adapted to travel through slots formed in the disk opposite the arms, a pinion mounted upon each of the shafts and engaging the teeth of the hopper, and a rack-bar located at the opposite side of the pinion to that occupied by the curved hopper and adapted to engage said pinion and reverse the movement of the potato-gathering arms, substantially as specified.

2. In a potato-planter, the combination, with a hopper, a series of radiating potato-picking arms journaled at one side of the hopper, and mechanism for rotating the arms within the hopper, of devices for reversing said arms and a delivery-spout located in the path of said arms, substantially as specified.

3. In a potato-planter, the combination, with the frame, a main hopper having an inclined bottom terminating in a discharge-spout, an adjustable delivery-chute provided with a furrow-opener, and a curved secondary hopper located at the side of the spout and provided with a circular series of teeth, of a disk mounted rigidly upon the shaft, a series of pairs of radiating brackets secured to the disk, radiating shafts mounted in the brackets, each of which is provided with a twin pair of picking-arms having opposite picking-pins and each provided with a pinion, said arms being adapted to operate within a circular slot formed in the disk, cups secured to the inner side of the disks opposite each pair of arms and communicating with the slot, and the rack-bar located at the opposite side of the shafts and adapted to engage said pinions, substantially as specified.

4. In a potato-planter, the combination, with an axle, a hopper having an inclined bottom, and a secondary hopper curved and located at one side thereof and communicating with the primary hopper, of a rotatable disk mounted on the axle at one side of the curved hopper and provided with a series of cups and mechanism mounted on the disk for removing the potatoes from the cups, substantially as specified.

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

LYMAN LEANDER COWLES.

Witnesses:

P. H. DUBOIS,
G. LINDBERG.