

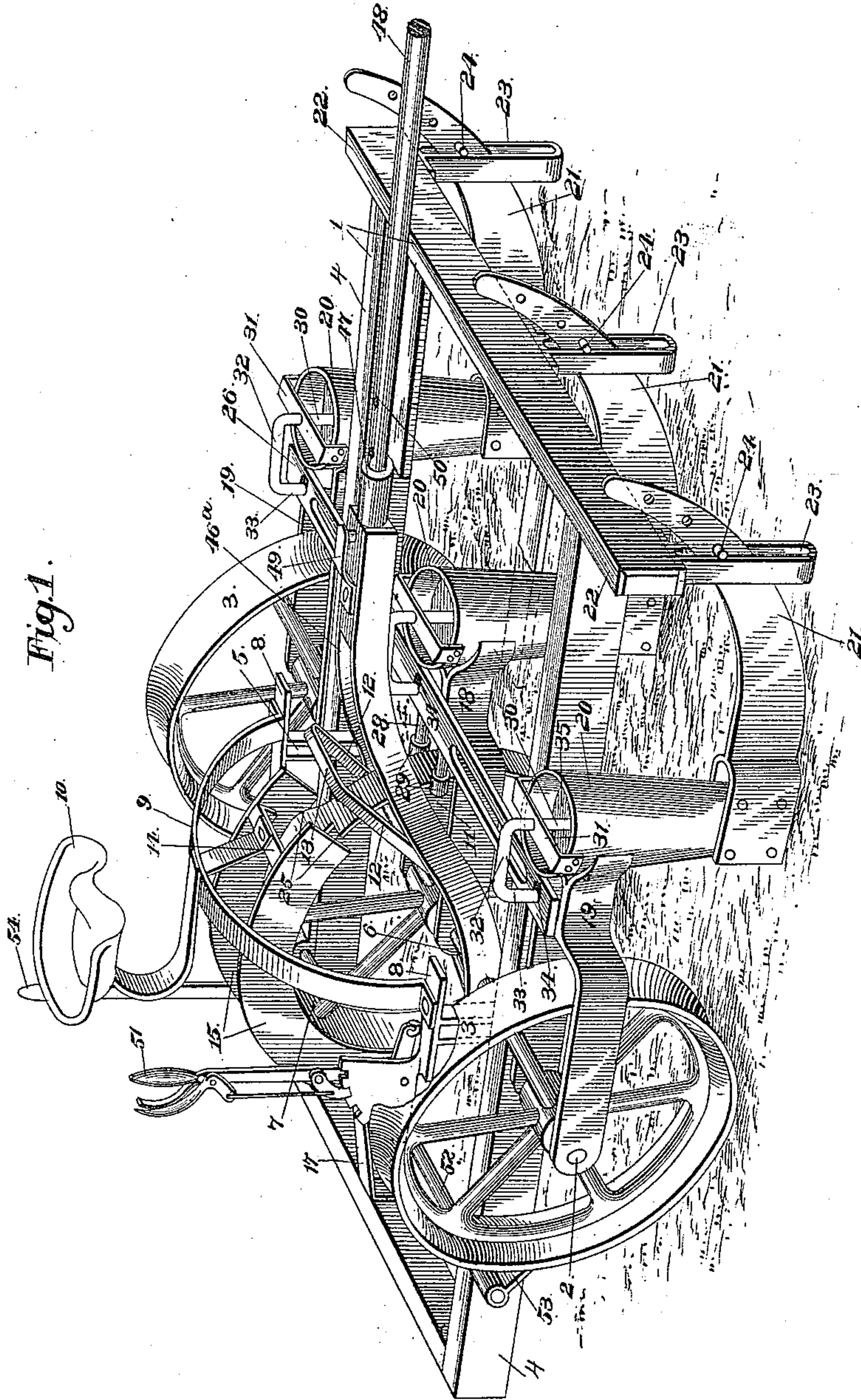
(No Model.)

2 Sheets—Sheet 1.

W. H. BENFORD.
CORN PLANTER.

No. 441,091.

Patented Nov. 18, 1890.



Witnesses

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Wm. Rogers

Inventor

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By his Attorneys.

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(No Model.)

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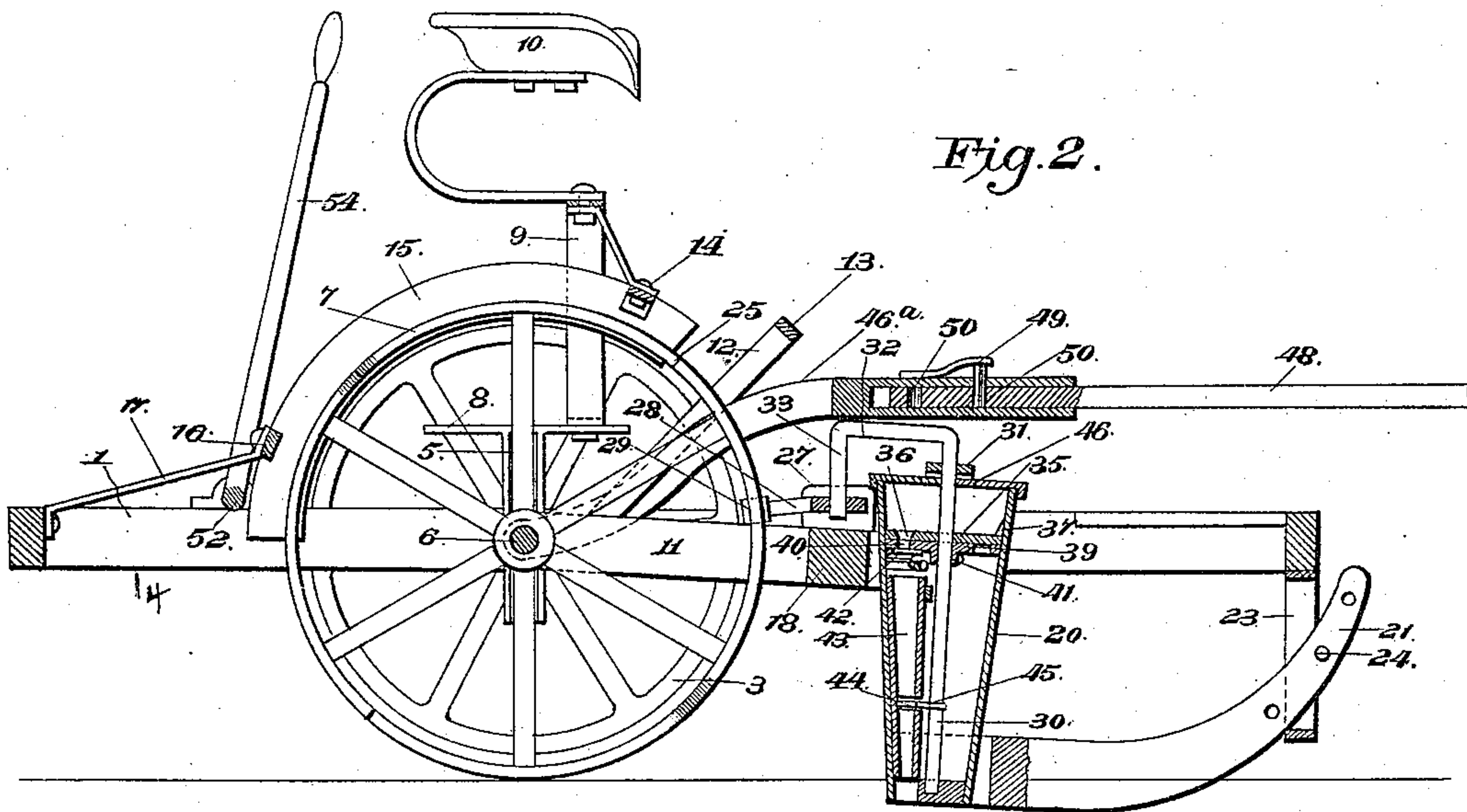


Fig. 2.

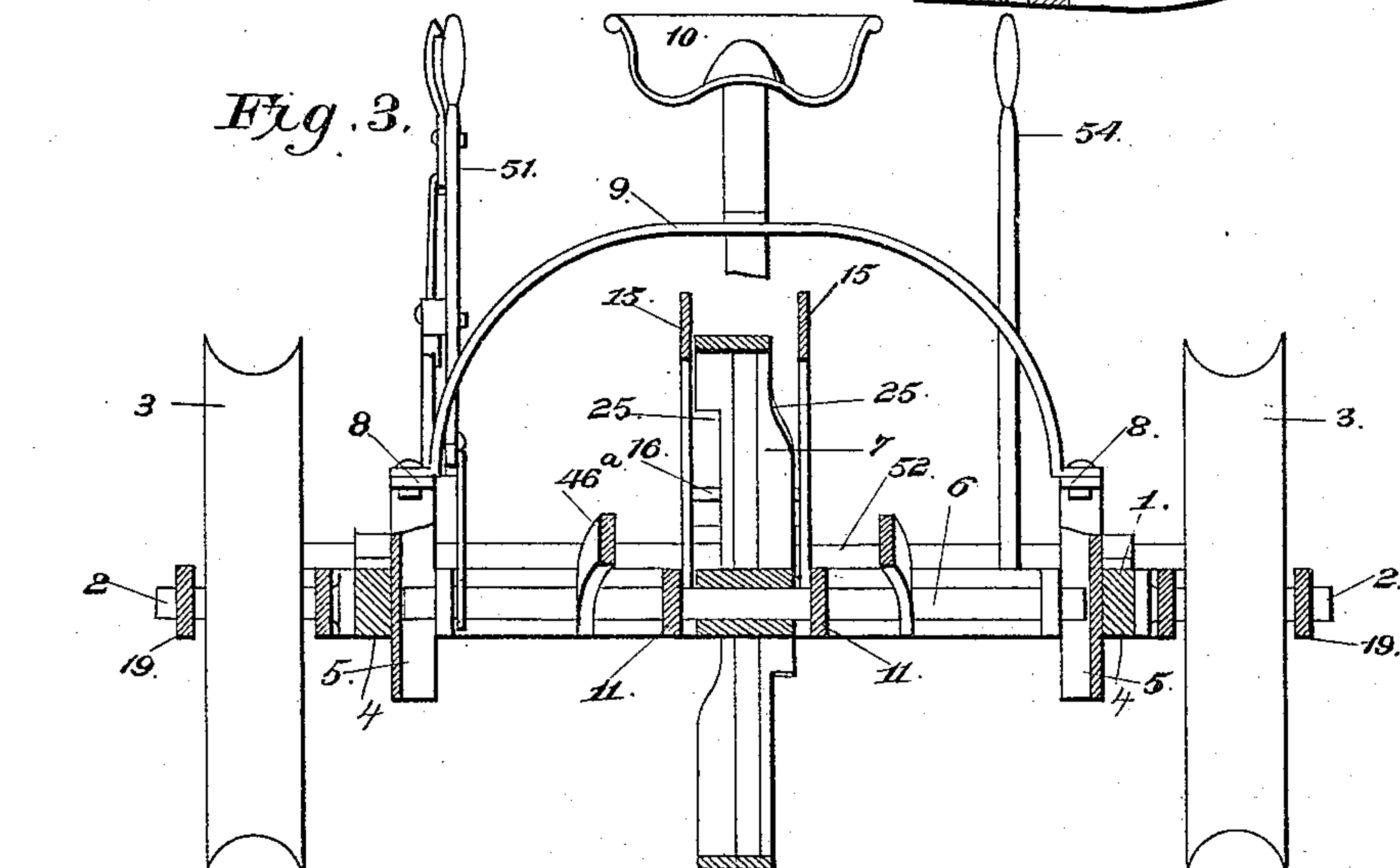


Fig. 3.

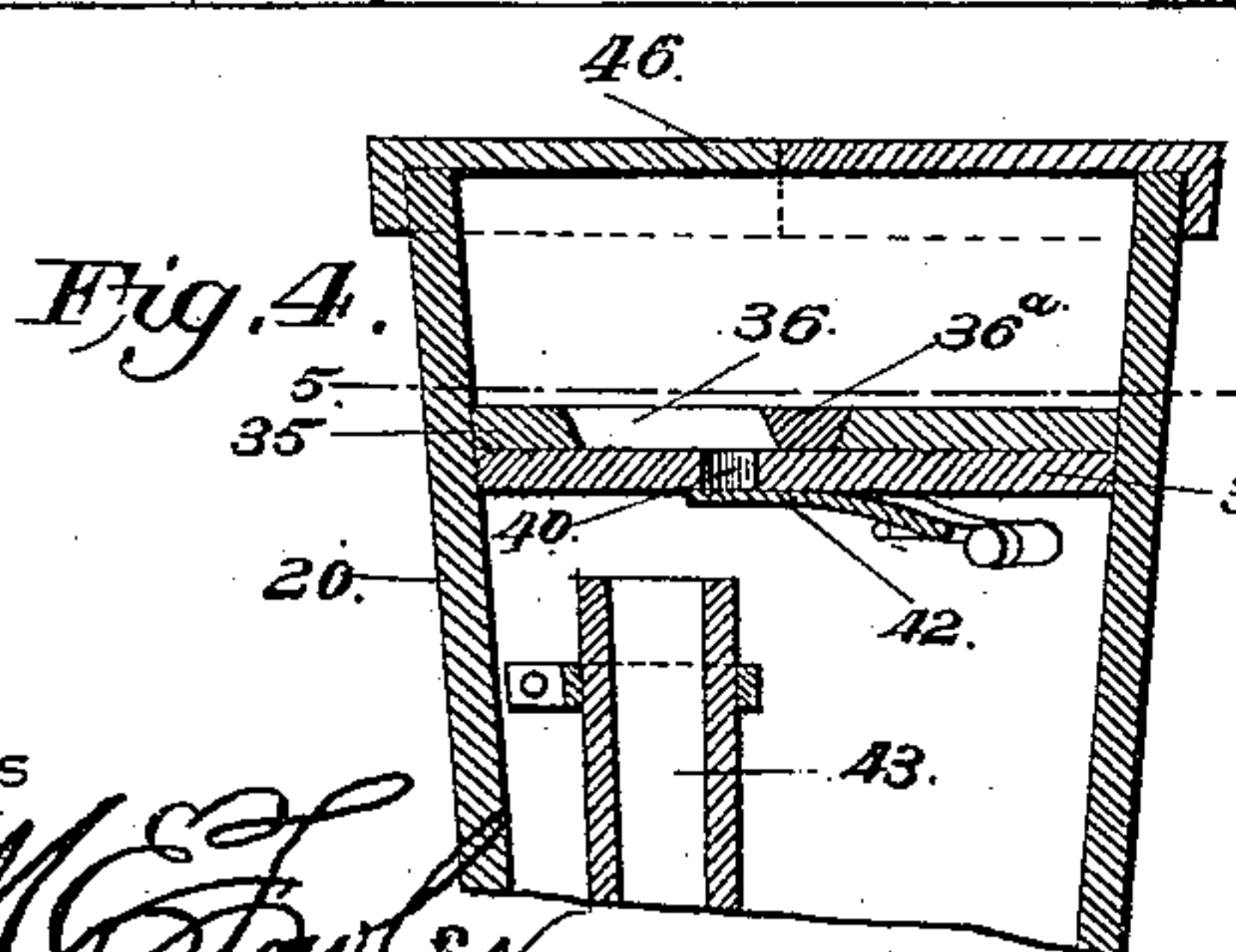


Fig. 4.

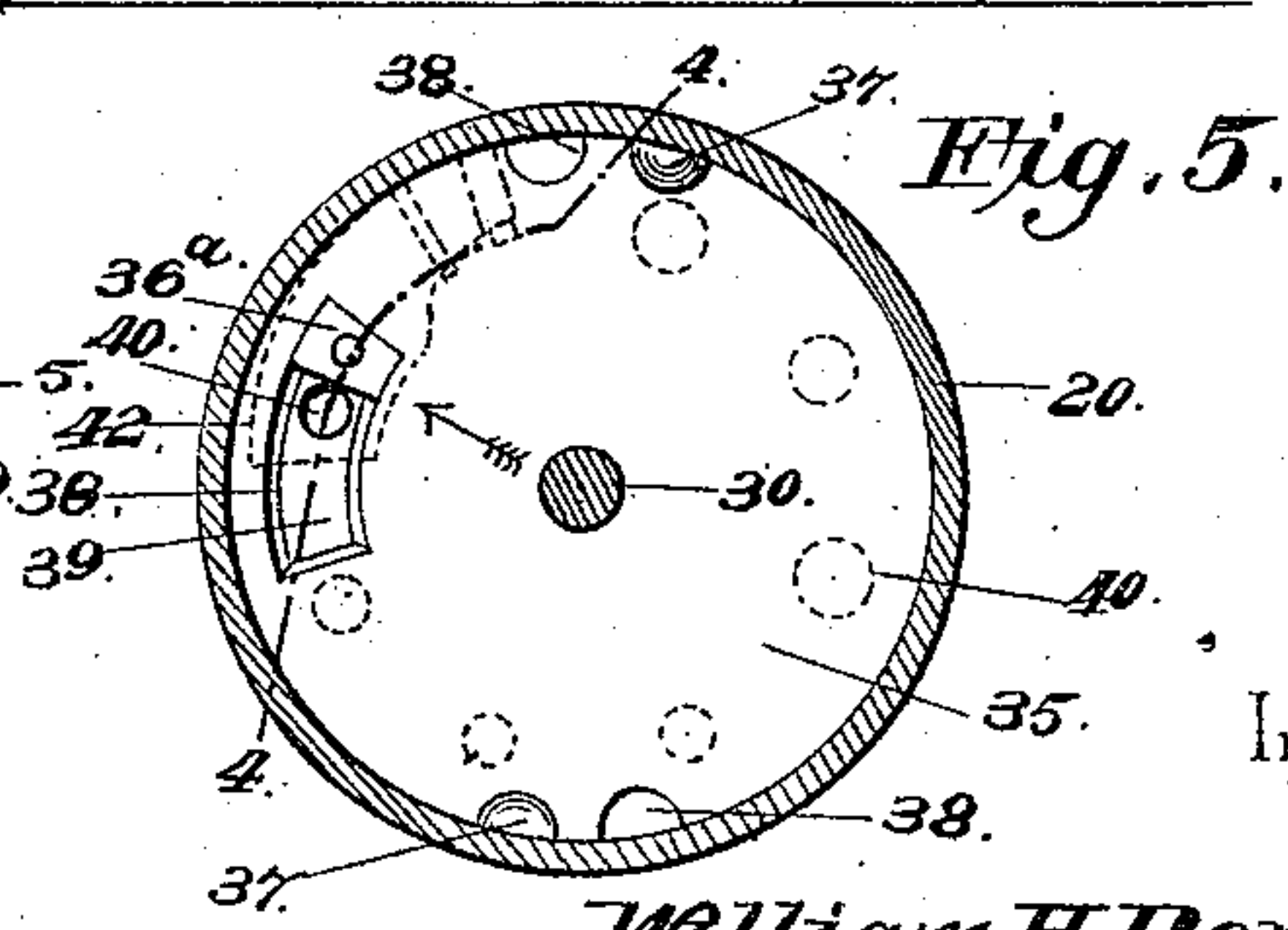


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM H. BENFORD, OF DUBLIN, ASSIGNOR OF ONE-HALF TO WESLEY C. LOVINS, OF JASPER, MISSOURI.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 441,091, dated November 18, 1890.

Application filed May 21, 1890. Serial No. 352,667. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BENFORD, a citizen of the United States, residing at Dublin, in the county of Barton and State of Missouri, have invented a new and useful Check-Row Corn-Planter, of which the following is a specification.

This invention relates to check-row corn-planters; and it has for its object to construct a machine of this class which shall be simple, durable, and efficient in operation.

With these ends in view, the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings hereto annexed, Figure 1 is a perspective view of a check-row corn-planter embodying my improvements. Fig. 2 is a central longitudinal sectional view of the same. Fig. 3 is a vertical transverse sectional view taken through the axles and supporting-wheels. Fig. 4 is a detail sectional view taken transversely through one of the hoppers on line 4 4 in Fig. 5. Fig. 5 is a horizontal sectional view taken on the line 5 5 in Fig. 4.

Like numerals of reference indicate like parts in all figures.

1 designates a rectangular frame, the side pieces of which have stub-axles 2 2, upon which the supporting-wheels 3 3 are journaled.

The inner sides of the side pieces 4 of the frame are provided with vertical flanges 5 5, forming guideways or bearings for the vertically-movable center axle 6, which is mounted to revolve and to slide vertically in said bearings and upon which is journaled the operating-wheel 7.

Upon the upper ends of the guides or flanges 5 are mounted the supporting blocks or plates 8 8, which are connected by an arch 9, upon which the driver's seat 10 is mounted on a spring-bar of ordinary construction.

Projecting forwardly from the axle 6 on each side of the operating-wheel are the brackets 11, and extending upwardly from said brackets are the inclined arms 12, connected at their upper ends by a cross-bar 13, so as to form a yoke or bail.

Secured to a cross-bar or brace 14 under the arch 9 are the curved shields or guards 15—one on each side of the operating-wheel—and the rear ends of which are connected by a cross-piece 16, which in turn is connected with the rear bar of the main frame by a brace 17. These shields or guards, being connected firmly to the frame, as shown, serve to guard and to guide the operating-wheel when the machine is in operation.

The front ends of the brackets 11, journaled upon the axle 6, are connected so as to form a yoke 18. Similar yokes 19 are journaled upon the stub-axles 2, on which the transporting-wheels are journaled, said yokes being mounted with their arms on each side of said wheels and extended in a forward direction.

To the front ends of the yokes 18 and 19 are secured the seed-boxes 20, which are funnel-shaped and the lower ends of which are mounted in the runners or furrow-openers 21.

The front cross-bar of the frame is extended at both ends, so as to form brackets 22, and from the latter and from the center of the said front cross-bar depend the vertically-slotted guides 23, in which the front ends of said runners are held adjustably by means of pins or bolts 24, passing transversely through them in front of said guides. It will thus be seen that while the runners are free to move in an upward direction their movement in a downward direction is limited by the pins or bolts 24, for the reception of which series of perforations are provided in the said runners. Hence the depth of the furrows opened by the said runners may be conveniently regulated.

The edges of the rim of the central operating-wheel 7 are provided with recesses or indentations 25, constituting said wheel a cam-wheel, serving to operate the dropping-bar or seed-slide 26, which is mounted to slide transversely upon the side bars of the frame. Said dropping-bar is provided with rearwardly-extending arms 28—one on each side of the operating-wheel—and provided with friction-rollers 29, engaging the edges of the rim of said wheel, from which latter a transverse reciprocating motion will thus be imparted to said dropping-bar.

Each of the funnel-shaped hoppers is pro-

vided in its lower end with a bearing for the lower end of a vertical rod or rock-shaft 30, the upper end of which is journaled in a cross-bar 31 at the upper end of said hopper.

Each rock-shaft 30 is provided at its upper end with a rearwardly-extending arm or crank 32, having a downwardly-projecting wrist-pin 33, that works in a slot 34 in the reciprocating drop-bar, from which an oscillating motion is thus imparted to the said rock-shafts.

In each hopper is secured a diaphragm 35, having a slot or opening 36, said diaphragm being supported upon shoulders or flanges within the hopper and secured by means of projections 37 upon the inner sides of the walls of said hoppers. Each of said diaphragms is provided with notches 38 to enable it to pass the projections 37 when being placed in position or removed, a partial turn being sufficient to secure it in position.

Secured upon the rock-shaft 30, directly under the diaphragm 35, is the plate 26, having a circumferential series of openings or seed-cups 40, which are of different sizes, and any one of which may be placed in alignment with the slot 36, thus enabling the quantity of seeds planted at each operation to be regulated. The seed-plate 39 is secured adjustably upon the rock-shaft 30 by the plate-holder 41.

Secured to the wall of the hopper directly below the seed-plate, under and extending to one side of the slot 36 in the diaphragm 35, is a segmental spring 42, that serves as a cut-off and to prevent the seeds from being crushed during the operation of the machine. Each of the diaphragms 35 is also provided with a regulating-slide 36^a, by means of which the size of the slot 36 may be regulated either for check-rowing or drilling.

Secured to the wall of the hopper directly below the end of the spring 42 is the seed-spout 43, which extends downwardly through the bottom of the hopper and terminates in the fork of the runner or furrow-opener. Said seed-spout has a valve 44, which is operated by an arm 45 of the rock-shaft 30.

In operation the seed-plates 39 are first adjusted to place seed-cups of the desired size in alignment with the slots 36 in the diaphragms of the several hoppers, and seed is then placed in the hoppers. Each hopper is provided with a cover 46, constructed of two parts or sections hinged together and having an opening for the passage of the rock-shaft 30. When the rock-shafts are oscillated in one direction by the action of the reciprocating dropping-bar, those of the seed-cups 40 which are to be filled are swung under the slots 36 in the diaphragms. When swinging in the opposite direction, said cups carry their contents over the yielding springs 42 and deposit the same in the seed-spouts, the valves of which are at this time closed. When the rock-shafts are again oscillated and the seed-cups return under the slots 36 for a new supply of seed, the valves 44 in the seed-spouts

are at the same time swung open and the seeds contained in the seed-spouts permitted to drop to the ground.

46^a designates the hound-frame, the arms of which are curved or arched and are journaled at their rear ends upon the center axle 6 of the machine. Said hound-frame terminates at its front end in a tubular socket 47, in which the tongue 48 is secured adjustably by means of a spring-bolt 49, which is adapted to enter any one of a series of recesses 50 in said tongue. The latter may thus be conveniently adjusted so as to lengthen or shorten the draft.

An adjusting-lever 51, suitably pivoted to the frame of the machine in a position convenient to the driver, is connected with the center axle 6, and by means of said lever the said center axle, with its attachments, may be raised when desired, to lift the operating-wheel out of contact with the ground, and thus throw the seeding mechanism out of operation. Suitable means—such as a segment-rack engaging a spring-actuated pawl pivoted to the adjusting-lever—are to be provided for the purpose of retaining said lever at any desired adjustment.

The yoke formed by the arms 12 and cross-bar 13 may serve as a foot-rest for the driver, who, by pressing with his feet upon the same, may press the center axle downward, so as to hold the operating-wheel in contact with the ground.

Journaled transversely upon the main frame, in rear of the supporting-wheels, is a rock-shaft 52, having blades or scrapers 53 to bear against the rims of the supporting and operating wheels for the purpose of cleaning said wheels from any dirt and mud that may adhere thereto. The rock-shaft 52 has a lever 54 convenient to the driver, who may thereby throw the scrapers into or out of operation.

The operation and advantages of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed, by those skilled in the art to which it appertains.

The general construction of my improved corn-planter is simple and inexpensive, and it may be easily operated. When constructed as herein shown and described, the machine will drop simultaneously three rows of corn, and the distance between the hills may be regulated by the diameter of the operating-wheel, as shown, which is constructed to operate the dropping mechanism twice to each revolution. By raising the operating-wheel from contact with the ground the operation of the machine may be discontinued at any desired point. The wheels of the machine, which are made with broad treads, serve to cover and to compress the soil about the seeds, and the depth to which the latter shall be covered may be regulated by the depth to which the runners or furrow-openers are permitted to enter the soil.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a corn-planter, the combination of the frame having the stub-axles, the supporting-wheels journaled on the latter, the center axle mounted to slide vertically in guides upon the inner sides of the side pieces of the frame, the operating-wheel journaled upon the center axle, the yokes journaled upon the stub and center axles and carrying the seed-boxes, the runners attached to the latter, and operating mechanism, substantially as set forth.

2. The combination of the frame having the stub-axles and supporting-wheels, the vertical flanged guides upon the inner sides of the side beams of the frame, the shaft or center axle mounted to slide vertically in said guides and carrying the operating-wheel, the plates or blocks at the upper ends of the flanged guides, the arch mounted on said blocks and supporting the driver's seat, and the curved guard-plates secured under said arch on each side of the operating-wheel and connected with the rear frame-bar of the machine, substantially as set forth.

3. The combination of the frame having the stub-axles, the vertically-adjustable center axle, the supporting and operating wheels, the yokes mounted upon the axles, the seed-boxes secured to said yokes and mounted in the runners, the vertically-slotted runner-guides depending from the front frame-beam, and the adjusting-bolt passing transversely through the runners in front of said guides, substantially as set forth.

4. The combination of the planter-frame, the stub-axles, the vertically-adjustable center axle, the supporting-wheels, and operating-wheel journaled upon the respective axles, the rim of said operating-wheel having recessed edges to form a cam-wheel, the yokes

journaled upon the several axles straddling the wheels and carrying the seed-boxes and runners, the transversely-reciprocating dropping-bar mounted in guides upon the frame and having arms provided with frictional rollers engaging the edges of the rim of the operating-wheel, and seed-dropping mechanism operated by said transversely-reciprocating bar, substantially as set forth.

5. The combination of the frame, the slotted guides depending from the front beam of the same, the runners extending through said slotted guides and having transverse adjusting-bolts, the hoppers mounted in the forked rear ends of the runners, the yokes secured to the hoppers and journaled to the axles, the transversely-reciprocating dropping-bar, the vertical rock-shafts journaled in the hoppers and having cranks provided with wrist-pins working in slots in the dropping-bar, and the seed-dropping mechanism operated by said rock-shafts, substantially as and for the purpose set forth.

6. The combination of the frame having the supporting-wheels, the vertically-adjustable center axle having the operating-wheel, the hound-frame journaled upon the center axle and having a tubular socket, the tongue seated in said socket and having a series of perforations, and a spring-bolt engaging the latter, substantially as set forth.

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

WILLIAM H. BENFORD.

Witnesses:

SAMUEL DAVIS,
R. A. WALLER.