

No. 738,035.

PATENTED SEPT. 1, 1903.

T. M. HENDRICKSON.
CHECK ROW CORN PLANTER.

APPLICATION FILED FEB. 27, 1903.

NO MODEL.

4 SHEETS—SHEET 1.

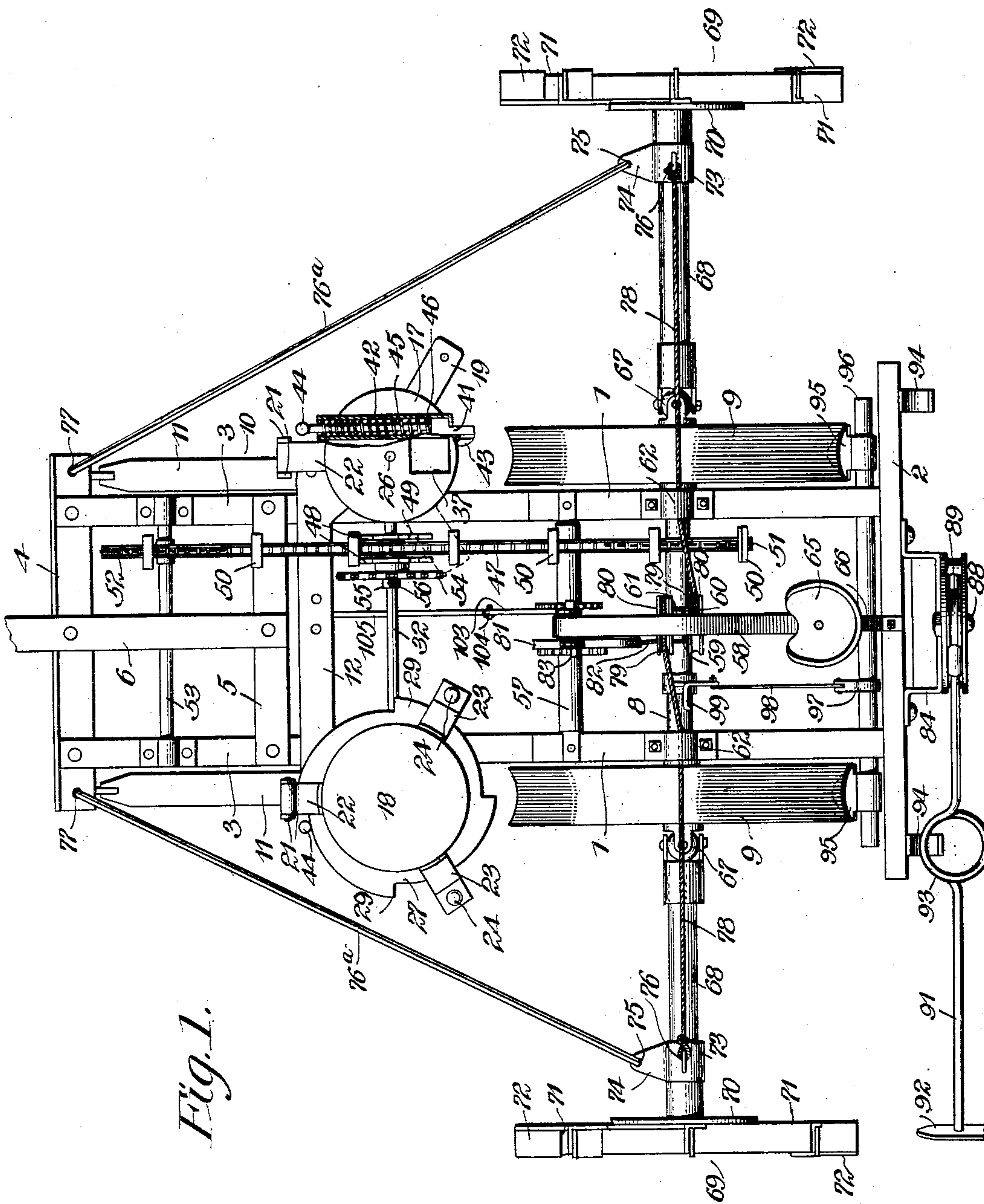


Fig. 1.

Witnesses
E. J. Stewart
Wm. Baggett

Thomas M. Hendrickson, Inventor:
by *C. A. Snow & Co.*
Attorneys

No. 738,035.

PATENTED SEPT. 1, 1903.

T. M. HENDRICKSON.
CHECK ROW CORN PLANTER.

APPLICATION FILED FEB. 27, 1903.

NO MODEL.

4 SHEETS—SHEET 2.

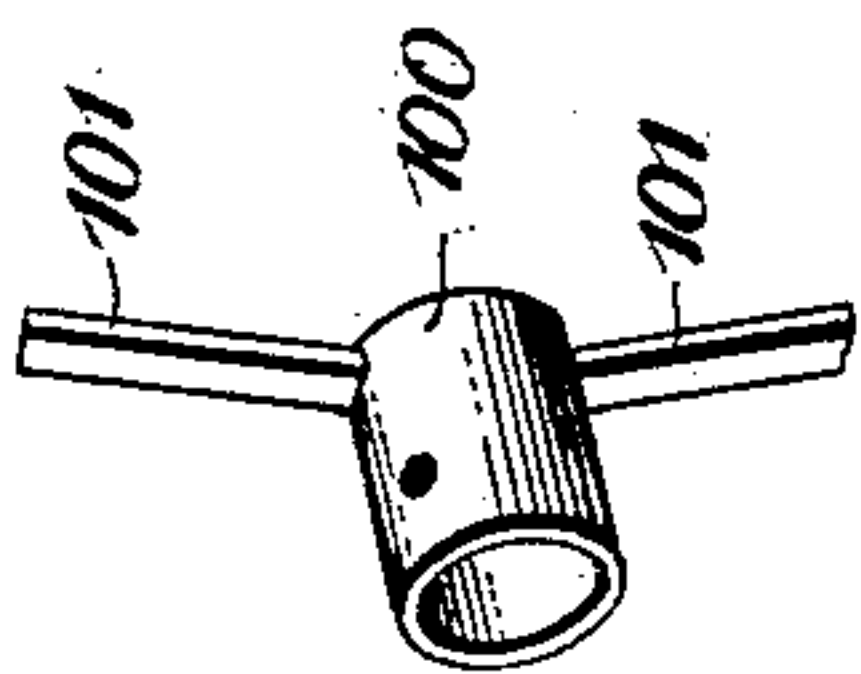


Fig. 9.

Fig. 2.

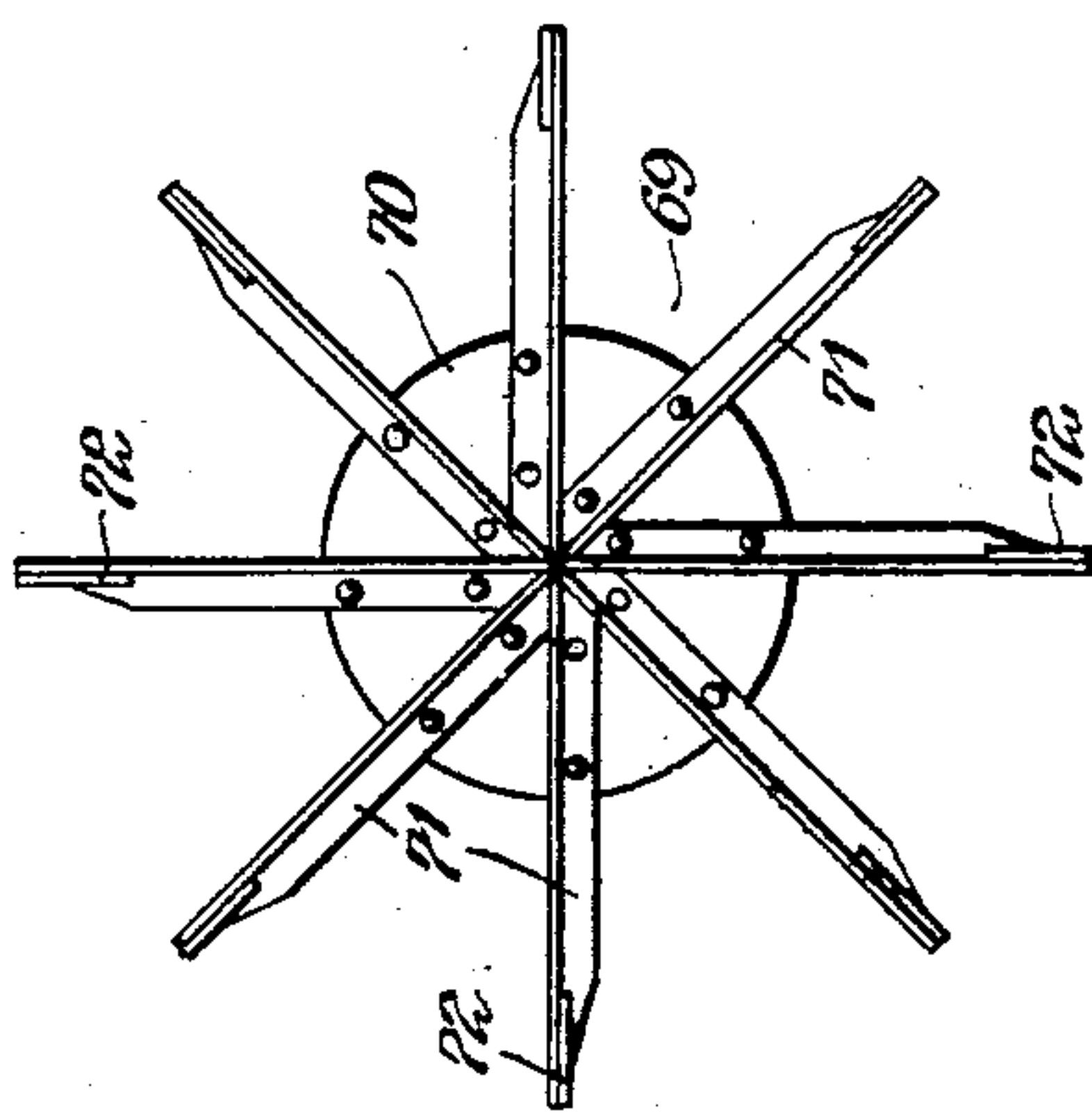


Fig. 8

Witnesses
E. C. Stewart
Wm. Bagger

Thomas M. Hendrickson, Inventor:
by *C. A. Snow & Co.*
Attorneys

No. 738,035.

PATENTED SEPT. 1, 1903.

T. M. HENDRICKSON.
CHECK ROW CORN PLANTER.

APPLICATION FILED FEB. 27, 1903.

NO MODEL.

4 SHEETS—SHEET 3.

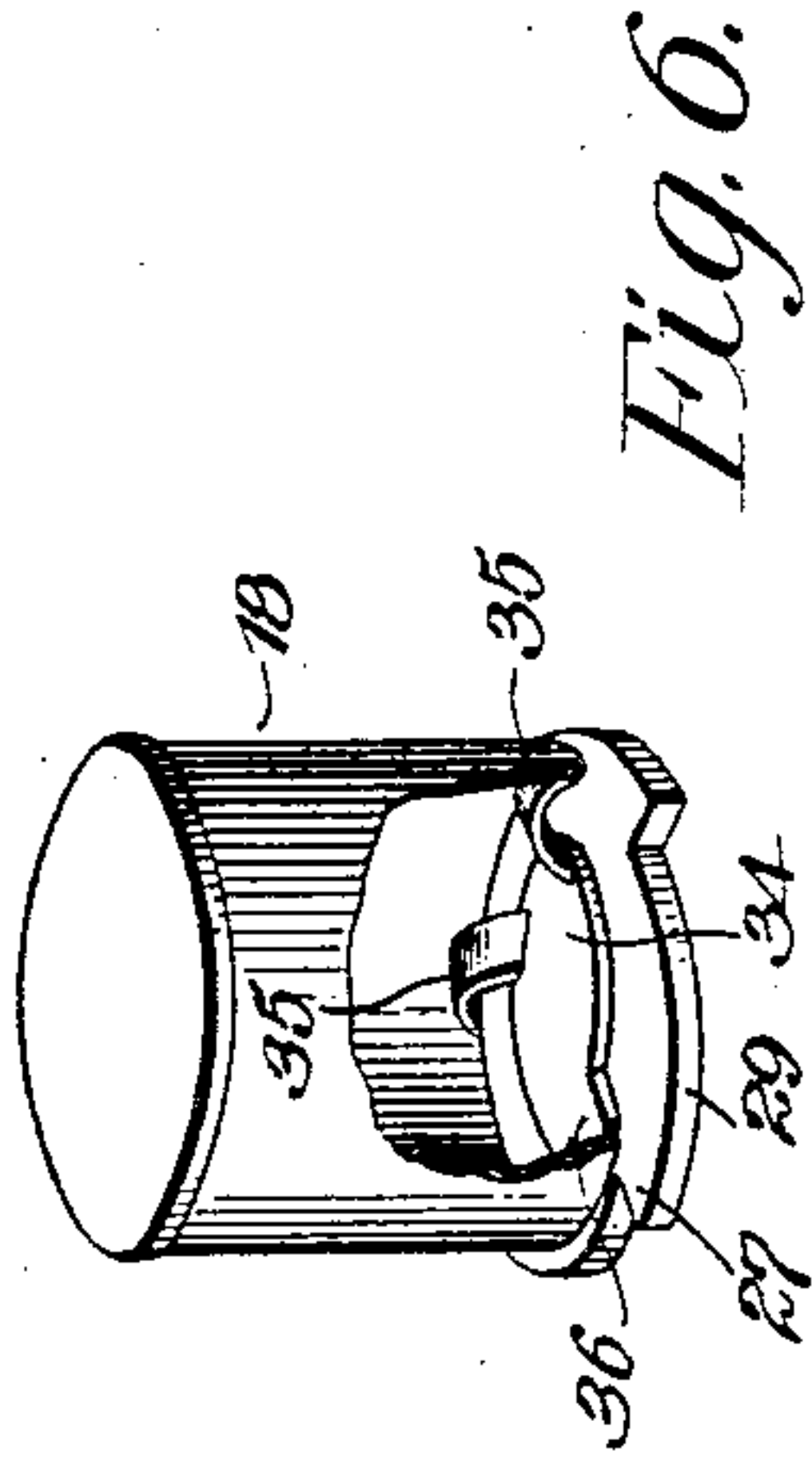


Fig. 6.

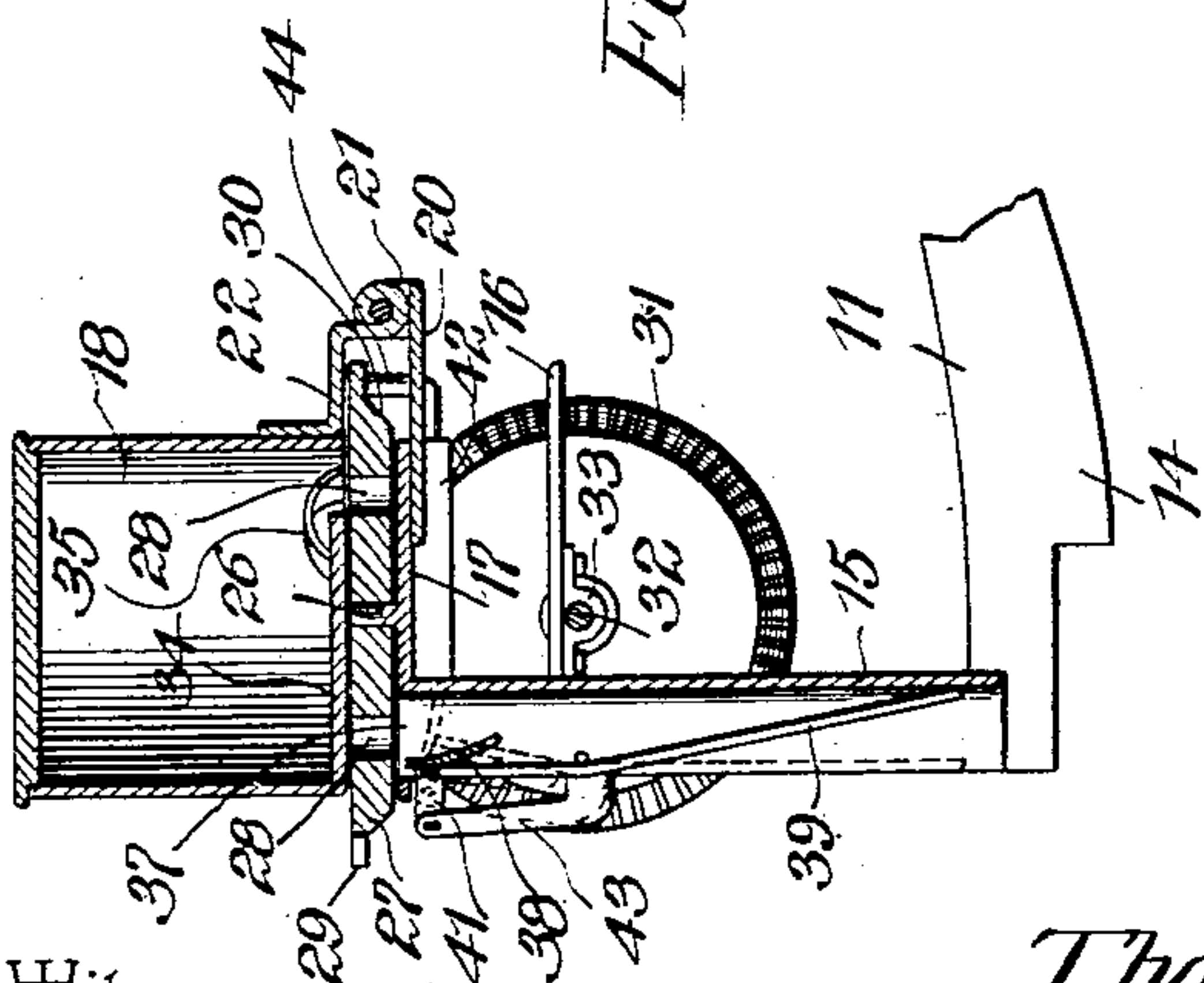


Fig. 7.

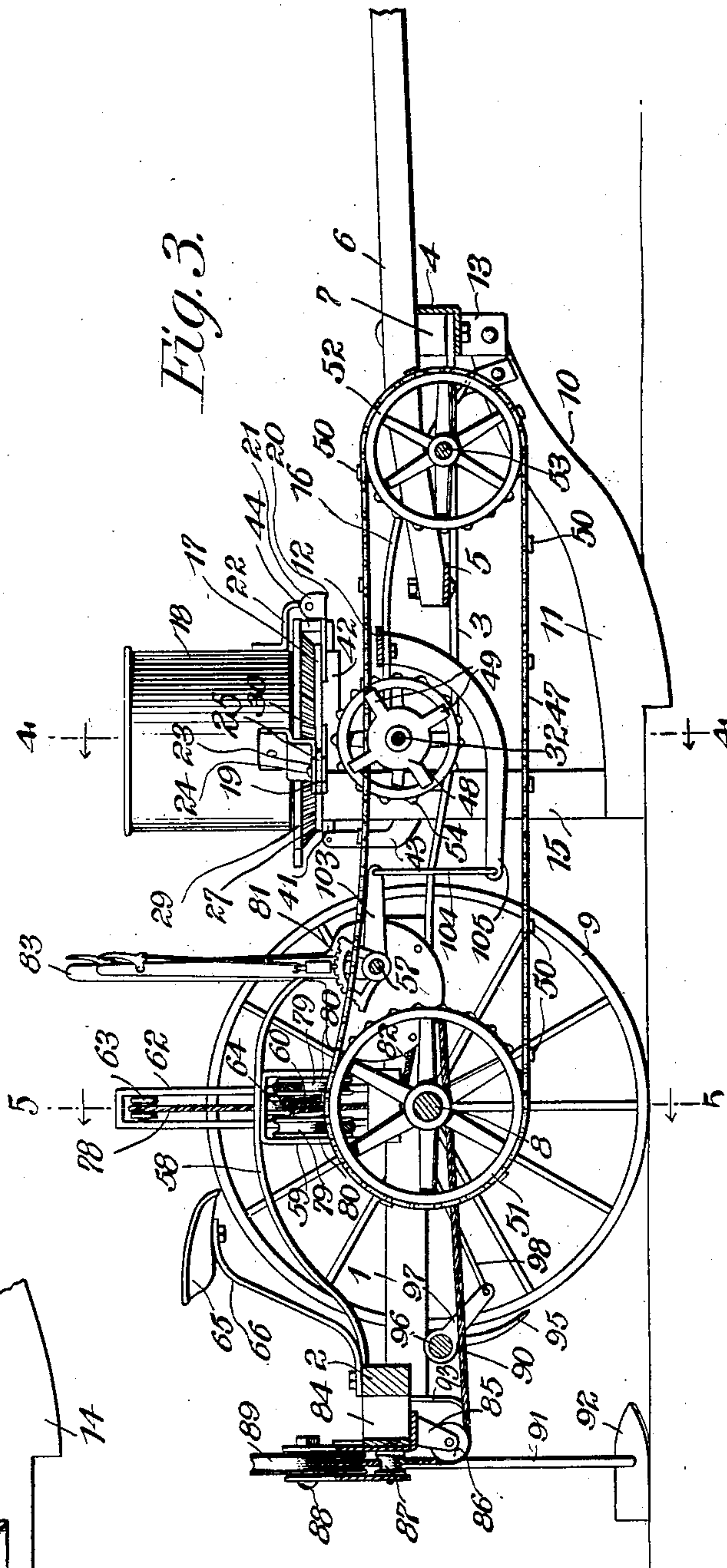


Fig. 3.

Witnesses
E. P. Stewart
Wm. Bagger

Thomas M. Hendrickson, Inventor:
by *Chas. H. Snow & Co.*
Attorneys

No. 738,035.

PATENTED SEPT. 1, 1903.

T. M. HENDRICKSON.
CHECK ROW CORN PLANTER.

APPLICATION FILED FEB. 27, 1903.

NO MODEL.

4 SHEETS—SHEET 4.

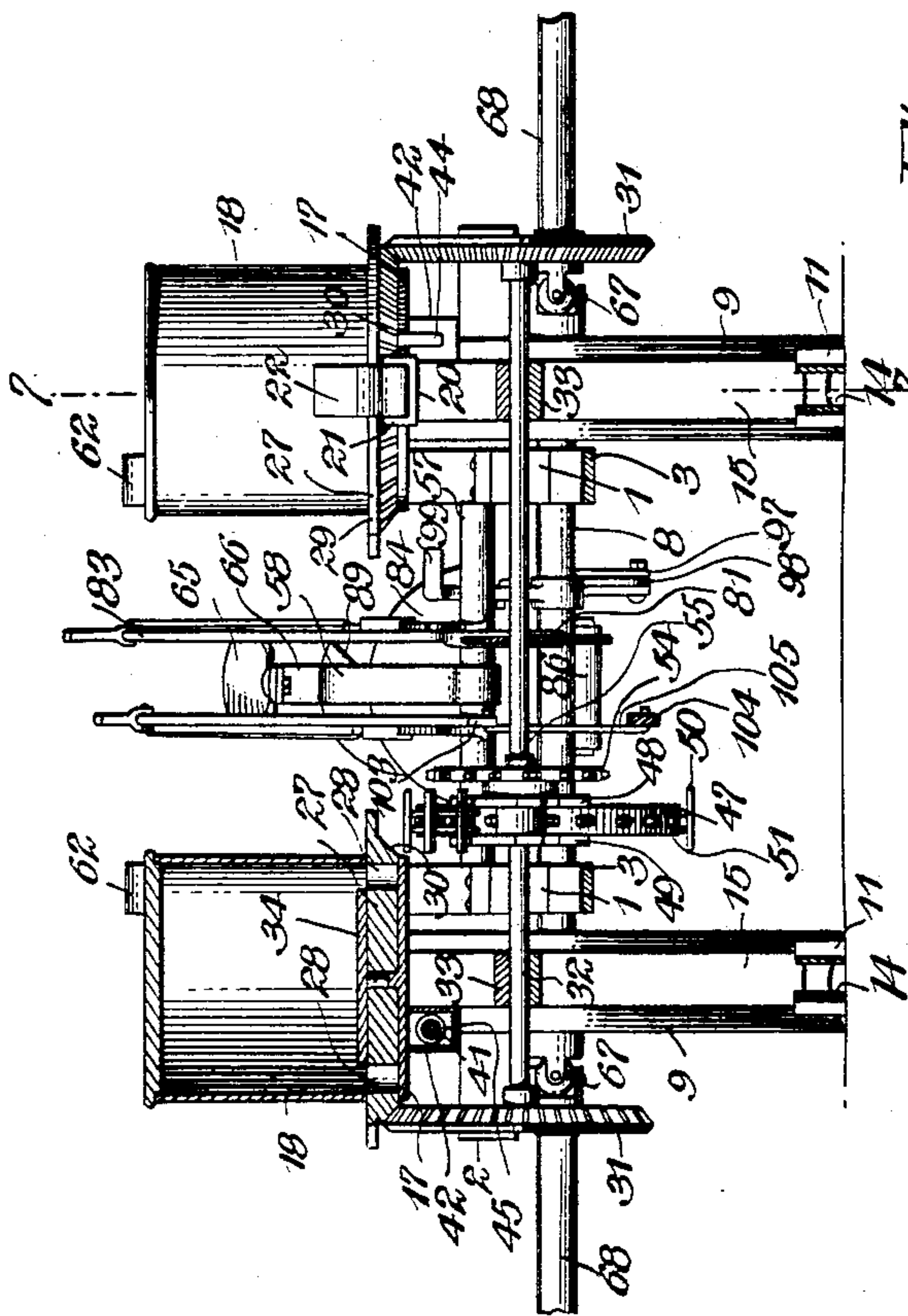


Fig. 4.

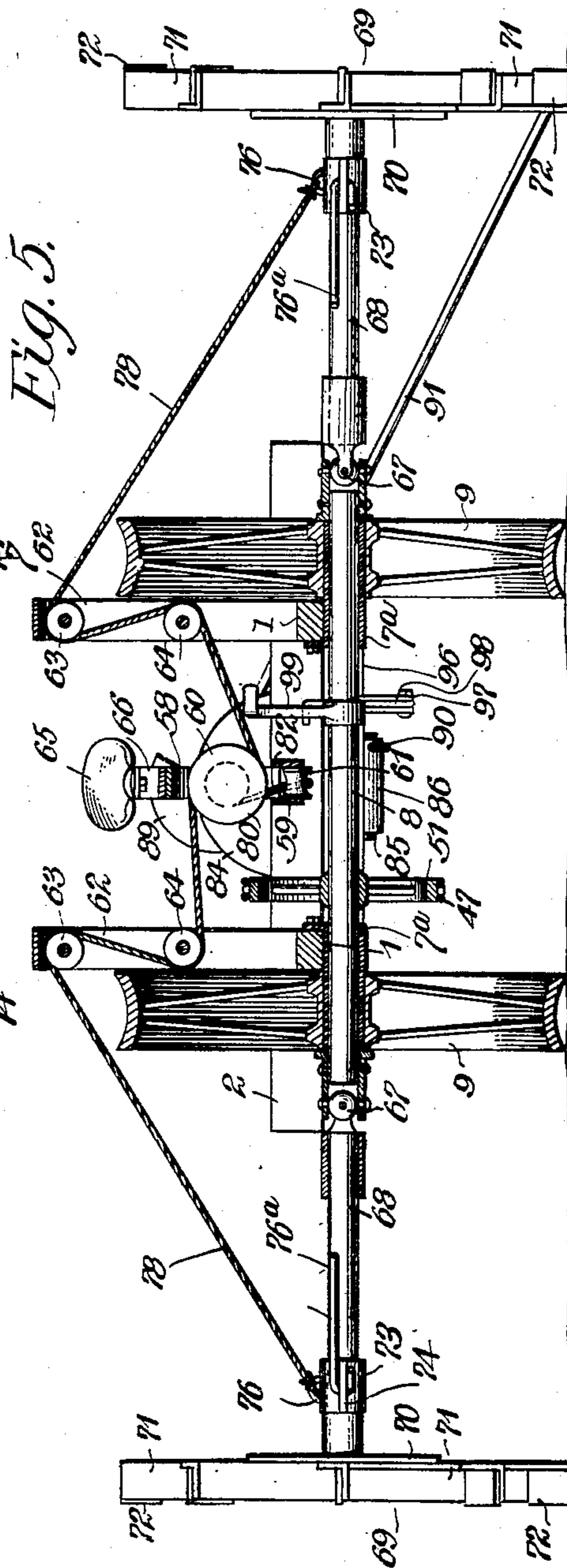


Fig. 5.

Witnesses
E. J. Stewart
Wm. Bagger

Thomas M. Hendrickson, Inventor:
by *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

THOMAS M. HENDRICKSON, OF LEES SUMMIT, MISSOURI.

CHECK-ROW CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 738,035, dated September 1, 1903.

Application filed February 27, 1903. Serial No. 145,426. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. HENDRICKSON, a citizen of the United States, residing at Lees Summit, in the county of Jackson 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 provide a machine of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

With these ends in view the invention consists in the embodiment, in a machine of this class, of certain improvements in the construction, arrangement, and combination of parts, which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of a check-row corn-planter constructed in accordance with the principles of my invention, one of the seedboxes having been removed and parts broken away to expose the underlying construction. Fig. 2 is a rear elevation of the machine, with dotted lines showing the spacing-wheels and the marker in the raised or elevated position into which they are thrown when the machine is being turned at the end of a row. Fig. 3 is a longitudinal sectional elevation. Fig. 4 is a transverse sectional view taken on the line 4-4 in Fig. 3. Fig. 5 is a transverse sectional view taken on the line 5-5 in Fig. 3. Fig. 6 is a perspective detail view of the seeding mechanism, parts having been broken away for the purpose of exposing the construction more clearly. Fig. 7 is a vertical sectional detail view taken on the line 7-7 in Fig. 4. Fig. 8 is a detail side view of one of the ground-engaging spacing-wheels. Fig. 9 is a detail perspective view of one of the detachable hubs used when the ground-engaging wheels are removed from the device.

Corresponding parts in the several figures are indicated by similar numerals of reference.

The main frame of my improved check-rower is composed of side pieces 1 1, connected by a rear cross-bar 2. The side pieces 1 1 are provided with forward extensions 3 3, preferably constructed of strap metal of suit-

able dimensions and connected at their front ends by a cross-beam 4, L-shaped in cross-section. An additional transverse or cross piece 5 also connects the side pieces 3 3 near their front ends. The tongue 6 is bolted to the cross-pieces 4 and 5, a supporting-block 7 being interposed between the former and the underside of the tongue. The side beams 1 of the frame are provided with tubular sleeves 7^a, forming bearings for the shaft or axle 8 and extending beyond said side pieces, so as to support the transporting-wheels or covering-wheels 9, which latter, it will thus be seen, are capable of rotating loosely upon the sleeves 7^a, while the axle revolves in the said sleeves independently of the said wheels.

The front or runner frame 10, composed mainly of the runners or furrow-openers 11 and a cross-brace 12, connecting the same, is hingedly connected with the front end of the main or wheel frame, the cross-beam 4 of which is provided on its under side with lugs 13, with which the front ends of the runners are hingedly connected. The lower rear ends of the runners are bifurcated in the customary manner, as shown at 14, to receive the lower ends of the seed-tubes 15, the upper ends of which have rigid connection with the longitudinal brace-bars 16, which latter are connected, as described, by the brace 12 to insure the necessary rigidity and stability to the frame.

The upper ends of the seed-tubes support the plates 17, which constitute the bottoms of the hoppers or seedboxes 18. (See Figs. 1 and 7.) In the preferred construction the bottom plates 17 are provided with diverging arms or brackets 19 and 20, the latter of which extends forwardly and is provided with lugs 21, between which is mounted a hinged arm 22, carrying the seedbox or hopper 18. The latter is also provided with laterally-extending lugs 23, which may be bolted to or otherwise suitably and detachably connected with the brackets 19 for the purpose of securing the said hoppers or seedboxes in position in such a manner that by removing the connecting means they may be swung out of the way for the purpose of affording access to the parts lying underneath.

In the drawings the parts 19 and 23 have been shown connected by means of bolts 24,

and washers or spacing-blocks 25 may be interposed between the lugs 23 and brackets 19 for the purpose of elevating the seedbox sufficiently to avoid unnecessary friction between the latter and the bottom plate 17.

Each of the disks 17 is provided with a centrally-disposed spindle 26, upon which is mounted the seed-disk 27, which is provided with a plurality of perforations 28, constituting seed-cups, and which also has at its rim or periphery a plurality of ratchets or cams 29, one for each perforation or seed-cup, with which they are placed in approximate alignment. These seed-disks are provided on their under sides with beveled spurs 30, meshing with bevel-gears 31, which are securely mounted upon the ends of a transverse shaft 32, having its bearings in boxes 33 upon the under sides of the longitudinal braces 16, adjacent to the seed-tubes 15. The detailed construction and arrangement of these parts and the disposition of the shaft 32 may be altered or modified to any extent within the scope of my invention.

The seedboxes or hoppers 18 are provided at their lower ends, above the seed-disks 27, with cut-off devices, each comprising a circular disk 34, connected with the walls of the hopper by means of arms 35 and 36, the former of which are curved or bulged upwardly, as shown, so as to avoid unnecessary frictional contact, while the latter 36 is disposed directly above the seed-openings 37 in the bottom disks 17 and rest flatly upon the latter, so as to form cut-offs that prevent other seeds than those contained in the seed-cups of the disks from reaching the openings 37 in the disks 17.

The opening 37 of each disk 17 opens into the upper end of the seed-spout 15, and it has a valve 38, which is hinged between the upper rear corners of said seed-tube. Said valve 38 has a vertical movement at its free front edge, the upward movement serving to close the upper end of the seed-tube, while the downward movement permits seed to be discharged from said valve downwardly into the seed-tube. The rear wall of the latter is formed by a cut-off valve 39, the upper end of which operates against the under side of the valve 38, so that the forward throw of the upper end of said valve 39 shall serve to raise the valve 38 to its closed position. It is obvious that when the upper end of the pivoted valve 39 moves forwardly to close the valve 38 the lower end of said valve 39, moving rearwardly, opens the lower end of the seed-tube, thus permitting the seeds previously supported thereon to drop into the furrow made by the runner. It will thus be evident that when the valve 38 is opened to permit the passage of seed into the seed-tube the lower end of the latter will be closed by the valve 39. When the latter opens to permit the passage of the seed supported thereon to the furrow, its upper end simultaneously acts to close the valve 38, which latter will thus be

in position to receive a charge of seed from the revolving seed-disk.

To operate the valve 39, from which motion is transmitted to the valve 38, I provide a stem 41, longitudinally slidable in a casing 42, suitably supported upon the under side of the bottom disk 17 of each hopper. (See Fig. 1.) This stem at its rear end is loosely connected with a flange 43 at the upper end of the valve 39, and at or near its front end said stem is provided with an upwardly-extending tappet 44, lying in the path of the cams or ratchets 29 upon the seed-disk 27. A spring 45, surrounding the stem within the casing 42, abuts against a shoulder 46 upon the stem 41, forcing the latter normally in a rearward direction. It will be seen that when the seed-disks are rotated by mechanism to be presently described the cams or ratchets 29, successively engaging the tappet 44, will force the stem 41 in a forward direction against the tension of the spring 45, thus actuating the valves, as will be readily understood, the normal position of said valves being reassumed when the tappet 44 ceases to be engaged by the cam or ratchet of the seed-disk. It is obvious that the latter may be provided with any desired number of perforations or seed-cups and corresponding ratchets, the valves being obviously operated by each cam or ratchet in succession, thus enabling the dropping of seed to be performed at any desired intervals. Hence by substituting a seed-disk having a large number of perforations and ratchets for one having only a small number the machine may be converted from a check-rower into a drill, as will be readily understood.

The transverse shaft 32 is provided at the ends thereof, as already described, with bevel-gears 31, from which motion is transmitted to the seed-disks. Said shaft is operated by means of a chain 47, engaging a tappet-wheel 48 upon said shaft 32. Said tappet-wheel is provided with a plurality of arms 49, of which in the drawings hereto annexed four have been shown. These arms are engaged by cross-pieces or tappets 50 upon the chain 47, whereby the said tappet-wheel and the shaft upon which it is mounted are intermittently rotated. The chain 47 is guided over sprocket-wheels 51 and 52, the former of which is securely mounted upon the revolving axle of the machine, while the latter is mounted upon a shaft 53, bearings for which are provided upon the frame-pieces 3 in front of the cross-brace 5. The tappet-wheel 48 is cast integrally with a sprocket-wheel 54, and it is provided with a sleeve 55, having a set-screw 56, whereby it is mounted adjustably upon the shaft 32. When the machine is to be converted from a check-rower into a drill, the position of the tappet-wheel and the attached sprocket-wheel is slightly shifted until the chain 47 will engage the teeth of the sprocket-wheel 54, thus increasing the speed of the revolution of the shaft 32, thereby as-

sisting in increasing the frequency of the dropping of seed.

The front ends of the side frame-pieces 1 1 are connected by a cross-bar 57, which is connected by an arch 58 with the rear cross-bar 2, said arch supporting a depending frame 59, between the upper ends of the side members of which is journaled a reel 60, while a guide-pulley 61 is journaled in the lower part of said frame at right angles to reel 60. Frames 62, rising from the side pieces 1 1 at each side of the machine, afford bearings for guide-pulleys 63 and 64, the former of which are disposed near the upper ends of said frames, while the latter are located at about the level of the reel 60. A seat 65 for the driver is supported upon a standard 66, rising from the rear frame-beam 2.

The ends of the revolving axle 8, which extend through the sleeves or boxes 7^a, upon which the transporting-wheels 9 are revolvably supported, are connected by knuckle-joints 67, or by universal joints of any description, with shafts 68, the outer ends of which carry what I term the "spacing-wheels" 69, each of which consists of a disk 70, forming a hub from which radiates a suitable number of spokes 71, the outer ends of which are provided with plates 72, enabling them to effectively engage the soil. These spacing-wheels are secured upon the shafts 68, which when the machine progresses over the field are rotated by the arms or spokes of the spacing-wheels engaging the ground, thus transmitting a rotary motion to the axle of the machine and causing rotary motion to be transmitted from the latter to the seeding mechanism, as already described. It is obvious that when these spacing-wheels are raised from contact with the ground the rotation of the axle ceases, and the machine will thus be transported upon the covering-wheels 9, while the seeding mechanism obviously remains inactive. In order to thus raise the spacing-wheels from contact with the ground, I provide each of the shafts 68 with a sleeve 73, loosely mounted thereon, each of said sleeves being provided with a lug or plate 74, having a perforation 75, and also at its inner edge with an eye or loop 76. The perforated lugs 74 are connected by brace-rods 76^a with perforations 77 in the ends of the front cross-piece 4. This is to prevent the spacing-wheels from swinging in a rearward direction when the machine progresses over the field. From the eyes 76 cords 78 or other suitable flexible connecting means are guided over the adjacent pulleys 63 and under the pulleys 64 to the reel 60, where the ends of said connecting means are made fast, preferably in grooves 79 formed in the flanges 80 of said reel. It is obvious that by turning the reel the connecting-cords 78 will be wound upon the reels 79, thus elevating the free ends of the shafts 68, carrying the spacing-wheels, to the position approximately shown in dotted lines in Fig. 2.

For the purpose of operating the reel 60 I provide a cam-lever 81, which is fulcrumed upon the cross-bar or shaft 57 and to which is suitably attached one end of a cord or other flexible connecting medium 82, the other end of which is wound upon and attached to the reel. It will be seen that by operating the cam-lever the connecting medium 82 may be unwound from the reel, causing the latter to rotate and the connecting mediums 78 to be wound upon the flanges thereof, thereby raising the spacing-wheels from the ground. The handle 83 of the cam-lever 81 is disposed within convenient reach of the driver.

Suitably attached to the rear side of the rear frame-piece 2 is a frame or casing 84, having depending lugs 85, between which is journaled a guide-roller 86. Guide-pulleys 87, disposed at right angles to the guide-roller 86, are journaled between the front and rear sides of the casing 84, near the lower edge of the latter. Pivotaly mounted upon a pin or bolt 88, extending through the front and rear sides of the casing 84 near the upper end of the latter, is a segmental cam 89, from which a flexible connecting medium 90 extends between the pulleys 87 and over the roller 86 in a forward direction to the cam-lever 81, to which it is made fast. From the segment-cam 89 extends a rod 91, carrying at its outer end a marker-shoe 92 and having an intermediately-disposed loop or eye 93, which normally engages one of a pair of spring supporting-hooks 94, one of which is secured near each end of the rear frame-piece 3. This device, as will be seen, constitutes the marker, which indents the ground, so as to furnish a guiding-mark for the machine on its return trip after the completion of each row. This marker is operated by the mechanism described, or it is operated in connection with the spacing-wheels 69. When the cam-lever 81 is thrown to operate said spacing-wheels—i. e., to lift them from the ground—the marker-rod 91 will at the same time be raised to an approximately vertical position, as indicated in Fig. 2, in which position it remains while the machine is being turned. After this has been accomplished and when the lever-handle 83 is released a slight tilt in the proper direction imparted by the driver will cause the marker-rod to drop to its proper position simultaneously with the restoration to operative position of the spacing-wheels. Suitable means may be employed to retain the lever-handle 83 in adjusted position, such as the ordinary toothed quadrant, which is common in this class of machines.

In the accompanying drawings have been shown scrapers or cleaners 95, bearing against the peripheries of the transporting or covering wheels, said cleaners being mounted upon a shaft 96, having an arm 97, which is connected by a link 98 with a foot-lever 99, journaled upon the axle of the machine, said foot-lever being within convenient reach of the driver.

When the machine is to be converted from a check-rower into a drill, I prefer to detach the spacing-wheels 69 and shafts 68, together with the knuckle-joints of the latter, and to mount upon the ends of the axle loose hubs 100, having radial arms 101, which may be suitably clamped to the spokes of the transporting-wheels, which are thereby permanently secured upon the axle. (See Fig. 9.) This securement, however, may be effected in any other suitable manner not involving the use of separate parts. Thus it will be seen that the machine may be converted from a check-rower into a drill by simply detaching the spacing-wheels and, if desired, the marking device, shifting the chain 47 from the tappet-wheel 48 to the sprocket-wheel 54, and substituting a seed-disk having numerous seed-cups and ratchets for one equipped with comparatively few of these elements.

For the purpose of raising the runner-frame from the ground when desired I provide a bell-crank lever 103, which is fulcrumed upon the cross-bar or shaft 57 and one end of which forms an operating-handle, while the other end thereof is connected by a link 104 with an arm 105, depending from the cross-bar 12 of the runner-frame or from any suitable part of said frame. The operation of this part of the mechanism is obvious.

When the machine is turned at the ends of the field and it becomes necessary to adjust the spacing-wheels at the beginning of the row, such adjustment may be effected while the tappet-wheels are still slightly elevated from the ground by the operator grasping the sprocket-wheel 51, which is securely mounted upon the axle, thus enabling the latter, with the spacing-wheels, to be conveniently turned independently of the covering-wheels or transporting-wheels, which latter, as hereinbefore described, are independently journaled upon the tubular spindles within which the axle is journaled.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of my invention will be readily understood by those skilled in the art to which it appertains. The general construction is one of extreme simplicity, and the machine is of light draft. All unnecessary structural complications have been avoided, and the machine may be handled easily and with good results.

I desire to state that while I have in the foregoing shown and described a simple and preferred form of my invention I do not necessarily limit myself to the exact details herein shown and described, but reserve the right to any changes, modifications, and alterations which may be resorted to without departing from the spirit or scope of my invention or sacrificing the utility of the same.

Having thus described the invention, I claim—

1. In a machine of the class described, seed-ing mechanism including a seed-tube, a hinged

valve at the upper end of the same, a pivoted foot-valve extending upward and bearing against the under side of the hinged top valve, a reciprocating spring-actuated rod, a flange at the upper end of the foot-valve loosely connected with the rear end of said rod, a tappet-arm at the front end of the latter, and a revolving seed-disk having a plurality of seed-cups and corresponding cams successively engaging the said tappet-arm.

2. In a machine of the class described, the combination of the supporting-frame, the runner-frame hinged at the front end thereof and including the runners, seed-tubes and longitudinal and transverse braces, the hopper supported upon the seed-tubes, seed-disks having peripherally-disposed ratchets and beveled spurs, a transverse shaft journaled in front of the seed-tubes and having beveled gears engaging the beveled spurs of the seed-disks, a shaft journaled on the front end of the main frame, an axle journaled near the rear end of the main frame, sprocket-wheels upon said shafts and axle, a chain guided over said sprocket-wheels and having transverse cross-bars forming tappets, a tappet-wheel engaged by said chain and mounted upon the shaft journaled adjacent to the seed-tubes, and means for transmitting motion from the rotary seed-disks to valves disposed in the seed-tubes.

3. In a machine of the class described, a frame, tubular spindles connected with the side pieces of said frame, an axle revoluble in said tubular spindles, transporting-wheels revoluble on the latter, extensions flexibly connected with the ends of the latter, and ground-engaging wheels upon said extensions, said wheels comprising disk hubs, radiating spokes, and ground-engaging plates at the ends of said spokes.

4. In a machine of the class described, a frame, tubular spindles connected with the side pieces of said frame, an axle revoluble in said tubular spindles, transporting-wheels revoluble on the latter, extensions flexibly connected with the ends of said axle, ground-engaging wheels upon said extensions, sleeves loosely mounted upon the latter, a winding-reel mounted in a frame supported upon the main frame of the machine, flexible connections between the flanges of said reel and the sleeves, and means for operating the reel to wind said flexible connections upon the flanges thereof and thereby elevate the free ends of the members carrying the ground-engaging wheels.

5. In a machine of the class described, a frame, tubular spindles connected with the side pieces of said frame, an axle revoluble in said tubular spindles, transporting-wheels revoluble on the latter, extensions flexibly connected with the ends of the latter, ground-engaging wheels upon said extensions, sleeves journaled upon the latter, connecting means between said sleeves and fixed parts of the frame, and additional flexible connecting

means between said sleeves and a winding-reel.

6. In a machine of the class described, a frame, tubular spindles connected with the side pieces of said frame, an axle revoluble in said tubular spindles, transporting-wheels revoluble on the latter, extensions connected detachably with the ends of the latter, knuckle-joints forming said detachable connections, ground-engaging wheels upon said extensions, sleeves journaled upon the latter, a winding-reel, flexible connections between the flanges of said reel and said sleeves, guiding means for said flexible connections, a cam-lever fulcrumed upon a cross-bar of the main frame and flexible connecting means between said cam-lever and the reel.

7. In a machine of the class described, a frame, tubular spindles connected with the side pieces of said frame, an axle revoluble in said tubular spindles, transporting-wheels revoluble on the latter, extensions connected

detachably and flexibly with the ends of the latter, ground-engaging wheels upon said extensions, sleeves journaled upon the latter, a winding-reel, flexible connections connecting the flanges of said reel with said sleeves, guiding means for said connections, a cam-lever, flexible connecting means between said cam-lever and the body of the reel, guiding means for said connections, a marker-rod terminating in a segmental cam pivotally mounted in a frame attached to the casing of the machine, a flexible connection between said cam and the aforesaid cam-lever, and guiding means for said flexible connection.

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

THOMAS M. HENDRICKSON.

Witnesses:

W. E. BRIDGES,
L. P. HARRISON.