

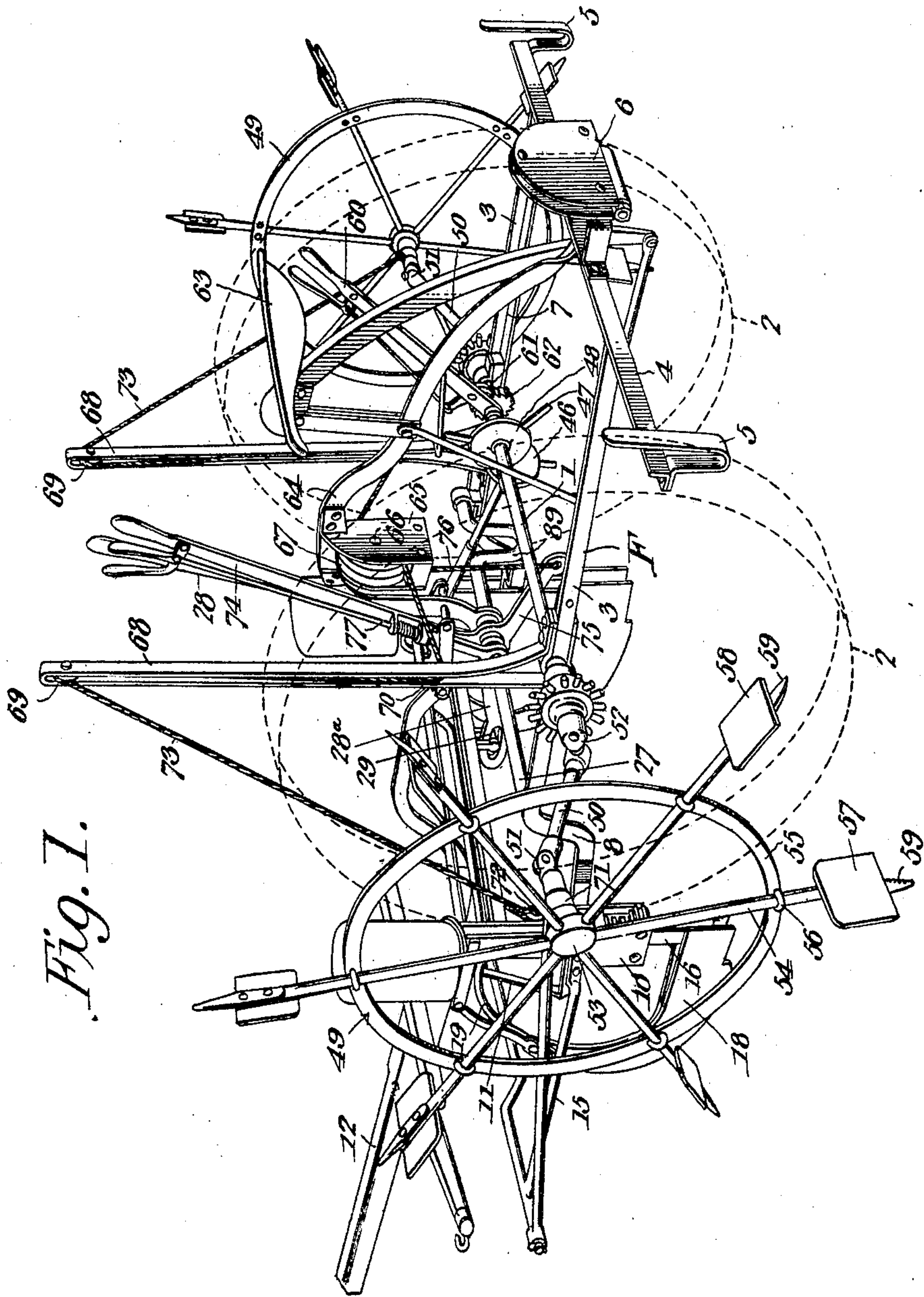
No. 797,957.

PATENTED AUG. 22, 1905.

T. M. HENDRICKSON.  
CORN PLANTER.

APPLICATION FILED MAR. 13, 1905.

4 SHEETS—SHEET 1.



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Witnesses

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*Wm. Bagger*

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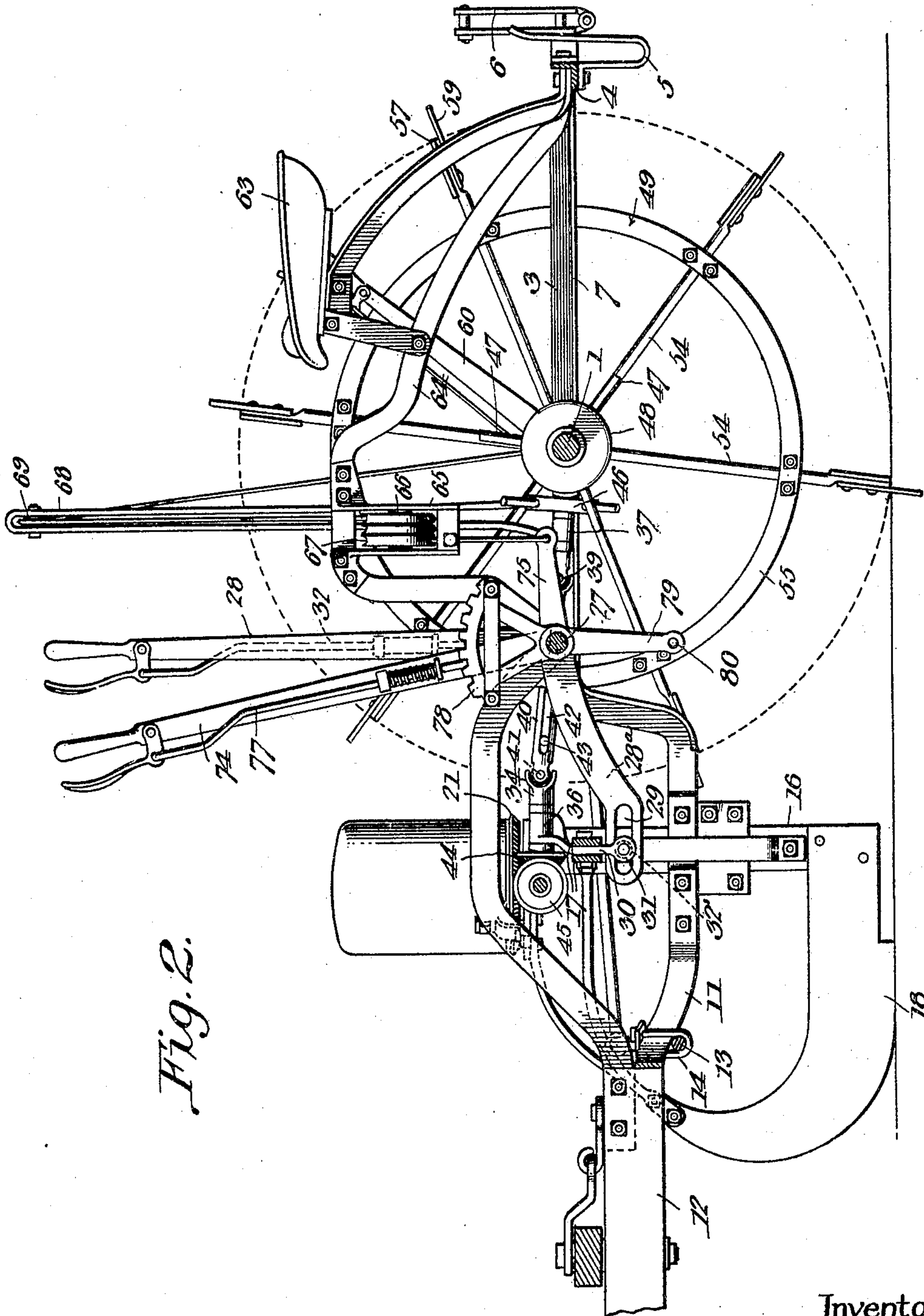


Fig. 2.

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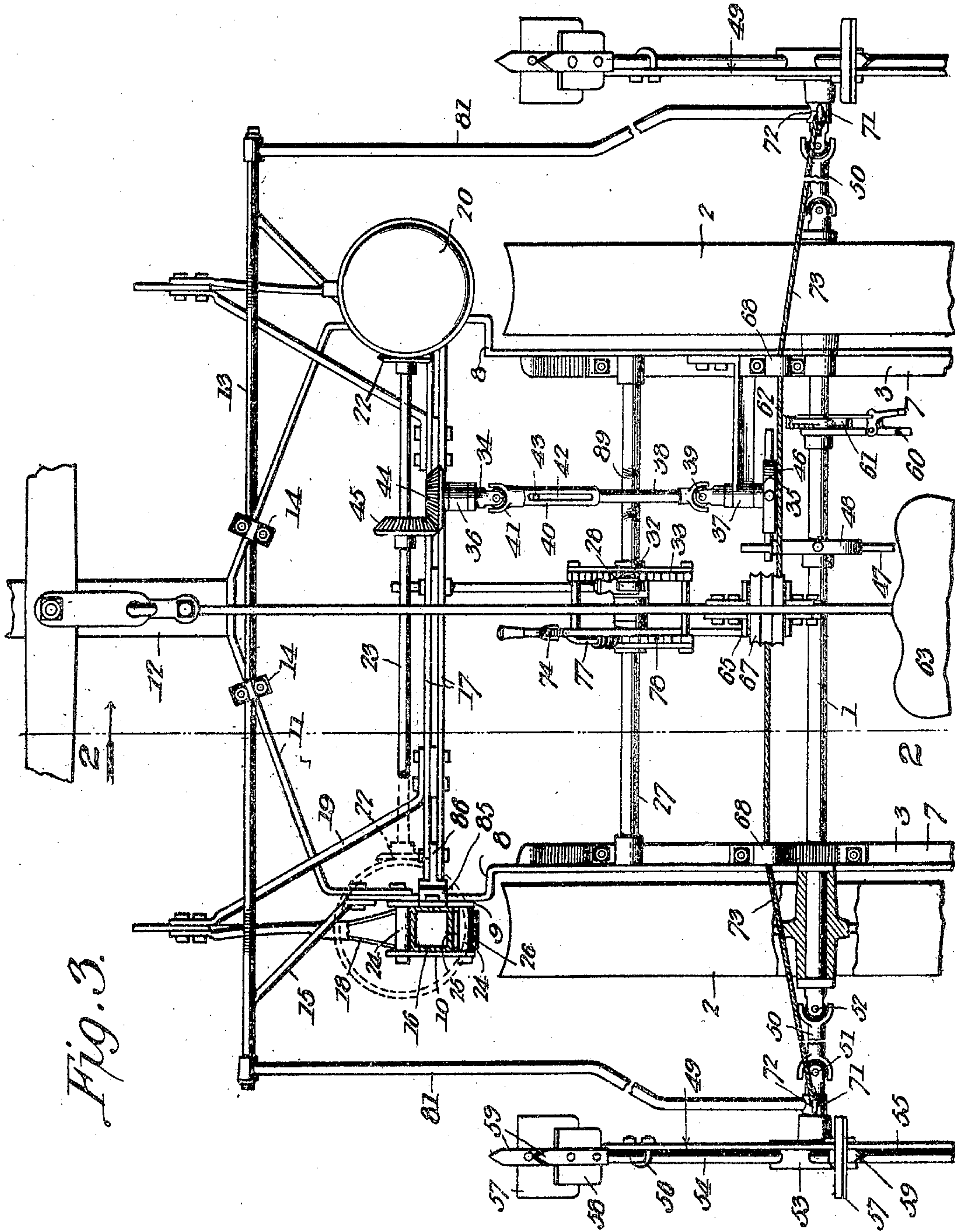


Fig. 3.

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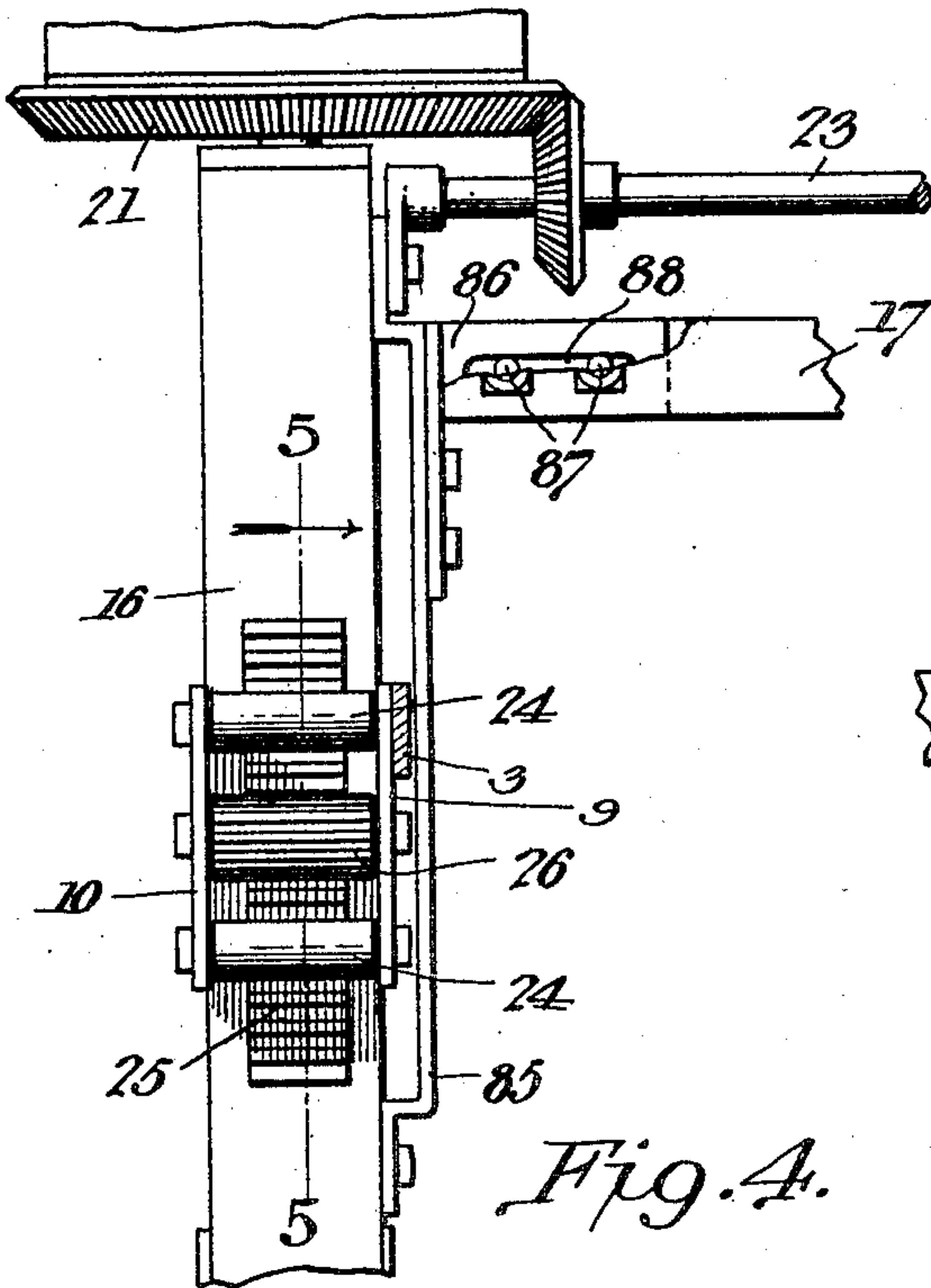


Fig. 4.

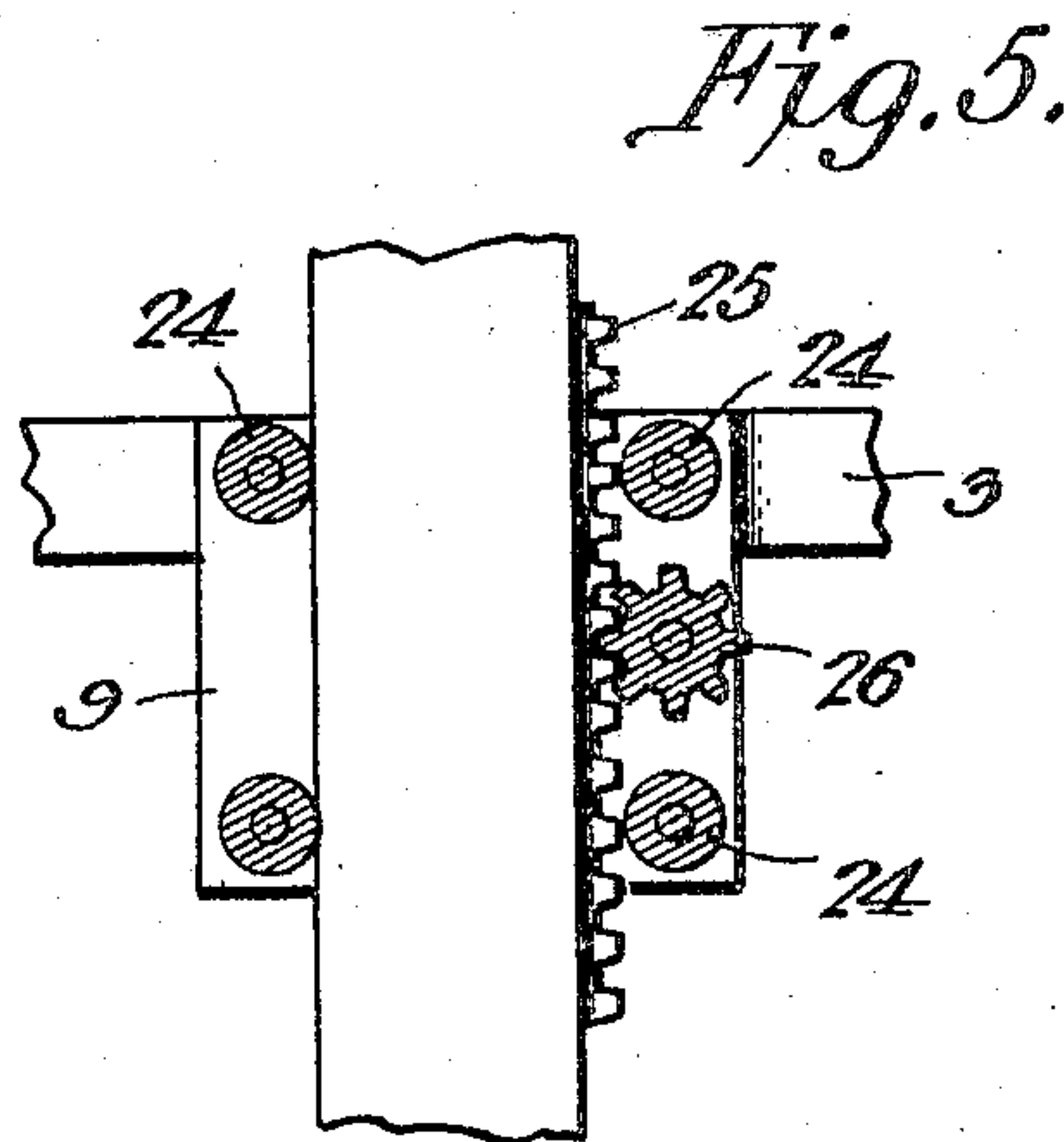


Fig. 5.

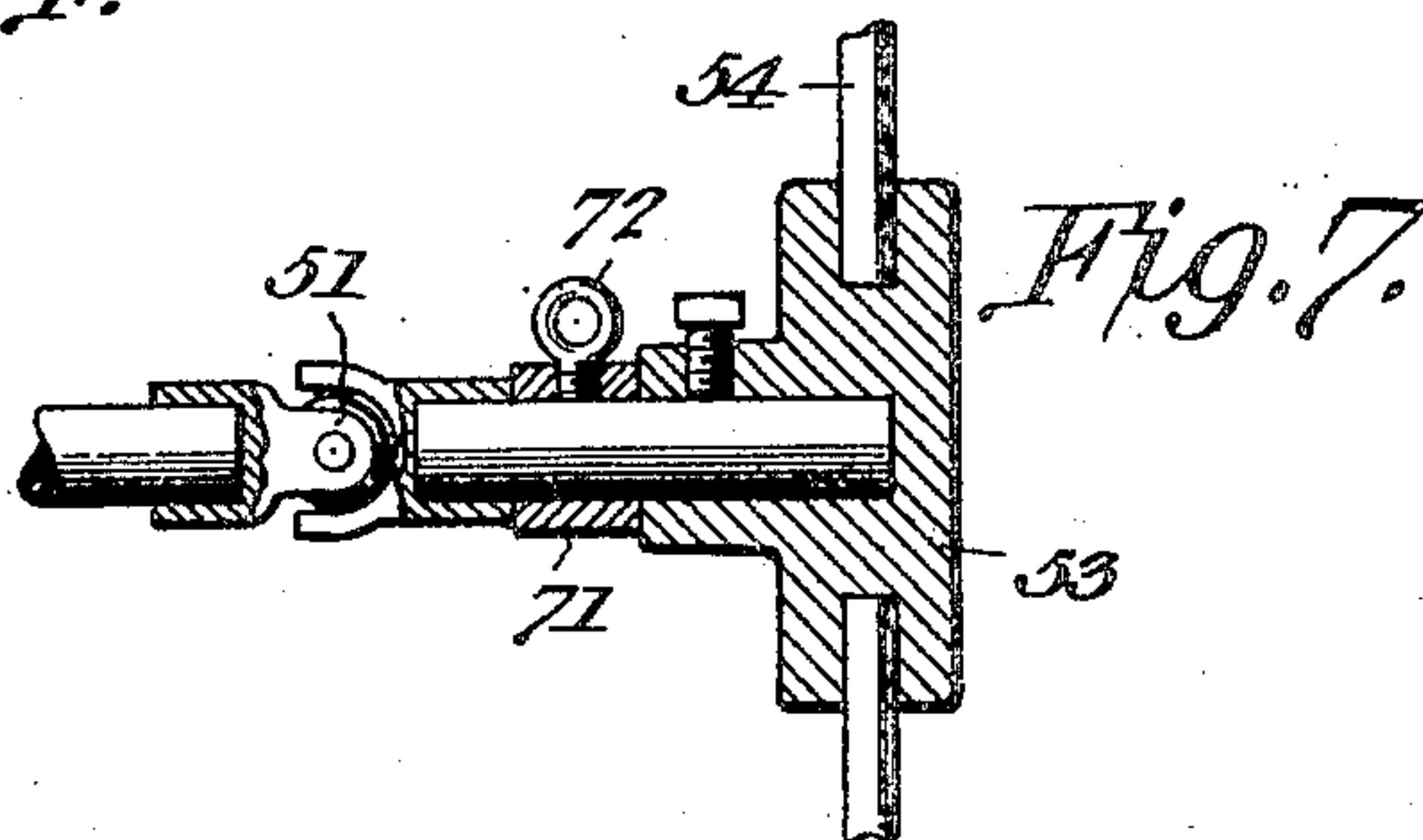


Fig. 7.

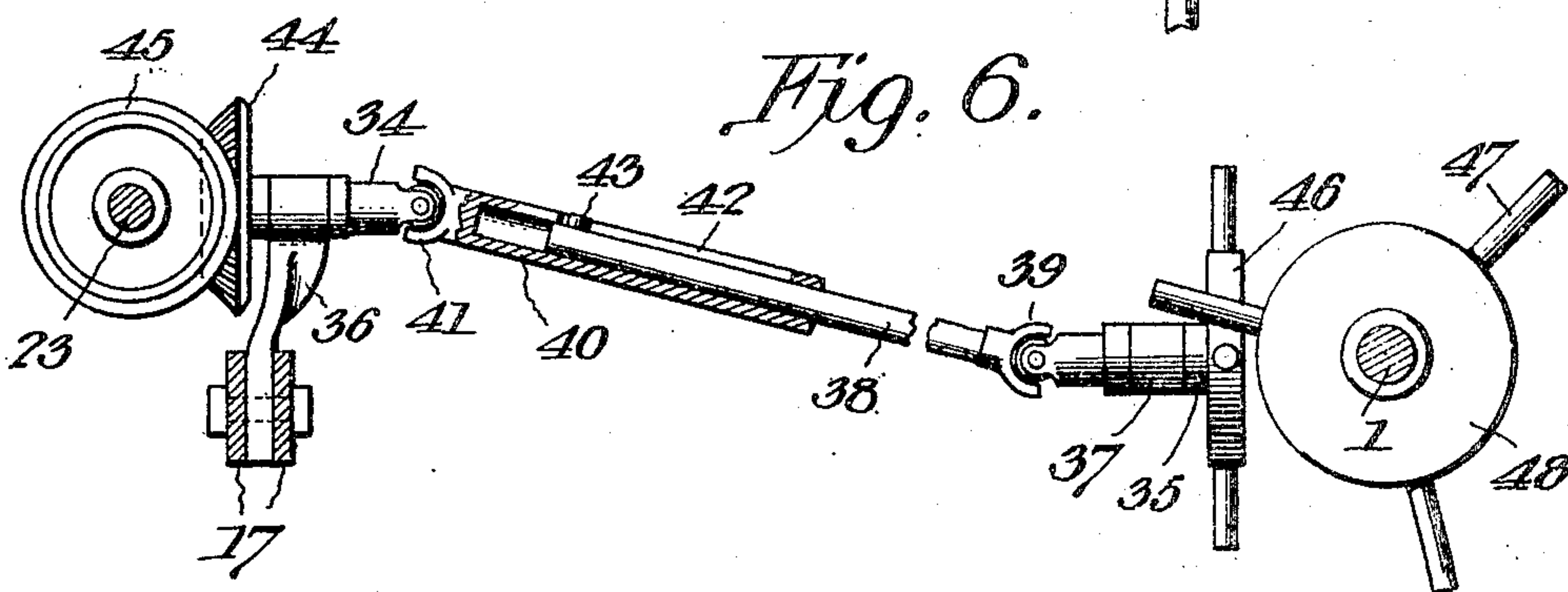


Fig. 6.

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# UNITED STATES PATENT OFFICE.

THOMAS M. HENDRICKSON, OF LEES SUMMIT, MISSOURI, ASSIGNOR OF  
ONE-HALF TO HENRY N. ESS, OF KANSAS CITY, MISSOURI.

## CORN-PLANTER.

No. 797,957.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed March 13, 1905. Serial No. 249,851.

*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 Corn-Planter, of which the following is a specification.

This invention relates to corn-planters; and it has among its objects to simplify and improve the construction and operation of this class of machines.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of embodiment of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, inasmuch as various changes and modifications, especially with regard to size, proportion, and exact manner of assembly, may be made within the scope of the invention and without departing from the spirit or sacrificing the efficiency of the same.

In said drawings, Figure 1 is a perspective view of a corn-planter constructed in accordance with the principles of the invention, the transporting-wheels being indicated in dotted lines to avoid obstructing the view of parts lying behind. Fig. 2 is a longitudinal vertical sectional view, taken on the line 2 2 in Fig. 3. Fig. 3 is a top plan view showing as much of the machine as is necessary in order to enable the invention to be understood. Fig. 4 is a detail view, in rear elevation, of a portion of one of the seed-tubes and related parts. Fig. 5 is a sectional detail view taken on the line 5 5 in Fig. 4. Fig. 6 is a detail elevation, partly in section, of the mechanism for transmitting motion from the main shaft of the planter to the seed-dropping mechanism; and Fig. 7 is a detail sectional view of the hub of the spacing-wheel detached.

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

The main frame F of the improved planter is provided with bearings for a transverse

shaft or axle 1, which is freely revoluble in said bearings, said shaft carrying the transporting-wheels 2 2, which are mounted thereon for free rotation. The side members 3 3 of the main frame are connected at their rear ends by means of a cross-bar 4, provided with hook members 5 5, adapted to support a land-marker which is to be mounted in a casing 6, connected with the rear cross-bar; but said land-marker forms no part of the present invention and has not been shown in the drawings. The side members 3 3 have been shown as being provided for a portion of their lengths with reinforcing-flanges 7. The said side members, near their front ends, are offset outwardly and downwardly, as will be best seen at 8 in Figs. 1 and 3, and are connected with the inner side plates 9 of casings 10, which are securely supported by said side members, being bolted or otherwise secured thereto. The front piece 11, which connects the front ends of the side members, is arched in a forward direction and is securely connected with the rear end of a tongue 12.

13 is a cross-bar which is connected, by means of clips 14, with the forwardly-arched portion of the front cross-bar 11. Said cross-bar is connected, by means of braces 15, with the front ends of the side members 3, thus establishing a firm and rigid frame connection.

The front or runner frame includes the seed-tubes 16, which are mounted in the casings 10 in such a manner as to be slidable vertically in said casings. The seed-tubes are preferably rectangular in cross-section, although this is not necessary or essential, provided that they are properly fitted in their respective casings. The seed-tubes are connected by the cross-bars or frame members 17, and they are provided at their lower ends with runners or furrow-openers 18, the upwardly-curved front ends of which are connected, by means of braces 19, with the frame members 17.

The runner-frame supports the seedboxes or hoppers 20, which are equipped with seeding mechanism, which has been illustrated as including rotary bottom members 21. (Best seen in Fig. 4 of the drawings.) Said bottom members are provided with beveled toothed edges engaging bevel-pinions 22 upon the ends of a transverse shaft 23, suitably sup-



ported for rotation in the runner-frame. The dropping mechanism itself forms no part of the present invention.

From the foregoing description it will be seen that the runner-frame, which includes the runners or furrow-openers, the seed-tubes, and the seed-dropping mechanism, is vertically slidable with relation to the main frame, which is mounted upon the transporting-wheels 22. In order to insure the ready and frictionless operation of the runner-frame, the casings 10 10 are provided at their upper and lower corners with antifriction-rollers 24, serving to guide the seed-tubes when the runner-frame is adjusted vertically. The seed-tubes are also provided upon their rear sides with racks 25, engaging pinions 26, which are journaled in the casings and which also serve as guides for the seed-tubes.

The wheel-frame supports in front of the axle a transverse bar 27, preferably made of round iron and affording a fulcrum for a bell-crank lever having an upwardly-extending arm 28, constituting a handle, and a forwardly-extending arm 28<sup>a</sup>, having a slot 29. Depending from the upper portion of the runner-frame is a stirrup or yoke 30, having a cross-bar 31, which extends through the slot 29 and which, if desired, may be provided with an antifriction-roller, (indicated at 32' in dotted lines in Fig. 2 of the drawings.) The arm 28 of the bell-crank lever is provided with a suitably-operated locking device 32, engaging a rack-segment 33, supported by the cross-bar 27. It will be seen that by manipulating the handle 28 the runner-frame, with all its related parts, may be raised or lowered and may be secured at any desired adjustment by placing the locking device 32 in engagement with the rack-segment 33.

The shaft 23, which drives the seed-dropping mechanism, is driven from the main shaft or axle 1 by mechanism including a pair of short shaft-sections 34 and 35, supported for rotation in brackets 36 and 37, the former of which is connected with the cross-bars 17 of the runner-frame and the latter of which is connected with one of the side members 3 of the main frame. The shaft-sections 34 and 35 are connected by means of a telescoping or extensible coupling, including a shaft 38, connected by a knuckle-joint 39 with the shaft-section 35, and the tubular shaft 40, connected by a knuckle-joint 41 with the shaft-section 34, said tubular shaft being provided with a slot 42 for the reception of a stud or lug 43, extending from the shaft 38, which latter telescopes within the tubular shaft 40. The shaft-section 34 carries a bevel-pinion 44, meshing with a bevel-pinion 45 upon the shaft 23. The shaft-section 35 carries a tappet-wheel 46, disposed in the path of tappets 47, extending radially from a disk 48, secured upon the axle 1 of the machine. When said axle rotates, it is evident that the tappets 47 will suc-

cessively engage the tappets of the wheel 46, thereby imparting to the latter an intermittent rotary motion, which will be transmitted to the shaft 23 by the mechanism herein described without regard to the relative positions occupied at the time by the wheel-frame and the runner-frame. It is obvious, therefore, that the latter may be set in various positions or at various vertical adjustments without interfering with the transmission of motion from the axle to the shaft 23, whereby the seed-dropping mechanism is driven. It is also evident that the tappets on wheel 46 are at all times disposed in the path of the tappets 47, extending from the disk 48, which being firmly connected with the axle continues in operation as long as the axle is being rotated.

Means for rotating the axle of the machine are provided in the nature of so-called "spacing-wheels" 49, the hubs of which are connected with the ends of the axle by means of link-rods 50, said link-rods being connected with the inner ends of the hubs and with the outer ends of the axle by means of knuckle-joints, (designated, respectively, 51 and 52.) The spacing-wheels are composed of the hubs 53, from which radiate the spokes 54, which are preferably connected and braced by means of rims 55, connected with said spokes by clips 56 or other suitable means, whereby a durable and rigid construction will be insured. Six spokes have been shown, although no limitation is made with regard to the number of spokes used in each wheel. Said spokes are provided near their outer ends with earth-engaging plates or spades 57 and 58, which are alternately wide and narrow—that is, alternate spokes are provided with ground-engaging spades, the width of which varies sufficiently to enable them to be readily distinguished from one another. Each of the spokes 54 also terminates in an earth-engaging point 59. The reason for employing earth-engaging plates or spades of different width is simply this, that the parts of the machine will be usually so adjusted that the seed-dropping mechanism shall be operated three times to each rotation of the axle. The latter being rotated by the spacing-wheels, it is obviously important that the said spacing-wheels be provided with a sufficient number of ground-engaging points to enable the operation to take place steadily and uninterruptedly. At the same time it is important at the starting of a row to set the seed-dropping mechanism in such a manner as to begin operation in exact alinement with the hills of the rows previously dropped, and in order to enable such adjustment to take place it will usually be found necessary to partly turn the axle at the starting of the row, and in order that the proper position of the axle may be exactly insured the spokes of the spacing-wheels which are in alinement with the tappets 47, extending from the disk 48,



are provided with spades of greater width than the intermediate spades, from which they may thus be readily distinguished, thus enabling the spacing-wheels to be easily and properly adjusted at the beginning of the row. For the purpose of effecting the adjustment of the axle a lever 60, fulcrumed upon the axle, has been provided, said lever being provided with a pawl 61, engaging a ratchet-wheel 62, the latter being secured upon the axle, which latter may thus be conveniently adjusted by the driver, whose seat 63 is located in proximity to the lever 60, as well as to the lever-arm 28, hereinbefore described.

The main frame of the machine includes a longitudinally-disposed arched bar 64, with which is connected a housing 65, the front and rear walls of which afford bearings for the ends of a shaft 66, carrying a reel or drum 67. The sides of the main frame support a pair of uprights 68, provided near their upper ends with guide-pulleys 69 and near their lower ends with guide-pulleys 70. The hubs 53 of the spacing-wheels are provided with bands or collars constituting sleeves 71, which are mounted thereon for rotation and which are provided with eyes 72, with which are connected the outer ends of ropes, cables, or similar flexible elements 73. The latter are guided over the pulleys 69 at the upper ends of the uprights 68 and under the pulleys 70 at the lower ends of said uprights, and their inner ends are connected with the reel 67. 74 is a lever fulcrumed upon the cross-bar 27 and having a rearwardly-extending arm 75, which is connected with the reel 67 by means of a flexible element 76, wound upon said reel in the opposite direction to the flexible members 73. The lever 74 has a locking member 77 engaging a segment-rack 78, which is securely connected with the cross-bar 27 for the purpose of retaining said lever in adjusted position. The same lever 74 is provided with an auxiliary downward extension 79, perforated, as at 80, for connection with the land-marking device which is usually employed in connection with the machine, but which, as well as the means connecting it with the lever 74, has been omitted from the drawings as constituting no part of the present invention.

By the mechanism just described it will be seen that the spacing-wheels, whereby the seed-dropping mechanism of the machine is operated, may be raised from or lowered into engagement with the ground by simply manipulating the lever 74. The machine may thus be instantaneously thrown into or out of operation, and at the ends of the row, where it is necessary to turn the machine, the spacing-wheels, which are also the operating-wheels, will be elevated from active engagement with the ground, the machine being in the meanwhile supported upon the transporting-wheels, which latter, as previously stated,

are freely revoluble upon the axle. After turning proper adjustment of the axle may be easily and quickly effected by means of the adjusting-lever 60.

For the purpose of bracing the spacing-wheels against swinging rearwardly when the machine is in operation bracing-arms 81 are provided, said arms being pivotally connected with the cross-bar 13 of the main frame and the rear ends of said arms being rigidly connected with the collars or sleeves 71 upon the hubs of the spacing-wheels. It is obvious that when the latter are raised or lowered the pivoted arms 81 will adapt themselves to such movement. Another important feature of the present construction is that in effecting the vertical adjustment of the spacing-wheels the said spacing-wheels will not be tilted, but will remain vertically disposed while being raised from or restored to ground-engaging position.

In constructing the runner-frame of this machine the seed-tubes 16 are preferably provided upon their inner sides with offset straps 85, provided at their upper ends with brackets 86, which are secured adjustably between the frame-bars 17 by means of bolts 87, extending through slots 88 in said brackets, thereby enabling a lateral adjustment of several inches to be given to the seed-tubes, and thus enabling the width of the runner-frame to be adjusted. The casings 10, in which the seed-tubes are supported for vertical movement, may be made sufficiently wide for the lateral adjustment of the seed-tubes to be effected, or means may be provided which shall permit the position of said casings to be shifted along with the seed-tubes, if preferred.

The cross-bar 27 of the main frame has been shown as provided with a drop-arch, (best seen at 89 in Fig. 1.) This is for the purpose of accommodating the compound shaft whereby motion is transmitted from the axle to the seed-dropping mechanism when the runner-frame is vertically adjustable.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood. The construction of the improved machine is simple and inexpensive. The means provided for the adjustment of the runner-frame are extremely simple and permit said frame to be raised or lowered even while the machine is in operation, when for any reason such adjustment shall be desired. Being free from complication, the danger of breakage is greatly reduced and the parts of the machine are not liable to become disarranged.

Having thus described the invention, what is claimed is—

1. In a corn-planter, a wheel-frame, casings connected with said wheel-frame, and a runner-frame including seed-tubes vertically slid-



able in the casings and having bracket means connected with the runner-frame for lateral adjustment.

2. In a corn-planter, a wheel-frame having casings provided with rollers at their upper and lower corners, a runner-frame including seed-tubes slidably engaging said casings, and means for effecting vertical adjustment of said runner-frame and lateral adjustment of said casings.

3. A wheel-frame, a vertically-adjustable runner-frame slidably connected therewith and including a transverse shaft for operating the seed-dropping mechanism, and means for transmitting motion from the axle of the main frame to said operating-shaft; said means including suitably-supported shaft-sections adjacent to the operating-shaft and to the axle, a telescoping shaft the members of which are connected by knuckle-joints with said shaft-sections, bevel-gearing connecting the operating-shaft with the shaft-section adjacent thereto, a tappet-wheel upon the shaft-section adjacent to the axle, and a disk upon the latter having radially-extending fingers intermittently engaging the tappet-wheel.

4. A wheel-frame having an axle mounted for rotation, transporting-wheels loosely engaging said axle, earth-engaging spacing-wheels, links having plural connection for universal movement with said wheels and with the ends of the axle, a vertically-slidable runner-frame adjustably supported by the main frame, an operating-shaft supported by said runner-frame, and means for transmitting intermittent rotary motion to said operating-shaft from the axle of the wheel-frame.

5. A wheel-frame, an axle connected therewith for rotation, transporting-wheels revolvably engaging the axle, ground-engaging spacing-wheels connected with the axle by means including plural universal joints and movable independently of the latter for adjustment in a laterally-movable vertical plane,

and bracing-rods connected pivotally with the frame and revolvably with the hubs of the spacing-wheels.

6. In a corn-planter, a wheel-frame having a revoluble axle and transporting-wheels revolvably engaging said axle, earth-engaging spacing-wheels, links having plural universal connection with the hubs of the spacing-wheels and with the ends of the axle, sleeves mounted for rotation upon the hubs of the spacing-wheels, bracing-arms connected with said sleeves at their rear ends and connected pivotally at their front ends with the frame, and hoisting means connected with said sleeves for effecting vertical adjustment of the wheels.

7. In a corn-planter, a frame having an axle, transporting-wheels loose upon said axle, earth-engaging wheels connected for rotation with the axle, and means for adjusting said ground-engaging wheels in planes at right angles to the axis of the axle.

8. In a corn-planter, an axle constituting a main or driving shaft, ground-engaging wheels disposed at right angles to the axis of the axle, plural universal-coupling means between the axle and the ground-engaging wheels, and means for adjusting the latter in a laterally-movable vertical plane.

9. A wheel-frame having an axle driven independently of the transporting-wheels, a runner-frame supported by and vertically slidable upon the wheel-frame, seed-dropping mechanism carried by the runner-frame, and means for transmitting motion to said dropping mechanism from the driven axle of the wheel-frame.

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:

ALPHONSE J. FOLLENS,  
JEREMIAH T. DEW.