

No. 638,850.

Patented Dec. 12, 1899.

J. F. PIPKIN.  
CORN PLANTER.

(Application filed Dec. 22, 1898.)

(No Model.)

4 Sheets—Sheet 1.

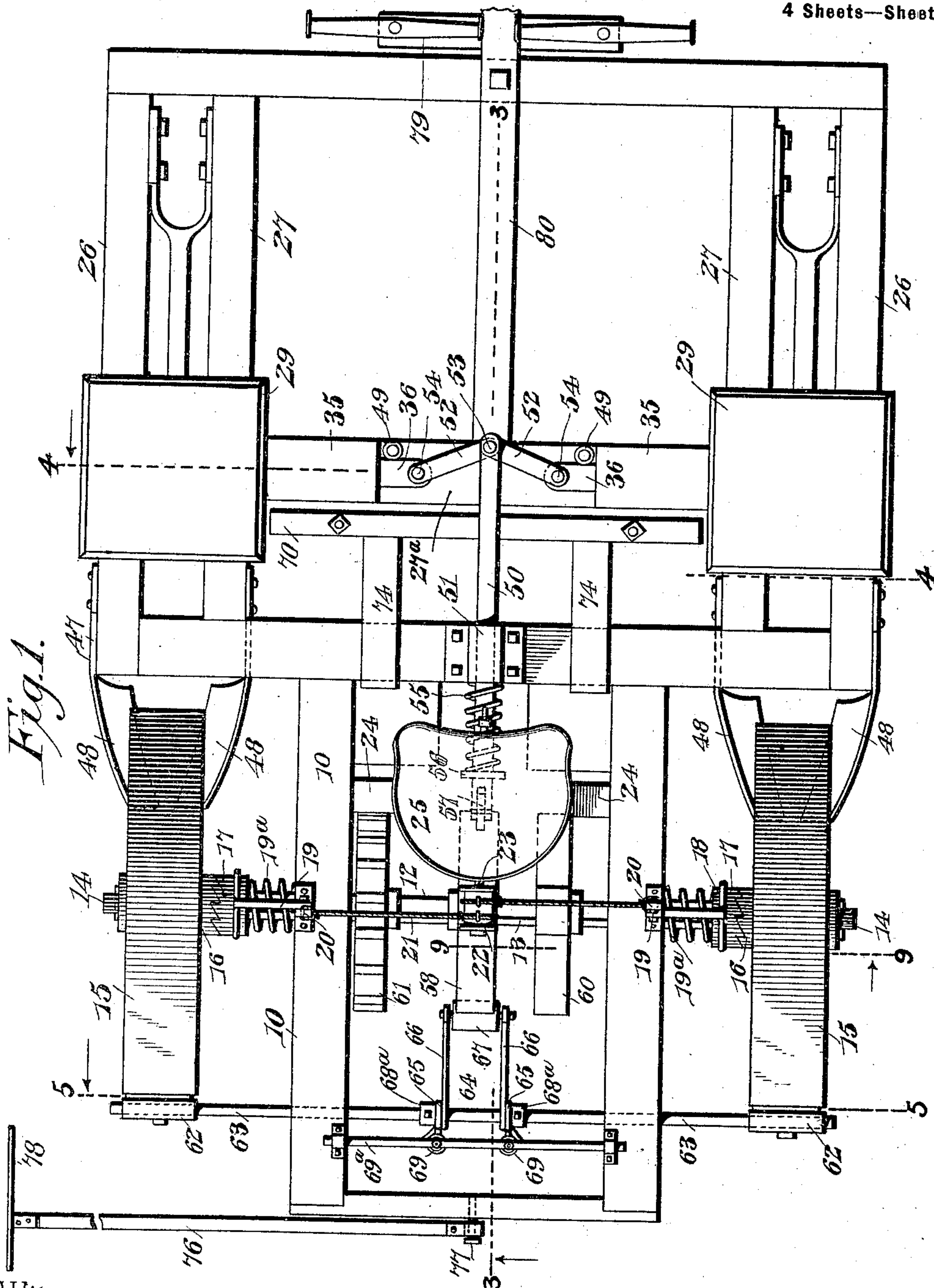


Fig. 1.

Witnesses  
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John F. Pipkin Inventor  
By His Attorneys,  
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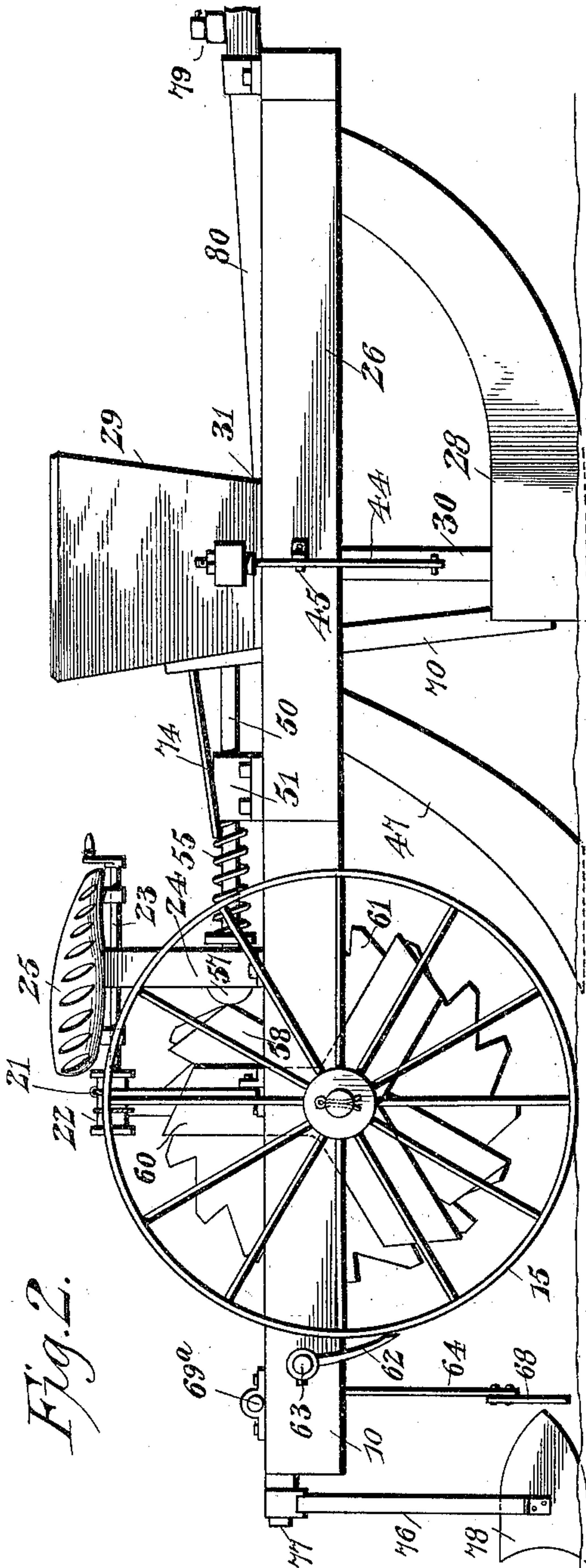


Fig. 2.

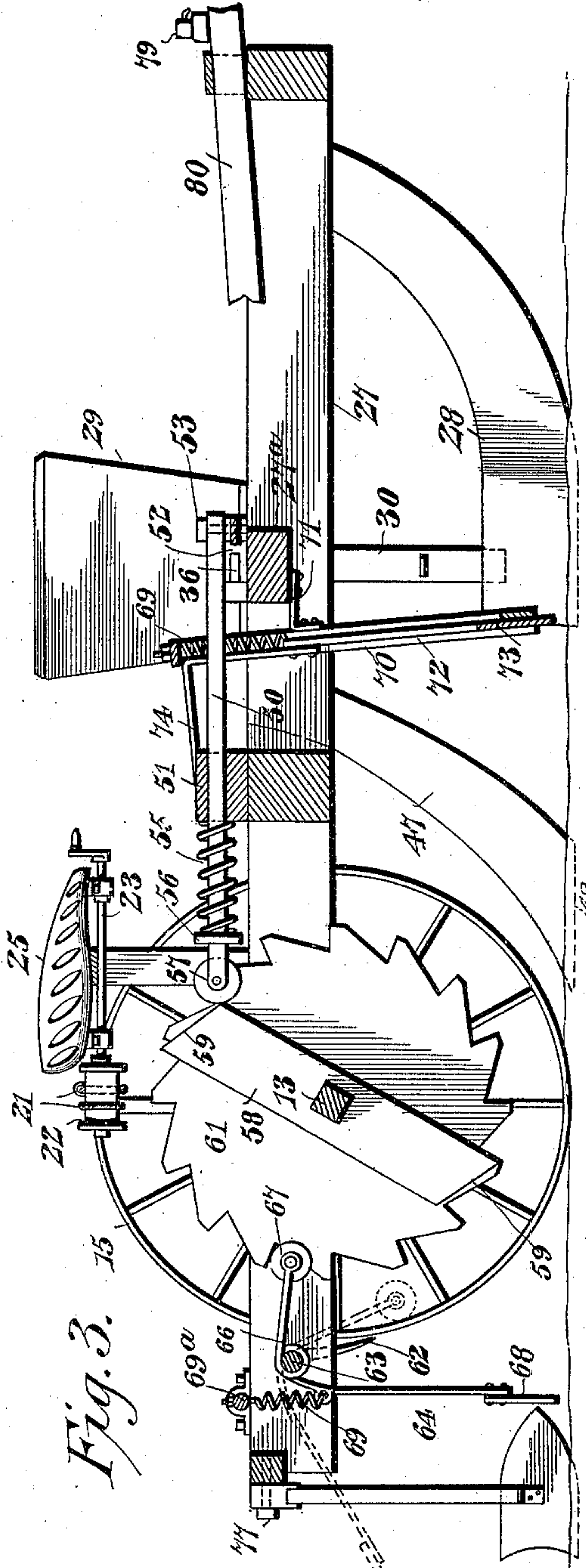


Fig. 3.

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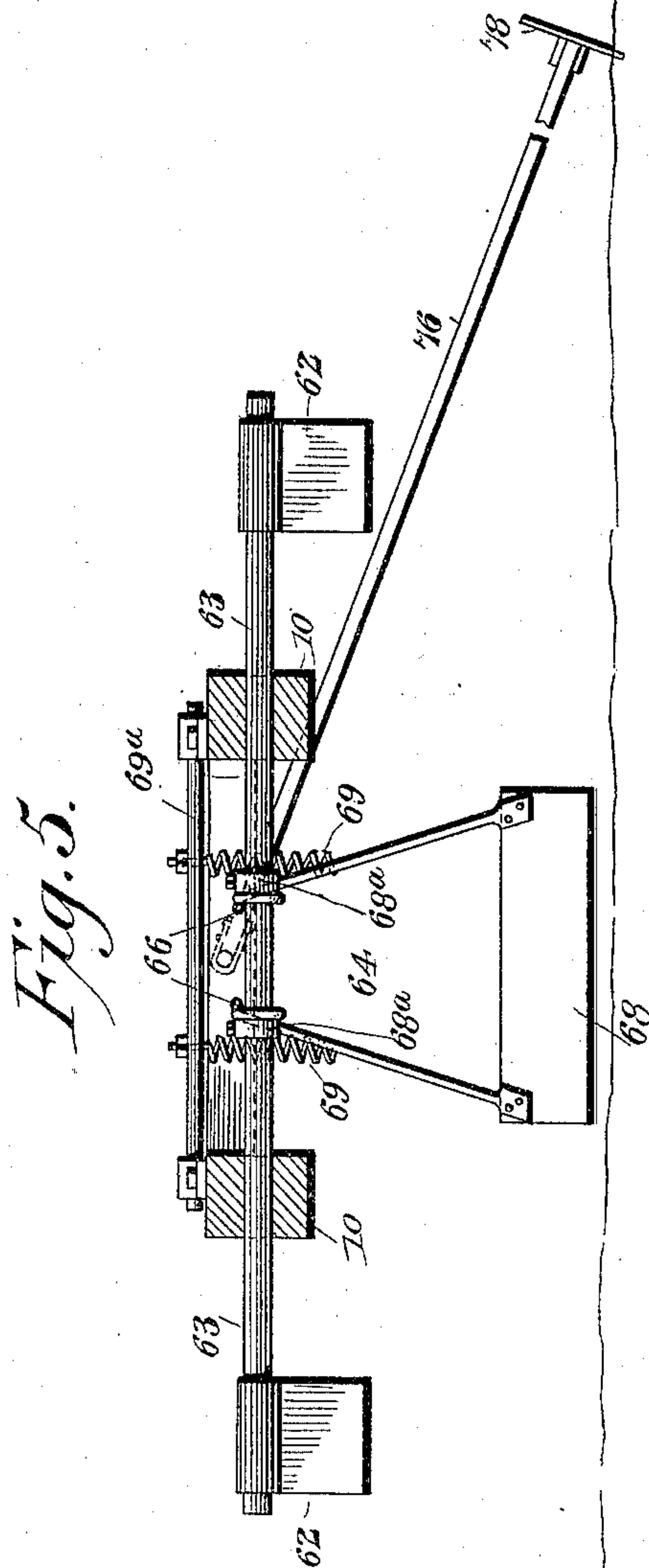
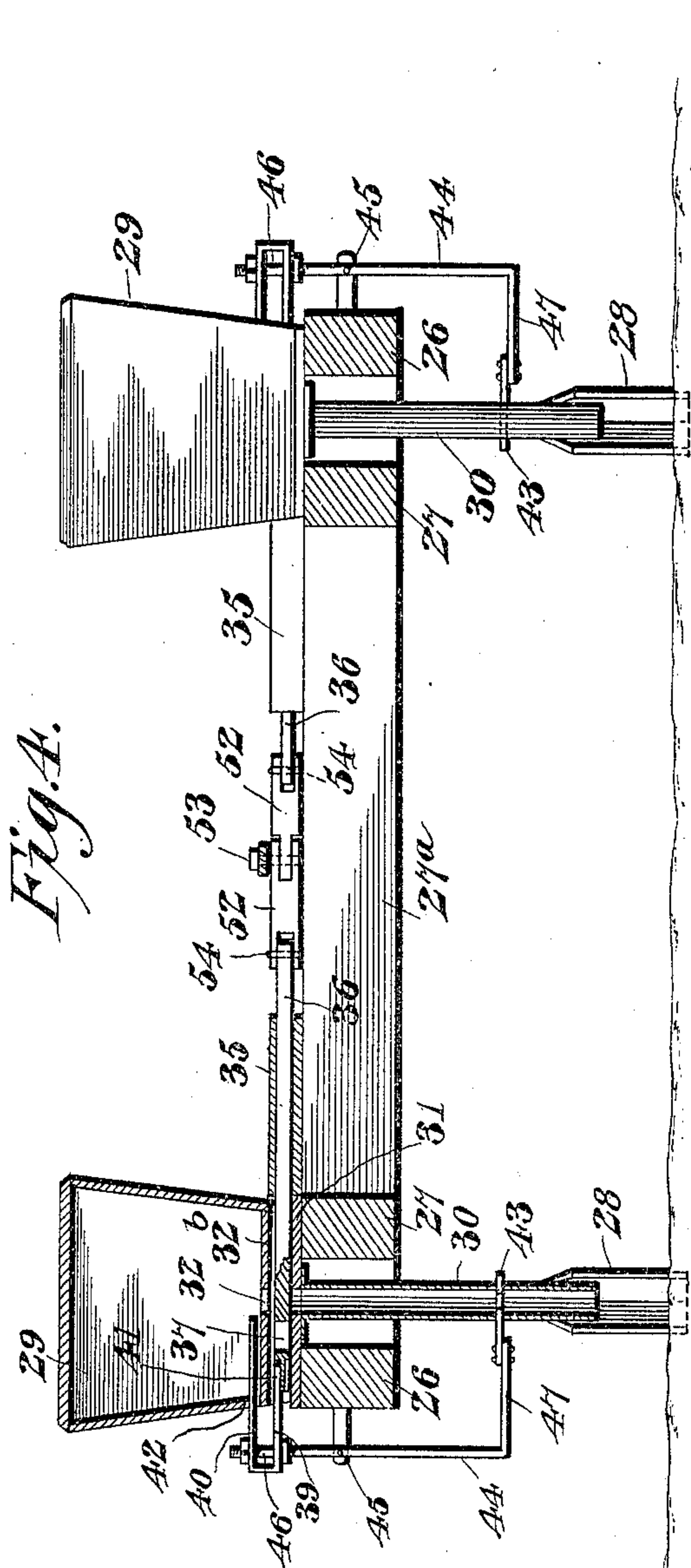
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**4 Sheets—Sheet 3.**



Witnesses

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4 Sheets—Sheet 4.

(No Model.)

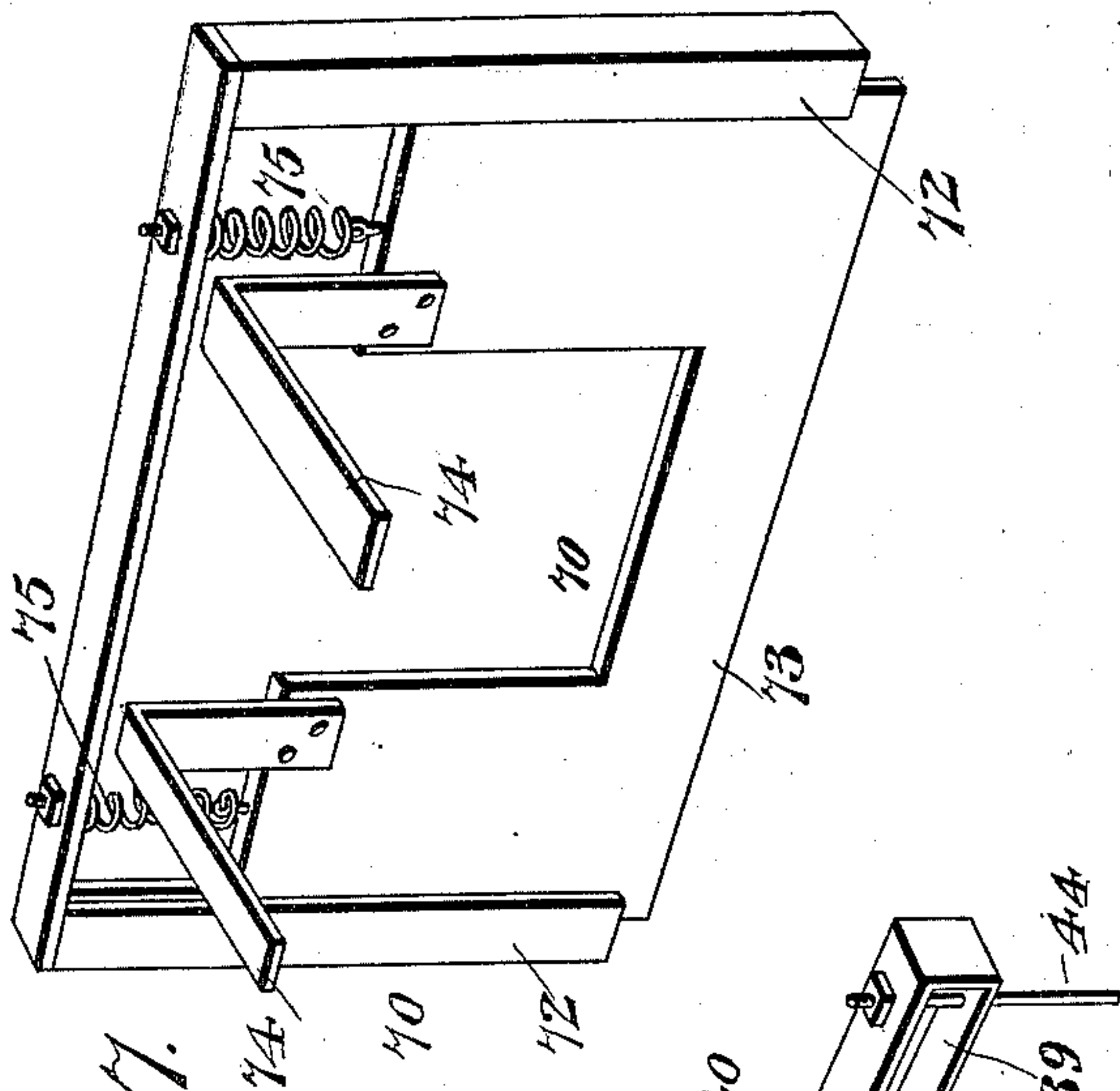


Fig. 7.

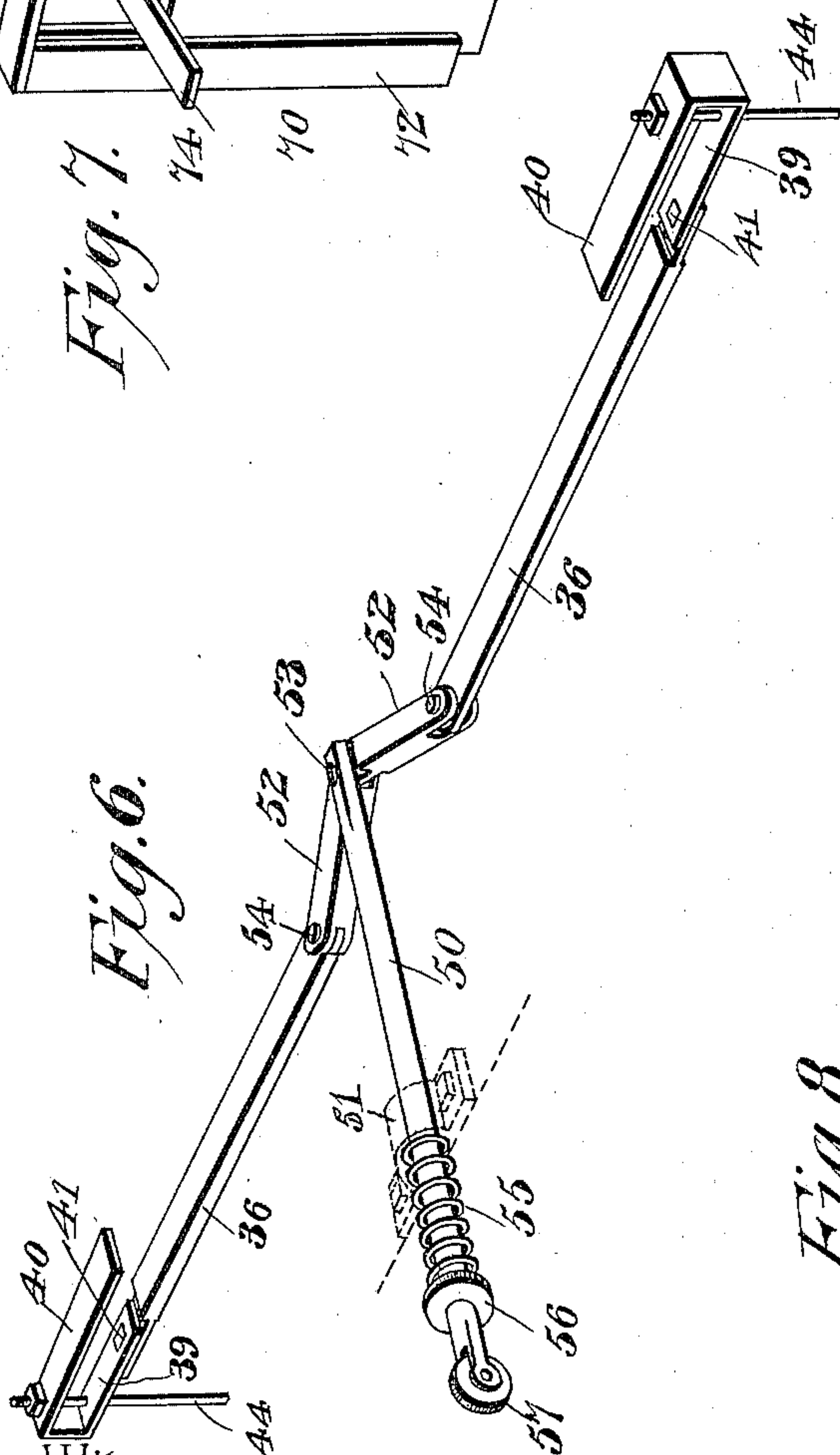


Fig. 8.

Fig. 9.

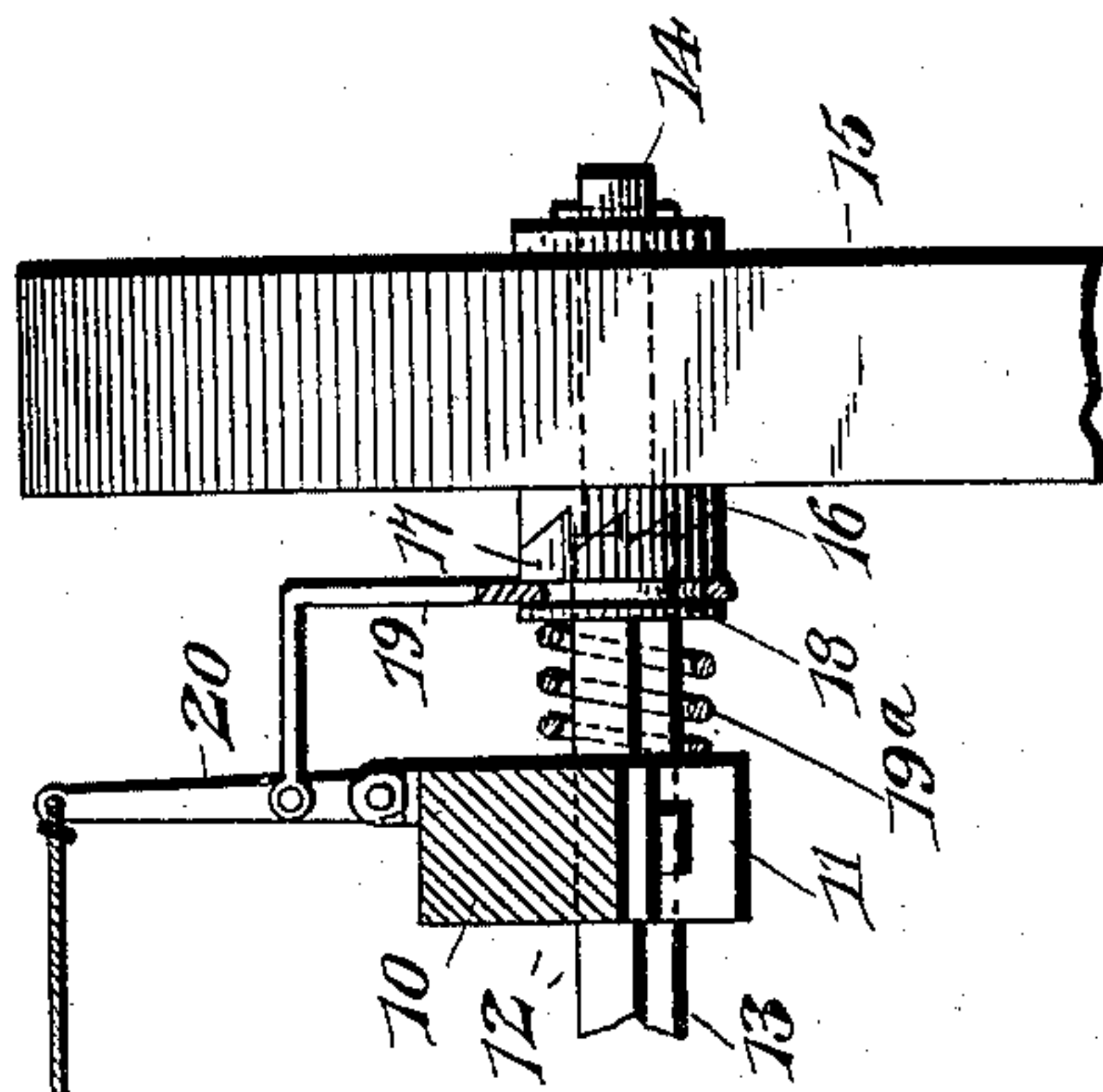
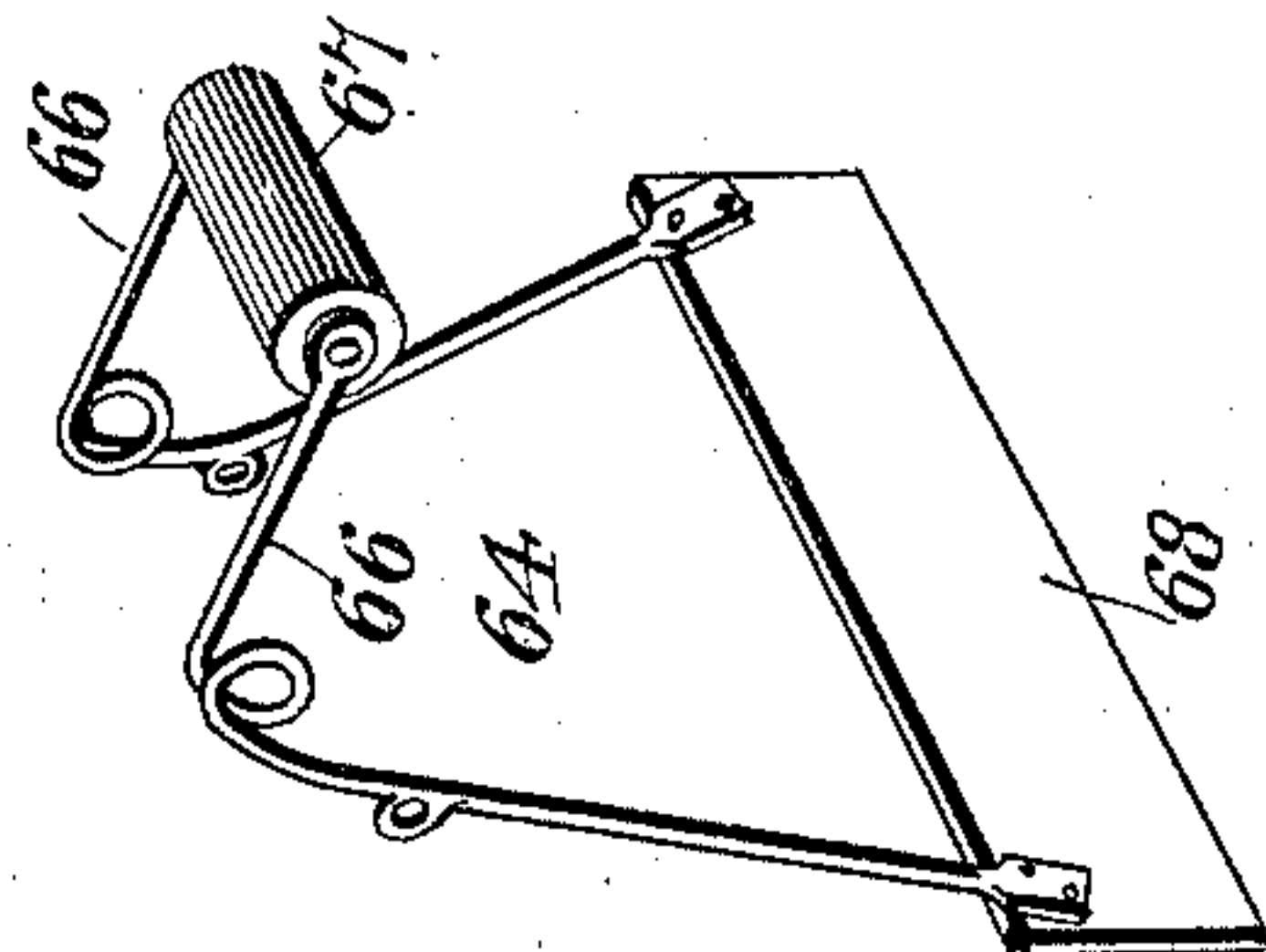
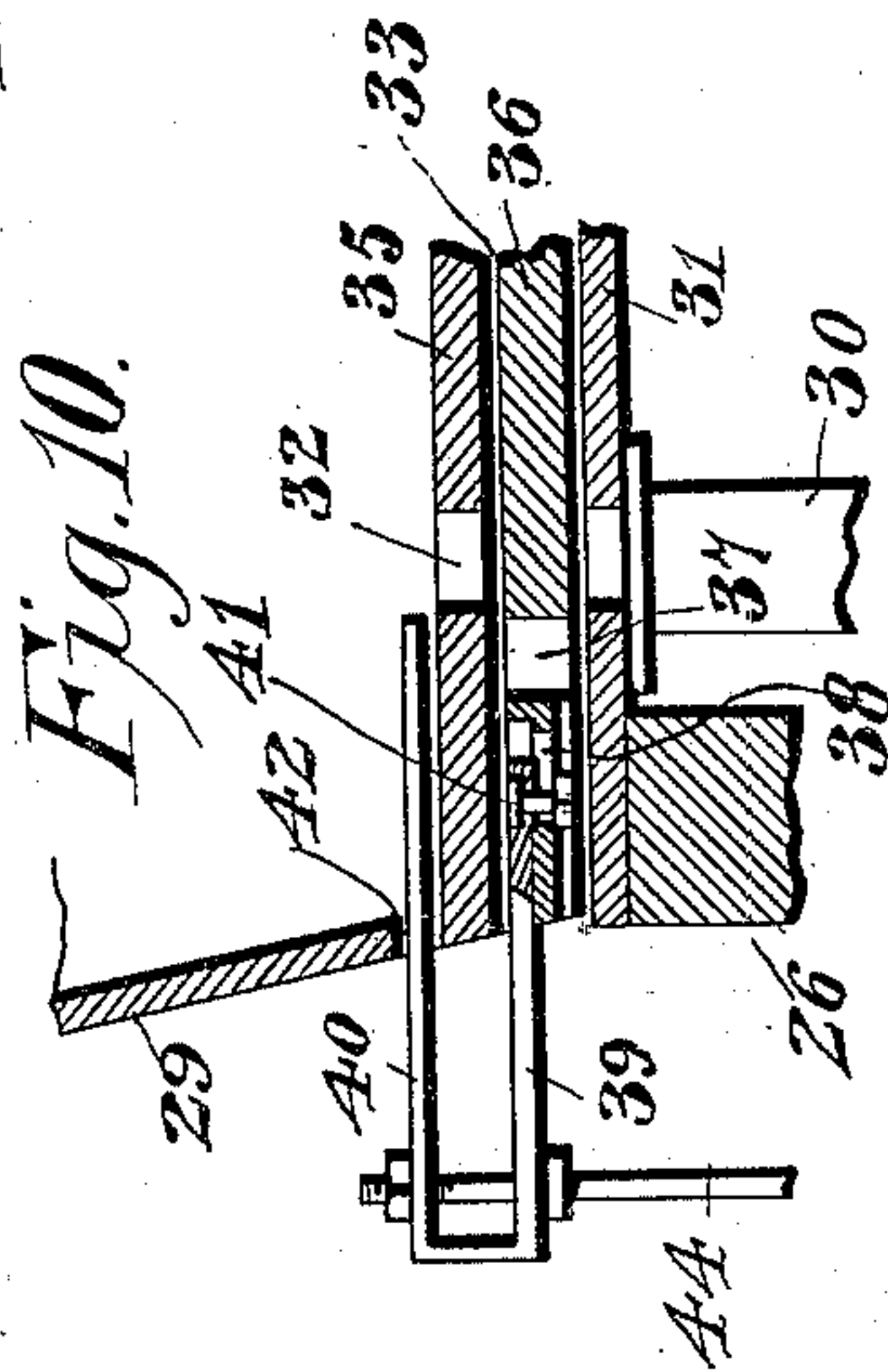


Fig. 9.

Fig. 10.



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Witnesses  
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# UNITED STATES PATENT OFFICE

JOHN FRANKLIN PIPKIN, OF ELBRIDGE, TENNESSEE.

## CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 638,850, dated December 12, 1899.

Application filed December 22, 1898. Serial No. 700,029. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN FRANKLIN PIPKIN, a citizen of the United States, residing at Elbridge, in the county of Obion and State of Tennessee, have invented a new and useful Corn-Planter, of which the following is a specification.

My invention relates to corn-planters, in which I have provided an improved dropping mechanism adapted to be adjusted for planting corn at regular intervals or for drilling the corn, the same dropping mechanism being used for planting or drilling in connection with interchangeable driving devices on the revoluble axle.

A further object of the invention is to simplify the construction of the dropping devices, to provide means for regulating the quantity of corn which may be discharged at each stroke of the dropper-slide, and to enable the driving devices for the dropping mechanism to be readily interchanged for use in connection with the common actuating-bar that operates the dropping devices.

A further object of the invention is to equip the machine with marker devices, one of which marker devices is operated automatically in unison with the dropping devices for the purpose of denoting the regular intervals of planting the corn, another marker device is arranged for operation manually, so that the operator may indicate at the end of the row the place where the corn is last planted, and the third marker device is employed as a side marker to denote the line along which the machine should travel in its next trip across the field.

With these ends in view the invention consists in the novel combination of elements and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated a preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of a corn-planter constructed in accordance with my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a vertical longitudinal section on the plane indicated by the dotted line 3 3 of Fig. 1. Fig.

4 is a vertical transverse section through the hoppers and a part of the dropping mechanism, the plane of the section being indicated by the dotted line 4 4 of Fig. 1. Fig. 5 is another vertical transverse section on the plane indicated by the dotted line 5 5 of Fig. 1. Fig. 6 is a detail perspective view of the several elements which form the dropping mechanism. Fig. 7 is a detail perspective view of the marker device adapted for operation by the driver to denote the place where the corn is last planted at the end of a row previous to the next trip of the machine across the field. Fig. 8 is a detail perspective view of the automatic marker mechanism which operates in unison with the dropping devices. Fig. 9 is a detail sectional view on the line 9 9 of Fig. 1, showing the means by which the ground-wheels may be made fast with the axle. Fig. 10 is an enlarged detail sectional view through a part of the hopper and the dropper-slide, showing the means by which the cut-off plate may be adjusted on the slide.

Like numerals of reference denote like and corresponding parts in each of the several figures of the drawings.

The wheeled frame which sustains the driver's seat is indicated by the numeral 10, and it is equipped with axle-boxes 11 of any suitable construction designed to afford the support for the transverse axle 12, which is mounted loosely in said axle-boxes to rotate freely therein. The axle is provided with angular or polygonal sections 13, adapted to receive the clutches and the driving devices for the dropping mechanism, as will hereinafter appear, and this axle is constructed at its ends to form the spindles 14, on which are loosely fitted the ground-wheels 15. These ground-wheels are disposed outside of the rear wheeled frame and in rear of a front runner-frame, (to be hereinafter described,) and each wheel is constructed preferably with a broad tread or rim having a series of radial metallic spokes united firmly to a hub which is revoluble loosely on the axle-spindle. The hub of each wheel is provided at its inner end with a clutch face 16, adapted to be engaged by a slidable clutch 17, one of which is provided for each of the carrying-wheels. Each clutch has a central angular opening by which it may be fitted on an angular section



of the axle 12 to enable the clutch to rotate with the axle and to slide thereon toward or from the face 16 of the ground-wheel. Each clutch is provided with an annular groove 18, in which is loosely fitted the forked end of a clutch-shifter 19, and this shifter is connected operatively with a lever 20, which is fulcrumed or mounted on the wheel-frame 10. The lever may be operated to move the shifter for the purpose of adjusting the clutch out of engagement with the face 16 of the ground-wheel, thus permitting the ground-wheel to rotate freely on the axle, which remains at rest when the machine is drawn to and from the field; but the clutch is normally engaged with the hub of the ground-wheel by means of a spring 19<sup>a</sup>, which is preferably of the coiled variety, for the purpose of fitting loosely on the axle, so as to have one end of the spring seated against the side bars of the frame 10, while its other end acts against the clutch to normally hold the latter in engagement with the ground-wheel. It will be understood that the clutches normally tend to make the ground-wheels fast with the axle, which is thus adapted to be driven by the ground-wheels for the purpose of operating the dropping devices and the automatic marker mechanism; but to allow the axle to remain idle when the machine is traveling to or from a field I provide the lever 19 with confining-loops 21, which are adapted to be attached to a pulley 22, which is carried by a crank-shaft 23, that is loosely journaled on the seat-standard 24, the seat 25 being fixed to said standard to accommodate the driver. The loops 21 may be fitted on the pulley of the shaft for the purpose of holding the levers and clutch-shifters to positions where the slidable clutches are retracted against the pressure of their springs and are thus disposed out of the path of the faces of the half-clutches 16 on the ground-wheels; but when the loops are slackened and the crank-shaft is adjusted by the driver the clutches are released from the restraining action of the loops and the springs press the clutches into engagement with the half-clutch on the ground-wheels.

For the purpose of carrying the hoppers, the dropping mechanism, and the drills I provide a runner-frame 26, which is arranged in front of and in the horizontal plane of the wheel-frame 10 and is united or secured firmly thereto by bolts or other suitable means, and these wheeled and runner frames 10 26, which lie one in rear of the other, practically constitute one continuous frame, although for the sake of convenience in referring to the various parts of the machine I have designated them by different numerals. The runner-frame 26 lies in advance of the wheel-frame 10, and this runner-frame should be of sufficient width to properly space the drill-tubes or furrow-openers a distance equal to the rows in which the corn is to be planted. The runner-frame has inside bars 27, which

lie parallel to the side rails of the frame, and these bars and the side rails of said front frame 26 support the vertically-disposed furrow-openers 28, which are forked or bifurcated at their upper rear ends for secure attachment to the bars 27 and the side rails of said frame, whereby the furrow-openers are braced against lateral strain. On the runner-frame and its side bars are firmly secured the plates 31, which serve to support the hoppers 29 and the drill-tubes 30. The hoppers 29 rest upon the plates 31 and are secured to said plates and the runner-frame by means of bolts, straps, or clamps of any suitable pattern. The drill-tubes 30 are arranged in vertical positions between the plates 31, and the rear ends of the furrow-openers 28 and said drill-tubes are secured firmly to the plates 31, whereby they are attached to the runner-frame and are sustained in operative relation to the hoppers and the furrow-openers. Each hopper 29 is provided with a bottom 32<sup>b</sup>, which is secured in the hopper a proper distance above the lower edge thereof, and as the hopper rests upon the plate 31 a space 33 is provided between the hopper-bottom and the plate 31 for the accommodation of the dropper-slide 36. The bottom of each hopper has a central grain-opening 32, through which the grain may escape from the hopper when the opening 32 is uncovered in the operation of the dropping-slide 36. The inside bars 27 of the runner-frame are joined together by a horizontal bar 27<sup>a</sup>, which is in the transverse plane of the hoppers 29, and this transverse bar supports the raceways 35 and the dropping-slides 36. The raceways are secured firmly to the bars 27<sup>a</sup>, contiguous to the hoppers, and in these raceways are fitted the dropping-slides 36, which are of a length to extend across the bottoms of the hoppers and to protrude beyond the inner terminals of the raceways. Each dropping-slide 36 operates in the space 33 between the plate 31 and the bottom 32<sup>b</sup> of the hopper, and said slide has a vertical opening 37, which is adapted in one position of the slide to register or coincide with the opening 32 in the hopper-bottom, thus permitting the grain to pass from the hopper through the slide and into the drill-tube. Each slide 36 is, furthermore, provided with a longitudinal slot, and to this slotted end of the slide is adjustably fastened a regulator-plate 40, which travels with the slide to expose the opening 32 in the hopper-bottom when the opening of the slide is coincident with the opening in the hopper-bottom; but this regulator-plate is adjustable on the slide, so as to vary the area of the opening 32 in the hopper-bottom, and thereby determine the quantity of grain which may be dropped from a hopper at each movement of the slide and its regulator-plate. Each regulator-plate 40 is substantially U-shaped to provide a lower member 39 and an upper member 40, and this U-shaped plate works in slots 42, provided in



one side wall of the hopper. The lower member of the plate is arranged to overlap the slotted end of the slide, and said plate and slide are fastened together adjustably by a bolt 41, which passes through the slot 38 of the slide and the lower member 39 of said plate. The upper member 40 of the plate is arranged in close relation to the bottom of the hopper for the purpose of sliding over the opening 32 therein, and as the regulator-plate is attached to the slide to travel therewith the upper member 40 of said plate is caused to expose the opening 32 in the hopper when the slide is moved to a position where its opening 37 registers with the opening 32. It is evident that the regulator-plate for each slide may be adjusted to vary the area of the opening 32 when the slide is in operation, and the plates on the two slides 36 may be adjusted independently of each other.

Each tube 30 is provided with a cut-off 43, which is fitted in the tube to open and close the same, and this cut-off is operatively connected with the lever 44, which is fulcrumed, as at 45, to the runner-frame 26. The lower end of the lever has a foot 47, which is attached to a cut-off 43, while the upper end of the lever is connected at 46 to the regulator-plate on the slide, whereby the lever is operated on the movement of the slide to open and close the cut-off 43 alternately, according to the reciprocating play of the slide. The tubes 30 are supported on the runner-frame 26 in line with and in advance of the carrying-wheels 15, and between the tubes and said wheels are arranged the covering-shovels 47. The shovels are grouped in pairs and each pair is firmly secured to one rail and bar 27 of the runner-frame 26. The covering-shovels are of elastic metal, preferably spring-steel, and the lower ends of the shovels are bent or inclined inwardly toward each other to form the deflected heels 48, adapted to throw the dirt inwardly upon the furrow made by the opener 28, whereby the grain which is deposited in the furrow by the tube 30 is covered by the shovels and the soil is packed or pressed firmly upon the grain by the broad tread of the ground-wheel 15.

The reciprocating slides 36 of the dropping mechanism are actuated simultaneously in opposite directions by a single rod or bar 50, which is disposed centrally on the machine and lies in a plane at right angles to the axes of the dropper-slides 36. This rod or bar is slidably confined in place by a guide 51, fastened securely to the rear cross-bar of the runner-frame 10, and the front end of said rod 50 is operatively connected with both slides by the links or members of the toggle-joint 52. The contiguous ends of the links are united at a common point 53 to the front extremity of the reciprocating bar 50, and said links or members are connected individually at 54 to the inner ends of the slides 36. As the rod 50 is impelled in a forward direction the members or links of the joint are forced for-

ward and outward to draw the slides 36 inwardly toward each other, and thereby position the slides and the regulator-plates thereon to close the openings from the slides to the tubes, and these slides are confined in place by the raceways 35 and by antifriction-rollers 49, (see Fig. 1,) which are loosely journaled on the cross-rail 27<sup>a</sup>, contiguous to the front edges of the slides 36. The bar or rod 50 is retracted or forced rearwardly by a spring 55, which is coiled loosely on the rod to have one end thereof act against the fixed guide 51, and its other end is seated against a collar 56, which is clamped firmly to the rod or bar 50 intermediate of its length, and the rear extremity of this rod 50 carries a shoe or roller 57, which is disposed in the path of a driving device on the revoluble axle 12. I provide two or more of these driving devices for actuating the rod 50 of the dropping mechanism, according as it is desired to plant the corn at regular intervals or to drill the grain, and these driving devices are all mounted on the axle 12 for use interchangeably with the reciprocating bar 50. One of the driving devices is in the form of a double-armed cam 58, which is attached centrally to a polygonal section of the axle for adjustment thereon into or out of operative relation to the shoe 57 of the rod 50, and this double-armed cam is provided at its ends with beveled faces 59, against which the shoe 57 of the rod 50 is adapted to ride when the cam 58 is properly adjusted to actuate the dropping devices twice on every revolution of the axle, whereby the cam 58 operates the dropping devices at regular intervals to deposit the corn in the ground.

For the purpose of drilling the grain I may employ a three-armed cam 60 or a multiple-faced cam 61, and these two cams are mounted on the polygonal section of the axle on opposite sides of the cam 58, so that either of the cams 60 or 61 may be adjusted on the axle into proper relation to the shoe 57 of the reciprocating rod 50. It is evident that when one cam is properly positioned in line with the rod 50 it will rotate with the axle and actuate the rod for the operation of the dropping-slides, and either cam may be held in position on the axle by any suitable contrivance, such as a set-screw. Although I have illustrated two multiple cams 60 and 61, I do not limit myself to the use thereof; but in this connection I desire to state that the cams 58 and 60 serve to operate the dropping devices and an automatic marker mechanism for the latter to work in unison with the dropping devices, while the multiple-faced cam 61 is of less diameter than the cam 60, so that it will operate the dropping devices without affecting the automatic marker device, which may remain idle on the machine.

The treads of the ground-wheels 15 are kept free from the accumulations of soil by the clearer-shoes 62, which are attached to the ends of a shaft or bar 63, that is mounted in the wheel-frame 10 in rear of the axle 12 and



in a position to present the shoes in active relation to the treads of the ground-wheels. This clearer bar or rod 63 also serves as a support for the automatic marker, (see Figs. 3, 5, and 8,) the frame 64 of which is fitted loosely, as at 65, on the bar or rod 63. The marker-frame 64 is of elastic spring metal, and it is formed with the arms 66, which extend forwardly to lie in the path of the cams 58 or 60 on the revoluble axle 12. The arms of the spring marker-frame carry a loose friction-roller 67, which is adapted to ride easily on the faces of the cams 58 or 60, and the lower end of said marker-frame is equipped with a transverse plate 68, that is adapted to have its edge presented to the ground for the purpose of making a clearly-visible indentation in the soil when the marker-frame is rocked by its roller riding upon the cam. The marker-frame is normally suspended above the ground-line by the coiled springs 69, which are operatively connected with curved portions of the spring-frame 64, and these springs may be connected directly to the wheel-frame 10 or to a suspension-rod 69<sup>a</sup>, that is supported on the wheel-frame in rear of the shoe bar or rod 63. The marker-frame being loosely fitted at 65 on the shoe bar or rod, I prefer to employ the collars 68<sup>a</sup>, which are clamped on the bar or rod to restrain the marker-frame against slidable displacement on said bar 63.

To enable the operator to determine the place where the corn is last planted when the machine makes a trip across the field and to plant the corn in check-rows with accuracy, I equip the machine with a manually-operative marker device which is disposed in convenient relation to the driver's seat. A marker-supporting frame 70 (see Fig. 7) is arranged transversely across the machine between the rails 27 of the runner-frame 26, and this frame 70 is supported by elastic hangers 71, which are properly attached to the cross-bar 27<sup>a</sup> of said frame. The frame 70 is provided with guideways 72 to receive the end edges of a slidable marker 73, which is supported in the runner-frame for movement vertically therein, and this marker is equipped with the foot-plates 74, which are disposed convenient to the driver's seat. The marker 73 is sustained normally in an elevated position by the suspension-springs 75, which are fastened to the frame 70 and the marker 73, and in order to depress the marker it is necessary for the operator to apply sufficient pressure to the foot-plates 74 to overcome the tension of the spring 75.

A side gage 76 is arranged to project from one pivoted side or the other of the machine a distance equivalent to the width of the machine itself, and the bar of this side gage is pivotally attached, as at 77, to the rear end of the wheel-frame 10. The side gage is constructed with a shoe 78, which is fastened to the outer extremity of the gage-bar, and when the side gage is properly adjusted this shoe is

adapted to trace in the soil a line which will indicate to the operator the proper direction for driving the team on the next trip across the field.

The implement may be drawn by a team of horses hitched to the doubletree 79 on the draft-tongue 80 of any suitable construction.

From the foregoing description it will be observed that the marker-frames 64 and 70 are yieldingly mounted on the machine and that the covering-shovels 47 are of elastic metal, whereby the machine is adapted for service in rough or uneven fields which may be obstructed more or less by the stumps of trees, and these marker devices are adapted to yield when they strike obstructions, thus overcoming the liability of injury to the devices in the practical service of the machine.

Changes may be made in the form and proportion of some of the parts, while their essential features are retained and the spirit of the invention embodied. Hence I do not desire to be restricted to the precise form of all the parts as shown, reserving the right to vary therefrom.

Having thus described the invention, what I claim is—

1. In a corn-planter, the combination of oppositely-movable dropping-slides arranged in line with each other, a reciprocating rod operatively connected with both slides and arranged for movement in a path at right angles to the slides, a driving device for moving the rod positively in one direction, and means for retracting the rod, substantially as described.

2. In a corn-planter, the combination of oppositely-movable dropping-slides arranged in alinement with each other, a reciprocating rod movable in a path at right angles to said slides, a toggle-joint connecting the rod with both slides, a revoluble driving device in active relation to the rod, and a retractor to return the rod to its normal position, substantially as described.

3. In a corn-planter, the combination with hoppers, of oppositely-movable dropping-slides fitted to said hoppers and arranged in alinement with each other a reciprocating bar guided for movement in a path at right angles to the slides, race ways in which the slides are slidably confined, a toggle-joint having its members connected individually to the slides and pivoted at a common point to the reciprocating bar, a revoluble driving device in active relation to the bar, and a retractor for said bar, substantially as described.

4. In a corn-planter, the combination with dropping-slides and a revoluble shaft or axle, of a reciprocating bar slidably confined in the guide to travel in a path at right angles to the slides and carrying a shoe at one end, a spring acting against a collar on the bar to impel it in one direction, a toggle-joint connecting the bar with both slides to reciprocate the latter simultaneously in opposite directions,



and a revoluble driving device carried by said shaft or axle and arranged to impinge against the shoe, substantially as described.

5 5. In a corn-planter, the combination with the hoppers, of reciprocating slides below the bottoms of said hoppers and provided with the grain-openings, a regulator-plate 39 adjustably fastened to the outer end of each slide and having an adjustable member 40 arranged in parallel relation to the dropper-  
10 slide and adapted to work above the hopper-bottom to traverse the grain-opening therein, and means for reciprocating the slides, substantially as described.

15 6. In a corn-planter, the combination with a frame, and a wheeled axle, of a rod supported in said frame and carrying the wheel-cleaning shoes, a toothed disk fast with the wheel-axle, an angular marker-frame fitted  
20 loosely on the shoe-rod and having the transverse marker at its lower end and at its other end a wheel-shoe arranged to ride directly against the toothed disk, stop-collars clamped on the shoe-rod to hold the marker-frame  
25 against displacement thereon, and lifting-springs connected to the machine-frame and to the marker-frame, substantially as specified.

30 7. In a corn-planter, the combination with a frame having a seat, and an automatic dropper mechanism, of a marker mechanism wholly disconnected from the dropper mechanism and its driving devices and comprising a guide-frame suspended on the machine, a  
35 marker slidably confined on the marker-frame, and a shoe-piece connected to said marker and arranged contiguous to the seat, whereby the marker may be actuated manually, substantially as described.

40 8. In a corn-planter, the combination with

a frame having a seat and an automatic dropper mechanism, of a marker wholly disconnected from the dropper mechanism and its driving devices and comprising a marker-frame yieldingly suspended from the machine-frame, and a manually-operative  
45 marker supported by the marker-frame to be movable therewith, said marker having means whereby it may be depressed conveniently by an operator occupying said seat, substantially  
50 as described.

9. In a corn-planter, the combination with a frame having a seat, and an automatic dropper mechanism, of a marker wholly disconnected from the dropper mechanism and its  
55 driving devices and comprising a marker-frame supported on the machine-frame, a marker slidably confined within said marker-frame, springs for normally raising the marker with relation to its supporting-frame, and  
60 foot-plates attached to the slidable marker, substantially as described.

10. A corn-planter comprising a frame, an axle journaled thereon and having the ground-wheels, a dropping mechanism supported by  
65 the frame at one side of the axle, an automatic marker mechanism mounted on the frame on the opposite side from the dropping mechanism, and interchangeable driving devices adjustably fitted to the axle to be brought into  
70 active relation with the dropping devices and the marker mechanism, substantially as described.

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

JOHN FRANKLIN PIPKIN.

Witnesses:

W. A. KENNEDY,  
S. W. WORLEY.