

No. 664,767.

Patented Dec. 25, 1900.

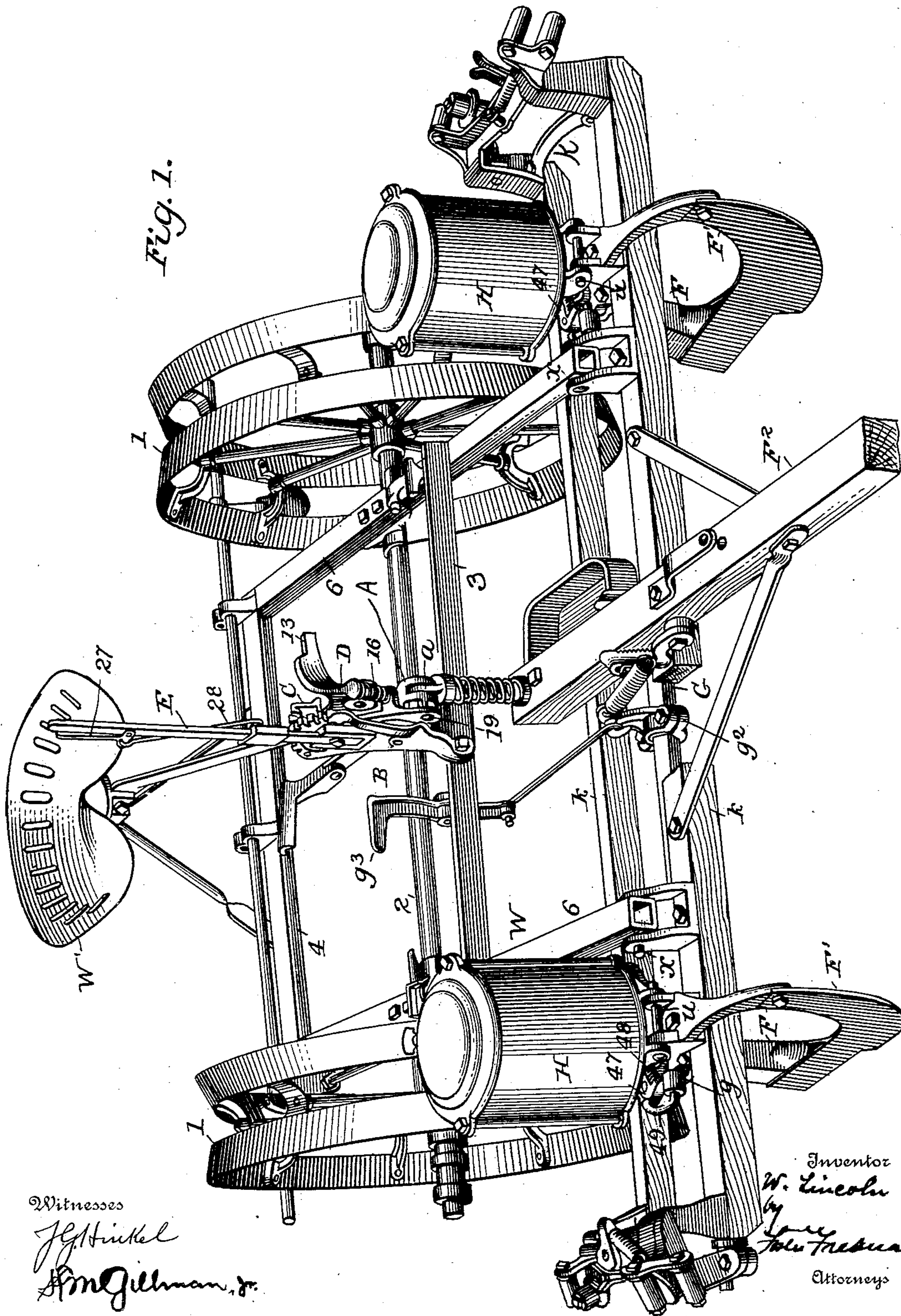
W. LINCOLN.
CORN PLANTER.

(Application filed Apr. 17, 1900.)

(No Model.)

8 Sheets—Sheet 1.

Fig. 1.



Witnesses

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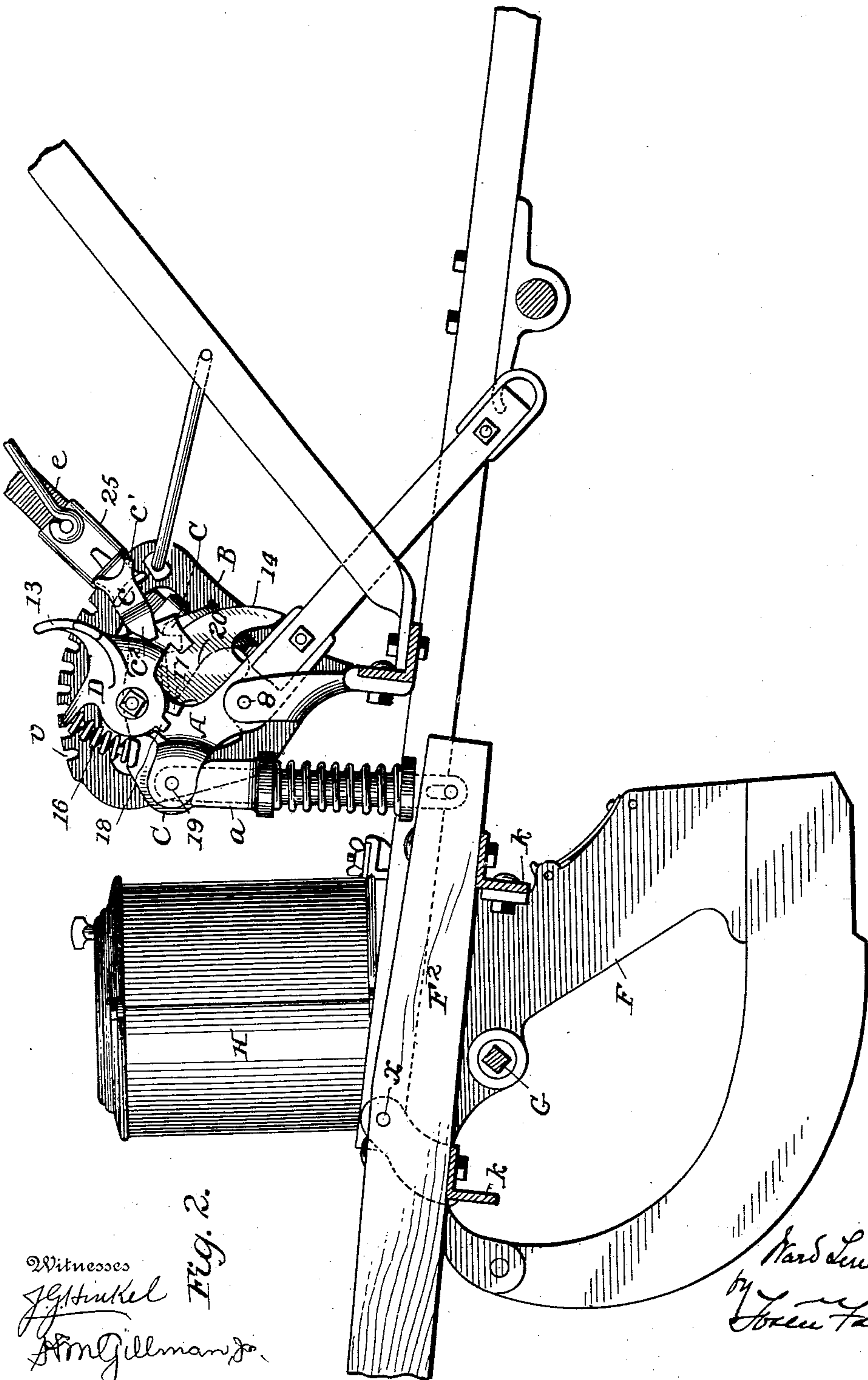
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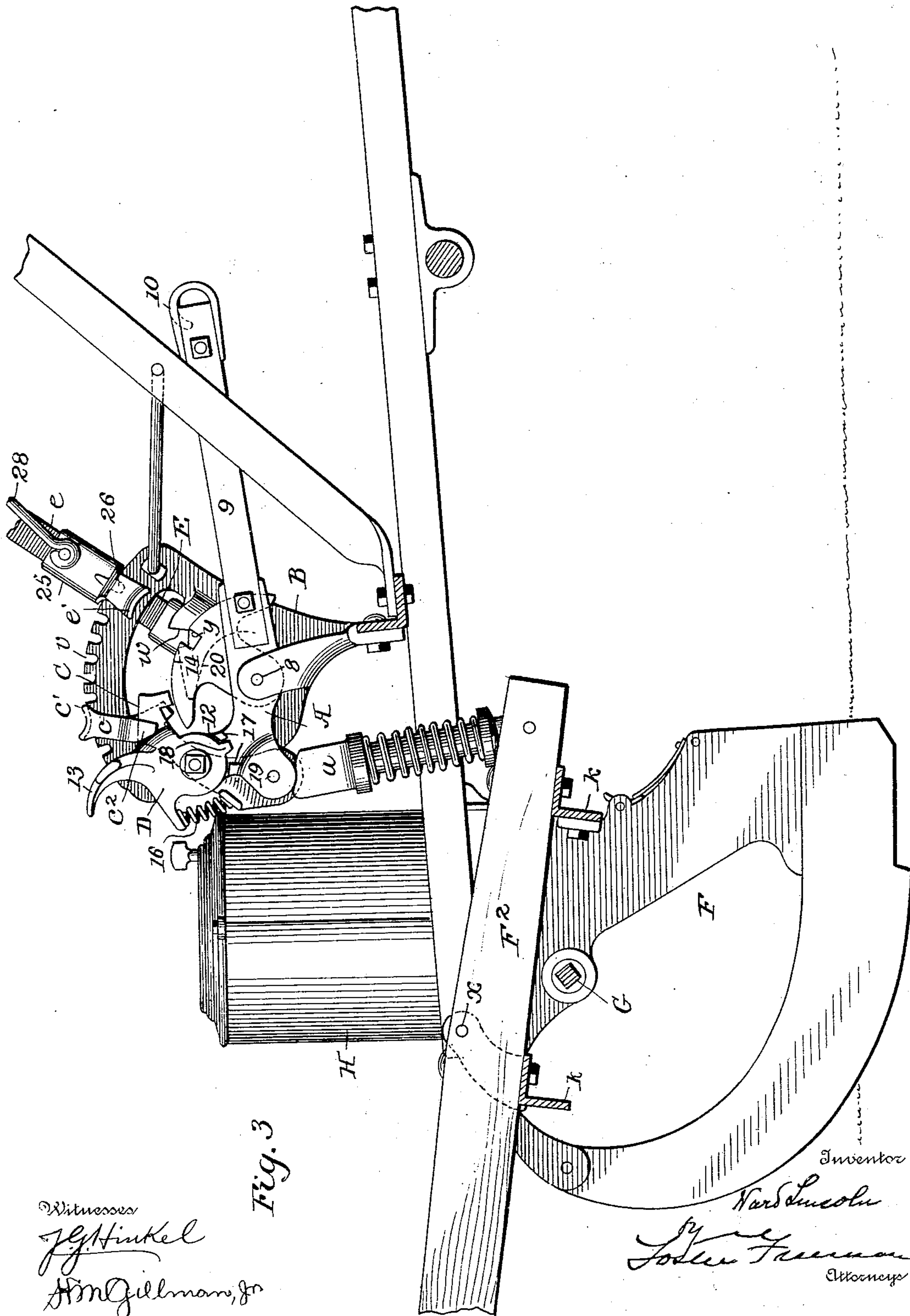
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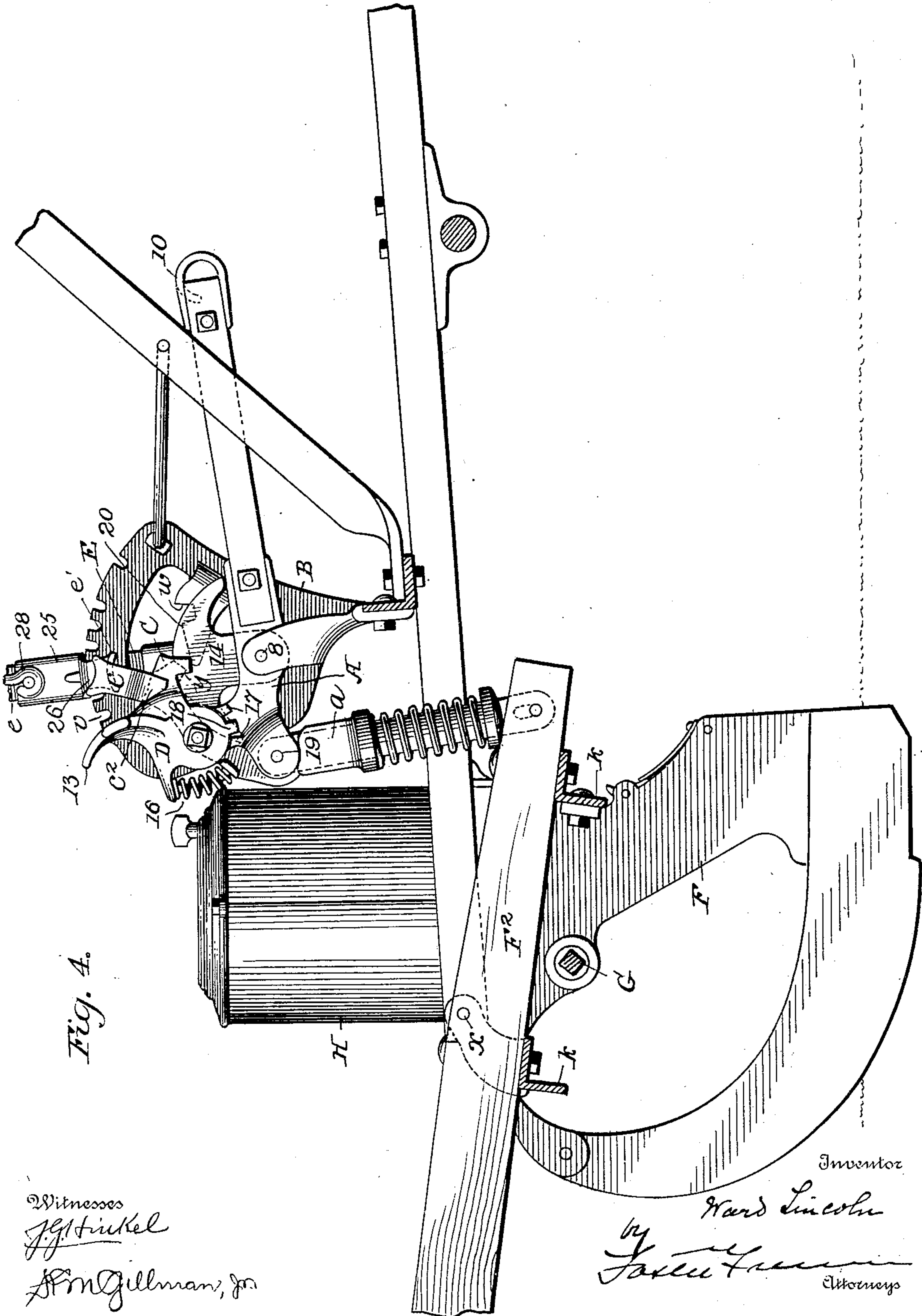
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8 Sheets—Sheet 4.



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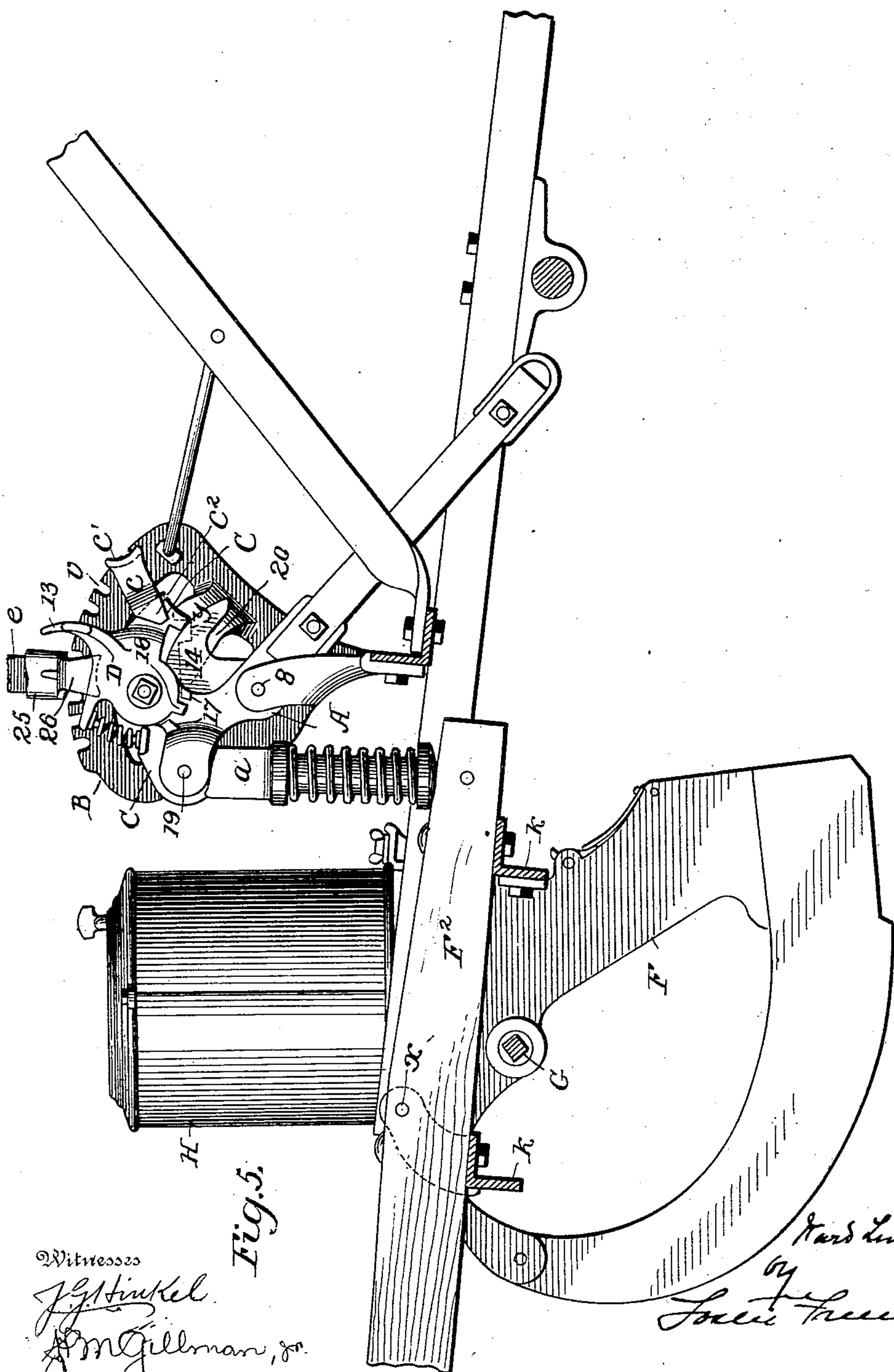
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8 Sheets—Sheet 5



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Fig. 5.

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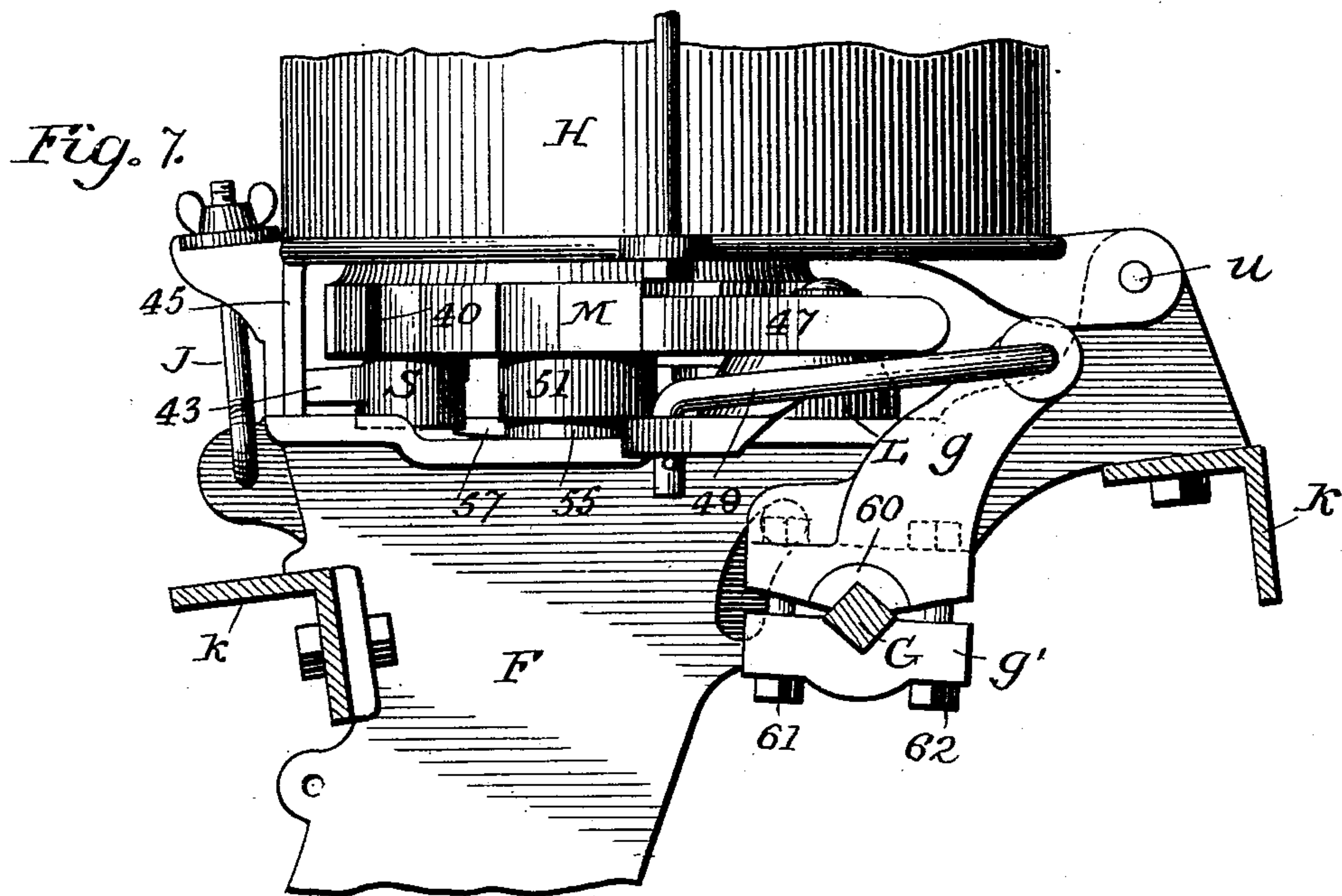
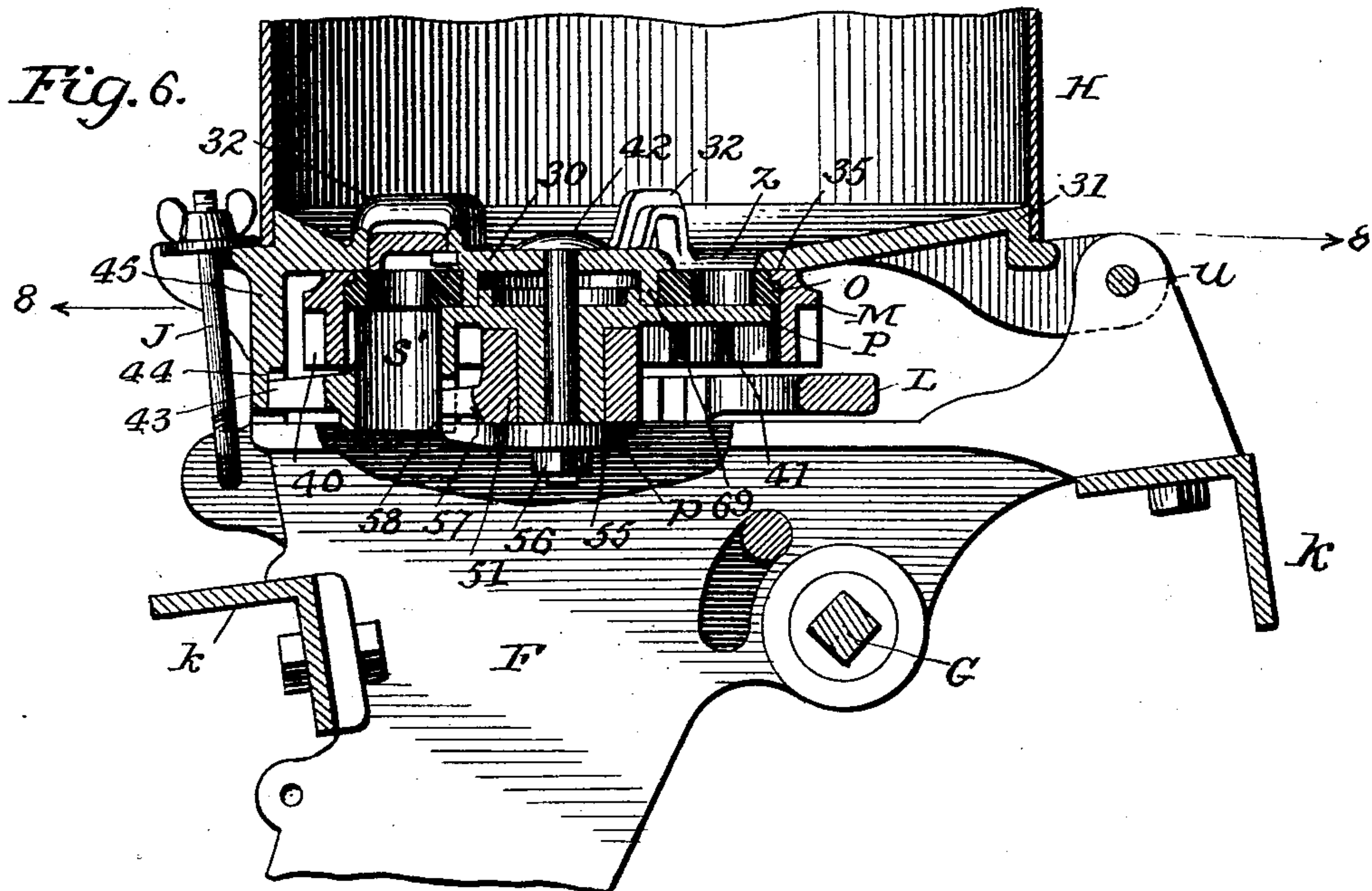
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8 Sheets—Sheet 6.



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Fig. 8.

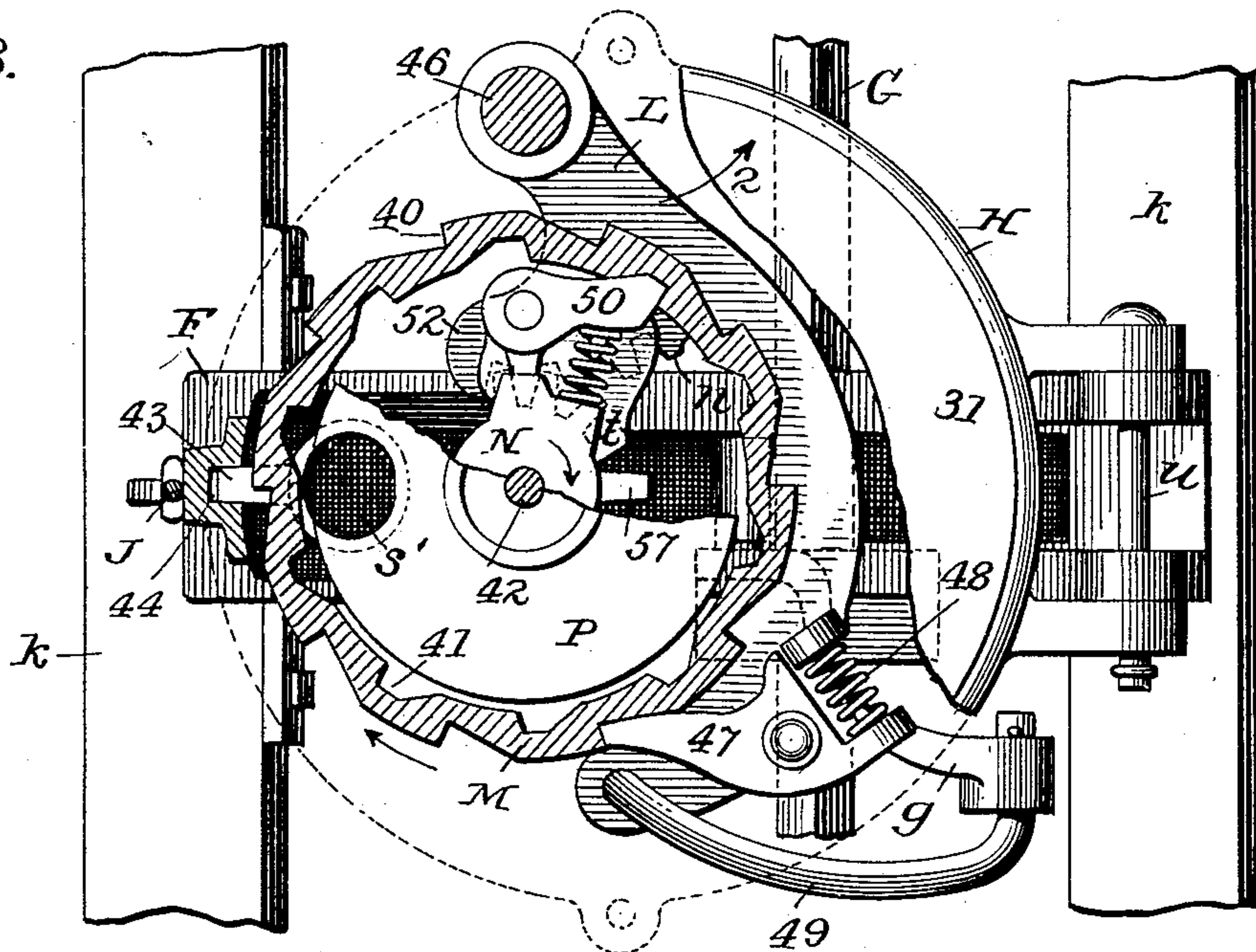
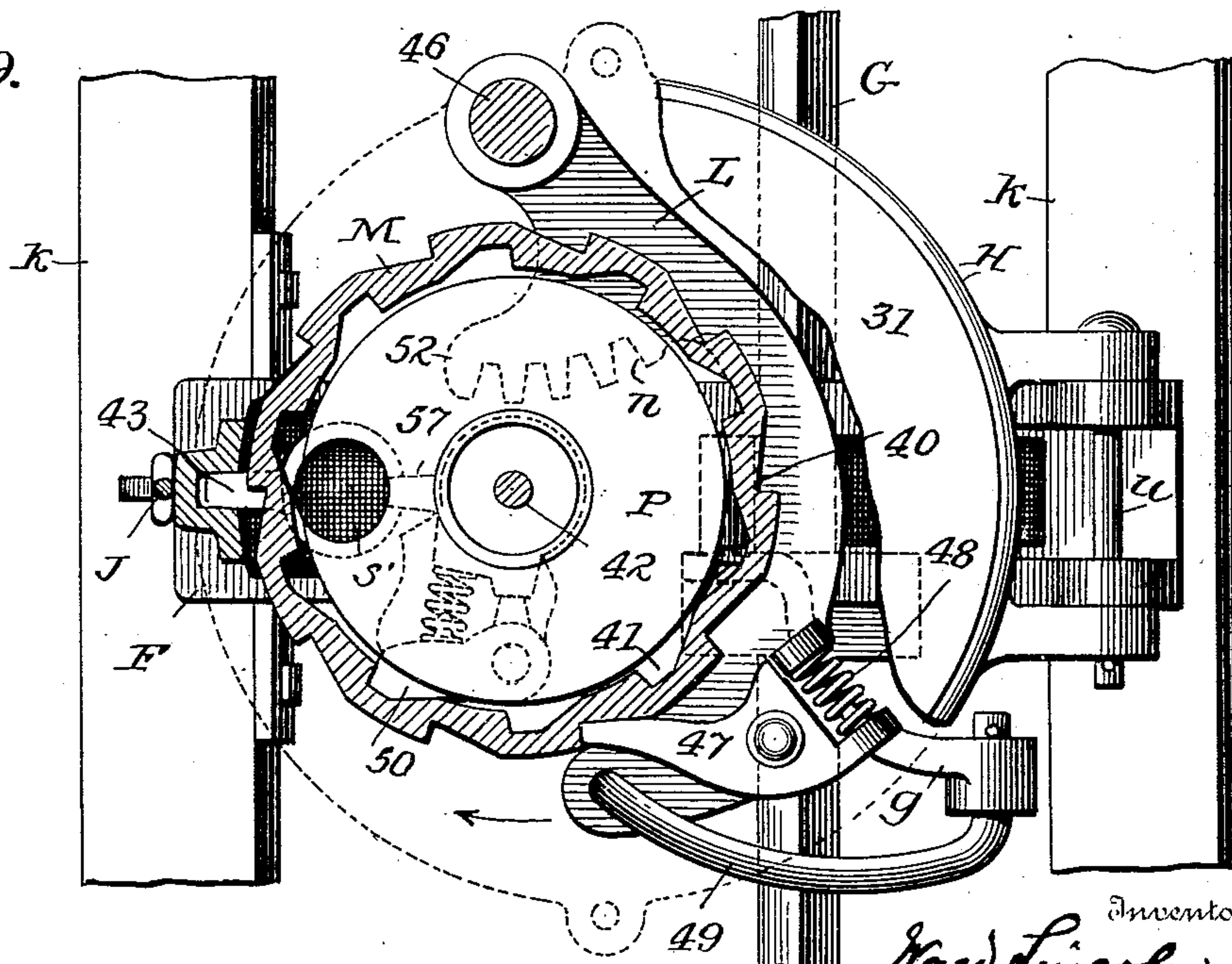


Fig. 9.



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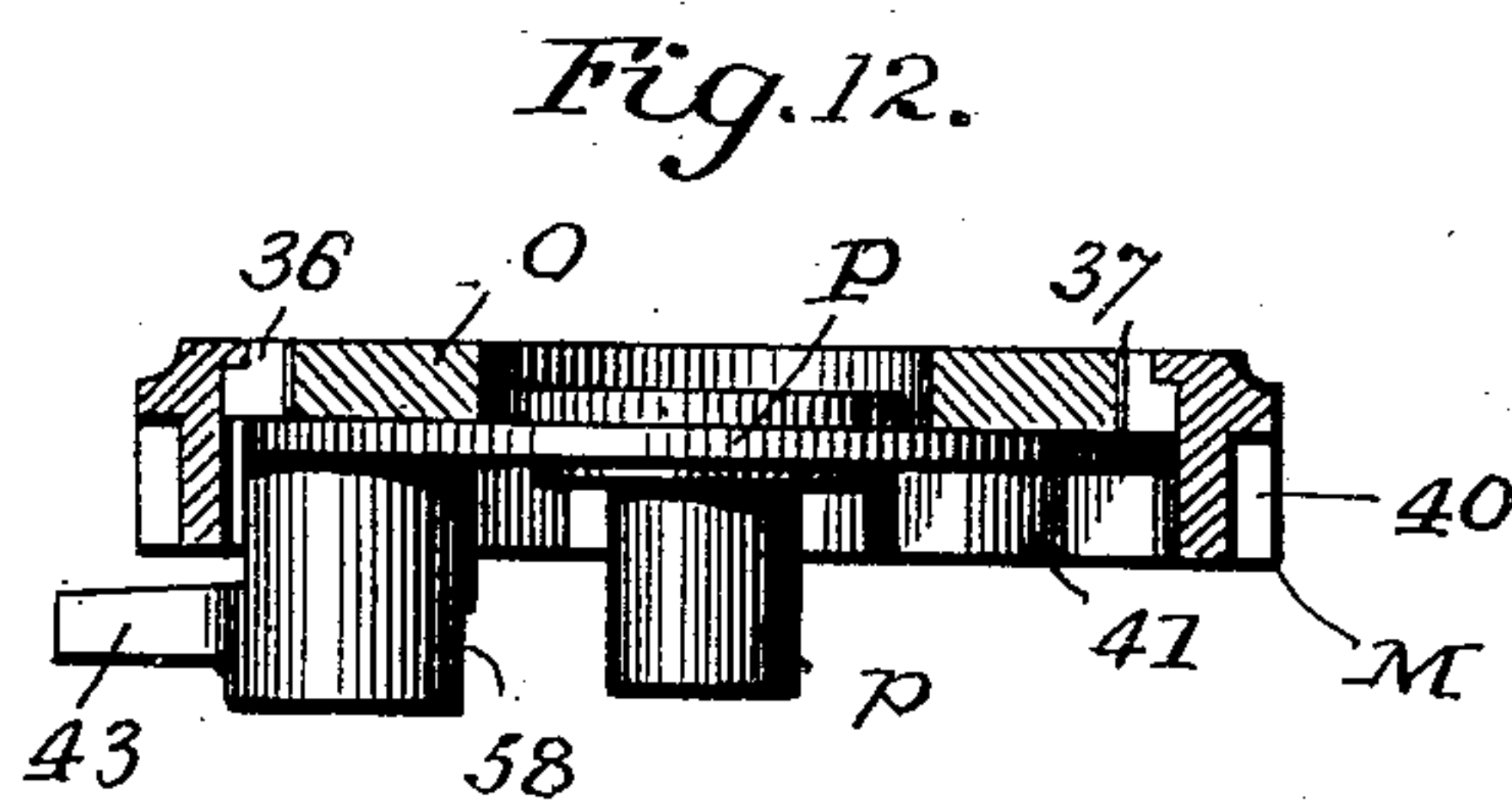
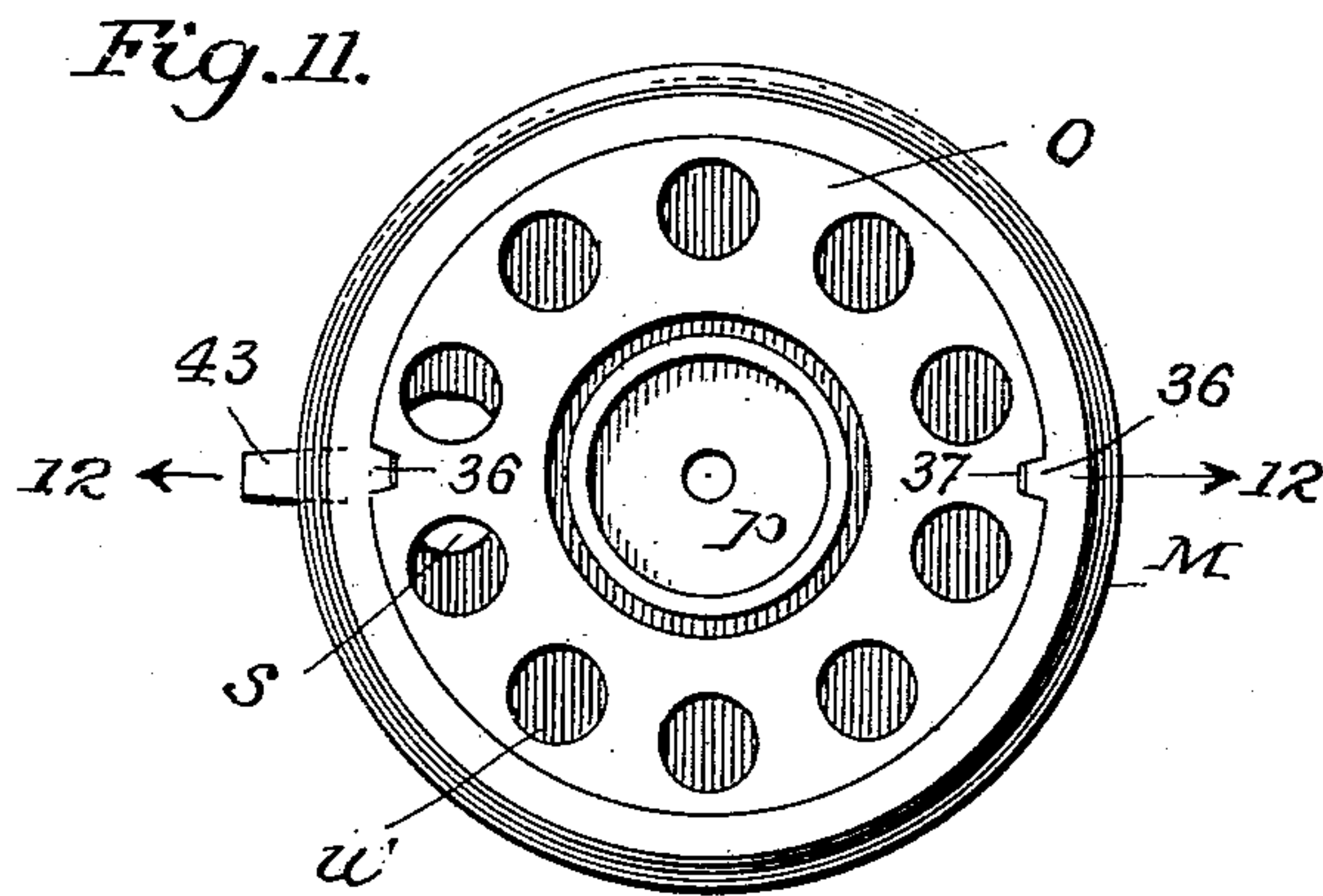
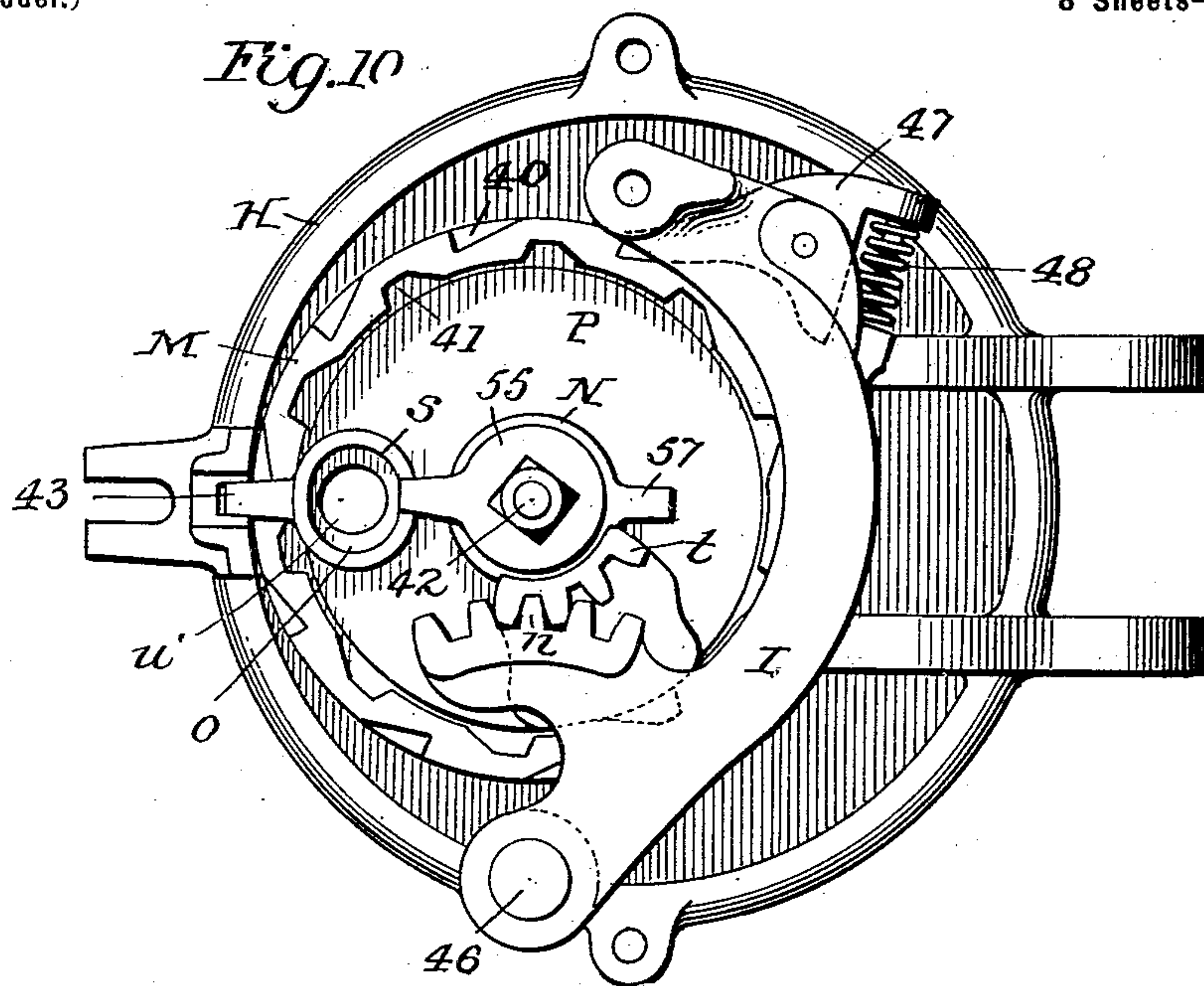
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Application filed Apr. 17, 1900.)

(No Model.)

8 Sheets—Sheet 8.



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UNITED STATES PATENT OFFICE.

WARD LINCOLN, OF ROCK FALLS, ILLINOIS, ASSIGNOR TO THE STERLING MANUFACTURING COMPANY, OF STERLING, ILLINOIS.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 664,767, dated December 25, 1900.

Application filed April 17, 1900. Serial No. 13,247. (No model.)

To all whom it may concern:

Be it known that I, WARD LINCOLN, a citizen of the United States, residing at Rock Falls, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Corn-Planters, of which the following is a specification.

My invention relates to agricultural implements, and more especially to corn-planters; and my invention consists of certain control devices whereby to adjust and regulate the movements of the operating parts of the implement either by the hands or feet of the operator, or by both, and in certain improvements in the devices for feeding the seed, all as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a corn-planter embodying my improvement; Figs. 2 to 5, elevations in part section of the same; Fig. 6, a sectional elevation through part of the seedbox and adjacent parts; Fig. 7, a side view of the parts shown in Fig. 6; Fig. 8, a section on the line 8 8, Fig. 6, with some of the parts removed; Fig. 9, a section on the line 8 8, showing the parts in a different position from that which is shown in Fig. 8; Fig. 10, an inverted plan of the seedbox and parts below the same; Fig. 11, a plan of the seed-plate and ring; Fig. 12, a section on the line 12 12, Fig. 11.

The main frame W has cross-bars 3 4 and side bars 6 6 and rests upon the axle 2, supported by the wheels 1 1, and to the forward ends of the side bars 6 6 is pivoted at xx the runner-frame K, having parallel cross-bars $k k$ and supporting the runner-shanks F and runners or furrow-openers F', and from the frame extends centrally the pole F². At the rear of the main frame is supported the usual seat W', in front of which is the lifting mechanism of the improved character hereinafter described, which controls, under the action of the hands and feet of the operator, the position of the runners. In this control mechanism there are a foot-lever A, which is the main operating-lever, and a hand-lever E, both of which are pivoted to a cross-pin 8 upon a bracket B, bolted at its lower end to the main frame.

The foot-lever A is connected at its forward end by a link a to the rear end of the pole F², and from the rear end of the lever A extends an arm 9, which may be bolted to or form part of the lever A and which has at its rear end a footpiece 10, upon which the operator may place his foot for the purpose of depressing it and for lifting the forward end of the lever and swinging upward the rear end of the pole and runner-frame.

To an ear 12, projecting from the upper edge of the lever A at the forward end, is pivoted a foot-pawl D, having a bearing 13, upon which the left foot of the operator may be placed, the end of the pawl extending over a curved bearing 14 at the side of the hand-lever E and adapted to engage a notch y in the center of the said bearing to thereby lock together the levers A and E, a spring 16, bearing at one end upon the pawl D, tending to throw the opposite end into engagement with the curved bearing 14. Lugs 17 17 upon the lever A receive between them a lug 18 on the pawl D and limit the extent of vibration of the latter. Upon a cross-pin 19, extending through the lever A, is pivoted a second pawl C, the end of which engages a bearing 20 on the bracket B, adjacent to but back of the bearing 14 of the lever E, and in this bearing 20 is a notch w , Fig. 4, into which the pawl enters and in such case holds up the runner-frame and its runners, as in Figs. 2 and 4. The spring 16 bears at its lower end on the pawl C and tends to maintain the end of the said pawl upon its bearing, the same spring thus operating upon both pawls.

Upon the shaft e of the lever E is a slide 25, provided with a lug 26, (dotted lines, Fig. 3,) adapted to engage notches v in the upper edge of the bracket B, and this slide is raised and lowered by means of the hand-latch 27, Fig. 1, to which the slide is connected by a rod 28, as usual in such devices.

An arm c , extending from the pawl C, has at its inner side a rib c' , which may be brought above a rib e' , extending laterally from the slide 25, and when the parts are in this position the lifting of the slide 25 also serves to raise the pawl C and take it out of the notch w , in which case when the pawl D engages the notch y the movement of the hand-lever will

swing with it the lever A and detached parts. The pawl C also has a lateral lug c^2 extending over the pawl D, so that when the latter is lifted by the pressure of the foot upon the bearing 13 the pawl C will also be lifted, whereby the forward end of the lever A may be depressed by the pressure of the foot upon the bearing 13, or while the foot is upon this bearing the rear end of the lever A may be depressed by the pressure of the foot upon the footpiece 10 of the arm 9 to carry the end of the pawl D across and back of the notch y .

By the construction of parts above set forth I am enabled to control the position and operation of the runner-frame by either the foot-lever or the hand-lever or by the combined action of both.

The operations of the levers may be best understood by considering their use in their different combinations, as follows:

First. The operations may be effected by the hand-lever only. When this lever is locked to the foot-lever, the two may be used as a single device and the runners may be set for any required depth or raised free from the ground and locked in either position by the engagement of the projection 26 of the slide 25 with the teeth or notches of the bracket B. In this case, however, the operator may instantly disengage the foot-lever from the hand-lever without altering the position of the latter for the purpose of temporarily varying the depth of the planting or in order to force the runners into the ground.

Second. The hand-lever may be set to any desired position—as, for instance, in Fig. 4—to set the runners at any required depth for planting, the foot-lever being locked to the hand-lever. In such case when the end of the row is reached the left foot may be placed upon the bearing 13, lifting the pawl D from its notch, the hand-lever remaining locked in its position. The rear of the runner-frame may then be raised by pressure of the right foot on the foot-rest 10, bringing the parts to the position shown in Fig. 5, when the runner-frame will be locked free of the ground by the pawl C engaging the notch w . When the runners are again to be depressed, the pawl C is lifted by pressure of the left foot upon the bearing 13 of the pawl D until the end of the pawl D enters the notch y of the hand-lever E. In raising or lowering the parts the end of the pawl D slides freely on the curved bearing 14 of the lever E. This enables the operator to raise or lower the machine without using his hands, while retaining the advantage of a hand-lever, by means of which the parts may be adjusted to normally operate at any required depth, and when the hand-lever is once set no particular attention is required to insure normal operations at the proper depth, as in such case in making any change the parts will automatically lock with the runners in proper position. A further advantage, however, is that the operator may temporarily vary the depth of planting at any time or ad-

just the parts to maintain a uniform depth in different conditions of the ground without moving the hand-lever. By pressure with the foot upon the bearing of the pawl D and unlocking the latter from the hand-lever E the runners may be raised by pressure upon the bearing at the end of the arm 9 or the runners may be forced into the ground at any desired pressure, the foot being maintained upon the bearing 13.

Third. The runners may be permitted to float by placing the hand-lever in its rear-most position, unlocking the pawls, so that they will swing forward beyond the notches $w y$. In such case the runners will rest upon the ground, following the undulations of the latter, and the lever A will vibrate the ends of the pawls, simply sliding upon their bearings unless the lever A is raised to its highest position, when the pawl D will enter its notch. The parts may, however, be at once unlocked by pressure upon the bearing-plate 13.

The seedboxes H are each pivoted at u to ears upon the runner-frame and are held in fixed position by means of swinging clamps J, and the bottom of each box consists of a center disk 30 and surrounding inclined ring 31, separated to leave an annular intervening channel z , the two parts being connected by bridges 32, the center of the disk 30 coinciding with the center of the seed-plates.

The seed-plate O turns about an annular rib 69 at the bottom of the disk 30 and rests upon a plate P, and the seed-plate and plate P are encircled by a ratchet-ring M, having at its upper edge an annular lip 35, fitting an annular recess in the edge of the seed-plate, and lugs 36 extend from the ring M into notches 37 in the seed-plate, so that the ring and seed-plate will turn together, but so that they may be readily detached when required.

In the seed-plate are as many seed-openings u' as may be required and a corresponding number of ratchet-teeth 40 at the outside of the ring M and a corresponding number of ratchet-teeth 41 at the inside of said ring. (See Fig. 10.) In a tube S, dependent from the plate P, is a discharge-channel s' , which is above the channel in the runner-shank F.

The plate P is provided with a hub p , through which passes a bolt 42, which also extends through the disk 30, thereby holding the plate P in position against the flange of the under side of the disk 30, and any rotation of the plate P is prevented by a finger 43, extending from said plate into a notch 44 in a flange 45, extending downward from part of the bottom plate-section 31. (See Fig. 6.)

The step-by-step rotation of the ring M and the seed-plate is effected by the vibration of a lever L, pivoted to a stud 46, Figs. 8, 9, and 10, and carrying a pawl 47, the end of which engages the external ratchets of the ring M, a spring 48 tending to hold the end of the pawl against the edge of the ring. The vibration of the lever L may be effected in any suitable manner, but, as shown, it is vibrated

by a rock-shaft G, an arm g on which is connected with the end of the lever L by a hook-rod 49, the hooked end of which enters a recess in the lever L, as shown. The movement of the end of the lever L in the direction of its arrow, Fig. 9, carries the pawl 47 forward and turns the ring M in the same direction an extent sufficient to turn the seed-plate one step—that is, to bring another opening above the discharge-channel s' . On the backward movement of the pawl 47 the ring M should be held in place, if only a limited speed of feeding is required, and this may be effected by a pawl 50, arranged, as shown in dotted lines, Fig. 9, so as to engage the inner ratchet-teeth of the ring M. In some instances, however, a more rapid feeding is required, in which case I provide any suitable means whereby the ring M may be turned not only by the forward movement, but also by the backward movement of the rock-shaft G. One means of securing this result utilizes the pawl 50, which in such case may be mounted upon an arm N, the hub 51 of which rocks upon the hub p of the plate P, Fig. 6, and on this arm N is a rack-segment t , which engages a like segment n upon an arm 52, projecting from the lever L. (See Figs. 8, 9, and 10.)

The arm N is set in the position shown in Figs. 8 and 10, and when the lever L swings in the direction of its arrow 2, Fig. 8, the plate N swings in the direction of its arrow, carrying the pawl 50 with it and turning the ring M in the direction of its arrow, so that the said ring is turned one step at each rocking movement of the rock-shaft G.

The arm N is retained in position by a washer 55, held upon the bolt 42 by its nut 56, the said washer being prevented from turning by a lip 57, extending from the washer into a notch 58 in the tubes extending from the plate P.

The arm N is provided with a lug 57, which when the said arm is turned to the position shown in dotted lines, Fig. 9, also enters the notch 58, (see Fig. 6,) the arm N being then prevented from vibrating. In such case of course the ring M is turned only on the forward movement or rocking of the shaft G.

The shaft G may be vibrated as in other machines by devices coöperating with the check-rower wire or by connections with any moving part of the machine.

The arm g , Fig. 7, is not fitted directly to the shaft G, which is angular, but has a curved recess to receive a curved block 60, fitted to said angular shaft, and bolts 61 62 pass through projections on the arm g and through a clamp-block g' , notched to fit the under faces of the rock-shaft. This permits the arm g to be set at different angles to the shaft G and to be then secured by tightening the bolts, so that the arm may be set in its proper position whatever may be the position of the shaft. The arm g^2 , Fig. 1, connected with the foot-lever g^3 , by means of which the

shaft may be rocked by the operator, is likewise secured to the shaft G by similar devices, as may be any other parts mounted upon and operated by said shaft.

Without limiting myself to the precise construction and arrangement of parts shown, I claim as my invention—

1. In a control device for agricultural implements, the combination of a foot-lever, a pawl pivoted thereto, a hand-lever having a curved bearing with a notch for receiving the end of said pawl, and means for connecting the foot-lever with the part to be operated, substantially as set forth.

2. In a control device for agricultural implements, the combination of a hand-lever and a foot-lever both pivoted on the same axis, a pawl pivoted on the foot-lever, a curved bearing on the hand-lever having a notch for receiving the end of the said pawl, and means for connecting the foot-lever with the part to be operated, substantially as set forth.

3. In a control device for agricultural implements, the combination of a foot-lever having a foot-rest at one end, a pawl pivoted to the lever at its other end and having a bearing for the foot, a hand-lever having a curved bearing with a notch for receiving the end of said pawl, and means for connecting the foot-lever to the part to be operated, substantially as set forth.

4. In a control device for agricultural implements, the combination of a foot-lever, a pawl pivoted thereto, a hand-lever having a curved bearing with a notch to receive the end of said pawl, means to lock the hand-lever in different positions, means for connecting the foot-lever with the part to be operated, means for releasing the pawl from the curved bearing on the hand-lever, and means for operating the foot-lever independently of the hand-lever, substantially as set forth.

5. The combination of the foot-lever, two pawls pivoted thereto, a hand-lever provided with a notched bearing engaged by one of said pawls, a stationary notched bearing engaged by the other pawl, and means for connecting the foot-lever with the part to be operated, substantially as set forth.

6. The combination of a foot-lever, two pawls pivoted thereto, a hand-lever having a notched bearing engaged by one of said pawls, a stationary notched bearing engaged by the other pawl, a locking device carried by the hand-lever to lock the latter in position, and connections between the said locking device and the pawl engaging the stationary notched bearing, whereby when the hand-lever is unlocked the said pawl is disengaged from the stationary notched bearing, substantially as set forth.

7. The combination with the seedbox, of the disk 30 and inclined ring 31 separated by an annular space, bridges extending across said space and connecting the disk and ring, a seed-plate below the disk having openings communicating with the annular space, an

annular rack connected to the seed-plate, a pawl engaging said rack, means for vibrating the pawl, and a plate P below the seed-plate having a discharge-opening with which the openings in the seed-plate successively register, substantially as set forth.

8. The combination with the seedbox, of a circular seed-plate supported below the bottom of the box, a plate P having a discharge-opening and a ring M having outer and inner ratchet-teeth, a vibrating pawl engaging the outer set of teeth, a second pawl engaging the inner series of teeth, means whereby the inner pawl may be vibrated, and means whereby the inner pawl may be secured with its fulcrum in a fixed position, substantially as set forth.

9. The combination of the seedbox, seed-plate, ring connected with the said seed-plate and having inner and outer ratchets, a pawl engaging the outer ratchet, a pawl engaging the inner ratchet, a rock-shaft, and means whereby one pawl is carried with the ring on the rocking of the shaft in one direction and the other pawl upon the rocking of the shaft in the opposite direction, substantially as set forth.

10. The combination of the seed-plate, ratchet-ring having inner and outer ratchets, a lever L and pawl carried thereby and toothed segment thereon, and vibrating arm N carrying a pawl and provided with a toothed segment engaging that of the lever, substantially as set forth.

11. The combination of the seed-plate, ratchet-ring having inner and outer ratchets, a lever L and pawl carried thereby and toothed segment thereon, vibrating arm N carrying a pawl and provided with a toothed segment engaging that of the lever, and means for se-

curing the arm N in position with its segment disconnected from that of the lever, substantially as set forth.

12. The combination of the seedbox, seed-plate, plate P below the seed-plate and having a hub *p*, an arm vibrating on said hub and carrying a pawl, a ring M having outer and inner ratchets, connected with the seed-plate, a lever L carrying a pawl, and means for vibrating the lever L and the arm N, substantially as set forth.

13. The combination with the rock-shaft, of a block having a rounded outer edge, an arm having a rounded socket adapted to receive said block, and means for clamping the arm upon the block in different positions, substantially as set forth.

14. The combination of the angular shaft G, arm *g* having a rounded socket, a block having a rounded edge adapted to fit in said socket, and an angular recess to receive said shaft, a clamp-block *g'* also having an angular recess to receive the shaft, and bolts holding the clamp-block and arm together, substantially as described.

15. The combination of the seedbox, seed-plate, a rack connected to the plate, an operating-lever L carrying a pawl engaging the rack, the rock-shaft G, an arm *g* adjustably connected to said shaft, and a connecting-rod attached to the arm and having a bent end fitting a recess in the lever L, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WARD LINCOLN.

Witnesses:

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R. L. LEITCH.