

No. 698,382.

Patented Apr. 22, 1902.

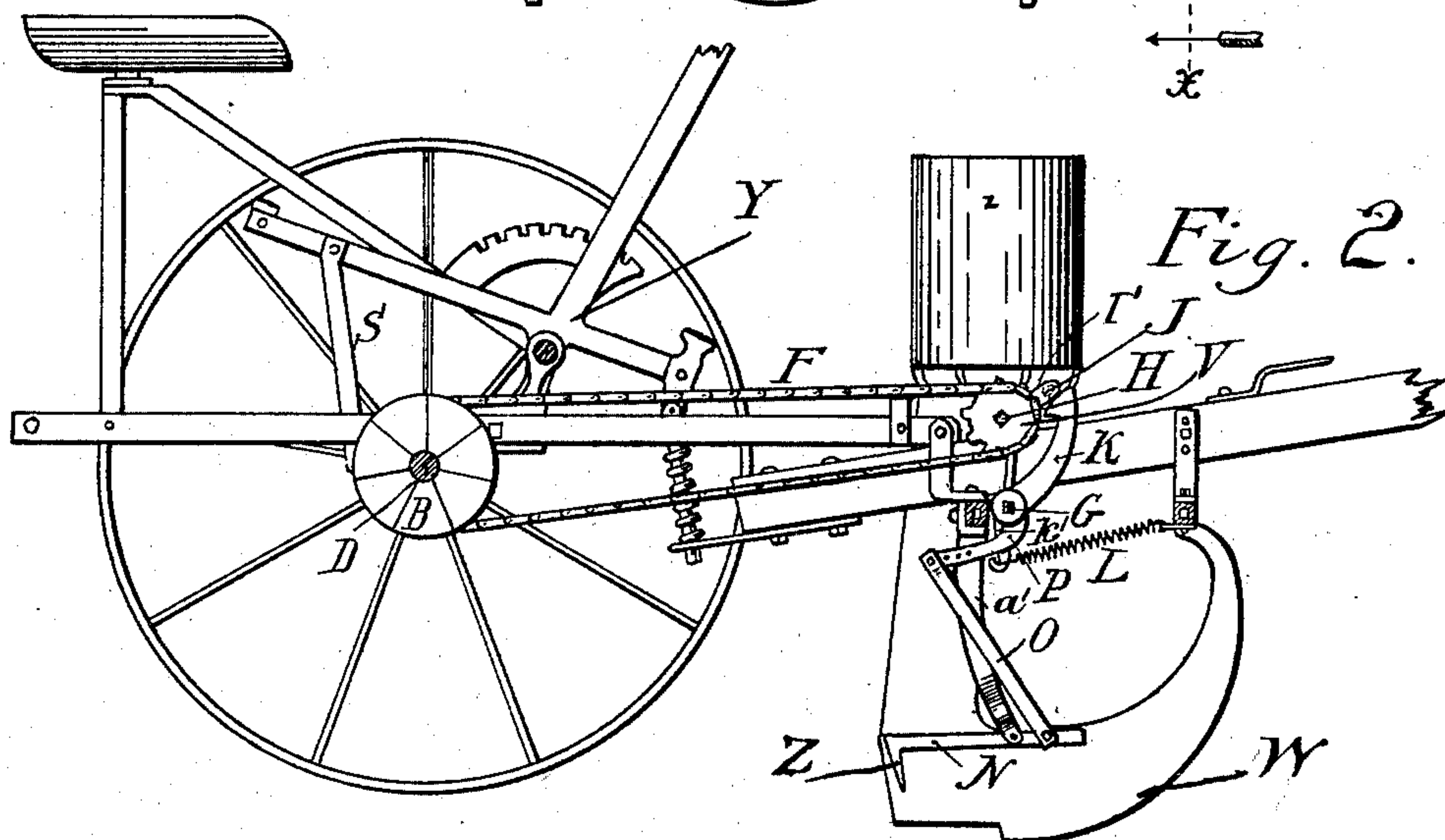
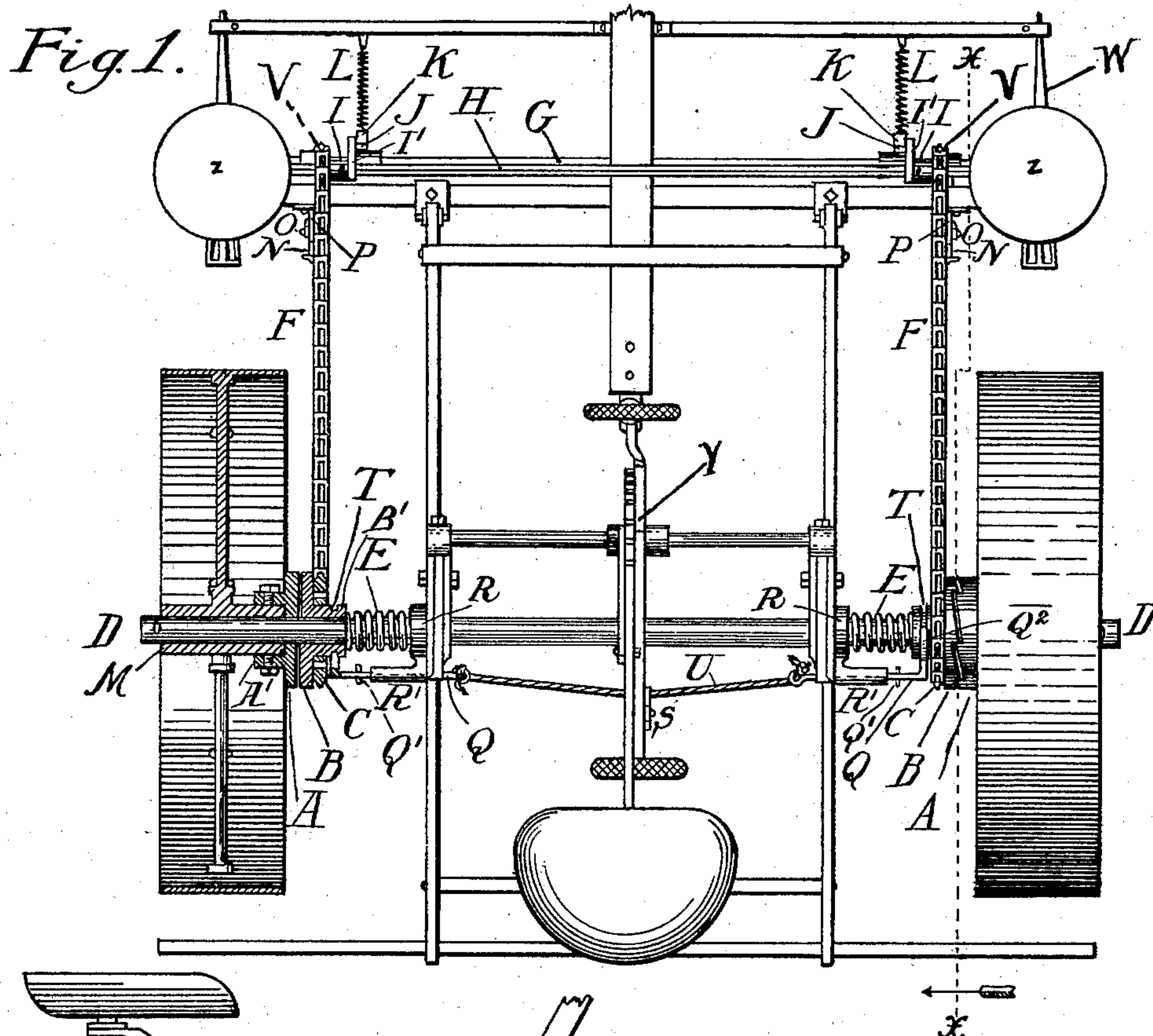
H. L. ORENDORFF.

CORN PLANTER.

(Application filed Mar. 25, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.
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Fig. 3.

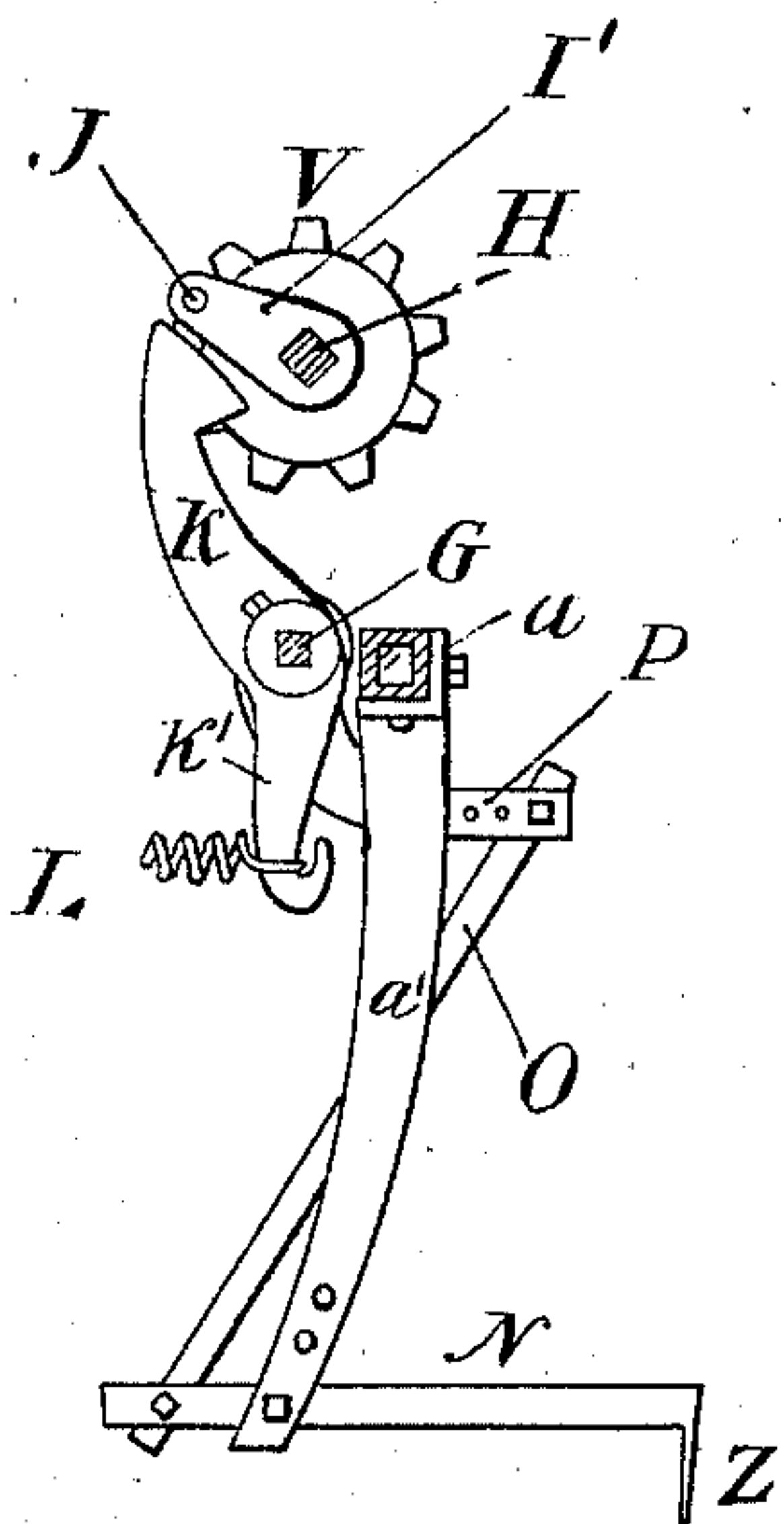
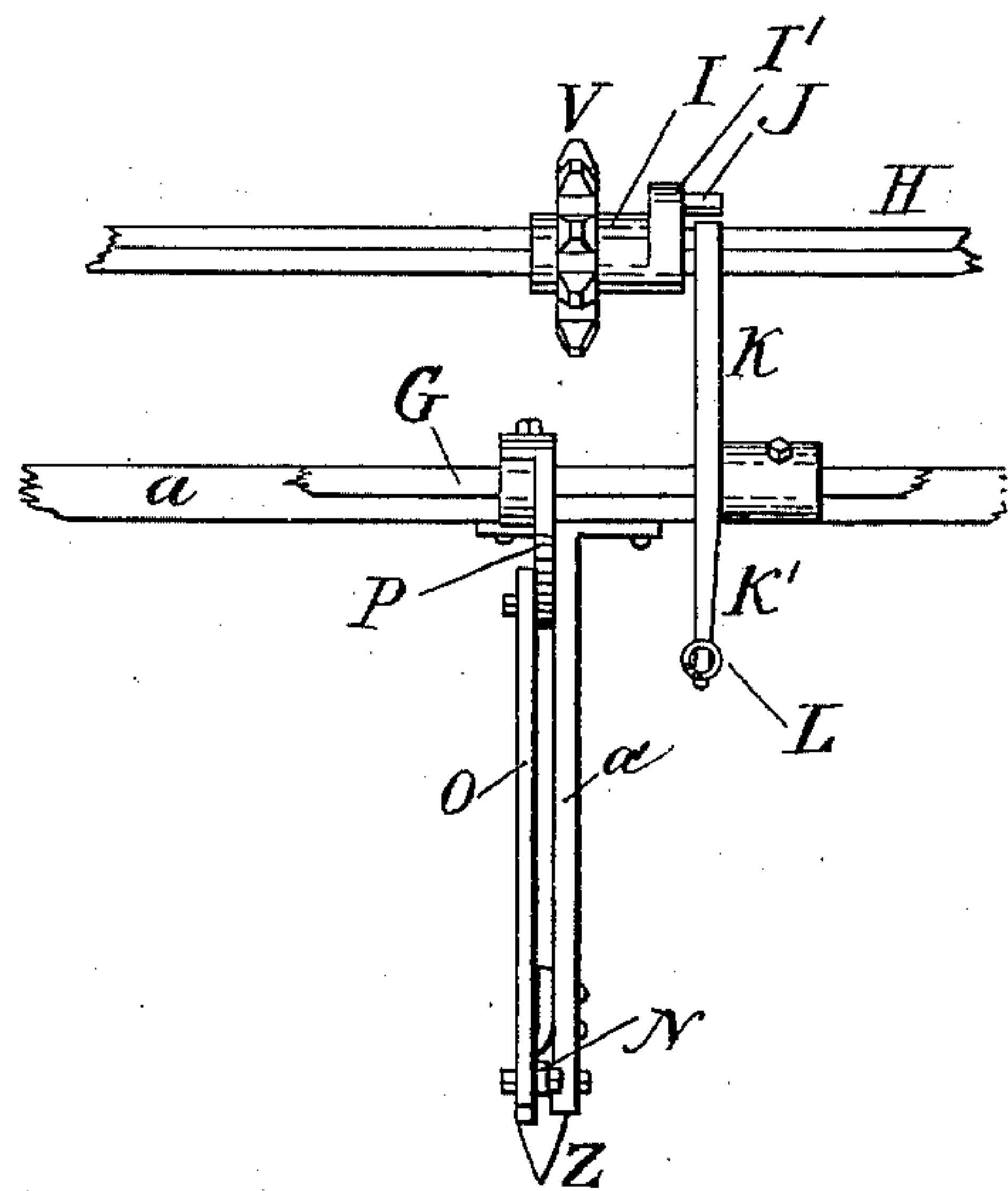


Fig. 4.



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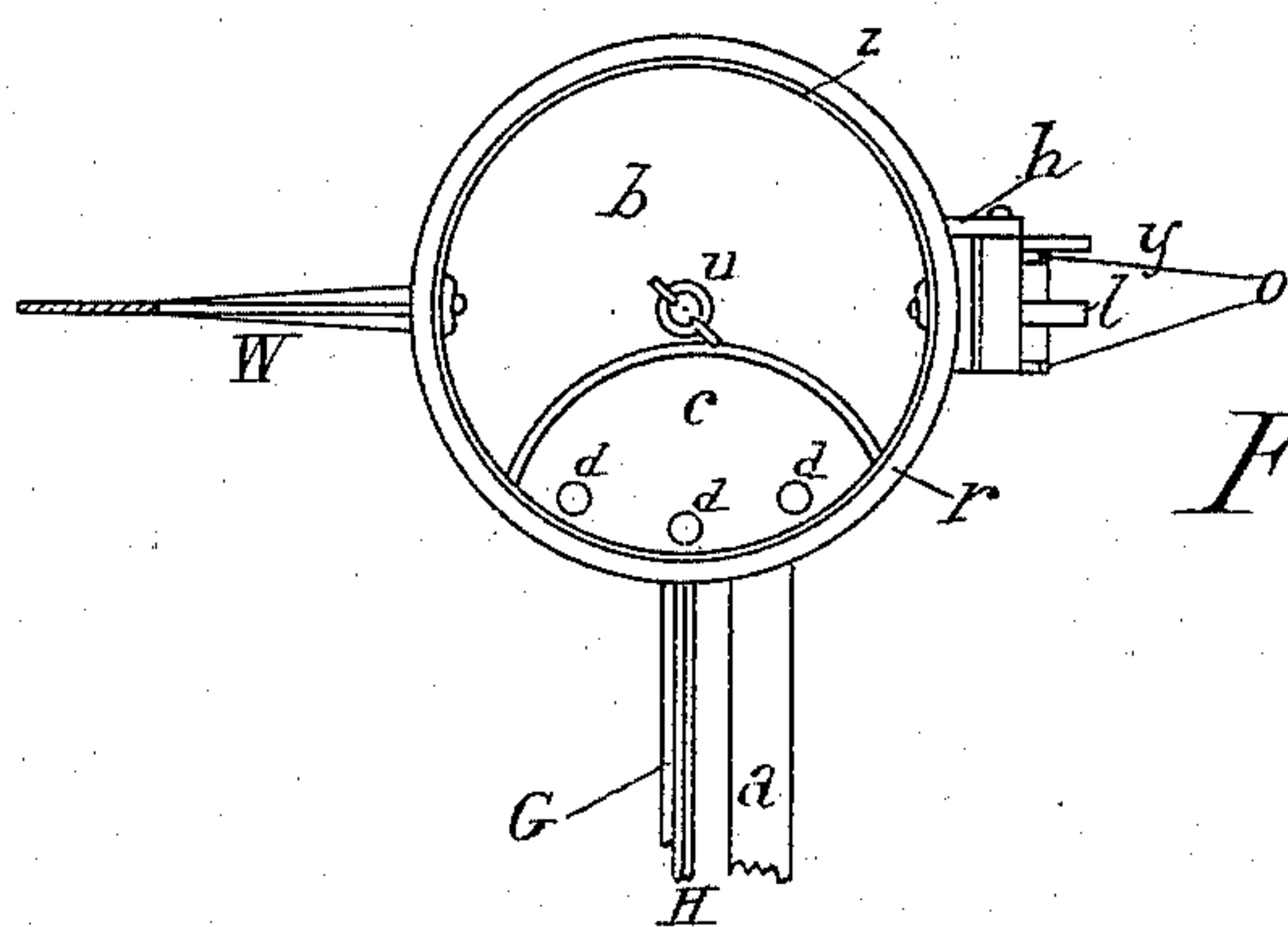
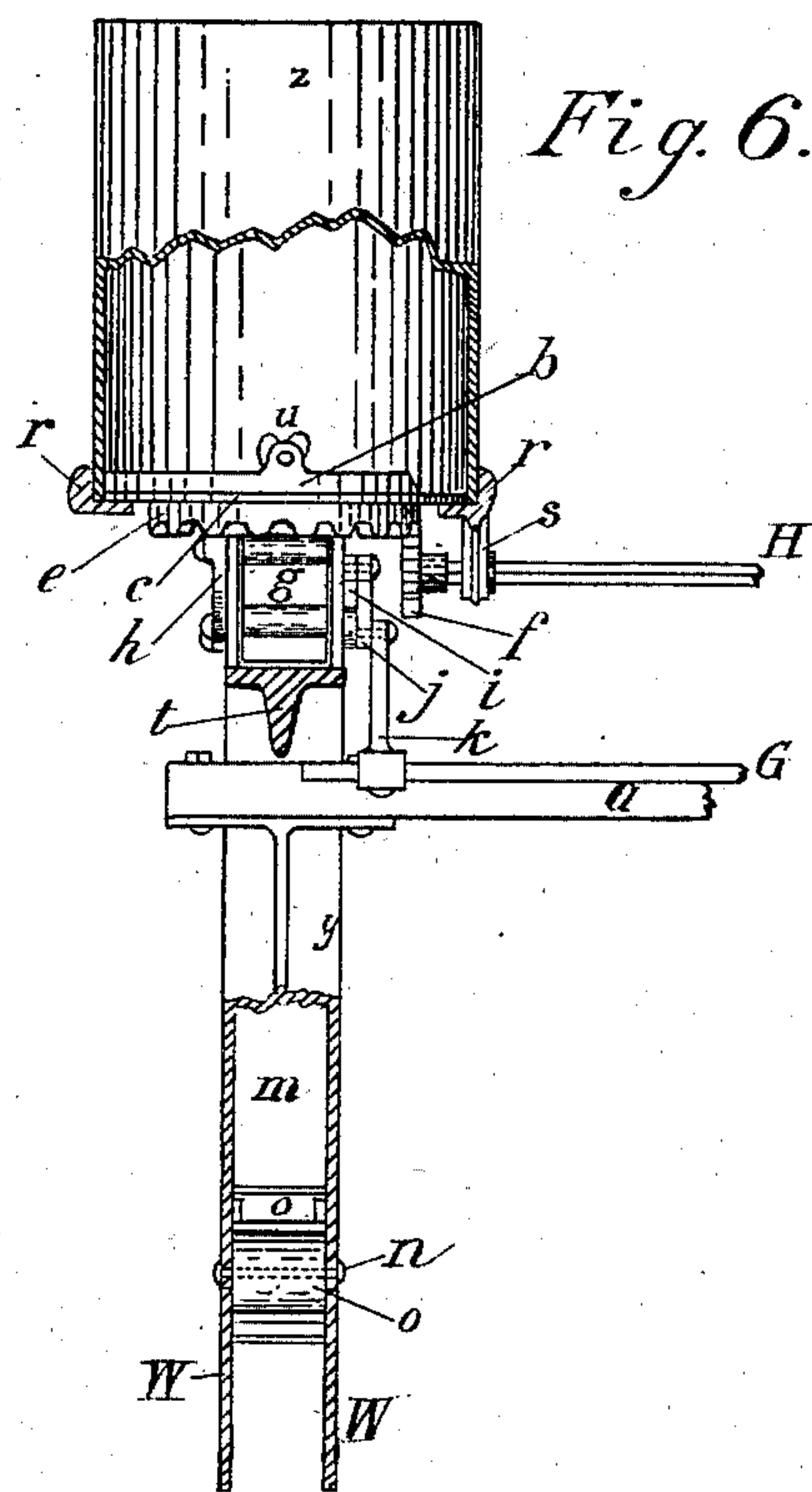
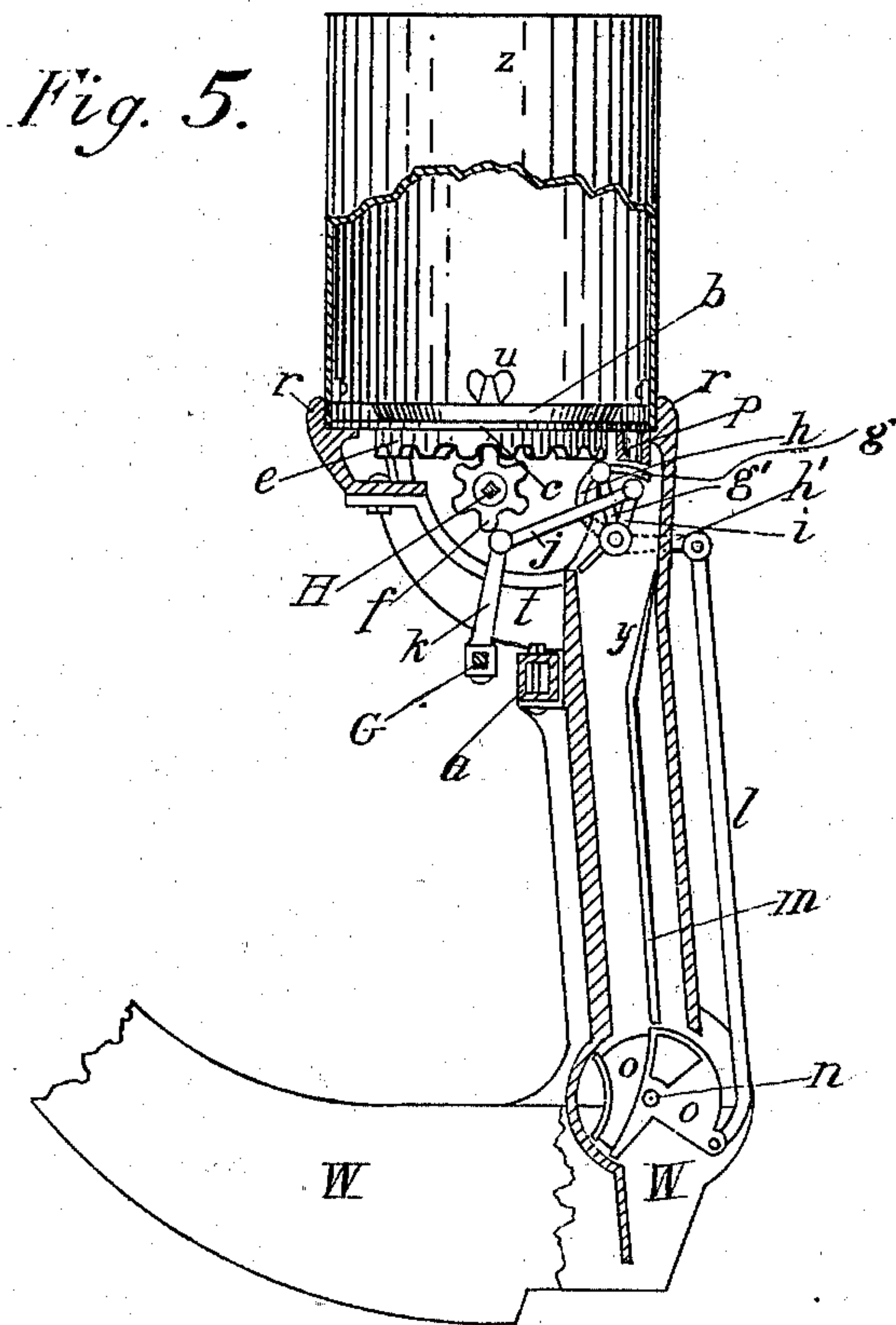


Fig. 7.

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UNITED STATES PATENT OFFICE.

HARRY LOUIS ORENDORFF, OF DAVENPORT, IOWA.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 698,382, dated April 22, 1902.

Application filed March 25, 1901. Serial No. 52,815. (No model.)

To all whom it may concern:

Be it known that I, HARRY LOUIS ORENDORFF, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Corn Planters and Markers, of which the following is a specification.

My invention relates to improvements in corn planters and markers embracing improved means for operating the seed-droppers of seed-planting machines; and its object is to drop the hills of corn or seed at equal distance from each other in the rows and to produce rows in straight lines transversely to the direction in which the planter travels.

My invention also relates to improved means for overcoming the effect of the slipping of one wheel or side of the machine upon the ground, the parts being so arranged that the slipping of one wheel or side of the machine will have no effect upon the dropping of the seed, so that the seed will continue to drop so long as either wheel turns.

My invention further relates to a marker having novel operating mechanism and located at each shoe for marking the location of each hill planted.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a plan view of my improved machine, showing an axial section of the left-hand wheel, hub, and clutch. Fig. 2 is a vertical longitudinal section on the line X X of Fig. 1 looking in the direction of the arrows. Fig. 3 is a detail view of the right-hand marking mechanism as seen from the middle of the front or runner frame. Fig. 4 is a detail view of the right-hand marking mechanism as seen from the front. Fig. 5 is a detail view showing the inner side of the right-hand seed-hopper, hopper-frame, dropping-plate, valves, gearing, and shoe partly in section. Fig. 6 is a detail showing a front view of the seed-hopper, hopper-frame, dropping-plate, valves, gearing, and shoe, also partly in section. Fig. 7 is a top or plan view of the right-hand hopper, hopper-frame, shafts, and shoe.

Similar letters refer to similar parts in all the figures of the drawings.

The machine comprises a rear or wheel frame and a front or runner frame flexibly united together by a hinged joint. 55

D is the main axle, to which the rear or wheel frame is rigidly attached and upon which the two main wheels are loosely journaled. The active or operating devices comprised in the machine being in duplicate, it will only be necessary to describe one set thereof. 60

M is the hub of a main wheel. To the inner end of this hub is rigidly attached by a projecting flange or sleeve A' a circular plate or outer member A of a clutch, which rotates with the wheel around the axle D and may be cast integral with the hub of the wheel, if desired. 65

The inner surface of the plate A is provided with projecting teeth or cogs adapted to be engaged by the teeth or cogs cut in the outer surface of a circular plate or inner clutch member B when in gear. The teeth or cogs are cut slantingly on one side, so that the inner plate B may rotate forward freely of the outer plate A. The outer plate A cannot rotate forward without rotating the inner plate B forward also when in gear with the latter. The inner plate B is loosely mounted on the axle D and has its central part projecting inwardly to provide an extension B', and such extension is formed with a peripheral groove T and its main part provided with a sprocket-wheel C to engage the rear part of a sprocket-chain F. 85

E is a spring coiled around the axle D and adapted to press the inner plate B in the direction of and against outer plate A. The inner end of the spring rests against a bracket R, which is rigidly attached to the rear or wheel frame and has a hollow projecting arm R' extending parallel with the axle, through which a rod Q passes. The rod Q is provided with a fork Q² at its outer end, which fits into the peripheral groove T, and at its other end, within the frame, is attached to a flexible connection U—such as a rope, wire, or chain—which is tightened or loosened by having its middle part lowered or raised by the arm S of the main lever Y of the machine, to which it is attached, and when so tightened draws the inner plate B toward the middle of the axle D and disengages the inner clutch member B from the outer clutch member A. The rod Q 100

is provided with a stop-pin or cross-key Q' , passing through it and adapted to engage an arm R' on the bracket R when the rod is drawn inward, so as to govern the distance of its movement.

The front part of the chain F passes around a sprocket-wheel V , rigidly attached to and rotating with an operating upper shaft H . The upper shaft H is the shaft usually used with gearing and is journaled to the hopper-frame, so as to operate the seed-dropping mechanism as such machines are now manufactured. This front sprocket-wheel V is attached to, or formed integral with, a sleeve I which is provided with a radially-projecting lug I' having a pin or projection J extending parallel with the upper shaft and fitted to, or formed integral with, such projecting lug, and engaging at each rotation with the rearwardly-projecting head of an upwardly-extending arm K . The arm K is rigidly attached to a lower rock-shaft G , which passes through it, is journaled to the front frame, and provided at its lower end with a pendent hook K' , to which the rear end of a coil-spring L is attached for returning the rock-shaft to normal position. The front end of this spring L is connected with the front frame. Also rigidly attached to the rock-shaft G is a pendent arm P , to the lower end of which the upper end of a bar or rod O is adjustably attached. The lower end of rod O is pivotally attached to and operates a lever N , fulcrumed on a support a' , depending from the cross-bar a of the front frame. The rear end of the lever N has a downward projection or prong Z , providing a marker. The pin J is adapted to strike the head of and move the arm K at the instant the corn or seed is dropped to the ground from the heel of the shoe or runner W .

The dropping plates and valves are shown in Figs. 5, 6, and 7 and are also in duplicate, being the same on each side of the machine.

z is the hopper and is composed of metal or other suitable material to contain the seed. The hopper is provided with a bottom plate b , rigidly attached thereto. The bottom plate b has a portion cut away, as shown in Fig. 7, to provide an opening, thus allowing the seed to rest upon a circular plate c beneath the bottom of the hopper. The circular plate c is pivoted to the bottom plate b by means of a bolt or pivot and thumb-screw u and is provided with a circle of crown-cogs e , rigidly attached to or formed integral with it upon its lower surface. The cogs e mesh with and are operated by the spur gear or cog wheel f , rigidly mounted upon the end of the upper shaft H . Near the outer circumference of the rotatable circular plate c is a circular row of holes d , extending at regular intervals around the plate into which the corn or seed is dropped, measured, and in which it is carried on an annular flange of the hopper-frame r to the discharge opening or tube p in the flange, which allows the corn or seed to drop upon the plate g , which provides a valve.

g' is a valve-arm of a bell-crank lever carrying the plate g , located inside of the irregular-shaped seed-tube y and rotatably mounted upon a bolt or pivot g^2 , extending from side to side of tube y and making a partial rotation forward and backward at every operation of the lower rock-shaft G , with which it is connected and operated by the other arm i of the bell-crank lever, an arm k on the rock-shaft and link j connecting these arms i and k . Mounted and turning upon the same pivot g^2 , but on the outer end of the pivot and outside of the tube y , is the curved arm h of a bell-crank lever, the upper curved end of which is attached by a pivot to the upper end of the valve arm or plate g . The straight arm h' of the bell-crank lever is connected by the rod or link l to the lower oscillating valve o , which is mounted upon the inside of the tube y on a pivot n , extending from side to side of the tube, and is provided with an opening or tube into which the seed drops from above and through which it drops to the ground when the valve-plate o is operated.

W is the shoe or runner of the machine.

m is a flat guide plate or partition to guide the seed into the opening of the oscillating valve o .

a is a cross-bar providing a frame-brace extending from one shoe to the other.

r represents the frames upon which the hoppers z are seated and are attached to or formed integral with the tube y .

s represents lugs or bearings on the hopper-frame for the upper operating-shaft H .

When in operation, the machine being drawn forward, the wheels on the axle D rotate with the outer plates A , inner plates having been released. The teeth on the outer plates A engage the teeth on the inner plates B and rotate them forward, carrying the chains F , which in turn rotate the front sprocket-wheels V and the upper shaft H . With every rotation of the sprocket-wheels V the lugs J engage the heads of the arms K and force them forward, rocking the lower shaft G , thereby raising the lower end of the arms P and through the levers N forcing the projections or prongs Z thereon into the ground, thus marking the place where the seed was dropped. The lugs J leave the heads of the arms K , and springs L then return the arms K and P and levers N to place. The rotation of a front sprocket-wheel V operates the upper shaft H and rotates a cog-wheel f , which in turn rotates the seed-plate c , bringing the holes d thereof over the opening or tube p and dropping the seed into the latter, which hold it until the desired number of grains are accumulated, when the operation of the valve-plate g drops the seed into the tube y and upon the valve o , at the next operation of which the seed drops through the opening in the valve o and thence into the ground at the heel of the shoe W . The valve-plate g and the valve o are operated by the rock-shaft G in unison with the marker N .

and are returned to position by the spring L after each operation. In turning at the end of a row the shoes W are raised by the main lever Y, the wire or rope U is depressed in the middle, and the clutch members A and B are disengaged.

The sprocket-chains F may be moved forward by hand to set the marker in unison with the marks on rows previously planted.

10 The principle of my invention is the constant utilization of the entire forward movement of the machine to operate the dropping and marking mechanism of a corn or seed planter free from interruption by the slipping of either wheel and the operation of the droppers and markers in unison.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

20 1. The combination of the wheel-frame, the axle to which the wheel-frame is rigidly attached, wheels loosely journaled on the axle, an outer clutch member having teeth cut slantingly and secured around the axle to the hub of a wheel, an inner clutch member having teeth cut slantingly, a sleeve having a peripheral groove and a sprocket-wheel, a bracket having a hollow arm and secured to the wheel-frame, a coil-spring surrounding the axle between the sleeve of the inner clutch member and the bracket, a rod extending through the hollow arm of the bracket and having a yoke engaging the peripheral groove of the inner clutch member, the main lever having an arm, a flexible connection between the rod and the arm on the main lever, a runner-frame, an operating-shaft having a sprocket-wheel and carried by the runner-frame, and a sprocket-chain connecting the sprocket-wheels.

2. The combination of the wheel-frame, the axle to which the wheel-frame is rigidly attached, wheels loosely journaled on the axle, an outer clutch member having teeth cut slantingly and secured around the axle to the hub of a wheel, an inner clutch member having teeth cut slantingly, a sleeve having a peripheral groove and sprocket-wheel, a bracket having a hollow arm and secured to the wheel-frame, a coil-spring surrounding the axle between the sleeves of the inner clutch member and the bracket, a rod extending through the hollow arm of the bracket and having a yoke engaging the peripheral groove of the inner clutch member and a stop to limit the inward movement of the rod, the main lever having an arm, a flexible connection between the rod and the arm on the main lever, a runner-frame, an operating-shaft having a sprocket-wheel and carried by the runner-frame, and a sprocket-chain connecting the sprocket-wheels.

3. The combination of the wheel-frame, the axle to which the wheel-frame is rigidly attached, wheels loosely journaled on the axle, outer clutch members each having teeth cut slantingly and secured around the axle to the

hubs of the wheels, inner clutch members each having teeth cut slantingly, a sleeve having a peripheral groove and a sprocket-wheel, brackets each having a hollow arm and secured to the wheel-frame, coil-springs surrounding the axle between the sleeves of the inner clutch members and the brackets, rods extending through the hollow arm of the brackets each having a yoke engaging a peripheral groove of an inner clutch member, the main lever having an arm, a flexible connection between the rods and the arm on the main lever, a runner-frame, an operating-shaft having sprocket-wheels and carried by the runner-frame and sprocket-chains connecting the sprocket-wheels.

4. A corn-planter comprising a wheel-frame, and a runner-frame connected together, an axle on which the wheel-frame is mounted, wheels in which the axle is journaled, outer clutch members having slanting teeth and fixed to the wheels, inner clutch members having slanting teeth and peripheral grooves and loosely mounted on the axle, an operating-shaft mounted on the runner-frame, brackets having hollow arms and secured to the wheel-frame, coil-springs surrounding the axle between the inner clutch members and the brackets, rods extending through the hollow arms and having yokes engaging the peripheral grooves of the inner clutch members, the main operating-lever having a depending arm and mounted on the wheel-frame, a flexible connection whereby the rods and the main operating-lever are connected and gearing whereby the inner clutch members are connected with the operating-shaft.

5. The combination of the wheel-frame, a runner-frame, an operating-shaft mounted on the runner-frame, means for rotating the operating-shaft, the lug having a pin and secured to the operating-shaft, the rock-shaft, the arm fixed on the rock-shaft having a head with which the pin engages and a pendent hook, a spring connecting the hook with the runner-frame, a pendent arm secured to the rock-shaft, the depending support secured to the runner-frame, the marking-lever provided with a marking-prong and pivoted to the depending support and the link whereby the pendent arm and the marking-lever are connected.

6. A corn-planter comprising a wheel-frame and runner-frame connected together, an axle, the outer clutch members, the inner clutch members, having sprocket-wheels and peripheral grooves, springs bearing against the inner clutch members the operating-shaft mounted on the runner-frame, the sprocket-wheel secured on the operating-shaft, a radial arm provided with a pin and secured on the operating-shaft, the rock-shaft, the arm provided with a head and a hook, and secured to the rock-shaft, the pendent arm secured to the rock-shaft, the spring connected to the hook, and to the runner-frame, a depending support secured to the runner-frame, the

- marking-lever having a marking-hook and pivoted to the depending support, the link whereby the pendent arm and the lever are connected, brackets secured to the wheel-frame, rods having forks fitting the peripheral grooves, the main lever having an arm and mounted on the wheel-frame, and a flexible connection between the rods and the arm of the main lever.
- 10 7. A corn-planter comprising a wheel-frame, and a runner-frame connected together, an axle on which the wheel-frame is mounted, wheels in which the axle is journaled, outer clutch members having slanting teeth and
15 fixed to the wheels, inner clutch members having slanting teeth and loosely mounted on the axle, an operating-shaft mounted on the runner-frame, means whereby the members of the clutches are placed in and out of
20 gear, gearing whereby the inner clutch members are connected with the operating-shaft, a marker-support depending from the runner-frame, a lever having a marking-prong, at its rear end and fulcrumed to the support, the
25 lug having a pin and secured to the operating-shaft, the rock-shaft located beneath the operating-shaft, the arm mounted on the rock-shaft having a head with which the pin engages and a pendent hook, a spring where-
30 by the hook is connected with the runner-frame, a pendent arm secured to the rock-shaft, and the rod whereby the pendent arm is connected with the front end of the marking-lever.
- 35 8. A corn-planter comprising a wheel-frame, and a runner-frame connected together, an axle on which the wheel-frame is mounted,

wheels in which the axle is journaled, outer clutch members having slanting teeth and fixed to the wheels, inner clutch members
40 having slanting teeth and loosely mounted on the axle, an operating-shaft mounted on the runner-frame, means whereby the members of the clutches are placed in and out of
45 gear, gearing whereby the inner clutch members are connected with the operating-shaft, a hopper-frame having a lug through which the end of the operating-shaft extends, a hopper having a discharge-opening, and a bot-
50 tom plate having a seed-opening, a seed-plate between the bottom plate and the discharge-opening, gearing whereby the seed-plate is connected with the operating-shaft, a seed-
55 tube, a bell-crank lever, a bolt whereby the bell-crank lever is pivoted to the seed-tube, an upper valve secured to one arm of the bell-crank lever, a lower valve pivoted to the
60 seed-tube, the rock-shaft, means connected with the operating-shaft whereby the rock-shaft is oscillated, the bell-crank lever fixed to the bolt of the first-named bell-crank lever, the arm fixed to the rock-shaft, a link whereby
65 the arm on the rock-shaft is connected with one arm of the second-named bell-crank lever, and the link whereby the lower valve is connected with the other arm of the second-named bell-crank lever.

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

HARRY LOUIS ORENDORFF.

Witnesses:

JOE SHOREY,
BLANCHE CAMPBELL.