

L. A. HORINE.
Fertilizer Distributer.

No. 231,043.

Patented Aug. 10, 1880.

Fig. 1.

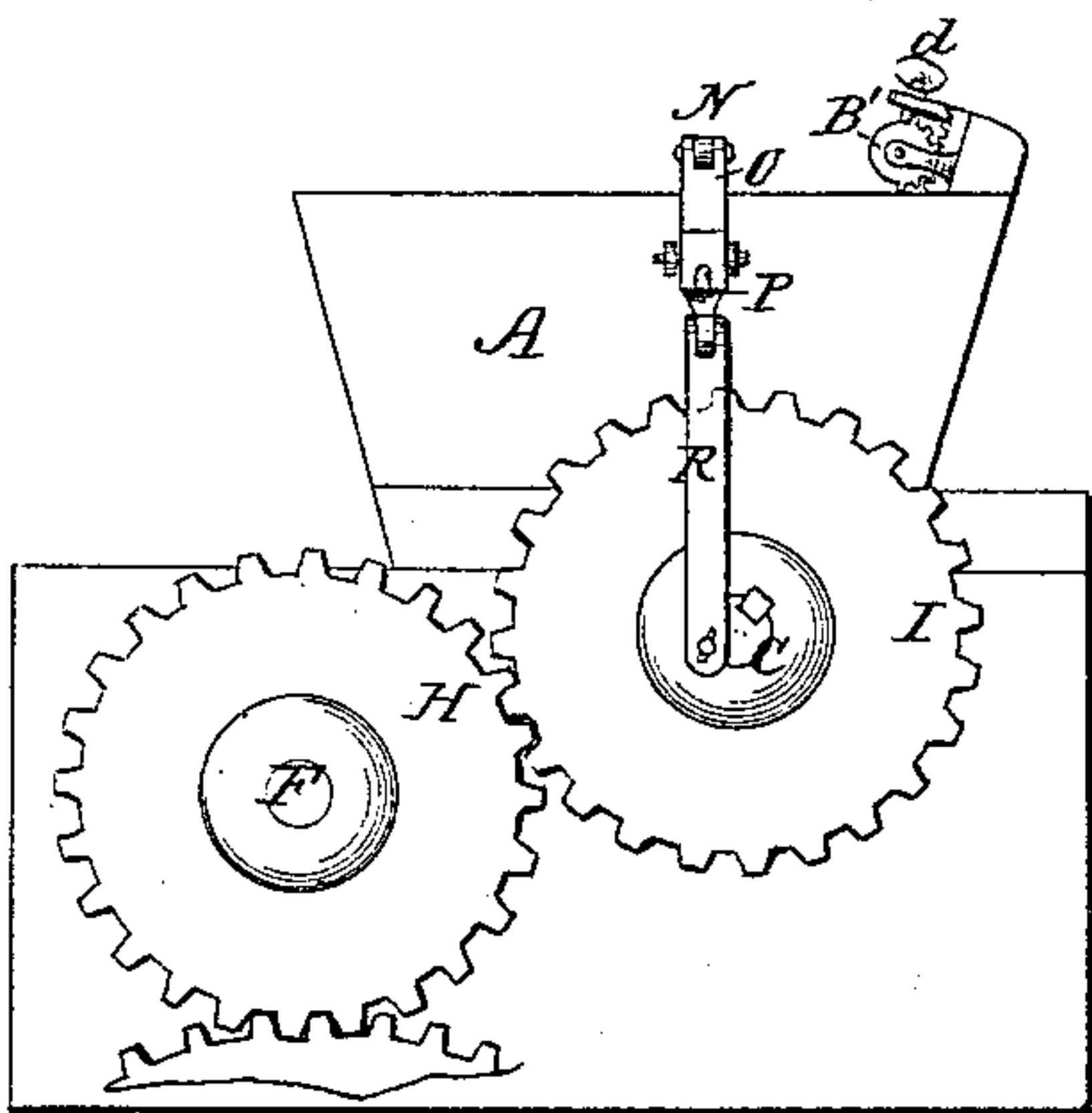


Fig. 2.

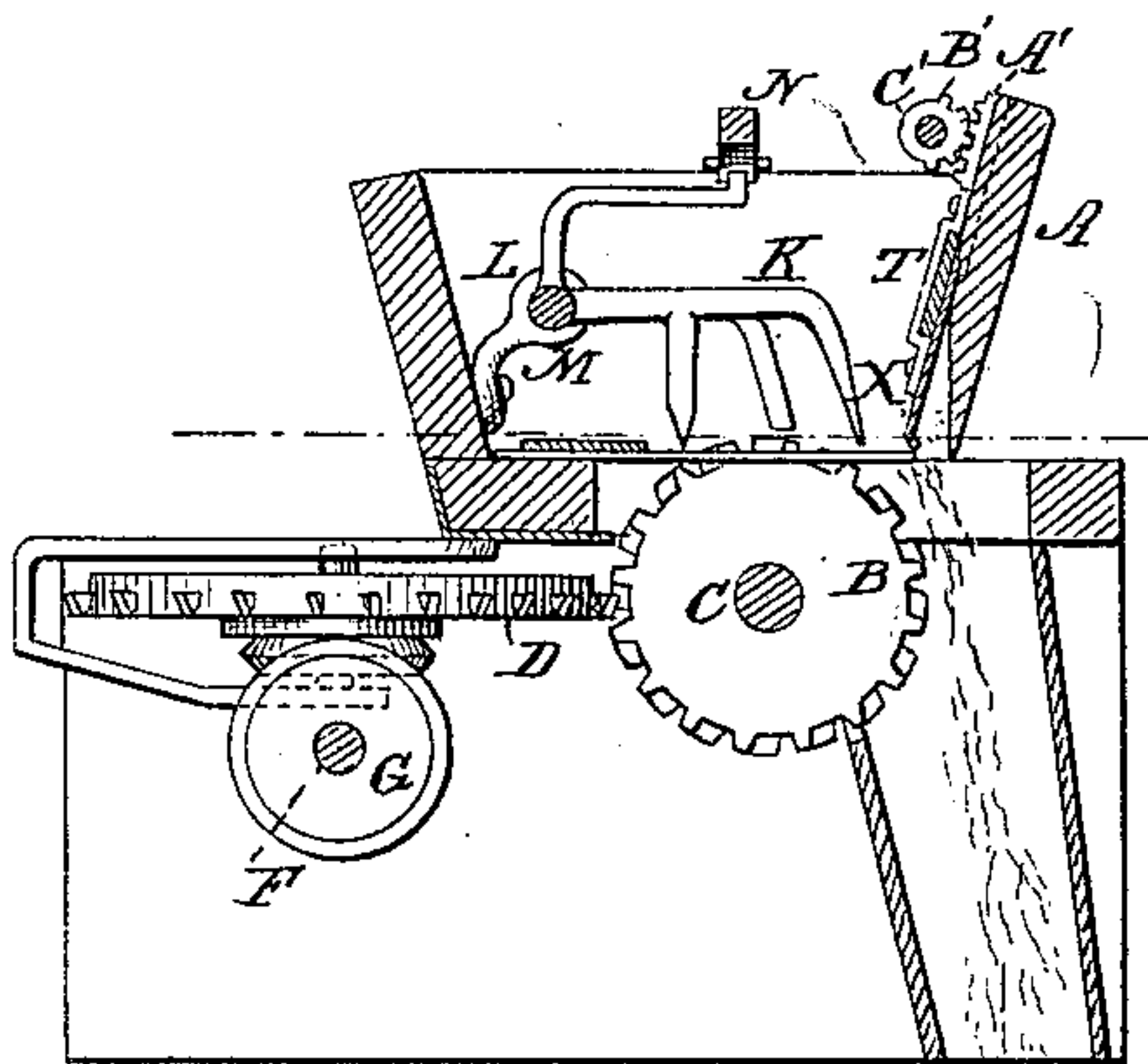


Fig. 3.

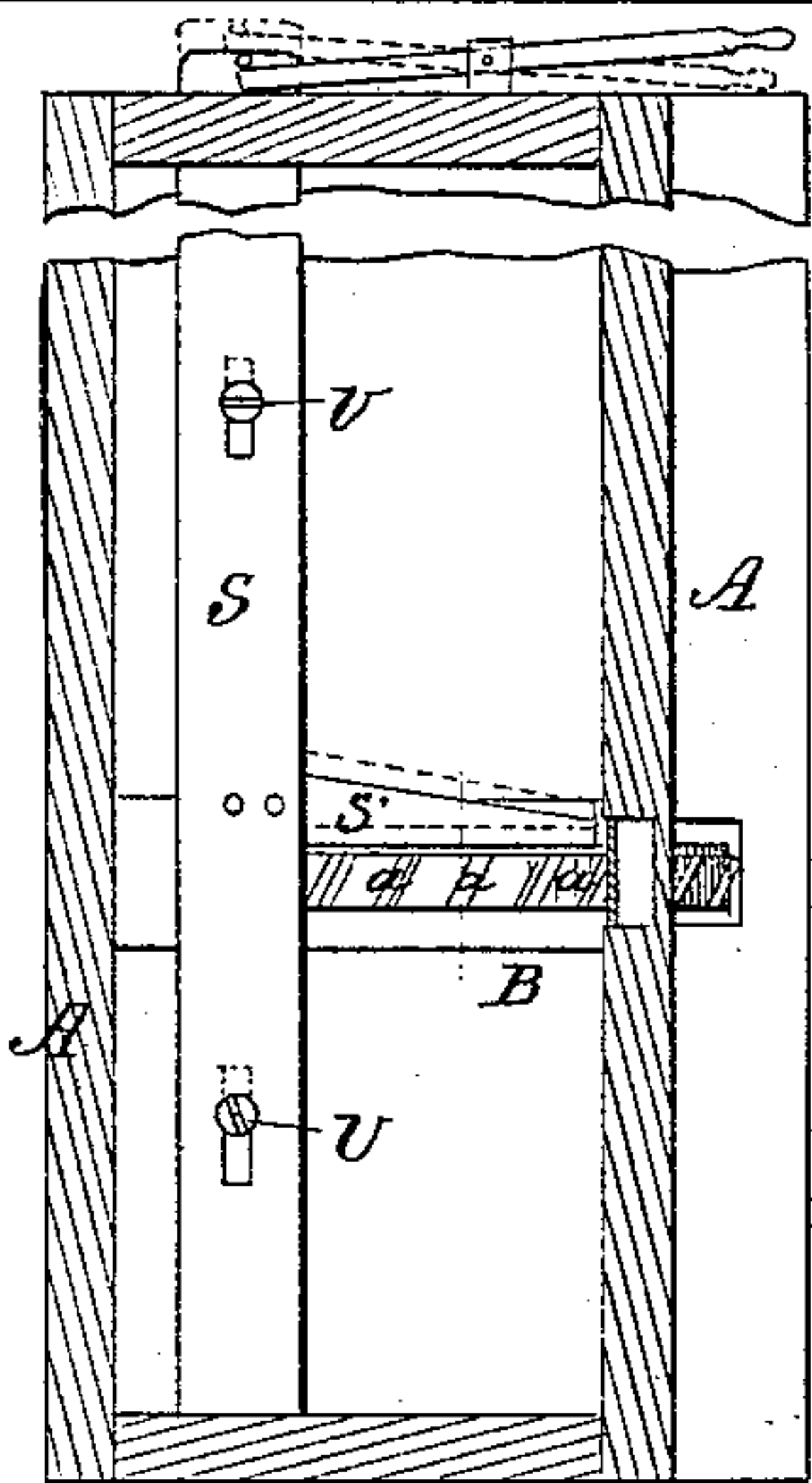


Fig. 7.

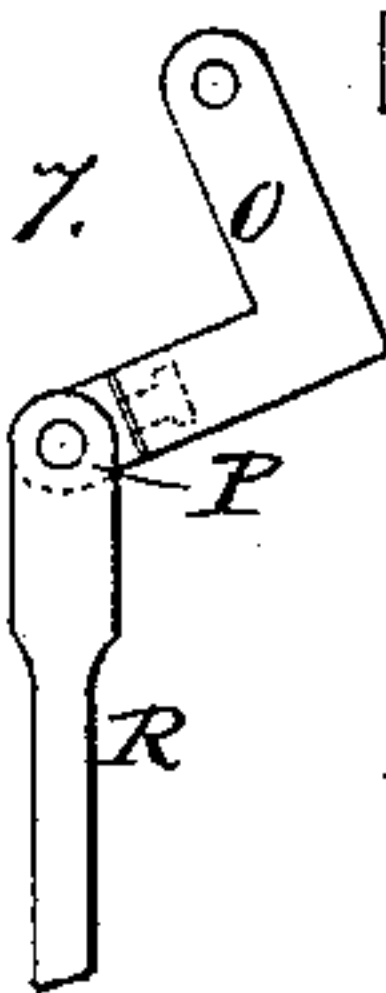


Fig. 4.

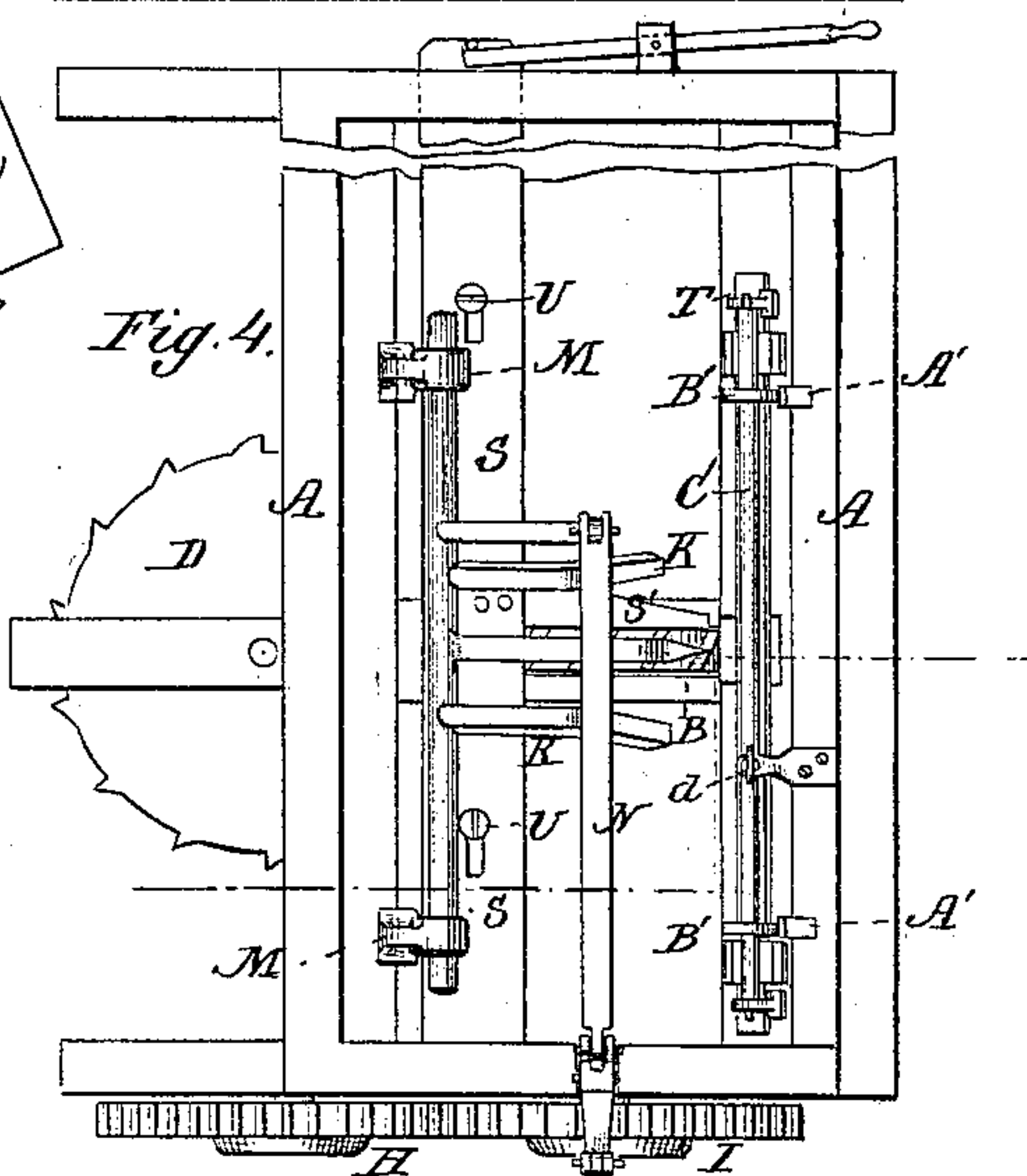


Fig. 5.

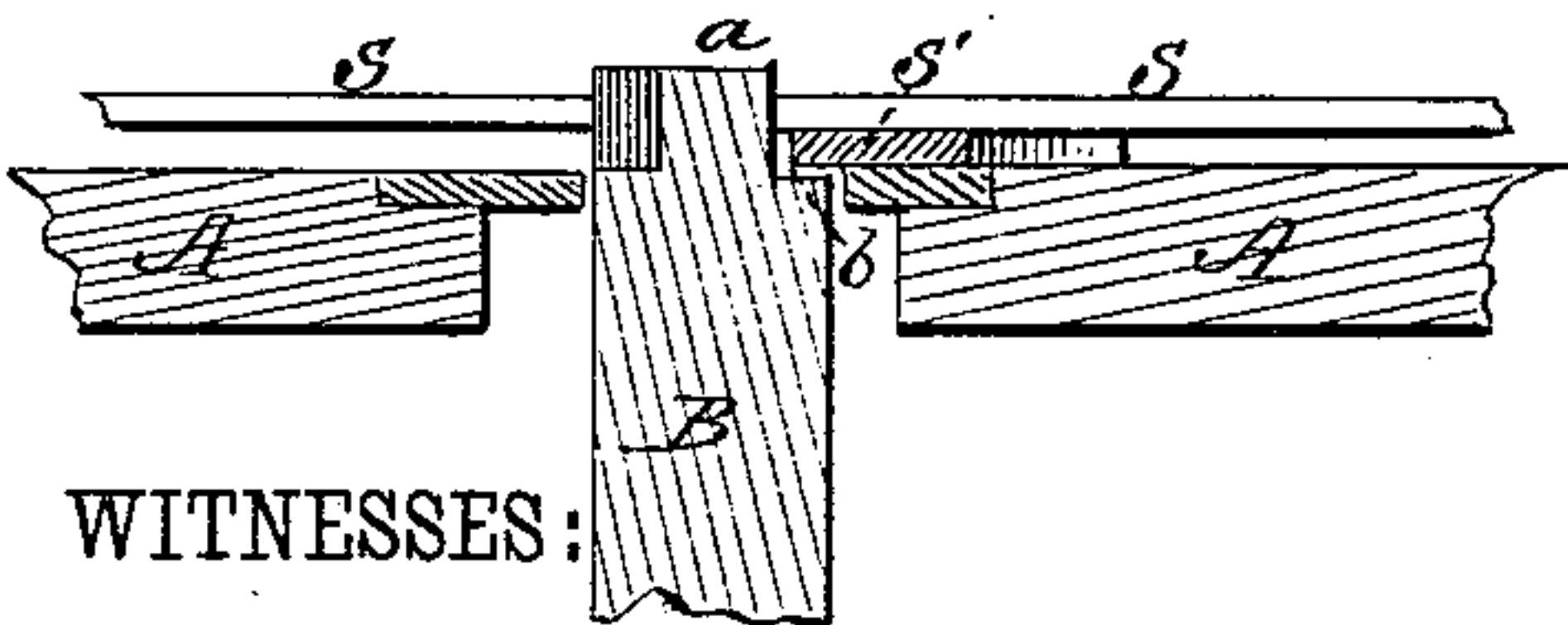
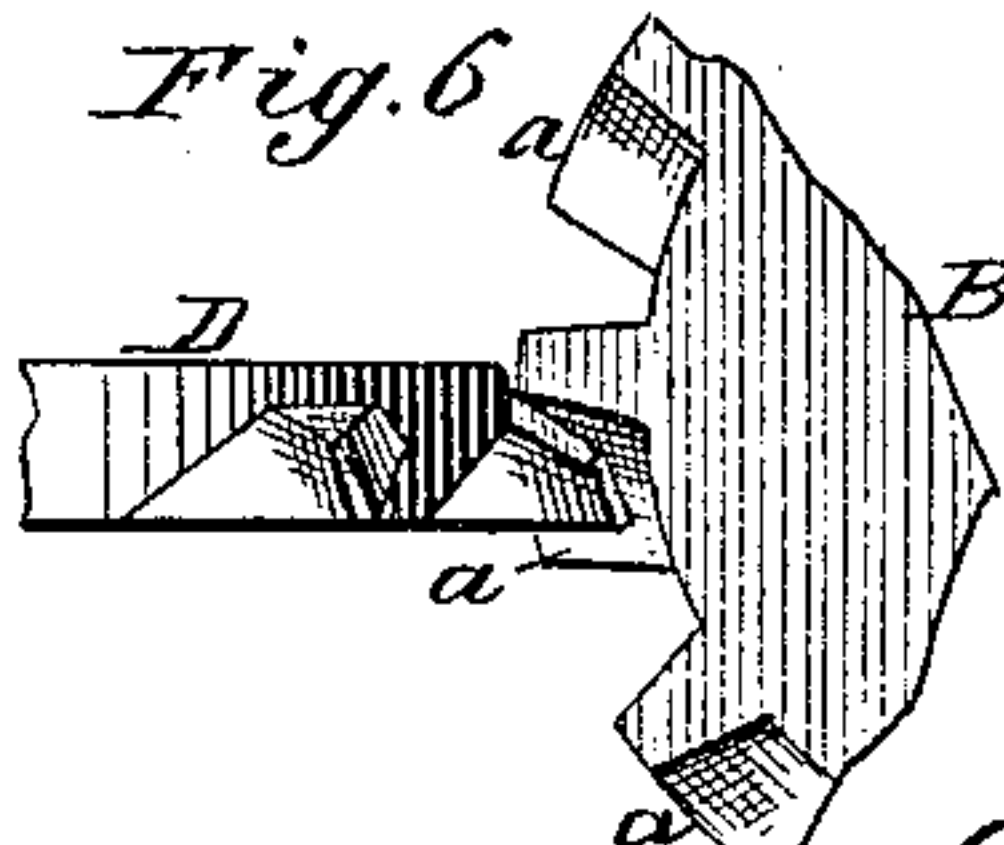


Fig. 6.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LUTHER A. HORINE, OF JEFFERSON, MARYLAND.

FERTILIZER-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 231,043, dated August 10, 1880.

Application filed January 5, 1880.

To all whom it may concern:

Be it known that I, LUTHER A. HORINE, of Jefferson, in the county of Frederick and State of Maryland, have invented a new and Improved Fertilizer-Distributor; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improved apparatus for distributing fertilizer, which may be made either an attachment of an ordinary seeder or planter, or else used independently thereof.

The invention relates to the means for gaging the amount of fertilizer discharged from the machine in a given time, and also for cleaning the device by which the discharge is effected.

In accompanying drawings, forming part of this specification, Figure 1 is an end view of the machine. Fig. 2 is a vertical transverse section on line indicated in Fig. 4. Fig. 3 is a horizontal lengthwise section on dotted line, Fig. 2. Fig. 4 is a plan view. Figs. 5, 6, 7 are detail views.

A indicates the hopper. Its bottom is slotted transversely to receive the periphery of the toothed wheel B, which is keyed vertically on the horizontal rotating shaft C. The interdental spaces or cavities of said wheel B receive the fertilizing material placed in the hopper A, and carry said material with it in its rotation. A portion of the fertilizer thus taken up will escape from the wheel B by the effect of gravity, and thus be discharged into a spout or tube (not shown) and conveyed into the soil; but to insure discharge of all that adheres to or fills the spaces of the wheel, I arrange a rotating toothed wheel, D, in horizontal position, and in such proximity to the side of the discharging-wheel B that its teeth *a* will successively pass through and clear the spaces between the teeth of discharging-wheel B. The teeth *a* of discharge-wheel B are placed diagonally, or at an angle of about thirty degrees, to compensate for the movement of the wheel while the teeth of the clearer D are traversing its periphery.

It is obvious that if the teeth were placed at right angles to tangents of the wheel B the teeth of wheel D could not be made of the requisite width to effectually remove the fertilizers, since they necessarily traverse the inter-

dental spaces of the wheel B in an oblique direction.

The two wheels are necessarily geared together, so as to rotate at uniform speed and prevent their teeth interlocking or coming into collision. To this end the clearing-wheel D derives motion from the shaft F by means of a gear, G, fixed on the latter and meshing with a toothed portion of the wheel D. The two shafts C F are caused to rotate in opposite directions by means of meshing-gears H I, keyed on their ends, as shown in Figs. 1, 4.

In order to agitate the fertilizer and break up lumps of the same, I employ a device consisting of bent iron fingers K, attached to a bar, L, that reciprocates horizontally in guides or brackets M, fixed on the inner side of the hopper A. The end of one of said fingers K works in close proximity to the point of discharge of the fertilizer from the hopper A, and the others near the middle of the latter.

In order to impart reciprocating movement to the agitator K M, it is connected by a rod, N, with an elbow-lever, O, whose other arm is provided with a swiveled joint-piece, P, and is connected with the gear I by means of a rod, R, that is pivoted to the latter eccentrically.

The shaft F is in practice geared with the rotating axle (not shown) of the machine, so as to derive rotation from it. It thus sets the discharging-wheel B and its clearer D in rotation, and also simultaneously imparts reciprocation to the agitator K M through the medium of the rods N R and elbow-lever O.

The swiveled piece P forms a universal joint between the elbow-lever and rod R, and lessens the friction that would be incident to most other joint-connections.

The devices for gaging and regulating the amount of fertilizer discharged from the hopper A by wheel B are the plates S and T. The former, S, is placed flatwise on the bottom of the hopper A, and guided in a right line in its reciprocation by means of screws U, that pass through slots in the plate. It may be adjusted by a pivoted lever. Said plate has a lateral arm, S', located in proximity to the periphery of the wheel B, so that by adjusting the plate one way or the other said arm will be made to approach or recede from the wheel. The

side of the periphery of the wheel B adjacent to the arm S' is plain, as shown at *b*, Fig. 5, or, in other words, the teeth *a* of said wheel are cut away on that side. When the plate S is adjusted its arm S' either covers or uncovers such plain portion *b* of the wheel more or less. The fertilizer adheres to the part, and hence the adjustment of the arm, by allowing or preventing contact of the fertilizer with the part, has the effect of regulating the amount discharged in a given time. This result is still further enhanced by the free end of the arm S' being in proximity to the point of discharge of the fertilizer. The plate T slides in guides attached to the side of hopper A, and has a spring plate or arm, X, attached in such manner that it projects downward with its free end in proximity to the edge of the wheel B. By raising or lowering the plate T the spring-arm X will be adjusted higher or lower, so as to enlarge or diminish the size of the aperture through which the fertilizer is discharged, and thereby control, or assist in controlling, the amount of fertilizer discharged at each revolution of the wheel. The means for effecting such adjustment are the racks A', attached to the plate T, and pinions B', fixed on a rotatable shaft, C'. The latter may be rotated by any convenient device, and secured or locked by a screw, *d*, or other suitable device, in any position, so as to hold the spring-arm X fixed in the desired relation to the wheel and discharge-aperture.

The side of the hopper A is recessed in rear of the spring-arm X, so that the latter may bend laterally in case a stone or other unyielding substance is forced against it, and which is of too large size to enter the interdental spaces of the wheel B.

I do not claim, broadly, the combination of a toothed clearing-wheel with a toothed discharging-wheel, nor a discharging-wheel having a portion of its periphery plain.

What I claim is—

1. In a fertilizer-distributor, the combination, with the hopper having the transverse slots in its bottom, the shafts C F, and gears H I, of the vertical discharging-wheel having straight but inclined peripheral teeth, and the wheel D, which is placed horizontally, and whose teeth sweep through and clear out the interdental spaces of said discharging-wheel, all as shown and described, for the purpose specified.

2. In a fertilizer-distributor, the combination of the slotted hopper, the discharging-wheel B, having the peripheral teeth *a* and a plain peripheral surface alongside the teeth, and the plate S, having arm S', and adapted for adjustment on the bottom of the hopper, so that said arm may be made to cover more or less of the edge of said wheel, as shown and described, for the purpose specified.

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