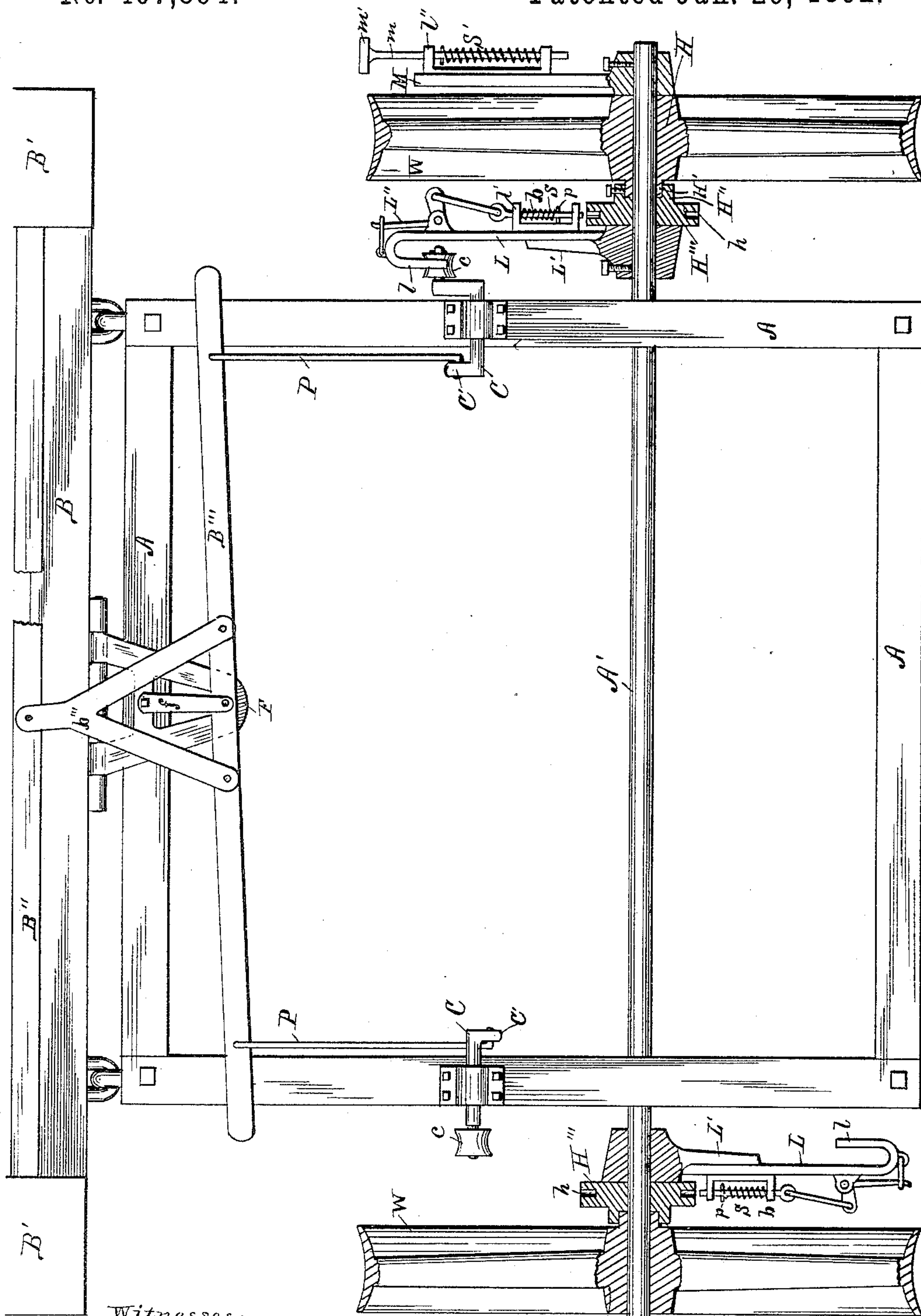


(No Model.)

C. B. HARMAN.
CORN PLANTER.

No. 467,894.

Patented Jan. 26, 1892.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHRISTIAN B. HARMAN, OF LANARK, ILLINOIS.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 467,894, dated January 26, 1892.

Application filed July 31, 1891. Serial No. 401,297. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN B. HARMAN, a resident of Lanark, in the county of Carroll and State of Illinois, have invented certain
5 new and useful Improvements in Corn-Planters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use
10 the same.

My invention relates to improvements in corn-planters in which the dropping mechanism is actuated by devices operated by the rotation of the axle of the machine.

15 The invention is fully described and explained in this specification and shown in the accompanying drawing, which is the top plan of a planter embodying my invention.

In the view, A A A A are side and cross
20 pieces of the main frame of the planter, and A' is the axle journaled in suitable bearings attached to the lower faces of the side pieces. Wheels W W are loosely mounted on the ends of the axles, each of the wheels being provided with a hub H, having a reduced cylindrical boss H' at its inner end. The boss H'
25 enters a larger boss or hub H'' on the outer face of the cylindrical plate H''', formed with notches or perforations *h* in its periphery, the
30 two bosses H' H'' being readily connected by means of a suitable set-screw or otherwise. On each end of the axle in close proximity to the corresponding cylindrical plate H''' is mounted a radial lever L, provided with an
35 enlarged portion L', having at its inner end a hub which encircles the axle and is rigidly fastened to the axle by means of a set-screw. The bolt *b* slides in suitable guides *l'*, attached to each of the levers L, the inner end of the
40 bolt being adapted to enter the holes or notches in the margin of the corresponding disk H''' and the outer end of the bolt being fastened to the hand-lever L'', pivoted near the outer end of the lever L. A spring S encircles the
45 bolt and presses at one end against one of the guides *l'* and at the other end against a pin *p*, seated in the bolt, and tends to press the bolt toward the disk H'''. It is evident that when the bolt *b* is in engagement with the
50 disk H''' the axle, the lever, and the corresponding wheel are rigidly connected and

must all rotate together, and that when the bolt is drawn out of engagement with the disk the wheel becomes loose on the axle and the rotation of the wheel has no tendency to rotate the axle. 55

In front of the main frame of the machine and attached thereto is the usual cross-bar B, hinged to the frame by suitable flexible joints and provided with the ordinary seed-boxes B' and the usual supporting-shoes, which are not shown in the drawing. On the cross-bar rests the ordinary longitudinally-sliding dropping-bar B'', whose ends are connected with the dropping mechanism within the boxes B' 65 in any suitable manner.

A bracket F is hinged to the rear edge of the cross-bar B and extends backward a suitable distance from there, and an oscillating lever B''' is pivoted to the rear end of the bracket F and held in place by a vertical pivot passing through the end of the bracket, the center of the oscillating lever, and the end of an attachment *f*, rigidly fastened to the bracket. An arm *b'''* is rigidly fastened 75 to the oscillating lever B''' and extends forward a suitable distance from there, the front end of the arm being pivoted to the dropping-bar B'', so that the oscillation of the lever B''' imparts reciprocal sliding movement to the dropping-bar. The ends of the lever B''' rest, preferably, upon the side pieces of the main frame, and near the ends of the lever are pivoted the front ends of two pitmen P P, which extend backward and are 85 pivoted at their rear ends upon cranks C', formed on the inner ends of the short shafts C C, mounted in suitable bearings on the side pieces of the frame. Each of the shafts C C has a crank on its outer as well as its inner 90 end, the outer crank being preferably provided with an anti-friction spool or roller *c*, so placed that when it is at its forward limit of motion it lies in the path of the inwardly-turned free end *l* of the corresponding lever 95 L. The two levers L L stand in opposite directions from the axle and the shafts C C, and their cranks are so arranged that in the rotation of the axle the spool *c* is struck alternately by the ends of the levers L L. Each 100 of the levers L L, when it strikes the corresponding spool *c*, moves the crank on which

the spool is mounted through a certain arc, thereby actuating the corresponding pitman P and the corresponding end of the oscillating lever B'''. This movement of the oscillating lever operates the dropping-bar and the dropping mechanism, and also operates the opposite pitman and the corresponding shaft C with its cranks and spool, in such a way as to bring the spool within reach of a corresponding lever L. It is evident, therefore, that so long as the bolt *b* of the levers L is in engagement with the disks H''' the axle must rotate with the wheels and the rotation of the levers L must swing the lever B''' first in one direction and then in the other, thereby operating the dropping mechanism twice during each rotation of the wheel, and, further, if the bolts *b* be withdrawn from their engagement with the disk H''' the wheels are released from their rigid engagement with the axle and the axle ceases to rotate, though the wheels turn, as usual, for the purpose of permitting the movement of the machine from place to place. When the bolts *b* are thus withdrawn from engagement with the disks, they may be held out of engagement by any suitable means, as by a hook or link fastened to the lever L and adapted to engage the hand-lever L'' and hold it in position.

On each of the outer ends of the axle is rigidly fastened a marking-bar M, provided with slides *l''*, in which moves a radial marker *m*, having a foot *m'*, adapted to press upon the ground at a suitable point in the rotation of the axle. A spring S' encircles the marker *m* and tends to press it outward, and at the same time permits it to be pressed inward toward the axle when the foot strikes any obstruction which might tend to raise the wheel if the foot were rigidly held in place.

Having now described and explained my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a corn-planter of the class described, the combination, with a suitable main frame and a cross-bar hinged to the front of the frame and supporting the dropping mechanism proper, of a vertically-swinging bracket hinged to the cross-bar and extending backward therefrom, a lever pivoted to the rear end of said bracket and connected with the dropping-bar of the dropping mechanism, and means whereby the rotation of the axle of the planter oscillates said lever, and through it the dropping mechanism, substantially as and for the purpose set forth.

2. The combination, with the main frame, of the cross-bar B, hinged to the front end thereof, the dropping-bar B'', supported by said cross-bar, the vertical swinging bracket F, hinged to the cross-bar, the lever B''', pivoted to the rear end of the bracket and having an arm *b'''* connecting it with the dropping-bar, and means, substantially as shown and described, for oscillating said lever and actuating the dropping mechanism, substantially as and for the purpose set forth.

3. In a corn-planter of the class described, the combination, with the main frame, of an axle loosely journaled in bearings on the frame, wheels loosely mounted on said axle, levers rigidly mounted on the axle and provided with means, substantially as shown and described, for placing them in rigid engagement with the corresponding wheels, and crank-shafts mounted on the frame and provided with cranks adapted to be alternately operated by said levers, and means, substantially as shown and described, connecting said crank-shafts with the dropping mechanism of the planter, whereby the rotation of the axle actuates said cranks alternately, thereby operating the dropping mechanism, substantially as and for the purpose set forth.

4. The combination, with the frame, of the loose axle A, the wheels W, having hubs H and the projections H', the perforated disks H'', having bosses H'', rigidly connected with the projections H', the levers L, mounted on the axle and provided with spring-actuated bolts adapted to engage the perforated disks, the crank-shafts C, mounted on the frame and having cranks on their inner and outer ends, an oscillating lever B''', connecting, substantially as shown and described, with the dropping mechanism of the machine, and the pitmen P P, connecting the crank-shafts with the said oscillating lever, the cranks on the outer ends of the crank-shafts being in range of the free ends of the levers L, whereby the rotation of the axle operates the cranks and through them the oscillating lever B''' and the dropping mechanism of the machine, substantially as and for the purpose set forth.

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

CHRISTIAN B. HARMAN.

Witnesses:

CHARLES HAMMOND,
CHARLES W. FRANCK.