G. D. HAWORTH.
Corn-Planter.

2 Sheets—Sheet 1.

No. 197,551. Patented Nov. 27, 1877.

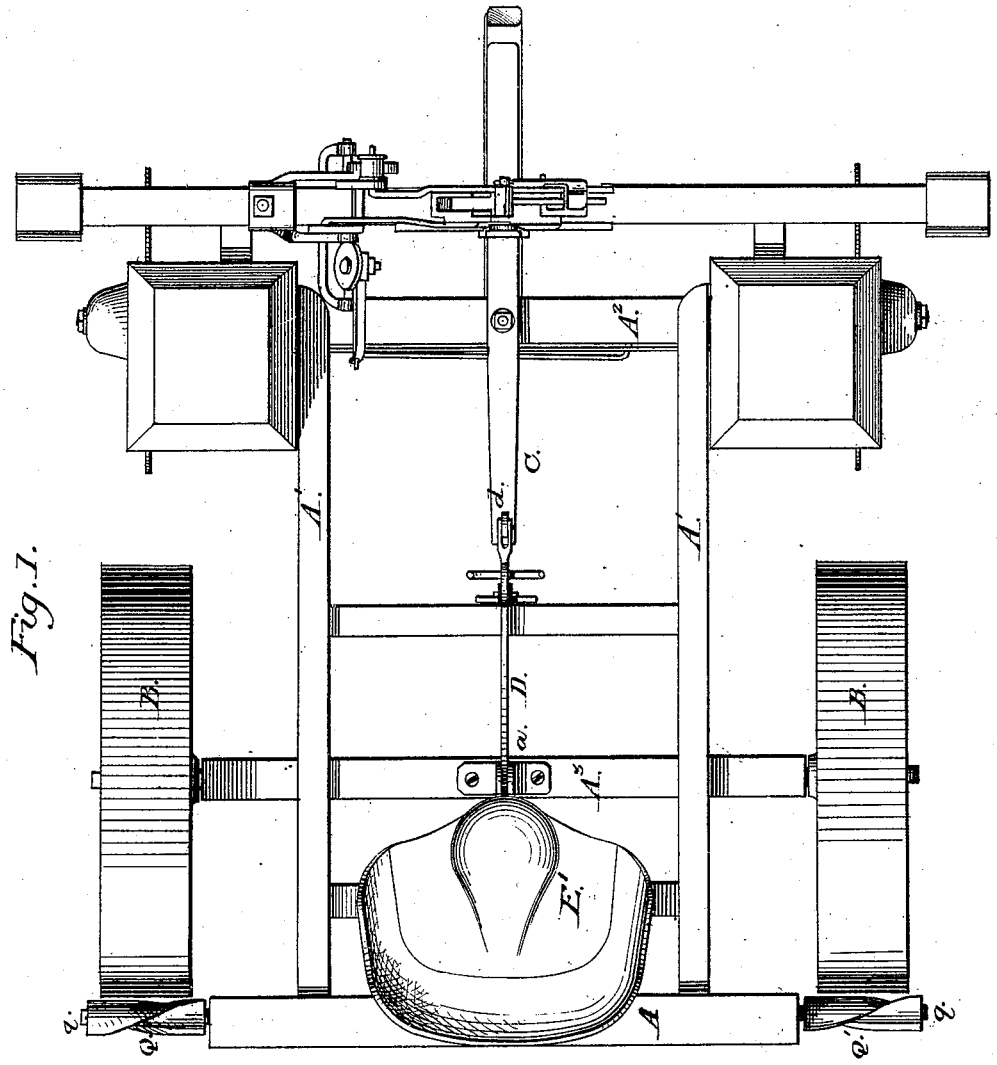

Fig. 1.

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John G. Center.

Inventor:
George D. Haworth.
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2 Sheets—Sheet 2.

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Fig. 2.

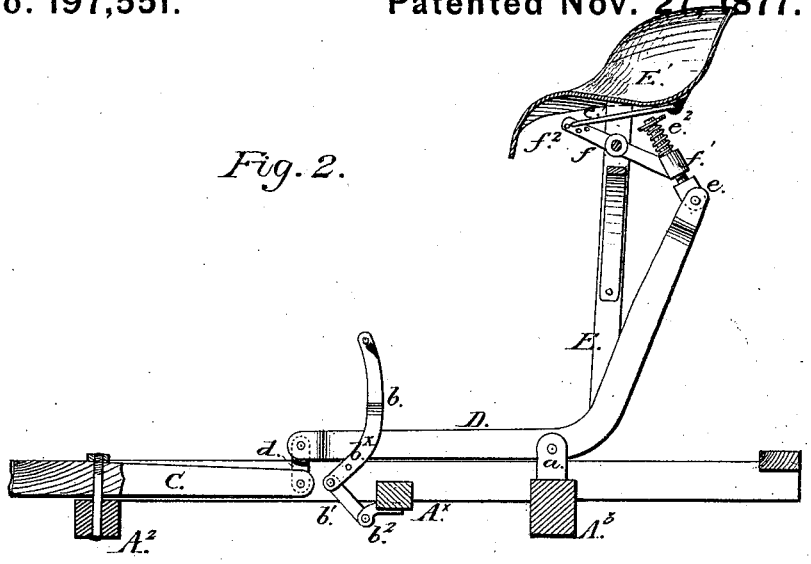


Fig. 4.

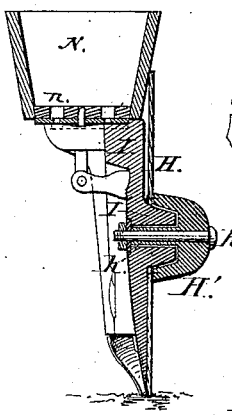


Fig. 3.

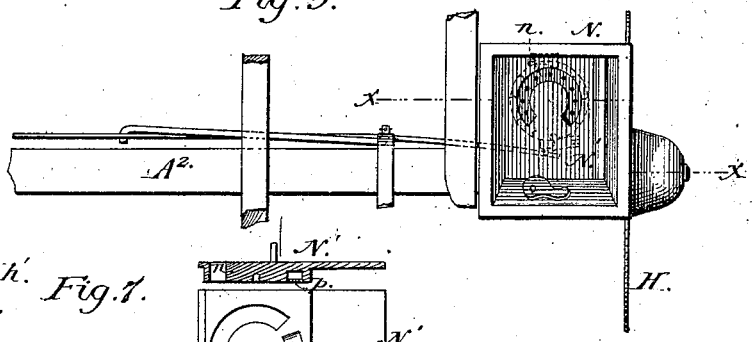


Fig. 7.

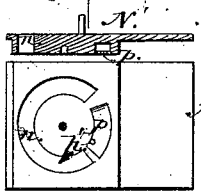


Fig. 5.

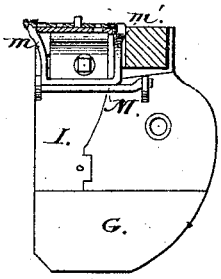


Fig. 6.

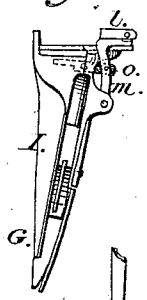
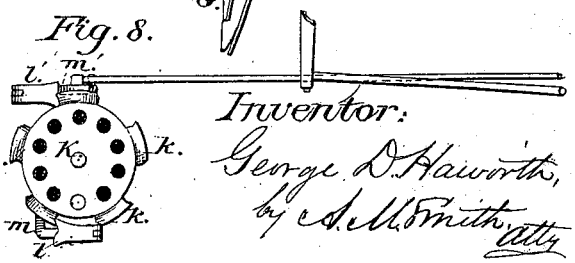


Fig. 8.



Witnesses:
Alexander Mahon
John G. Center.

Inventor:
George D. Haworth,
by A. M. Smith, atty

UNITED STATES PATENT OFFICE.

GEORGE D. HAWORTH, OF DECATUR, ILLINOIS.

IMPROVEMENT IN CORN-PLANTERS.

Specification forming part of Letters Patent No. **197,551**, dated November 27, 1877; application filed August 6, 1877.

To all whom it may concern:

Be it known that I, GEORGE D. HAWORTH, of Decatur, county of Macon, State of Illinois, have invented certain new and useful Improvements in Corn-Planters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan or top view of my improved planter. Fig. 2 represents a vertical longitudinal section through the frame, showing the seat attachments in side elevation. Fig. 3 is a plan view of the seed-hopper with the cover removed. Fig. 4 is a vertical section through said hopper and the rolling colter on line *x x*, Fig. 3. Fig. 5 represents the seed-spout, with the rock-shaft and pawls for actuating the seed-slide in side elevation. Fig. 6 is a rear elevation of the devices shown in Fig. 5. Fig. 7 is a view of the seed-hopper bottom; and Fig. 8 is a plan view of the seed-slide and its actuating-pawls.

Similar letters of reference denote corresponding parts of the machine wherever used.

My invention relates, first, to a novel construction of the hub of the rolling colter, whereby dirt and dust are prevented from getting access to the axial pivot of said colter; secondly, to a novel arrangement of actuating-pawls, in combination with a seed-slide having an intermittent rotary movement; thirdly, to a novel arrangement of cut-off or striker, whereby a uniform discharge of seed is secured, and all danger of crushing the same is obviated; fourthly, to a novel arrangement of seat-lever and of the devices for adjusting and locking the same; and, lastly, to the means employed for clearing the carrying-wheels of all adhering dirt, as hereinafter explained.

In the accompanying drawings, A A^1 A^2 represent the main frame, and B B the carrying-wheels, of the machine, the frame being made in any usual or preferred form, that shown in the drawings constituting a cheap and substantial construction, well adapted to the purpose for which it is designed.

The forward transverse bar A^2 of said frame, upon which the seed-hoppers are mounted, is connected with the longitudinal bars A^1 underneath their forward ends by transverse pivots, which allow said bar to rock on its longitudinal axis, and an inclined lever-bar, C, extending across said bar, is bolted thereto, and to the draft-pole or tongue in front thereof, and the rear end of said lever, at a point near midway of the length of the machine, is connected by a short link, *d*, with the forward horizontal arm of the angular or bent seat-lever D, which is pivoted at the bend or elbow in a suitable supporting-bracket at *a* on the axle A^3, or other convenient point of support.

The lever D, near its forward end, has an upright foot-lever, *b*, pivoted to it, said lever crossing the lever D, and having its lower end connected by a link, b^1, with a bracket, b^2, attached to a transverse frame-bar, $A^\times$, as shown in Fig. 2, the link b^1 and lower arm of lever *b* forming a toggle-link connection between the lever D and frame A, and serving to vibrate the lever D, and thereby to rock the pivoted forward bar and the seed-hoes or runners connected therewith.

The lever D, being rigidly connected with the pivoted tongue, which rests in the neck-yoke of the team, and the seat-lever being pivoted to the frame, the two form a toggle-link, which, when vibrated by the action of the foot-lever, as explained, serves to rock the main frame on its axle, and thus to raise or depress the forward end thereof, together with the seeding shoes or runners connected therewith, and thus to cause the latter to form furrows of the depth desired.

When the upper end of the foot-lever is thrown forward until the link b^1 reaches or passes a vertical position, and rests against the frame-bar $A^\times$ or the wall of the socket in the bearing-bracket b^2, the parts form a lock, giving the forward end of the frame, and the seeding devices connected therewith, their greatest elevation convenient for transportation.

The attendant, by drawing the forward end of lever *b* back, or by pressing forward upon a pin at $b^\times$ on said lever, can release the toggle-link b b^1, and thus leave the seed-runners free to follow the undulating surface of the ground, as before.

The rear end of the bent lever D rises be-

tween the legs of the seat-standard E, and is connected with the seat E′, pivoted in the upper end of said standard, by means of links e e^2, and an intermediate lever, f, pivoted midway of its length in the seat-standard, just below the seat, as shown in Fig. 2.

The link e, which is pivoted to the end of lever D, passes through an eye, f^1, in one end of lever f, and has a spring, e^2, upon it intermediate between said eye and a pin or head applied to the upper end of link e, thus forming a yielding connection between the two and permitting a limited play of the lever on the link e. The link e^1 connects the forward arm of lever f with the seat in rear of the pivot of the latter, as shown, and is made adjustable relative to said lever for varying the angle of the seat, as desired, by means of a series of perforations at f^2, with any one of which the link may be engaged.

By this arrangement (connecting the seat with the lever D, through which the machine is rocked on its axle, as explained) the horizontal or other desired position of the seat is maintained under all the different adjustments of the frame.

The furrow in the ground, in which the seed is to be deposited, is formed by means of a runner, G, and a rolling colter, H, which, in front, are in close proximity, the runner diverging thence to the rear from the colter for opening the furrow, and both are connected with, and supported by, a hollow conducting spout or bracket, I, pendent from the end of bar A^2, said bracket being provided on its outer vertical face with a hub or journal, I′, made in the form of a perforated frustum of a cone. The wheel or colter H is provided with a hub, H′, dished outwardly, the counterpart in shape to journal I′, and fitting thereon, and is further provided with a hollow central spindle, h, which fits within the hollow journal I′, as shown in Fig. 4, forming the pivot or axle of the colter H, a through-bolt or pin, h', serving to hold the wheel in proper relation to the hollow journal I′.

The pivot h, being thus covered by both the hub H′ and its hollow journal I′, is effectually excluded from dust and dirt, which would interfere with its action.

The seed slide or plate K is made in the form of a disk, provided with a circular series of pockets or perforations, and placed in a horizontal position underneath the grain-box or hopper.

An intermittent rotary movement is imparted to this disk, as follows: k k are a series of teeth formed upon the periphery of the slide or plate K, and made with inclined upper faces, facilitating the backward movement over them of two weighted pawls, l l', connected to bent arms m m' on a rock-shaft, M. (See Figs. 5 and 6.) The pawls l l' are connected by one end to the arms m m' by horizontal pivots, and are arranged on opposite sides of the disk or slide K, facing in opposite direction, and in such relation to the teeth k k that when one pawl, l, has acted on the disk K the pawl l' falls behind another tooth of said disk and acts thereon, in turn, when the rock-shaft M is vibrated in the opposite direction, the pawls l l' acting alternately and imparting an intermittent rotary movement to the seed-slide.

One of the arms, m, for operating the pawls l l', has one end of a link, o, attached to it, said link being connected at its opposite end with the rocking shaft or lower drop, (described in Letters Patent granted to me January 14, 1873, and reissued July 18, 1876,) and serves to operate said drop simultaneously with the operation of the slide K, or upper drop, in a manner that will be readily understood.

The grain-box or hopper N has a removable bottom, N′, slotted at n, in the arc of circle, conforming to the circle of perforations or pockets in the seed-slide, for giving the grain access thereto; and the lower face of said bottom N′ is cut away intermediate between the ends of the curved slot n, to receive a cut-off or striker, (see Fig. 7,) consisting of a plate, p, connected at or near its forward end by a horizontal pivot at p' with the bottom board N′.

A spring is located in the socket for plate p between said plate and the bottom board, the arrangement being such the spring will hold the plate in contact with the face of slide K, for removing the surplus grain from the pockets or perforations therein, while at the same time it allows said plate to yield when necessary to avoid crushing the grain.

The rock-shaft M, through which motion is imparted to the seed-slides, may be operated by any usual or preferred arrangement of devices for that purpose, either by hand or by any suitable mechanism—such, for example, as the check-row attachment shown in the drawings, and described in another application of even date herewith.

For clearing the carrying-wheels of the dirt, so liable to adhere in ground prepared for planting, I employ rotary cleaners, consisting of spirally-threaded rollers Q Q′, mounted on horizontal axes q q attached to the frame in rear of, and in close proximity with, the periphery of the wheels B B, as shown in Fig. 1, the arrangement being such that as the adhering dirt rises with the movement of the wheel it is brought into contact with the spiral threads on the roller, and, while serving to rotate the latter, is effectually cut away and removed from the wheel thereby.

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

1. The rotating colter H, provided with the hollow or dished hub H′, having the central spindle or axle-pivot h, formed in one piece therewith, in combination with the tapering perforated journal I′ and through-bolt h', substantially as described.

2. The bent lever D, by means of which the

main frame is adjusted, as described, in combination with the toggle-lever *b b'*, for adjusting or controlling and locking said seat-lever, substantially as described.

3. The seat E', pivoted in the standard E, in combination with the adjusting-lever D, intermediate lever *f*, and connecting-links *e* e^1, arranged and operating substantially as described.

4. The spirally-threaded rotary cleaners Q Q', arranged and operating in combination with the ground-wheels B B, as described.

GEORGE D. HAWORTH.

Witnesses:
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F. P. LEWIS.