

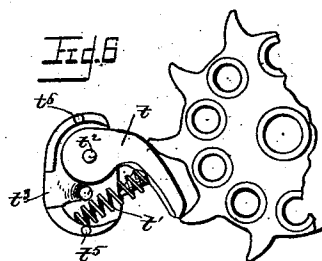
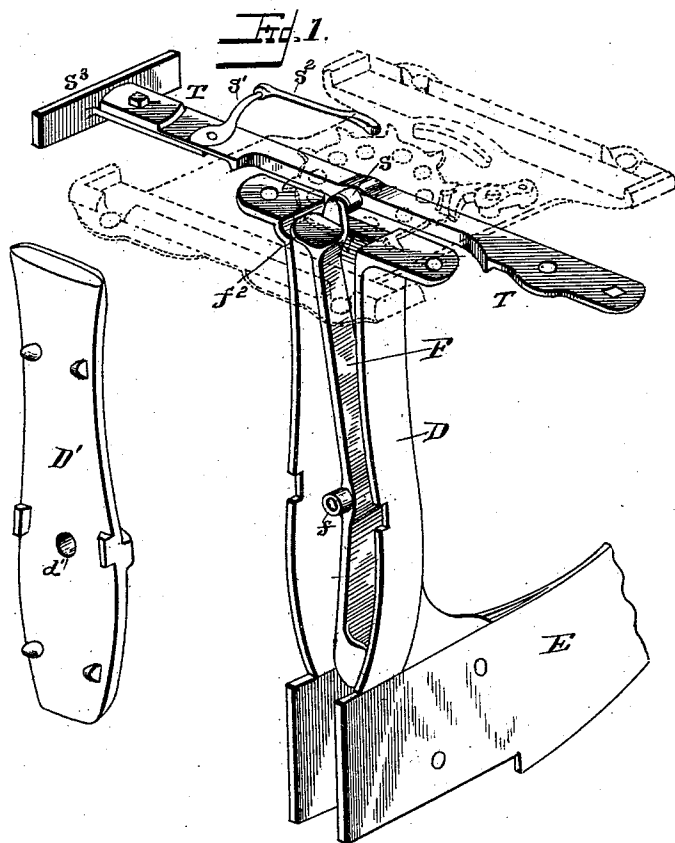
No Model.)

2 Sheets—Sheet 1.

L. SCOFIELD.
CORN PLANTER.

No. 469,795.

Patented Mar. 1, 1892.



Witnesses:

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UNITED STATES PATENT OFFICE.

LEVI SCOFIELD, OF GRAND HAVEN, MICHIGAN.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 469,795, dated March 1, 1892.

Application filed August 21, 1891. Serial No. 403,313. (No model.)

To all whom it may concern:

Be it known that I, LEVI SCOFIELD, of Grand Haven, in the county of Ottawa and State of Michigan, have invented certain new and useful Improvements in Corn-Planters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates more particularly to improvements in the feed-actuating mechanism of corn-planters; and it consists in the novel construction, combination, and arrangement of parts, as hereinafter described and pointed out.

In the drawings, Figure 1 is a rear view in perspective of a portion of the runner-standard and the valve and the shake-bar connections, the seed-plate and hopper-bottom being shown in dotted lines. Fig. 2 is a top plan view showing the shake-bar connections. Fig. 3 is a vertical sectional view of the runner-standard, and Fig. 4 is a rear elevation with the back plate removed. Fig. 5 is a perspective view of the flirt or dropper valve. Fig. 6 is a detail view showing the stop for the seed-plate.

Similar letters of reference in the several figures indicate the same parts.

My present invention relates to improvements in or applicable to the class of planters described and claimed in another application, Serial No. 403,312, wherein the actuating devices are arranged to propel the shake-bar or equivalent member in but one direction, the return motion being effected by a spring or equivalent device, and in which the seed-plate is turned or moved but once for each complete reciprocation of the shake-bar, as contradistinguished from such as are operated during the movements of the shake-bar in opposite directions, to effect two feed-motions during each complete reciprocation of said bar.

It also relates indirectly to certain modifications and improvements in the construction and arrangement of the shake-bar supports as patented to R. C. Robinson, October 9, 1888, No. 390,708, for adapting the same to a single-stroke feed mechanism of the kind described.

The seeding devices may be mounted upon the frame in any usual or preferred manner, and in the drawings the plate or hopper bottom A, upon which the seed-plate B is pivotally supported, is secured to the two rails C, while the hollow standard D, attached to and rising from the rear of the runner E, is bolted to lugs *d d*, formed on the under side of the plate A, thus forming an opening between the upper end of the post and the bottom of the plate. Above the seed-plate B and within the hopper is arranged a plate or false bottom, provided with an opening and a cut-off, as is usual in this class of devices, and the plate A is also provided with a discharge-passage *a*, through which the seed carried in the pockets of the seed-plate is discharged into the hollow standard D and conducted to the heel of the runner.

The standard D is formed substantially U shape in cross-section and is provided at the rear with a separable plate or section D', and both sections D and D' are formed with sockets *d'* for the reception of bosses or trunnions *f f*, applied to or formed integral with the flirt-valve or dividing-plate F, while a bolt *f'*, passing through both sections D D' of the standard and through the trunnions *f* and valve F, serves to hold the rear section D' in place and to reinforce the pivot of the valve F. By thus forming or providing the valve with trunnions entering sockets in the walls of the standard the wear and bending of the pivot-bolt *f'* is prevented or very greatly reduced, and this source of inconvenience and annoyance is thus done away with. At the same time the application and removal of the plate D' is facilitated and the operation of the flirt or dropping valve is rendered more certain, for if the bolt *f'* should be accidentally lost or misplaced another of smaller diameter can be inserted, whereas if the valve pivoted directly upon the bolt instead of the trunnions, as in the Robinson device, the insertion of a smaller bolt would permit side-play and facilitate the escape of the seed when the valve was in the closed position.

The upper end of the valve F is formed or provided with a cut-off plate or shoulder *f*², moving in close proximity to the discharge end or face of the discharge-passage *a* and serving as a cut-off to retain the seed in said

passage when the valve is swung to one side. The valve F is further provided with a pin f^3 , to which the shake-bar is pivotally attached and upon which it is supported. The shake-bar S is thus supported on opposite sides of the planter upon the two valves F, one in each standard, and the trunnions on said valve serve as pivotal supports therefor. The shake-bar, composed of wood or iron, the latter preferred, is provided at each end with a socket s , fitting the pivot-pin f^3 on the valve F, an arm s' rising above the shake-bar and carrying a pawl s^2 for actuating the seed-plate, and a stop-plate or abutment s^3 with which the actuating devices engage to move said bar. These parts may be formed integral with the shake-bar or separate and detachable therefrom, as desired, and in the latter case they may be bolted or otherwise secured to a shake-bar cut to the proper dimensions to suit the width of the machine. The stop-plates or abutments s^3 may also be made detachable, if preferred, those at the ends of the shake-bar for co-operating with the check-row mechanism being secured to the outer portion of the end plates T, and that for the seeder attachment to the inner end of one of said plates, it being secured in place by the same bolts or fastening devices which serve to connect the shake-bar and end plate T. The retracting-spring R is also connected to an arm or stud f^4 on one of the end plates.

The mechanism as a whole is arranged to operate as follows: While under the influence of the spring R the shake-bar is held normally retracted, with the pawl withdrawn from engagement with the seed-plate, the cut-off f^2 withdrawn from the discharge-passage a , and the lower end of flint-valve F against one wall of the passage in the standard and retaining the seed which have fallen from said passage a . When the actuating devices are operated to throw the shake-bar against the pressure of spring R, the pawl advances and turns the seed-plate, the cut-off f^2 closes the mouth of the passage a , so as to detain the charge delivered from the pockets of the seed-plate, and the lower end of the valve F is swung back, thereby permitting the seed previously detained by it at or near the lower end of the standard to drop to the ground. As soon as the pressure of the actuating devices is withdrawn the spring at once forces the shake-bar back in an opposite direction, thus releasing the seed deposited in passage a , but catching the charge and detaining it in the lower end of the standard ready to be deposited as soon as the shake-bar is again advanced by the actuating mechanism.

It will be noticed that the pin f^3 for the reception of the shake-bar or its end plate T is projected forward from the valve F and works in the opening between the upper end of the standard and the bottom plate of the hopper, while the shake-bar is connected to it and operates in front of the standard, so that it does not in any way obstruct the rear

of the standard or interfere with the removal of the rear plate D', besides bringing the shake-bar in a plane intermediate the pawls and valves F, thereby diminishing the tendency to lateral displacement and binding.

It will be noticed that the seed-plate is turned by and during the movement of the shake-bar in one direction only, the return stroke, which is effected by the spring, being inoperative to move the seed-plate other than by the drag of the pawl over the teeth of said plate. This would be sufficient at times to partially turn the seed-plate, and thus interfere with its proper working. Moreover, as the stroke of the shake-bar is quickly performed, there is a tendency to drive the seed-plate too far or cause it to race beyond the point at which the pawl is designed to leave it. To overcome what would in practice be regarded as a defective action in these particulars, a stop or retaining pawl t is arranged to engage the teeth on the periphery of the seed-plate, said pawl serving to restrain or resist the forward motion of the seed-plate when relieved from the pressure of the pawl and to lock it positively against back motion. With this end in view the pawl t is pivotally mounted upon the plate A and provided with a spring t' for pressing and holding it in contact with the seed-plate.

The face of the pawl or that part engaging the teeth on the seed-plate is slightly curved, particularly at the ends, and it lies in a plane substantially tangential to the periphery of the seed-plate. When the seed-plate is at rest and in proper position, the pawl rests between two adjacent teeth on the seed-plate, its point standing behind the front tooth to lock the seed-plate against back motion, while the inner portion of its engaging face bears upon the rear tooth and presses thereon in a direction to cause the seed-plate to turn back and hold it in contact with the toe or front end of the pawl, thus locking the seed-plate in position. As the seed-plate is rotated by pawl s^2 , the pawl t is forced back against the pressure of its spring, the tooth on the seed-plate riding along the face of the pawl until it clears the latter, when the pawl t will be free to again enter the space between the teeth. If from any cause the stroke of the shake-bar should not be sufficient to entirely complete the movement of the seed-plate, the curved face of the pawl t near the outer end acting upon the tooth at an angle will carry the seed-plate forward until the pawl finds its place behind said tooth, and if on the other hand the seed-plate is moved too far the pawl t will by its pressure upon the side of the rear tooth draw the seed-plate back to position. It will thus be seen that the pawl t serves not alone to lock the seed-plate against back movement, but also to advance or retract the seed-plate and thus bring it to proper position; but its principal function is to arrest and hold the seed-plate at the termination of the stroke of the pawl s^2 .

The pawl can be applied to the machine in a variety of ways, but the construction shown has been found economical and useful. The pawl t is formed or provided with trunnions or pivots t^2 , one of which is received in a bearing formed in plate A, while the other trunnion is received in a bearing formed in a cap or covering plate t^3 . This cap is secured to plate A by a bolt t^4 , and is held from turning thereon by suitable projections t^5 , entering holes in the plate A. The pawl is also provided on its rear face with a stud to receive one end of the spring t' , which latter bears against the wall of cap-plate t^3 .

Having thus described my invention, what I claim as new is—

1. In a corn-planter, the combination, with the sectional standard having coincident sockets in the sections, of the oscillating valve provided with cylindrical trunnions fitting said sockets, and a bolt passing through the trunnions and serving to secure the sections of the standard in place, substantially as described.

2. In a corn-planter, the combination, with the standard for the runner formed with an open passage or way in its rear side, of the removable plate, the valve provided with integral trunnions fitting sockets in the standard and back plate, and the bolt passing centrally through the sockets and trunnions, substantially as and for the purpose specified.

3. In combination with the hollow standard and the feeding devices located above the former and provided with a discharge-passage opening into the same, of a valve pivoted in said standard and provided with a cut-off co-operating with the discharge-passage of the feeding devices, and a shake-bar attached to said valve and supported and moving upon the pivots of the latter, substantially as described.

4. In a corn-planter, the combination, with the standard, the hopper-bottom connected to but held removed from said standard, and feeding devices mounted on said hopper-bottom, of a valve pivoted in the standard and provided at its upper portion with a pin to receive the shake-bar, said pin working in the space between the standard and hopper-bottom, substantially as described.

5. In combination with the hollow standard provided with a removable back plate, the valve pivoted to vibrate in said standard and provided with a forwardly-projecting pin, and the shake-bar attached to the pin on the valve and arranged in front of the standard, substantially as described.

6. In a corn-planter such as described, the combination, with the shake-bar provided with a retracting-spring and arranged to be engaged and advanced by suitable actuating mechanism, the standard, and feeding devices engaged by a pawl carried by the shake-bar and discharging into the hollow standard, of the pivoted valves upon which the shake-bar is mounted and the cut-off carried by said

valves to co-operate with the discharge-passages of the feeding devices, substantially as described.

7. In combination with the standard and feeding devices, the valve provided with the cut-off plate at its upper end, the pin projecting laterally from said valve, and the shake-bar mounted upon said pin and carrying a pawl for engaging the seed-plate of the feeding devices, substantially as described.

8. In combination with the feeding devices and standard, the shake-bar mounted upon the valve in the standard and provided with an arm to which the pawl for actuating the seed-plate is attached, substantially as described.

9. In combination with the feeding devices and standard, the valve pivoted in the standard, the pawl engaging the seed-plate, and the shake-bar mounted upon the valve and carrying the pawl, said bar being located between the pawl and valve, substantially as described.

10. In combination with the feeding devices, hollow standard, and pivoted valve, the shake-bar pivotally attached to said valve and supported by the latter to reciprocate beneath the seed-box in front of the standard, substantially as described.

11. In combination with the feeding devices, hollow standard, and pivoted valve within said standard, the shake-bar pivotally attached to said valve in front of the standard, said bar reciprocating beneath the seed-box and being provided with a vertically-projecting arm carrying a pawl for engaging the seed-plate, substantially as described.

12. In combination with a pivoted support or valve F for the reception of the shake-bar, a detachable plate T, secured to the shake-bar and provided with a socket for the reception of a pin on said pivoted support, and an arm s' , carrying the pawl which engages the seed-plate, substantially as described.

13. In combination with the seed-plate, flirt-valve, and shake-bar, the plates T, detachably secured to the shake-bar and each formed or provided with a pivoted connection with the flirt-valve, a pivot carrying a pawl engaging the seed-plate, and an abutment for the actuating devices to engage, substantially as described.

14. In combination with the seed-plate and actuating devices therefor, a swinging spring-pressed pawl supported to one side of the seed-plate and entering between the teeth thereon and engaging contiguous teeth to lock the seed-plate at the termination of each stroke or progressive movement, substantially as described.

15. In combination with the seed-plate and actuating devices engaging the same, a swinging spring-pressed pawl held in contact with the teeth of the seed-plate and having the curved extremities adapted to engage and enter between contiguous teeth on the seed-plate to hold the latter in position, substantially as described.

16. In combination with the seed-plate and a reciprocating actuating-pawl riding over and engaging the teeth on the seed-plate when in motion, a locking-pawl pivoted to one side 5 of the seed-plate and adapted to enter between contiguous teeth on the latter, its point engaging the rear of the forward tooth and forming a positive lock against back motion, substantially as described.
- 10 17. In combination with the seed-plate provided with peripheral teeth and the reciprocating pawl engaging said teeth to advance the seed-plate, a swinging spring-pressed 15 pawl having its operating-face substantially tangential to the periphery of the seed-plate and curved slightly at the extremities to permit it to enter between contiguous teeth on the seed-plate, and thus center and lock the latter in position, substantially as described.
- 20 18. In combination with the seed-plate and its supporting-plate, a locking-pawl for engaging and holding the seed-plate at the termination of the stroke of the actuating devices, said locking-pawl being furnished with trunnions which take their bearings, respectively, in plate A, and a removable cap-plate 25 secured thereto, substantially as described.
19. In combination with the toothed seed-plate and its supporting-plate A, the locking-pawl *t*, provided with trunnions or pivots *t*², 30 the cap-plate *t*³, between which and plate A the pawl *t* is located and in which the pivots take their bearings, and a spring interposed between the cap-plate and pawl and serving to hold the latter pressed against the teeth of 35 the seed-plate, substantially as described.
20. In combination with the seed-plate, the locking-pawl provided with trunnions, and the cap-plate detachably secured to the supporting-plate by a bolt and interlocking points 40 or shoulders, said pawl taking its bearings in the cap-plate and supporting-plate and being held therein, substantially as and for the purpose set forth.

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Witnesses:

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