(No Model.) 3 Sheets—Sheet 1.

C. E. SWENEY.

CORN PLANTER.

No. 360,489. Patented Apr. 5, 1887.

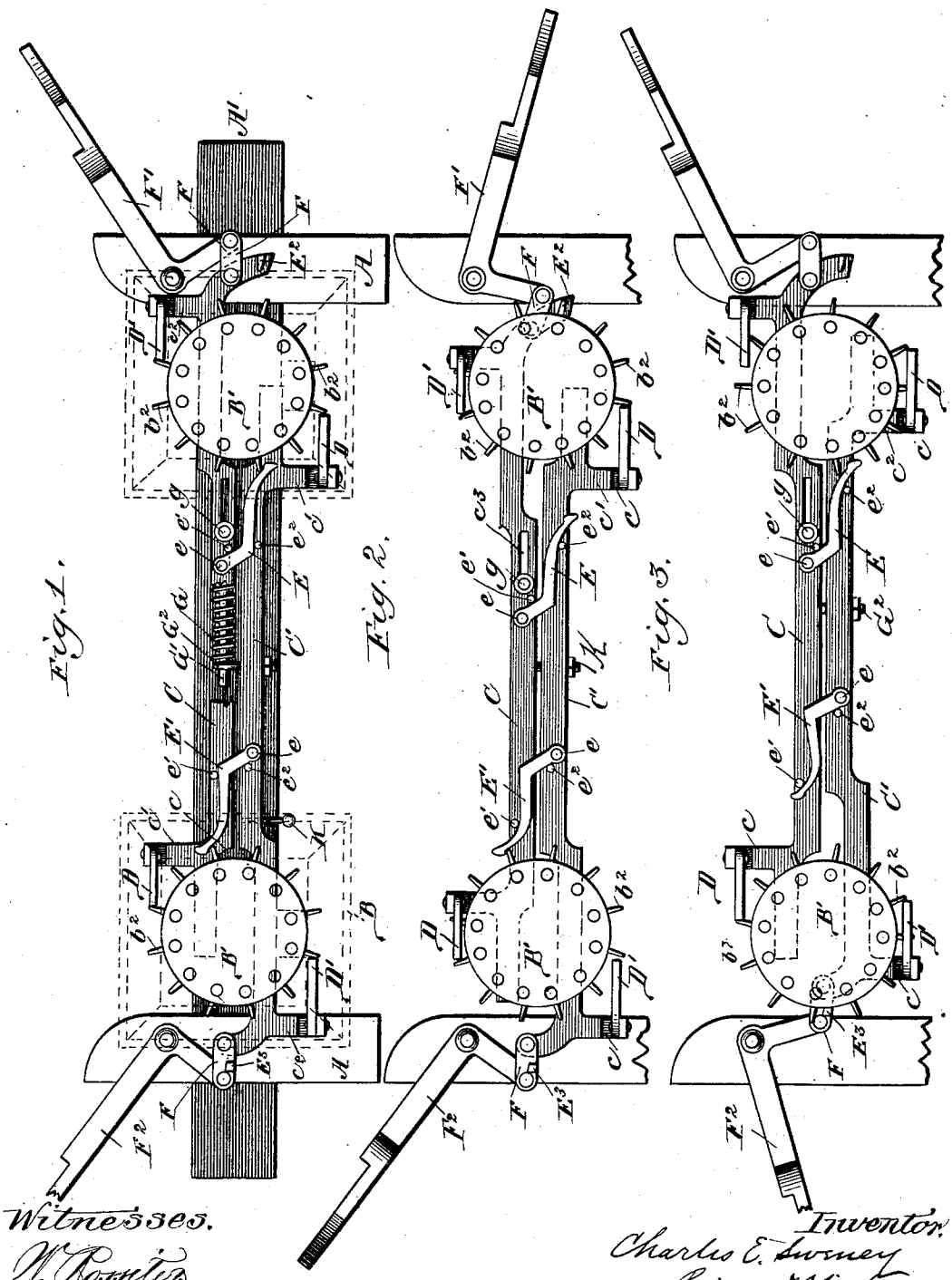


Fig. 1.

Fig. 2.

Fig. 3.

Witnesses.
W. Rossiter
F. Mills.

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Charles E. Sweney
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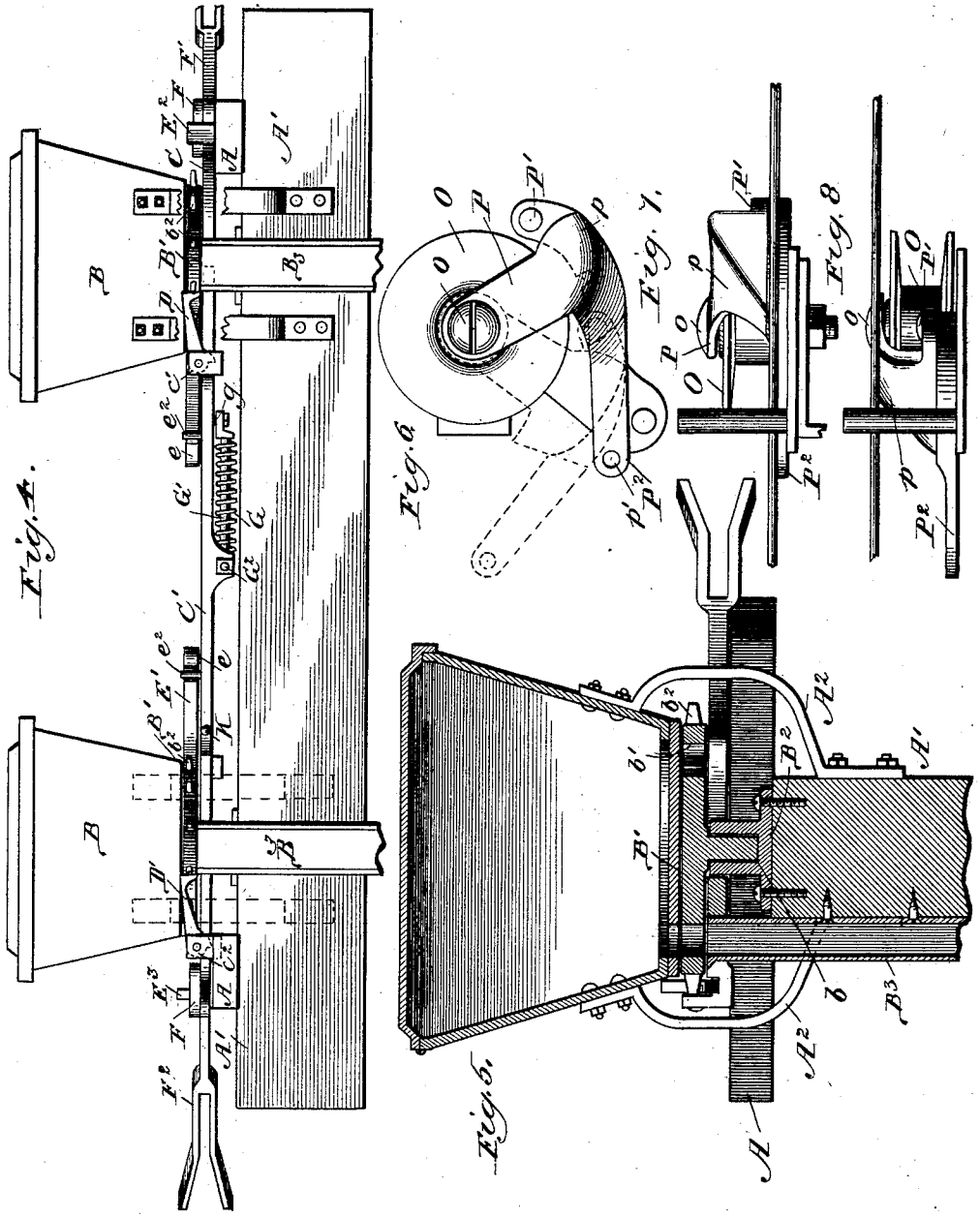
N. PETERS. Photo-Lithographer. Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

C. E. SWENEY.

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F. Mills.

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(No Model.)

3 Sheets—Sheet 3.

C. E. SWENEY.

CORN PLANTER.

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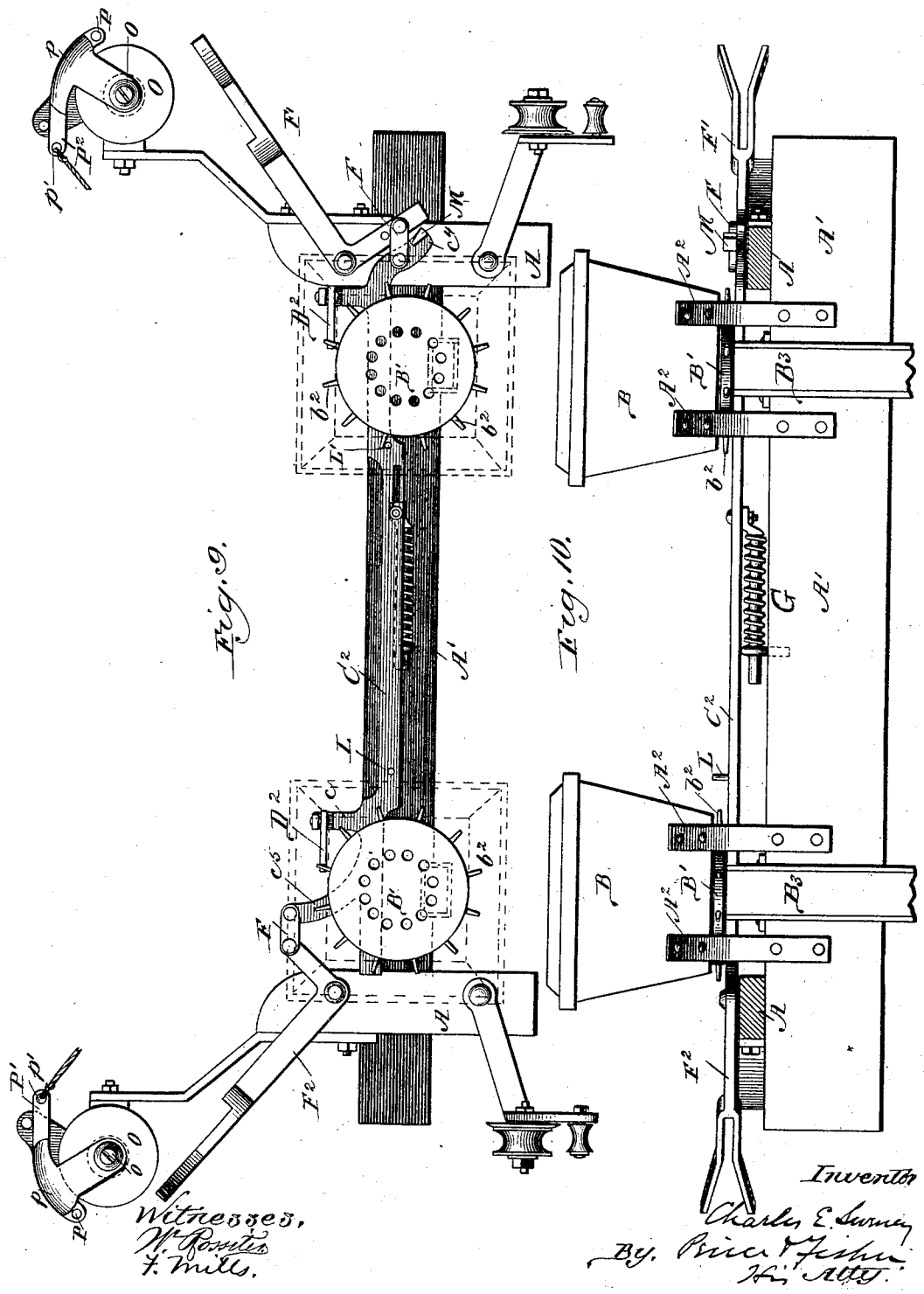


Fig. 9.

Fig. 10.

Witnesses,
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F. Mills.

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UNITED STATES PATENT OFFICE.

CHARLES E. SWENEY, OF PIERCETON, INDIANA, ASSIGNOR TO CHARLES R. LONG AND MARY E. SWENEY, BOTH OF SAME PLACE, AND THEODORE J. HEAGY, OF KOSCIUSKO COUNTY, INDIANA.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 360,489, dated April 5, 1887.

Application filed October 2, 1886. Serial No. 215,112. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. SWENEY, a citizen of the United States, residing at Pierceton, county of Kosciusko, State of Indiana, have invented certain new and useful Improvements in Corn-Planters, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My present invention, while applicable in part to the construction of corn-planters in which the operation of the seed-slides in dropping the grain is effected by hand, relates more particularly to the improvement of that class of planters commonly known as "check-rower planters," wherein the operation of the seed-slides is effected through the medium of a knotted check-row line or wire stretched across the field and intermittently-operating forked levers, located at either side of the machine and communicating movement to a shake-bar that operates the seed-slides. In this class of machines it has been heretofore customary to transmit motion from the forked levers at the sides of the machine to the shake-bar by means of suitable pawls, which operated only to move the shake-bar as the forked lever was forced backward by the knotted wire, but which did not move the shake-bar during the forward movement of the forked lever into its position to engage with the next succeeding knot of the wire.

One object of my present invention is to do away with this usual intermediate mechanism between the shake-bar and the forked levers, and to place the forked levers into positive connection with the shake-bar, so that the shake-bar will be moved back and forth in unison with the corresponding movement of the levers and effect but a single feeding of the grain.

To this end my invention consists, primarily, in the combination, with the seed boxes and slides and the shake-bar, of a forked lever so connected with the shake-bar that said shake-bar shall be reciprocated back and forth at each forward and backward movement of the forked lever and effect but a single discharge of the grain. In this connection, also, my invention consists in the various novel features of construction hereinafter described, illustrated in the accompanying drawings, and particularly defined in the claims at the end of this specification.

A further object of my invention is to improve the construction of shake-bar, so that such bar, while applicable for use in the ordinary hand-machine, can be readily employed in connection with a forked lever at each side of the machine adapted to engage with a knotted check-row wire, and thus convert the machine into a check-rower planter. This object I have accomplished by the construction of shake-bar mechanism hereinafter described, illustrated in the drawings, and particularly defined in the claims at the end of this specification.

My present invention has also for its object to provide an improved throw-off device for releasing the check-row line or wire from its supports, and this object I accomplish by the construction of throw-off device hereinafter described, and more particularly defined in the claims at the end of this specification.

Figures 1, 2, and 3 are plan views of the operating mechanism of the corn-planter embodying one form of my invention, the parts being shown in different positions in the several figures. Fig. 4 is a view in rear elevation. Fig. 5 is a view in vertical transverse section through the center of the seed-box and the subjacent parts. Fig. 6 is a detail plan view, and Figs. 7 and 8 detail side views, of my improved throw-off device. Fig. 9 is a plan view, and Fig. 10 a view in rear elevation, of a somewhat modified form of my invention.

A designates the side bars of the main frame of the corn-planter, and A′ denotes the main cross-bar of such frame, these bars being of usual and well-known construction and sustained upon suitable wheels or runners in any well-known or approved manner.

Upon the main frame of the machine, and at each side thereof, are mounted the usual seed-boxes, B, (shown by dotted lines in Fig. 1,) and beneath the bottom of each of these

boxes is placed a rotary seed-slide, B′, that is journaled, as shown at *b*, upon a suitable seat, B^2, and is provided with the usual feed-openings, *b′*, that deliver the grain in proper quantity into the discharge-spout B^3. The seed-boxes B are preferably sustained by means of the side brackets, A^2, connected thereto and to the main frame of the machine, and from the periphery of the seed-slides B′ project the ratchet teeth or spokes b^2, in number corresponding to the feed-openings in the seed-slides.

Above the cross-bar A′, and extending from side to side of the machine, are mounted, in manner free to slide, the shake-bars C and C′, two of such bars being used in the form of my invention illustrated in Figs. 1, 2, and 3 of the drawings, and these bars being in construction substantial duplicates of each other. The free end of each shake-bar C and C′ is curved, as shown, so as to avoid or pass around the journal-seat B^2 of the seed-slide, and upon a projection, *c′*, of the bar C is pivotally mounted a pawl, D, which engages with the teeth or projections b^2 of the adjacent seed-slide, and serves to impart to such slide a partial revolution when the shake-bar is moved in a backward direction, and rides freely over the teeth b^2 as the shake-bar moves forward. A pawl, D′, is pivotally mounted upon the projections c^2, near the opposite or connected ends of each shake-bar, and serves to impart movement to the adjacent seed-slide when the bar is forced in a backward direction.

The shake-bars C and C′ are provided, respectively, with the stops or pawls E and E′, pivoted, as shown at *e*, and having their free ends extending into position to engage with the teeth b^2 of the adjacent seed-slide, and the movement of each of the stops or pawls E and E′ is limited by means of the pins *e′* and e^2 upon the shake-bars C and C′, respectively. The purpose of these stops or pawls E and E′ is to guard against the accidental revolution of the seed-slides, and it will be seen by reference to Figs. 1 and 2 of the drawings that when the shake-bar C is being operated to move the seed-slides the pawl E will be moved back and forth with this shake-bar, and will dog or check the rotary slide when the pawls D and D′ are in position to impart movement to the slides. It will be observed by reference to Fig. 1 that when the parts are in this position the stop or pawl E′, attached to the shake-bar C′, will be in position to engage with the teeth b^2 of the adjacent seed-slide and dog or check such seed-slide against accidental movement.

Upon the end of the shake-bar C, and adjacent to the link F, that connects the shake-bar to the shorter end of the forked lever F′, is formed or placed the check stud or pawl E^2, which serves, when the shake-bar C is moved inwardly, to engage with the teeth b^2 of the adjacent seed-slide and guard against the accidental revolution of such slide. It will thus be seen that when the shake-bar C is in the position shown in Fig. 1, at which time the forked lever F′ is ready to be caught by the knotted wire, the rotary seed-slide B′ is held against accidental movement by the pawl D′ and the free end of the check-pawl E, while the opposite seed-slide is guarded against accidental movement by the free end of the check-pawl D and the pawl E′. If, now, movement be imparted to the forked lever F′, causing the shake-bar C to assume the position shown in Fig. 2, the driving-pawls D and D′ of this shake-bar will impart a partial revolution to the seed-slides, and when such partial revolution has been completed the slide adjacent the pawl D′ will be guarded against further movement by the stud or pawl E^2 and the pawl D′, and at the same time the seed-slide adjacent the pawl D of the bar C will be guarded against accidental movement by the pawl D and the free end of the check-pawl E′, which will serve the same purpose as the stud or pawl E^2 on the end of the shake-bar C.

By reference to Fig. 3 of the drawings it will be seen that when the tappet-wire is working upon the side of the machine to engage with the forked lever F^2 the backward movement of this lever F^2 will cause a movement of the shake-bar C′ corresponding with the movement of the shake-bar C, when its forked lever F′ is operated by the knotted wire; hence if the forked lever F^2 be forced backward, as shown in Fig. 3, the seed-slide adjacent this lever will be guarded against accidental movement at the end of the stroke by the pawl D of the shake-bar C′ and the stud or pawl E^3 on the link F, and at the same time the seed-slide adjacent the forked lever F′ will be guarded against accidental movement by the pawl E and the shake-bar C and the pawl D′ of the shake-bar C′.

After the forked lever F′ or the forked lever F^2 has been caught and forced backward in the usual manner by a knot upon the check-row line, causing the parts to assume the position in Fig. 3, it will be necessary to restore this forked lever to its original position in order that it may engage with the next succeeding knot of the check-row line; and this forward movement must be accomplished without producing any further discharge of grain from the seed-boxes. In order to restore the forked levers F′ and F^2 to their normal position, I have provided a coiled spring, G, which spring is carried upon a rod, G′, that is attached to the under side of the shake-bar C by means of the bolt *g*, that passes through the long slot c^3 of this shake-bar; and to the under side of the shake-bar C′ is attached the ring or sleeve G^2, through which passes the rod G′, and against which the end of the spring will bear.

From the construction of parts as thus far defined the operation will be seen to be as follows: Assuming the several parts to be in the relative position shown in Fig. 1 of the drawings, and assuming the tappet-wire to be in engagement with the forked lever F′, it will be seen that as the knot of this wire forces backward the lever F′ to the position shown

in Fig. 2 the shake-bar C will be given a backward movement corresponding to that of the forked lever, and in this movement will cause its pawls D and D′ to impart a partial revolution to their respective seed-slides, and it will be seen also that these slides will be guarded against accidental movement in the manner already specified. It will be observed that as the shake-bar C is moved backward the shake-bar C′ is inert, and hence the movement of the shake-bar C causes a compression of the coiled spring G, so that when the knot of the tappet-wire has escaped from the forked lever F′ this coiled spring G will restore the shake-bar C and the forked lever F′ to their original position. By reference to Fig. 2 of the drawings, it will thus be seen that when the forked lever F′ moves backward the shake-bar C it causes the pawls of such shake-bar to impart a partial revolution to the seed-slides; but when the forked lever and the shake-bar are moving in opposite direction, to assume their normal position, the driving-pawls of the shake-bar ride over the teeth of the seed-slides and no further feed of the grain is effected.

By reference to Fig. 3 of the drawings, it will be seen that when the forked lever F^2 is in engagement with the check-row line, the knots of this line will operate this forked lever and its shake-bar C′ in the same manner as the forked lever F′ and shake-bar C are operated.

My purpose in attaching the spring-carrying rod G′ to the shake-bar in the manner shown is to permit the tension of such spring to be adjusted, as desired, and to permit, also, the spring to be thrown off tension when the planter is to be operated as a hand-machine, as will hereinafter more fully appear.

From the foregoing description it will be seen that each forked lever is so connected with its shake-bar that as the forked lever is moved back and forth a corresponding movement in both directions of the shake-bar is effected. By thus connecting the forked lever to the shake-bar I am enabled to dispense with the complicated mechanism usually employed between the forked lever and the shake-bar for the purpose of preventing the forked lever from operating the seed-slides when such lever is being returned to its normal position.

When the machine is to be operated by hand, the forked levers F′ and F^2 and the links F will of course be unnecessary, and may be removed, and the shake-bars C and C′ will be connected together by means of the coupling-pin K, which passes through the shake-bar C′ and enters a suitable seat in the edge of the shake-bar C. In order to couple the shake-bars together in proper relative position for operation it is necessary to move backward the shake-bar C to the position shown in Fig. 2, in order that the pin K may be inserted within the corresponding hole in such shake-bar. When the shake-bars are thus coupled together, they may be operated by means of a suitable rocking lever, and at each movement of the shake-bar a partial revolution will be given to the seed-slides and a portion of the grain will be discharged. When the shake-bars are to be connected together for hand operation, the bolt *g* is preferably set within the slot c^3 of the shake-bar C in such manner as to throw the spring G off tension.

In the modified form of my invention, illustrated in Figs. 9 and 10, I have shown both sets of forked levers as connected to a single shake-bar, C^2, which extends from side to side of the machine. The end of this shake-bar adjacent the forked lever F′ is curved, as shown at c^4, and is connected by means of the link F to the shorter end of the forked lever, while the opposite end of the shake bar is curved, as shown at *c*, and is connected by the link F with the shorter arm of the forked lever F^2. Upon the projections *c* of the shake-bar C^2 are pivotally mounted the driving-pawls D^2, which serve to impart a partial revolution to the seed-slides. By outwardly curving the end c^4 of the shake-bar C^2 and connecting the forked lever F′ therewith in the manner shown, this forked lever will operate the shake-bar by pulling the same, while the forked lever F^2 will operate the bar by pushing it, as in the construction heretofore described. Upon the top of the shake-bar are placed the check stops or pins L and L′, and upon the extreme outer end of the shake-bar C^2 will be formed the stops M. These several stops or checks serve to dog the rotary slides and guard the same against accidental revolution. In this modified construction the spring-carrying rod G is bolted to the shake-bar C^2, as shown in Figs. 9 and 10, and the sleeve or ring through which this bar passes is firmly attached to some relatively-fixed part of the structure—such, for example, as the main cross-bar A′. The operation of this modified form of my invention will be seen to be as follows, assuming the parts to be in the relative position shown in Fig. 9 of the drawings:

As a knot of the tappet-wire engages with the forked lever F′ and forces this lever backward, it causes the pawls D^2 and D^2 to impart a partial revolution to the rotary seed-slides B′, so as to effect a discharge of grain into the feed-spout B^3. When the shake-bar C^2 has received its extreme backward movement the stop or pawl M will engage with the teeth b^2 of the seed-slide, and, together with the driving-pawl D^2, will check the accidental movement of such slide. At the same time the stop or pin L will be forced into engagement with the teeth b^2 of its adjacent seed-slides, and together with the pawl D^2 will check the movement of such slide. When the knot of the check-row line or wire has slipped from the forked lever the spring G will force the shake-bar and the forked lever back to their normal position, as shown in Fig. 9, and at such time the seed-slides will be guarded against accidental movement by the stop or pin L′ and pawl D^2 and by the stop L and the pawl D^2. In this last-described form of my invention, as

in that before described, the shake-bar is connected directly with the forked levers, (in this construction with both levers,) so that this bar partakes of the back-and-forth movement of the forked levers, although effecting but a single feed of the grain, and the usual intermediate mechanism between the forked levers and the shake-bar, to prevent the backward movement of the forked lever from moving the shake-bar, is dispensed with. So, also, in this modified form of construction, a spring is employed for restoring the shake-bar to proper position for imparting a partial revolution to the rotary slides, and the driving-pawls and check-pawls of the shake-bar are arranged to produce substantially the same results as in the form of my invention in which the two shake-bars are employed. Should it be desired to use this construction as a hand-machine, it will only be necessary to dispense with the forked levers F′ and F² and links F, and attach the shaking-bar C² to the usual hand rocking lever of usual construction; but with a single shake-bar, arranged as described, it will be necessary to give both a backward and forward movement of the rocking-lever in order to produce a single feed of the grain.

The improved construction of throw-off device is illustrated in detail, Figs. 6, 7, and 8, and in the plan view, Fig. 9, of the drawings. In this device the guide-pulley O, for the check-row wire, is journaled upon a suitable pin, *o*, and upon the upper end of this pin is journaled the discharge-arm P, the outer face of which is cam-shaped or inclined, as shown at *p*, and this arm P is pivotally connected, as shown at P′, to the swinging link P². An eye, *p*′, in the end of the link P² serves to receive a cord or wire, by means of which the operator can, without dismounting from his machine, throw the check-row wire from off the planter; and it will be readily seen that by swinging backward the discharge-arm P the inclined face *p* of this arm will force the check-row wire out of the grooved pulley O, and cause it to pass from the machine.

My purpose in providing the discharge-arm P with the pivoted link P² is to permit the discharge-arm P to be swung more completely backward, and, furthermore, to permit of a greater extent of movement of the operating-cord, so as to avoid all danger of breaking the arm. The use of this pivoted link for the discharge-arm will be greatly advantageous where the throw-off is to be effected automatically, as in the construction set forth in my Patent No. 339,233, of April 6, 1886, for it will be seen that if the operating-cord is connected sufficiently taut to throw off the wire any greater strain upon such cord will either break the discharge-arm or the cord. Where a pivoted link, however, is employed, a movement of the operating-cord is permitted after the discharge-arm has been moved sufficiently to throw off the wire from the pulley.

It will be readily understood that the details of construction above set out may be varied by the skilled mechanic without departing from the spirit of my invention, and to such details therefore I do not wish my invention to be understood as restricted.

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

1. In a check-rower corn-planter, the combination, with the seed boxes and slides and the shake-bar that operates said slides, of a forked lever in direct connection with the shake-bar, so that said shake-bar shall move back and forth with the corresponding movement of the forked lever, substantially as described.

2. In a check-rower corn-planter, the combination, with the seed boxes and slides and the shake-bar that operates said slides, of a forked lever and a link pivotally connecting said lever to the shake-bar, so that said shake-bar shall move back and forth in unison with the lever, substantially as described.

3. In a check-rower corn-planter, the combination, with the seed-boxes and the rotary seed-slides and the shake-bar, of single-acting pawl mechanism connected to the shake-bar and adapted to engage with the seed-slides and a forked lever connected to the shake-bar, substantially as described.

4. In a check-rower corn-planter, the combination, with the seed-boxes and the rotary seed-slides and the shake-bar, of two pawls upon said shake-bar, one of said pawls adapted to engage with each of the seed-slides, and a forked lever in pivotal connection with the shake-bar, so that said shake-bar shall move back and forth in unison with the forked lever, substantially as described.

5. In a check-rower corn-planter, the combination, with the seed-boxes, the seed-slides, and the transversely-reciprocating shake-bar, of a forked lever connected to move in unison with the shake-bar and spring mechanism for causing the movement in one direction of both the shake-bar and the forked lever, substantially as described.

6. In a check-rower corn-planter, the combination, with the seed-boxes and the rotary seed-slides and the shake-bar, of a driving-pawl and a check-pawl on the shake-bar for each seed-slide and a forked lever in connection with the shake-bar, substantially as described.

7. In a corn-planter, the combination, with the seed-boxes and the rotary seed-slides, of two shake-bars, each provided with pawls for operating the seed-slides and adapted to be connected together when the planter is to be operated as a hand-machine, substantially as described.

8. In a check-rower corn-planter, the combination, with the seed-boxes and the seed-slides, of two shake-bars, each provided with pawls for operating the seed-slide and being suitably connected with the forked lever mechanism at the side of the machine, substantially as described.

9. In a check-rower corn-planter, the combination, with the seed-boxes and the seed-

slides, of two shake-bars, each provided with means for operating the seed-slides and adapted to be connected with the forked lever mechanism at the sides of the machine, substantially as described.

10. In a check-rower corn-planter, the combination, with the seed-boxes and the rotary seed-slides, of two shake-bars, each adapted to operate the slides, and a spring extending between said shake-bars, substantially as described.

11. In a check-rower corn-planter, the combination, with the seed-slides B′, of the shake-bars C and C′, provided with the driving-pawls D and D′, and with suitable stops to prevent the accidental movement of the seed-slides, substantially as described.

12. In a check-rower corn-planter, the combination, with the rotary seed-slides, of the two shake-bars C C′, provided with driving-pawls D D′, stops E and E′, and check-pawls E^2 and E^3, substantially as described.

13. In a check-rower corn-planter, the combination, with the seed-slides B′, of the two shake-bars C and C′, provided with suitable driving-pawls, the forked levers F′ and F^2, connected to said shake-bars, and the spring G, connected with said shake-bars, substantially as described.

14. In a check-rower corn-planter, the combination, with the seed-slides, of two shake-bars and a spring connected to each of said shake-bars in a manner permitting the adjustment of said spring, substantially as described.

15. In a check-rower corn-planter, the combination, with the guide-pulley, of the swinging discharge-arm having the inclined face, substantially as described.

16. In a check-rower corn-planter, the combination, with the guide-pulley, of the swinging discharge-arm and the arm or link pivotally connected to said discharge-arm, substantially as described.

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