(No Model.)

2 Sheets—Sheet 1.

G. J. CLINE.

CORN PLANTER.

No. 457,398. Patented Aug. 11, 1891.

Fig. 1.

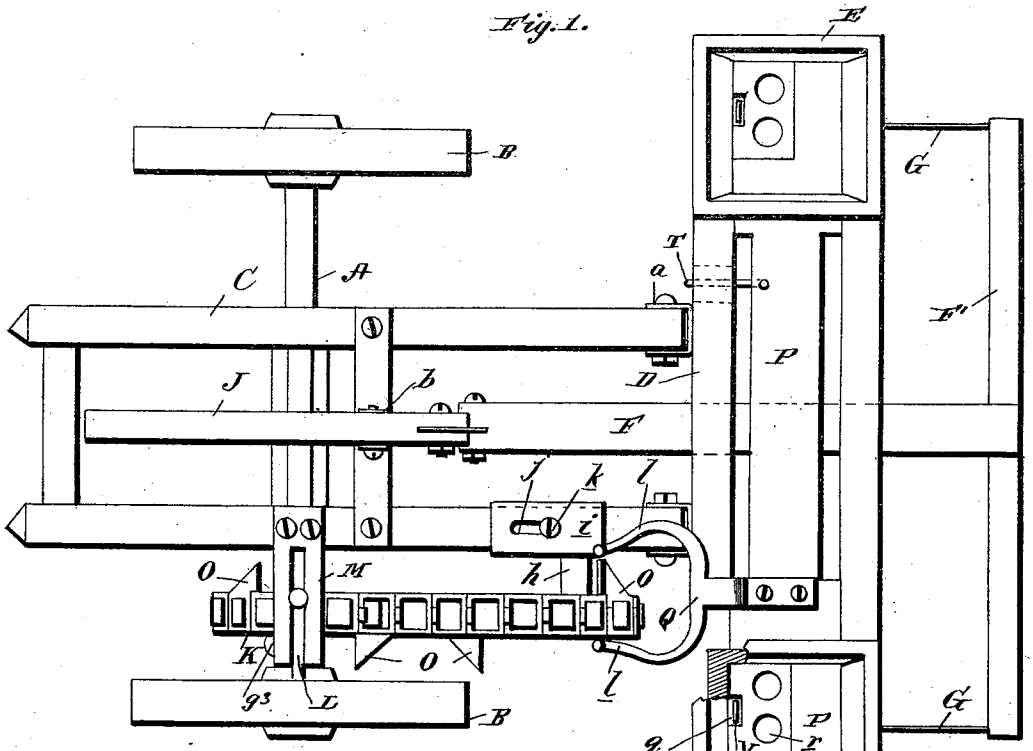
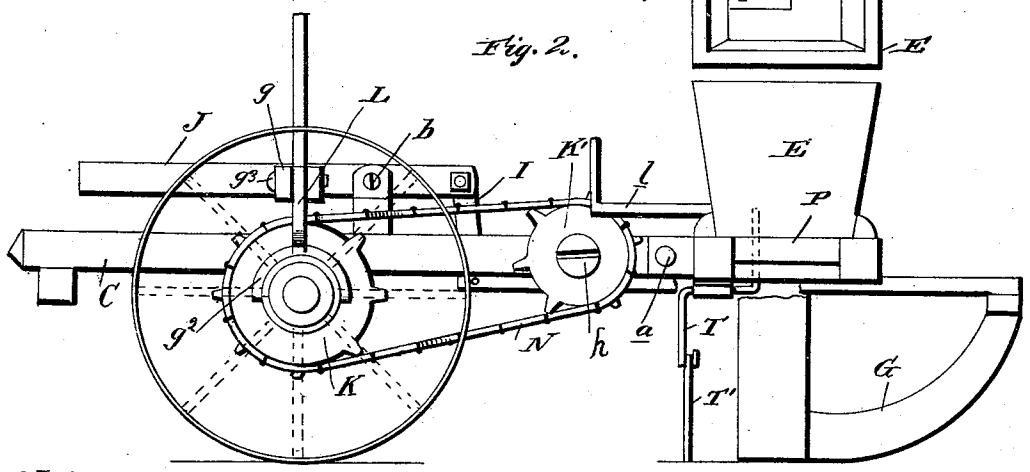


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

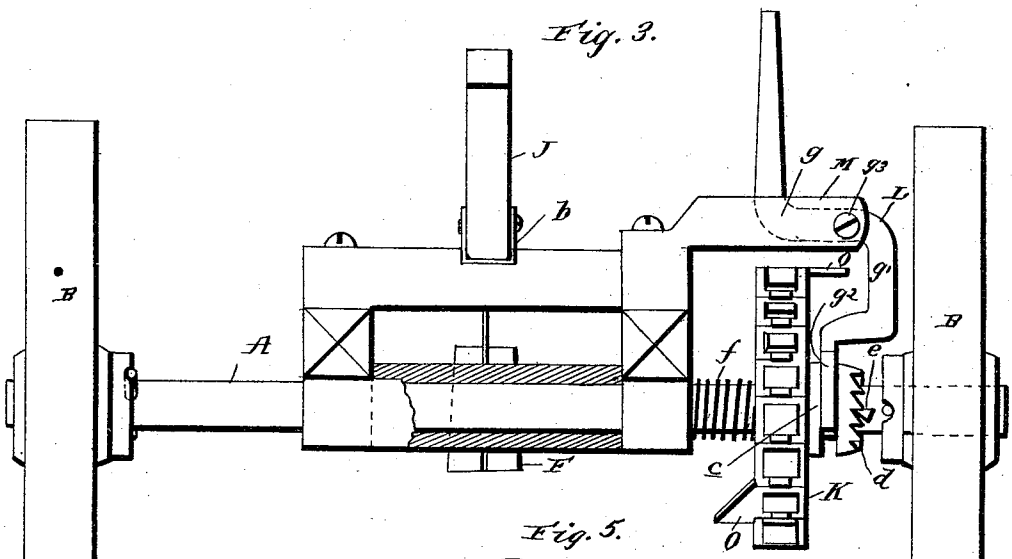


Fig. 4.

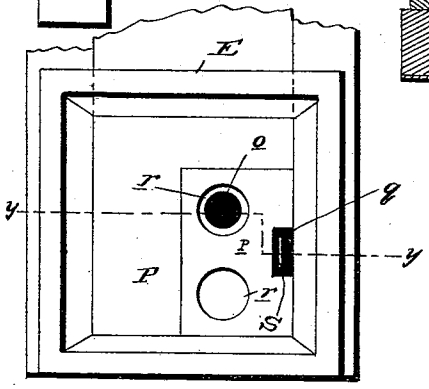


Fig. 5.

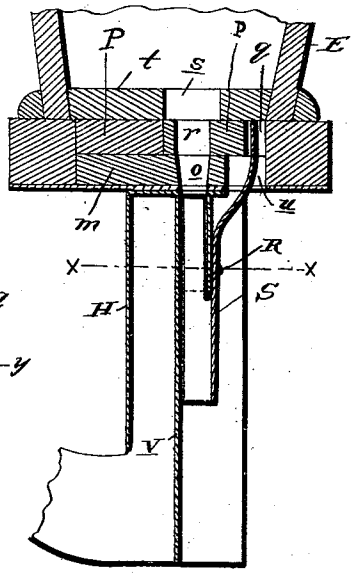


Fig. 6.

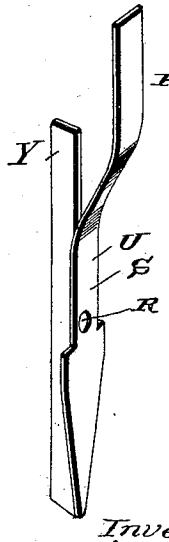
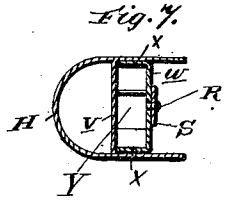


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE J. CLINE, OF GOSHEN, INDIANA.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 457,398, dated August 11, 1891.

Application filed November 29, 1889. Serial No. 331,970. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. CLINE, a citizen of the United States, residing at Goshen, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Corn-Planters; and I do 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 appertains to make and use the same.

My invention relates to improvements in corn-planters, and the novelty will be fully understood from the following description and claims, when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a top plan view of my improved corn-planter. Fig. 2 is a side elevation of the same. Fig. 3 is a rear elevation, partly in section. Fig. 4 is a detail plan view of one of the hoppers with the piece *t* omitted. Fig. 5 is a vertical section of one of the hoppers, together with its depending seed-tube, illustrating the flirt-valve in the latter, said section being taken in the plane indicated by the line *y y* of Fig. 4. Fig. 6 is a perspective view of the flirt-valve removed; and Fig. 7 is a horizontal transverse section of the seed-tube, taken in the plane indicated by the line *x x* of Fig. 5.

In the drawings, A represents the axle, and B the wheels, of the planter-frame.

C is the main frame, and D an auxiliary frame, the latter carrying the hoppers E and the two pivotally connected at *a*.

F is a bar secured to frame D and extending a suitable distance in advance thereof, such bar carrying at its forward end a cross-bar F′, to which the forward upper ends of the furrow-openers G are secured, such openers being connected at their rear ends to the upright seed-tubes H, as is customary. The bar F at its rear end carries a vertically-disposed link I, to the upper end of which one end of a lever J is pivoted, such lever being suitably pivoted to frame C at *b* and the handle end thereof being located conveniently to the seat of the driver.

Loosely mounted upon axle A to one side of frame C is a cog-wheel K, which is provided with a hub *c*, peripherally grooved, as shown clearly in Fig. 3, and formed on its outer edge with ratchet *d*, the teeth of which are arranged to engage a stud *e*, mounted upon the axle, the ratchet and stud being normally forced to engagement by means of a spring *f*, coiled upon the axle between the cog and frame C.

L represents a lever pivoted in a bracket M, secured to frame C, the upper end of such lever being formed into a handle, as shown. The form of this lever is clearly shown in Fig. 3, wherein the handle end is shown to be bent at substantially right angles to form arm *g*, through which the pivot-pin g^3 is passed, arm *g* being in turn bent downwardly to form arm *g′*, which in turn is bent inwardly to form arm g^2, fork-shaped on its lower end, the forked end of such last-named arm entering the groove of hub *c* and partly encircling such hub.

N represents an endless drive-chain, which is passed around cog-wheel K and a second cog-wheel K′, the latter being mounted upon a suitable stud *h*, cast with or secured to a casting *i*, adjustably mounted near the forward end of frame C, the adjustment of such casting being provided for by means of a slot *j*, with which it is provided, and a locking-pin *k*, passed therethrough into the frame C. Drive-chain N is provided with a series of cam-triggers O, so arranged that their forward ends will be at right angles to the chain, one side edge being parallel to such chain and the opposite side edge on an incline with respect thereto. These triggers are secured to the outer edges of the chain, being arranged alternately on opposite sides thereof, the distance between them being determined by the desired distance between the hills, as will be mentioned.

P represents the slide-bar located upon and guided in the frame D, the ends of such slide-bar passing into the bottom of the hoppers through suitable slots formed in the sides thereof.

Secured to the slide-bar P, upon that side upon which the driving mechanism described is located, is an arm Q, which at its rear free end is forked, two arms *l* being thus formed, said arms at their rear ends being bent upwardly, as clearly shown in Fig. 2.

The operation of the parts thus far de-

scribed is as follows: As the machine is moved forward and its axle revolved, motion is imparted to cog-wheel K, and through it to chain N, the chain being thus carried forward over and around cog-wheel K′. This movement of the chain will eventually bring one trigger O into engagement with the upturned end of that arm *l* located on the same side as such trigger. The continued forward movement of the chain and trigger will carry the trigger by the arm, the arm being forced to one side by the inclined or beveled edge of the trigger. This action will give a side movement to the slide-bar, which will be reversed as the next succeeding trigger (located upon the opposite side of the chain) engages the remaining arm *l*, a reciprocating movement being thus imparted to the slide-bar.

When it is desired to have the machine advance without operating the slide-bar, the lever L is operated, so that its lower end will be forced inwardly, carrying with it the cog-wheel K and its hub, the ratchet *d* and stud *e* being thus disengaged.

The bottom *m* of each hopper E is provided on its rear edge with a slot *n* and at a point at or near its center with an opening *o*, communicating with seed-tube H.

The slide-bar is cut away at each end to accommodate pieces *p*, each of which is provided with a slot *q* on its rear edge and at suitable points with two openings *r*, arranged to register alternately with the opening *o* of bottom *m*, and also alternately with openings *s*, two of which are formed in each of two pieces *t*, said pieces *t* being located in the hoppers above pieces *p*, the parts being so arranged that as one opening *r* registers with opening *o* the remaining opening *r* will register one opening *s*, grain being thus discharged through one set of openings *r o* into the depending tube as grain is being received into the remaining slot *r* through one opening *s*.

Depending from the bottom of the hoppers E are seed-tubes H, the outer casing of which comprises a preferably curved front and two rearwardly-extending side walls, as better illustrated in Fig. 7 of the drawings. At about the point illlustrated in the casing of the respective tubes H, I place a transverse partition *v*, which extends the full length of the casing, and at the upper end of the casing, in rear of the partition *v*, I place another partition *w*, which is preferably provided with side branches *x*, whereby it is connected to said partition *v*. The apartment or passage formed by the partition *v*, which is preferably of about the proportional length illustrated, occupies a position in alignment with the opening *o* in the bottom of the hopper, as better illustrated in Fig. 5 of the drawings.

S indicates a flirt-valve which is designed to afford a chute for conveying the grain from the opening *o* to the opposite sides of the tube-casing alternately, whereby the seed are dropped in two parallel rows a slight distance apart. This valve S, which is better illustrated in Fig. 6, comprises a transversely-disposed lever-plate U, which is curved rearwardly and upwardly at a slight distance above its middle, and its upper end takes through the slot or recess *q* in the piece *p*, which is seated in a recess of the reciprocating bar P, whereby it will be seen that when the bar is reciprocated the flirt-valve will also be reciprocated to accomplish the purpose before stated. The lever-plate U is pivotally connected to the transverse partition *w*, as illustrated at R.

Formed integral with or suitably connected to the forward side of the lever-plate U in the longitudinal center of the same is an angular valve-plate Y, which extends from the lower end of the lever-plate to the bottom of the hopper and is connected to said lever-plate from the lower end thereof to a point a slight distance beneath its pivotal point, where the valve-plate is slotted or recessed in its rear edge to enable it to take up into the apartment or passage between the partitions *v* and *w* of the casing.

Pivoted to the slide-bar is a hill-marker, which consists of a bent arm T and an arm T′, pivoted thereto, the arm T′ resting upon the ground and serving to mark the hills as the bar is reciprocated.

What I claim is—

1. In a corn-planter, the combination, with a seed-tube comprising a casing and two vertical parallel transversely-disposed partitions arranged in said casing, so as to form a seed-passage between them, of a flirt-valve comprising a transversely-disposed lever-plate pivotally connected to one of the transverse partitions of the casing, and a valve-plate arranged at right angles to the lever-plate and having its lower portion connected thereto, said valve-plate having the upper portion of its edge adjacent the lever-plate recessed, so as to enable said valve-plate to straddle one of the partitions of the casing and play in the passage between said partitions, substantially as and for the purpose set forth.

2. In a corn-planter, the combination, with a hopper provided with a discharge-aperture and a slot or recess in its bottom, a reciprocating slide-bar playing through the hopper above the bottom thereof and provided with a recess in one edge, a piece or block seated in the recess of the slide-bar and provided with two apertures adapted to alternately register with the aperture in the hopper-bottom and having a recess in its edge in alignment with the recess or slot in the edge of the hopper-bottom, and a seed-tube depending from the bottom of the hopper and comprising a casing and two vertical parallel transversely-disposed partitions arranged in said casing so as to form a passage for the seed in alignment with the discharge-aperture in the hopper-bottom, of a flirt-valve comprising a transversely-disposed lever-plate pivotally connected to one of the transverse partitions

and extending up through the recess or slot in the bottom of the hopper and the recess in the piece or block carried by the reciprocating bar, and a valve-plate arranged at right angles to the lever-plate and connected thereto for a portion of its length, said valve-plate occupying a position in the passage formed by the partition-walls and adapted to be reciprocated, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE J. CLINE.

Witnesses:
W. A. BEANE,
J. A. BEANE.