R. H. AVERY.

Corn-Planter.

No. 212,086. Patented Feb. 11, 1879.

Fig. 1.

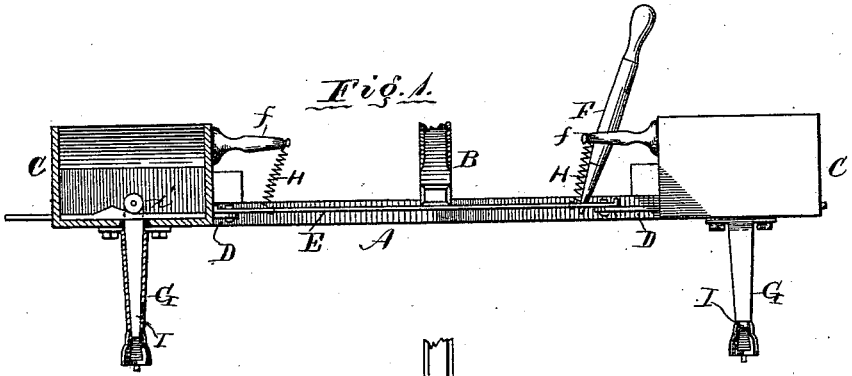


Fig. 2.

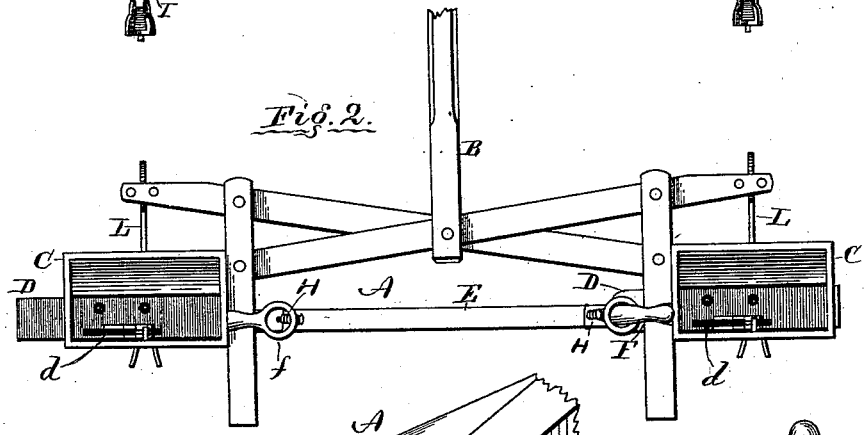


Fig. 3.

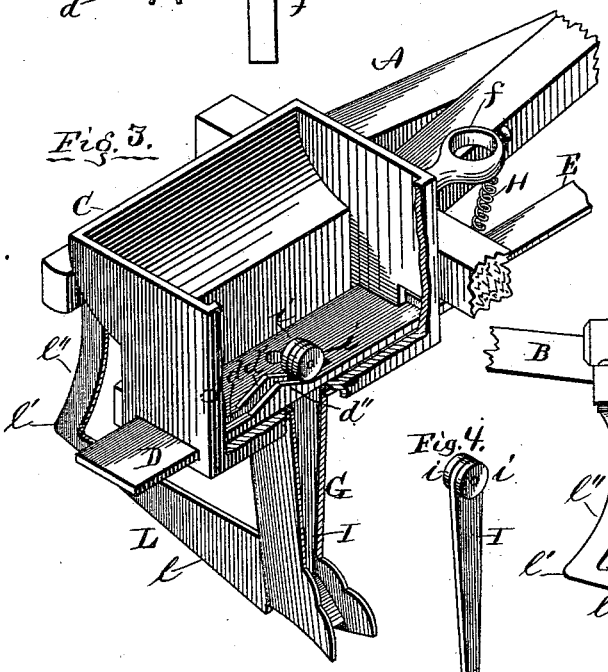
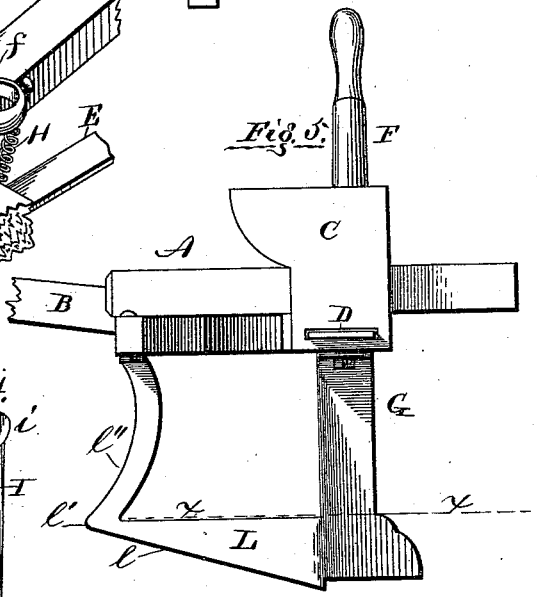


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

ROBERT H. AVERY, OF GALESBURG, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO CYRUS M. AVERY, OF SAME PLACE.

IMPROVEMENT IN CORN-PLANTERS.

Specification forming part of Letters Patent No. **212,086**, dated February 11, 1879; application filed July 5, 1878.

To all whom it may concern:

Be it known that I, ROBERT H. AVERY, of Galesburg, in the county of Knox and State of Illinois, have invented certain new and useful Improvements in Corn-Planters; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a rear elevation of the forward part of a corn-planter embodying my invention, showing the rear side of one of the seed-boxes broken away. Fig. 2 is a top-plan view. Fig. 3 is a perspective view of one of the seed-boxes and adjacent devices, the rear side of the seed-box and seed-tube broken away. Fig. 4 is a perspective view of the discharge-valve. Fig. 5 is a side elevation of Figs. 1, 2, and 3. In Figs. 1, 2, 3, and 5 the cap in the seed-box is not shown.

This invention relates to improvements in corn-planters; and consists, first, in improvements in the construction of the runner or seed-furrow opener, and in its arrangement in relation to the other parts of the machine, adapting it to remove corn-stalks, weeds, and similar débris which lie on or near the surface of the soil; second, in the combination of springs with the seed-slides, arranged in such relation thereto as to reduce the friction of the slides, and to exert a stored force in the beginning of the throw of the slides in each direction; third, in a gravitating discharge-valve passing through a slot in the seed-slide, which actuates it, in such manner as to hold the valve securely and permit the use of elevating-cams on both sides of the valve, all as hereinafter fully described.

Referring to the drawings by letters, the same part being indicated by the same letter of the alphabet in the different views, letters A represent the forward part, or the part of the frame of a corn-planter to which the seeding devices are attached. B is the draft-pole. C C are seed-boxes. D D are seed-slides, one in each box C, connected by a bar, E. F is a hand-lever for actuating the slides D, and may be fulcrumed in either ring-standard *f*. G is the seed-tube.

The foregoing parts, with the exception of some features hereinafter described in relation to the construction of the seed-slides, are the same as shown in my patent of January 15, 1878, No. 199,344, and therefore need not be described here.

H H are springs, one at each end of the bar E, and attached at their lower ends to the bar E, and at their upper ends one to each standard *f*, in such manner that their tension may exert a constant upward force on the slides D, and thus reduce the friction between the lower surfaces of the slides and the surfaces on which they rest.

At Fig. 1 the seed-slides are shown at the end of their throw to the left hand, and the springs H, it will be seen, are in such positions as that they, by their tension, are exerting a force to start the slides in their throw in the opposite direction, which aid in starting will relieve the sudden exertion of force required to start the slides from their rest at each end of their throw, and thus render the slides easier to actuate by hand, and especially facilitate actuating them by a knotted check-row cord or wire or other automatic device. The increased force required at the latter end of each throw will reduce the tendency to too rapid motion of the slides, and consequent jarring of the parts at the termination of each throw.

I is the gravitating-valve, arranged in the seed-tube, to receive and discharge seed in the same manner as described in my patent hereinbefore referred to.

I have found by experiment that a valve, I, having an anti-friction roller, *i*, only on one side, will be turned sidewise by the motion of the slide and its freedom of action interfered with. To prevent this difficulty I have placed an anti-friction roller, *i*, on both sides of the upper end of the valve I, and have made a slot, *d*, in the seed-slide, with a cam, *d'*, on each side of the slot, and placed the valve I through the slot *d*, so that one roller, *i*, will be acted on by one cam, *d'*, and the other roller by the other cam, *d''*, and thus all tendency to

twist or turn the valve be removed. The sides of the slot *d* will also secure the valve from turning from other causes.

L is the runner for opening the seed-furrow, the rear end of which is widened and connected to the lower end of the seed-tube, in the ordinary manner. The lower side, *l*, of the runner L is constructed with an edge inclining upward as it extends forward to a point, *l'*, which is in a plane a distance higher than the rear end and bottom of the runner a little less than the depth required to plant the seed, so that the runner may be arranged or adjusted on the machine in such manner that the point *l'* may run at or a little below the surface of the ground in planting, as shown by the line *x x* at Fig. 5, which line represents the surface of the ground. The upper and forward part, *l''*, of the runner extends from the point *l'* upward in a vertical plane, or, preferably, inclined rearward and curved, as shown at Fig. 5. The lower edge of the runner, when thus constructed, will cut through or press downward all corn-stalks and similar substances, and rise and pass over stones and other similar hard substances. The corn-stalks, weeds, &c., lying on the surface of the ground will be raised and turned to one side by the upper part, *l''*, and thus be prevented from raising the runner and producing irregularity in the depth of planting, or from pushing ahead of and under the runner, and thus pressing the soil too much to one side to close over the planted seed properly.

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

1. A corn-planter runner or seed-furrow opener having a lower edge inclining upward toward its forward end, a point adapted to run at or near the surface of the ground, and an upper part in a vertical plane or inclining rearward toward its upper end, and adjusted upon the planter so that it may cut through stalks and other débris below the surface of the ground, and raise and turn to one side that at the surface, substantially as and for the purpose specified.

2. The gravitating discharge-valve I, having anti-friction rollers *i* on both of its sides, in combination with the slide D, having slot *d*, through which the valve passes, and cams *d' d''*, to act on both sides of the valve simultaneously and retain it in working position, substantially as and for the purpose specified.

3. The springs H, in combination with the standards *f*, or equivalent part of the frame, bar E, slides D, and boxes in which the slides operate, when arranged to reduce the friction of the slides, and to exert a force in starting the slides at both ends of their strokes, and offer a resistance in terminating said strokes, substantially as described, and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ROBERT H. AVERY.

Witnesses:
H. A. ALLEN,
M. H. BARRINGER.