3 Sheets—Sheet 1

R. H. AVERY.
Corn-Planter.

No. 199,344. **Patented Jan. 15, 1878.**

Fig. 1.

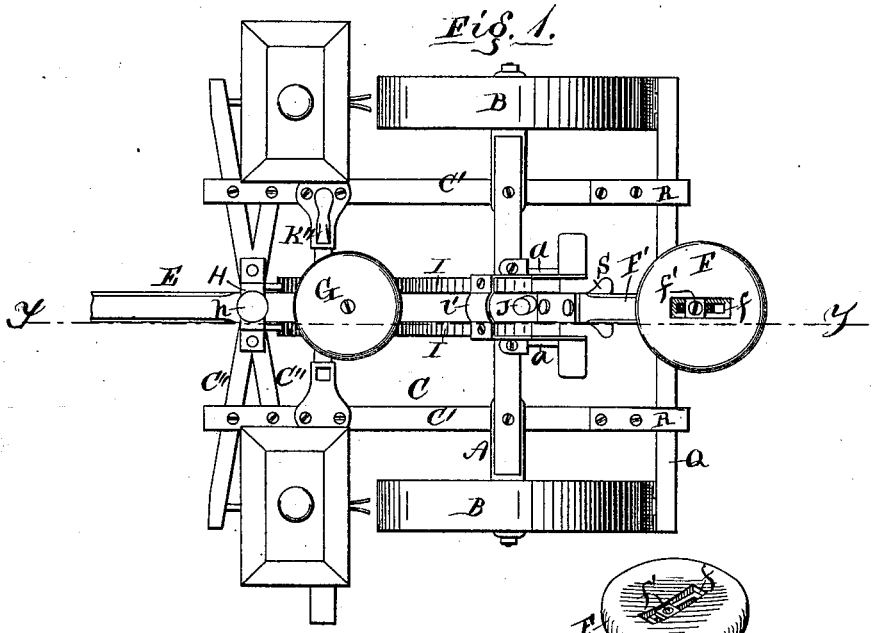
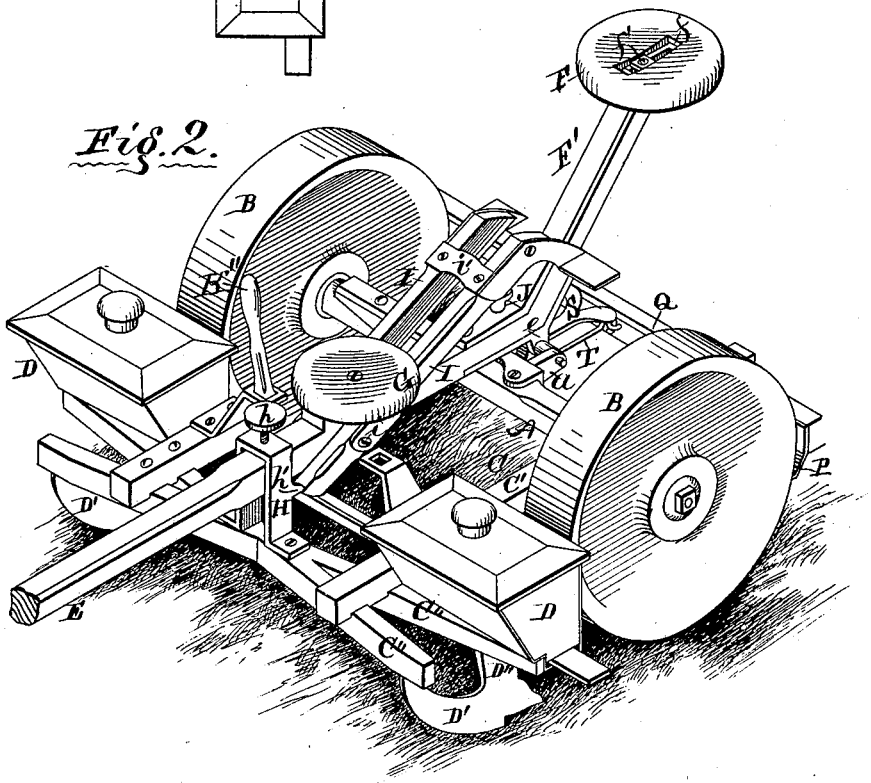


Fig. 2.



Witnesses:
M. H. Barringer.
A. R. Richards.

Inventor:
Robert H. Avery,
By W. B. Richards,
Atty.

R. H. AVERY.
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Fig. 3.

Fig. 4.

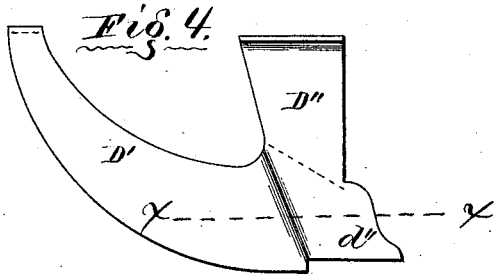


Fig. 5.

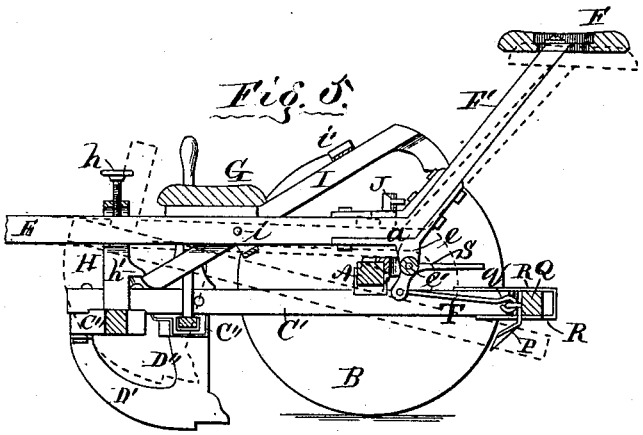
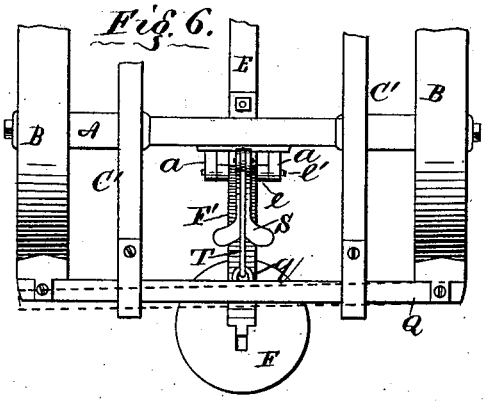


Fig. 6.



Witnesses:
M. C. Barringer.
O. R. Richards.

Inventor:
Robert H. Avery
By W. B. Richards.
Atty.

3 Sheets—Sheet 3.

R. H. AVERY.
Corn-Planter.

No. 199,344 Patented Jan. 15, 1878.

Fig. 7.

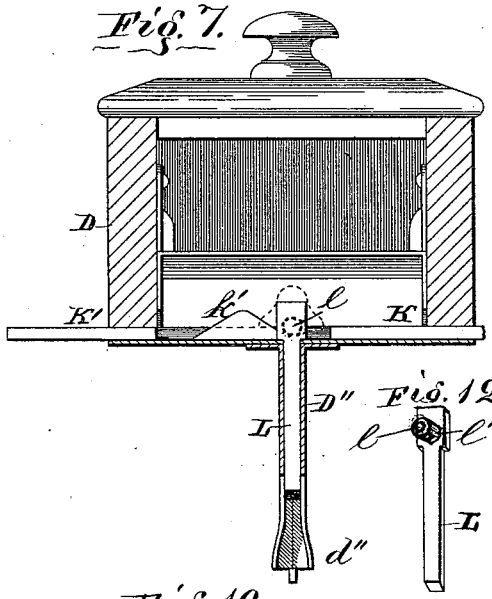


Fig. 8.

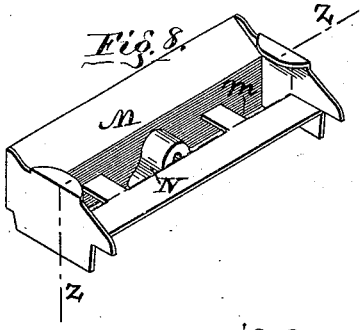


Fig. 12.

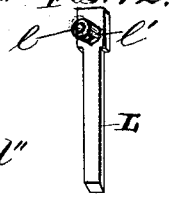


Fig. 9.

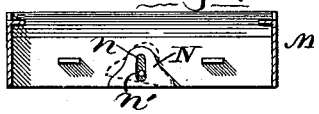


Fig. 10.

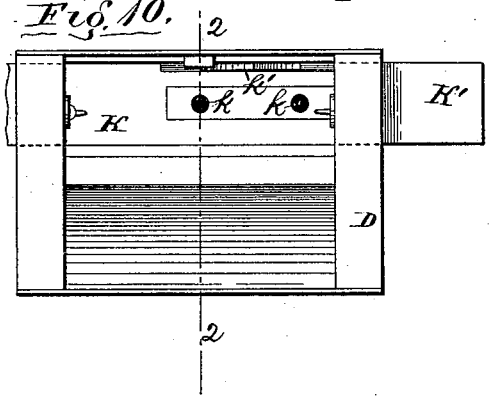
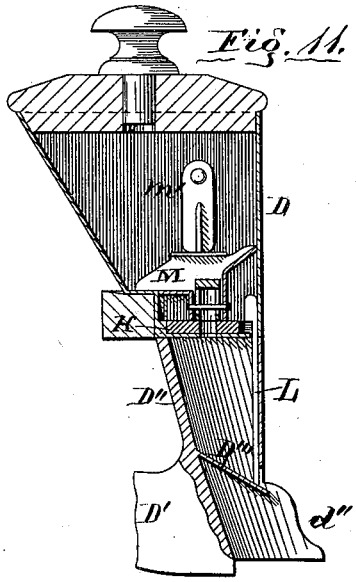


Fig. 11.



Witnesses:

M. L. Barringer.
P. R. Richards.

Inventor:

Robert H. Avery,
By W. B. Richards,
Atty.

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. **199,344**, dated January 15, 1878; application filed July 28, 1877.

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 thereof, 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 the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a top view of a machine embodying my invention. Fig. 2 is a perspective view. Fig. 3 is a sectional view in the line *x x* in Fig. 4. Fig. 4 is a side elevation of one runner. Fig. 5 is a sectional view in the line *y y* in Fig. 1. Fig. 6 is a plan view of the rear part of the machine, seen from below. Fig. 7 is an elevation of the rear side of the seed-box and seed-tube, with their backs removed to show the interior working parts. Fig. 8 is a perspective view of the cap for the seed-measuring devices, and of the cut-off. Fig. 9 is a sectional view in the line *z z* in Fig. 8. Fig. 10 is a top view of the interior of the seed-box, with the cap and cut-off removed. Fig. 11 is a sectional view in the line 2 2 in Fig. 10. Fig. 12 is a perspective view of the valve in the seed-tube.

This invention relates to improvements in various parts of corn-planting machines.

The first part of the invention relates to the frame of the planter; and consists, first, in improvements in the construction of the frame on which the seeding devices are fixed; secondly, in hinging the draft-pole which supports the driver and dropman's seat to standards in rear of the axle, thereby adapting the weight of the driver and the dropman to balance the weight of the seeding devices mounted on the forward end of a frame, which is seated on the axle, and may be oscillated with the axle; thirdly, in fixing the driver's and the dropman's seats both upon the draft-pole, which is hinged to the axle, so that they may balance each other, and also balance upon the machine under different circumstances; fourthly, in the combination of levers hinged to the balanced draft-pole with the oscillating frame carrying the seeding devices and wheels for the purpose of raising and lowering the seeding devices; fifthly, in the combination of a pivoted latch or stop with the levers for raising and lowering the seeding devices, by means of which the runners may be held elevated above the ground.

The second part of my invention relates to actuating the vertical discharge-valve; and consists in a stud projecting from its upper end, and carrying an anti-friction roller, which is acted upon by a cam-shaped projection on the seed-slide.

The third part of my invention relates to the cut-off; and consists in a slotted gravitating cut-off, through which a shaft passes, adapting it to raise bodily, or either side separately, all as hereinafter fully described.

Referring to the drawing by letters, A represents an axle supported on wheels B B. C is a frame, formed of bars C′ C′ bolted to the axle, and extending in front and in rear thereof, connected at their forward ends by two transverse bars, C″, which are crossed and made bracing to each other, and extend beyond the bars C′, the one to receive the seed-boxes D, and the other to receive and sustain the forward end of the runners D′.

The foregoing construction of frame C affords a strong frame, and the connection of it to the axle adapts it to oscillate in a vertical plane, so that its forward end carrying the seed-boxes and runners may be raised and lowered, as desired, on the journals of the axle A in the wheels B as a fulcrum.

E is the draft-pole, having pendent ears *e* at its rear ends, which are journaled by a bolt, *e′*, in standards *a*, which project in rear of the axle, thus connecting the tongue E to the frame C in a manner to allow oscillation of the frame, while the tongue is stationary. F is the driver's seat, adjustably secured by means of a slot, *f*, and bolt *f′* on the upper end of a seat-bar, F′, which projects rearward and upward from the rear end of the tongue E. G is a seat for the dropman, or person who operates the seed-slides, and is mounted on

the tongue E, near an imaginary line connecting the seed-boxes D.

The seats F and G and tongue E balance upon the bolt e', and the equilibrium of the parts may be preserved, when drivers and dropmen of different weights are in the seats, by adjusting the seat F back and forth upon the bar F′ in the evident manner, thus relieving all weight from the draft-animals' necks, and throwing the weight of the driver and the dropman upon the outer ends of the standards a, thereby tending to rotate the axle A and partially sustain the forward end of the frame C with the attached seeding devices.

H is a yoke attached at its lower ends to the bars C″, and has a set-screw, h, in its upper portion. The tongue E passes through the yoke H, and, by turning the screw h, which impinges on the tongue, downward or upward, the forward end of the frame C may be raised or lowered, respectively, for the purpose of adjusting the depth of penetration of the runners or furrow-openers D′.

I I are levers pivoted at i, one on each side of the tongue E, their forward ends resting beneath lugs h', which project from the yoke H, and their rear ends projecting to within convenient reach of the driver's feet, so that he can, from his seat F, press down upon the rear ends of the levers I and raise the runners D′ entirely above the ground, as shown by dotted lines at Fig. 5, in which position they may be held by turning the catch J, so as to engage a plate, i', which connects the rear ends of the levers I and stays them, while it furnishes a plate for the catch J.

Each seed-box is provided with an ordinary seed-slide, K, having seed-cups k k, and connected by the ordinary rod K′, operated by a hand-lever, K″. On the rear side of each slide K is an upwardly-projecting cam, k'. (See Fig. 7.)

L is the valve for retaining the charge of seed at the lower end of the tube and discharging it near the surface of the ground.

The valve L is seated in the rear side of the tube D″, so that it may have a vertically-reciprocating movement, and has on its upper end a projecting stud, l, encircled by an anti-friction roller, l', while its lower straight end rests, when at the lowest point of its throw, upon the lower portion of the inclined bottom D‴ of the seed-tube D″.

The valve L is located so that, as the slide K reciprocates to measure regular quantities of seed, the cam k' will raise the valve L, and allow it to fall by its own gravity once at each throw of the seed-slide, and so timed in relation to the motions of the seed-slide as to close the lower discharge at the moment a seed-cup is delivering a charge of seed to the upper end of the seed-tube, and to open the lower discharge and allow the seed to glide off rearward at the moment the seed-cups are filling, and not coincident with the opening of the seed-tube.

The runner D′ and seed-tube D″ are formed of cast cast-steel, cast integral, or in one piece, and by the use of a vertically-sliding valve, L, advantage may be taken of the ability to make a very narrow seed-tube by casting it. The seed-tube, being narrow where it passes through the upper part of the furrow opened in the soil, will enable the soil to close more readily in rear of it and cover the seed. The heel d'' of the runner may be spread below the surface of the ground to allow the seed to spread.

M is a cap covering the seed-slide, and may be of any ordinary construction, having an opening, m, through which seed in the box D may reach the seed-slide, and is held in place by buttons m'. N is a cut-off covering the opening to the seed-tube, and beneath which the seed-cups discharge their measured quantity of seed. The cut-off N has a vertical slot, n, through which a small shaft, n', passes, the ends of which are secured in the side walls of the opening m in the cap M. (See Fig. 9.) The slot n permits either end of the cut-off N to rise and fall, as shown by dotted lines at Fig. 9, or both ends may rise at once and prevent breaking grains of seed in cases of overcharged seed-cups coming beneath the cut-off.

P P are wheel-scrapers, fixed one upon each end of a scraper-bar, Q, which passes through guides R projecting from the rear ends of the bars C′ C′, in which guides the bar Q may be slid laterally backward and forward to move the scrapers from or to the wheels. S is an elbow-lever, journaled at its angle upon the bolt e', on which the tongue E is hinged, its upper arm within reach of the driver's foot, and its lower arm connected by a link, T, with the central part of the bar Q by interlocking eyes q.

By pressing on the upper arm of the lever S the scrapers may be pressed against the wheels, and either end of the scraper-bar may yield backward or be drawn forward when occasion requires it, oscillating on its centrally-hinged connection to the rod T.

By adjusting the forward end of the frame C downward, as hereinbefore described, the runners may be forced, by the draft of the team, into hard ground, or be made to cut prairie-sod for planting in sod-land.

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

1. A corn-planter frame formed of bars C′ C′, united by an axle, A, and bracing-bars C″, substantially as and for the purpose specified.

2. The draft-pole E, hinged to standards a, which project in rear of the axle A, substantially as described, and for the purpose specified.

3. The draft-pole E, having the driver's seat F and the dropman's seat G, both fixed upon it, hinged to the axle A and arranged to operate with the frame C, carrying the seeding devices and mounted on said axle, substantially as described, and for the purpose specified.

4. The levers I, hinged to the tongue E and

arranged to operate with the yoke H, frame C, and axle A, substantially as and for the purpose specified.

5. The catch J, pivoted to the tongue E and arranged to operate with the levers I and connecting-plate *i'*, yoke H, frame C, and axle A, substantially as described, and for the purpose specified.

6. The elbow-lever journaled on the bolt *e'*, upon which the tongue E is journaled, and combined with link T and scraper-bar Q and axle A, substantially as described, and for the purpose specified.

7. In a corn-planter, a sliding scraper-bar, Q, in combination with a link, T, hinged to the central part of the bar, so as to allow either scraper to yield, and a lever, S, hinged or pivoted to the axle of the planter, substantially as and for the purpose specified.

8. The cut-off N, having a slot, *n*, by which it is hung upon a shaft, *n'*, so that either or both of its ends may be raised, 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:

W. H. PAGE,

THOS. C. MAGOFFIN.