(No Model.)

2 Sheets—Sheet 1.

H. F. GRAETZEL.

CHECK ROW CORN PLANTER.

No. 319,405. Patented June 2, 1885.

Fig. 1.

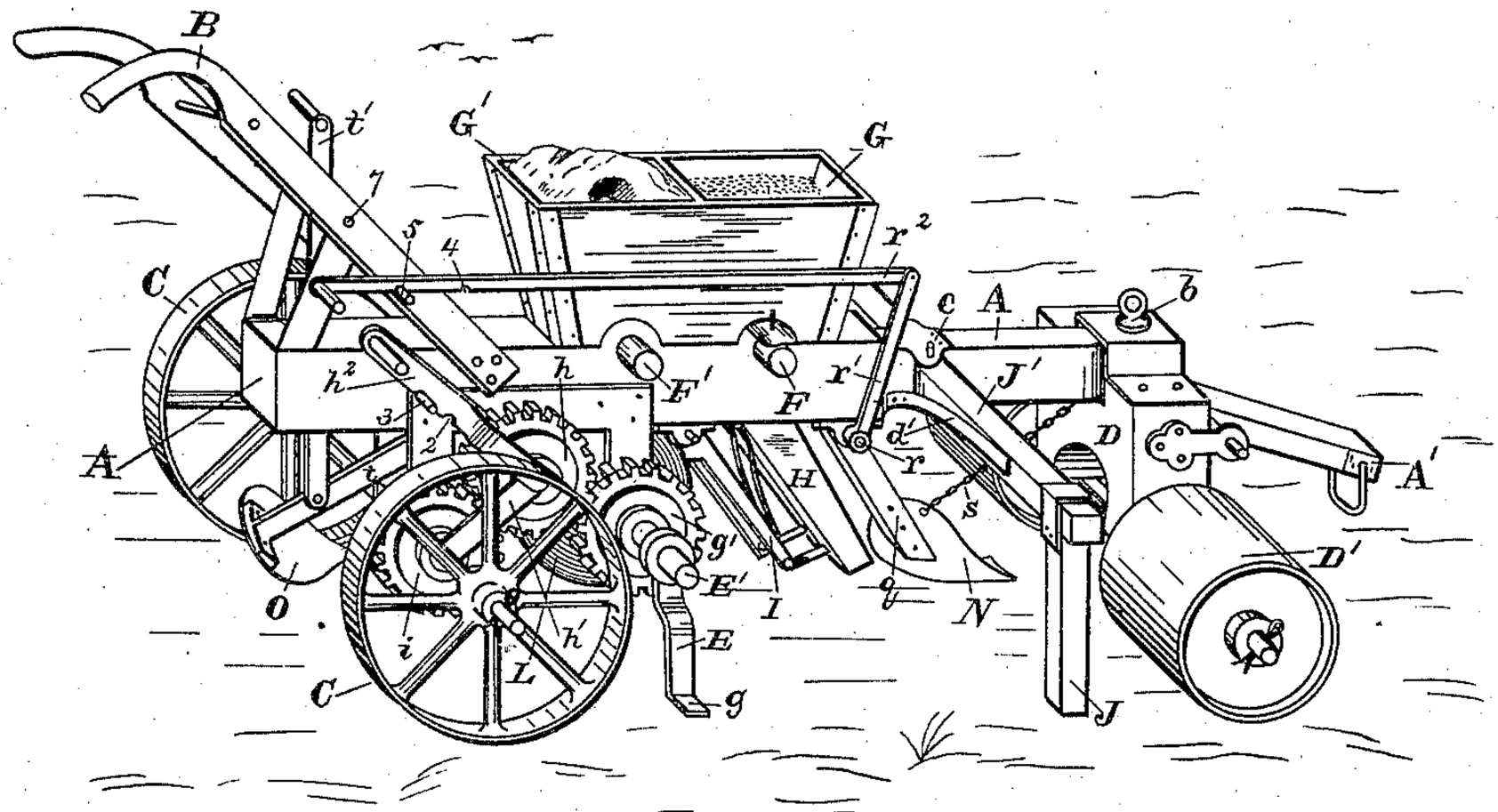
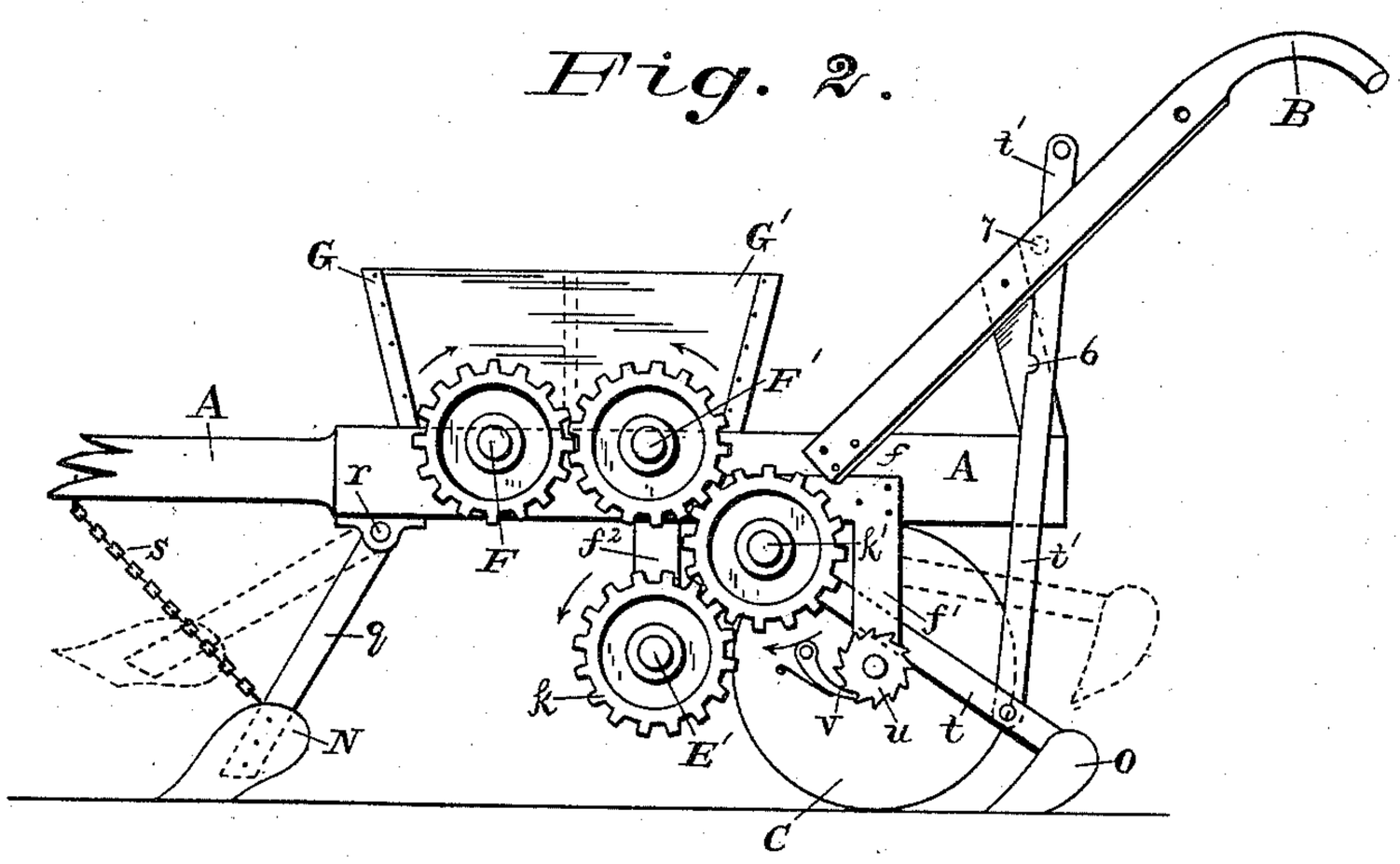


Fig. 2.



WITNESSES:

Edward A. Osse,

John E. Morris

INVENTOR:

Henry F. Graetzel

By Chas B. Mann

Attorney.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

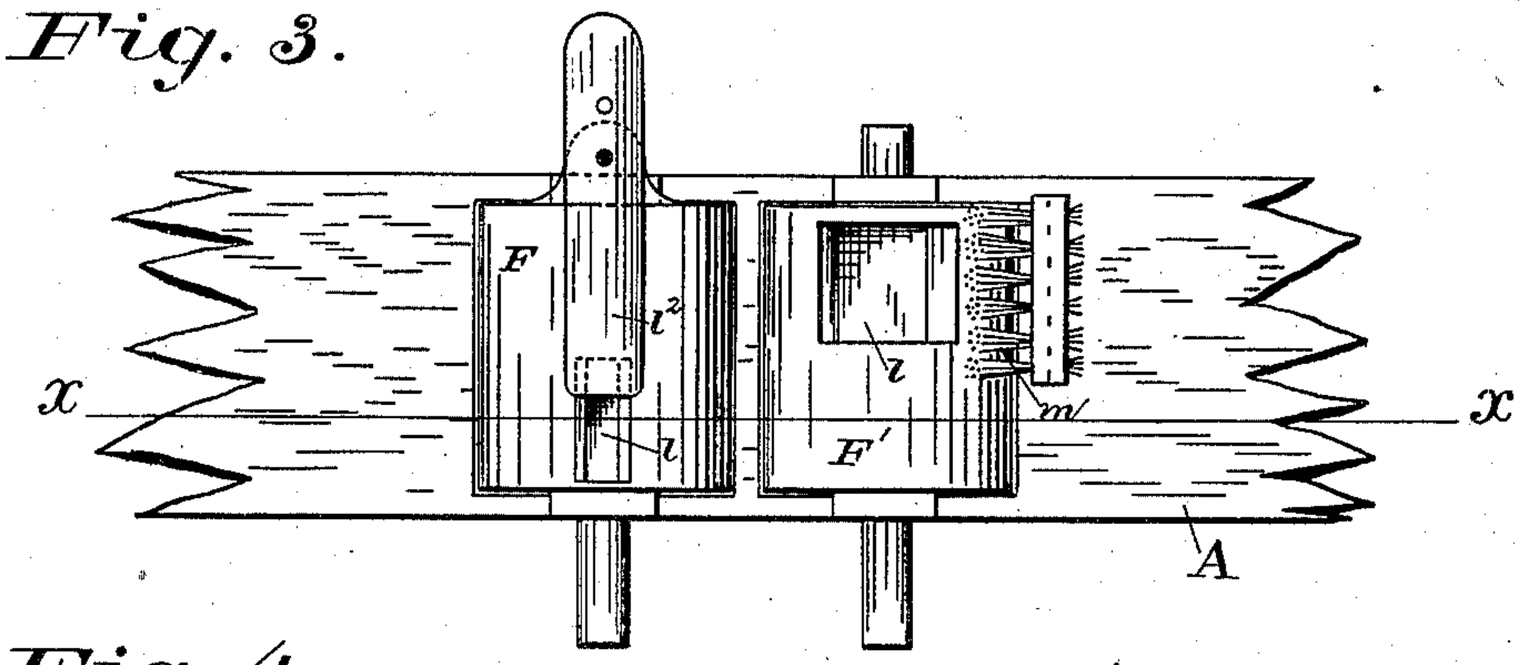


Fig. 4.

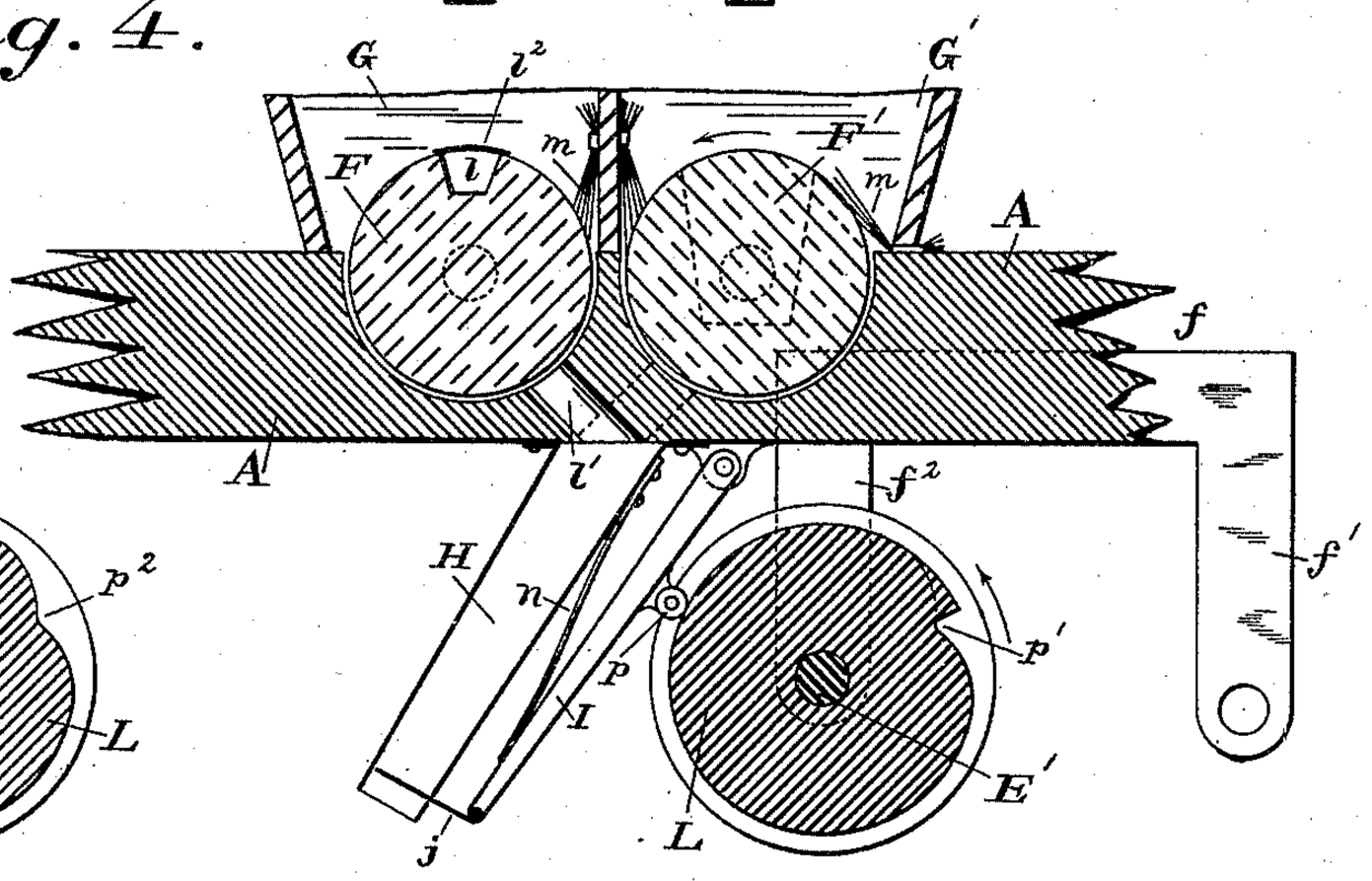


Fig. 5.

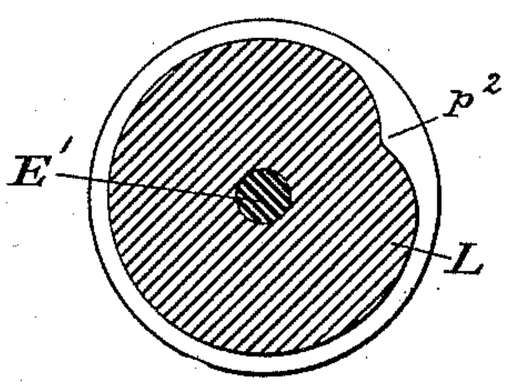
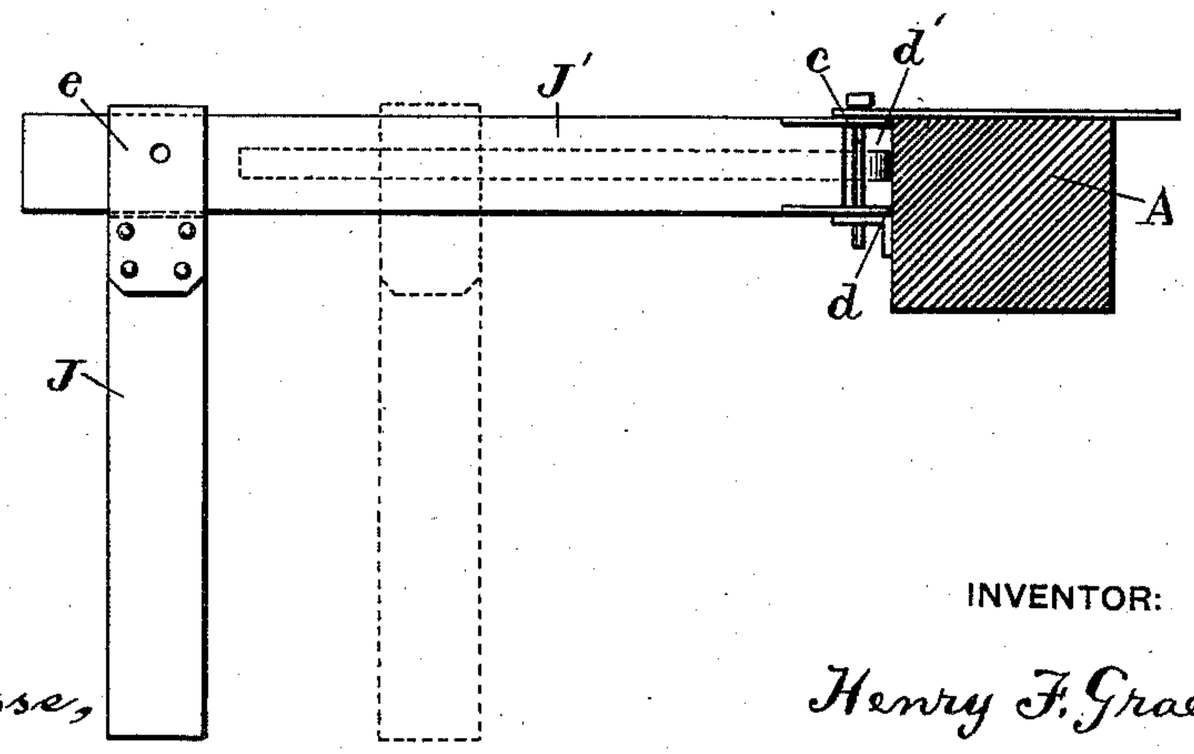


Fig. 6.



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John E. Morris.

INVENTOR:

Henry F. Graetzel

By Chas B. Mann

Attorney.

UNITED STATES PATENT OFFICE.

HENRY F. GRAETZEL, OF GARDENVILLE, MARYLAND.

CHECK-ROW CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 319,405, dated June 2, 1885.

Application filed October 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. GRAETZEL, a citizen of the United States, residing at Gardenville, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Check-Row Corn-Planters, of which the following is a specification.

My invention relates to an improved corn-planter.

The construction and operation of a machine embodying my invention will first be described, and then the invention will be designated in the claims.

In the drawings herewith, which illustrate the invention, Figure 1 is a view of the machine. Fig. 2 is a view showing a part of the side of the machine opposite that seen in Fig. 1. Fig. 3 is a top view of the beam and feed-rollers. Fig. 4 is a vertical section of feed-rollers, feed-tube, and mechanism that operates the cut-off in feed-tubes. Fig. 5 is a view of the cam which operates the fertilizer cut-off. Fig. 6 is a view of the guide.

The letter A designates the beam, B the handles by which the operator guides the machine, and C the wheels which support the machine, and which also impart motion to the marker and feed mechanism. The front end of the beam is pivoted at *b* to an axle or cross-head, D, which carries two rollers, D′. These rollers and axle may be turned like the front wheels of a wagon. Horses for drawing the machine may be attached to the clevis A′. As the machine moves forward over plowed and harrowed ground each of these rollers makes a smooth track whereon the imprint of the marker E will be readily seen. Each of the supporting-wheels C will also follow along one of the said smooth tracks, and in consequence the machine will move with less jolting, and the operating mechanism will therefore work better. The guides J are vertical bars, one on each side of the machine back of the rollers, each depending from an arm, J′, pivoted at *c* to the side of the beam. The front side of each arm has a stop, *d*, which coming against the beam prevents the said arm from swinging forward. While the pivot *c* permits the arm to swing back, a spring, *d′*, is employed to keep the arm projecting normally at a right angle with respect to the beam; or, in other words, to keep the arm forward as far as the stop device will allow. By this arrangement of pivoted arm, stop device, and spring the arm will yield whenever in moving forward it comes against an obstacle, and on passing the obstacle will again assume its proper position. Each guide J is attached to the arm by a band, *e*, or equivalent device adapted to slide on the arm, as indicated by broken lines in Fig. 6, and thereby the guide may be adjusted toward or away from the beam. The guide is employed first when starting the machine at the end of a new row. The machine before starting on the said new row must be placed so that the lower end of the guide will be directly over an imprint in the ground which was made by the marker E when planting the last row. When the guide has been set directly over an imprint made by the last row, the marker must be turned with its foot resting in a position which must be previously ascertained by experiment. This position, when once determined on, may be indicated by a suitable mark made on the side of the machine. When the machine is thus started, it will drop the corn at regular measured intervals, and then by moving the machine so that the guide will be kept over the line of imprints the corn will be planted at the intersection of right-angled rows on the "check-row" plan. At each side of the beam a metal plate or frame, *f*, is bolted, and each plate has two rigid arms, *f′* and f^2, depending. The axle for the supporting-wheels has bearings in the two arms *f′*, and a shaft, E′, has bearings in the other two arms, f^2.

The marker E consists of an arm attached by one end to the shaft E′, and is thereby revolved, and is provided at its other end with a foot, *g*, to make the imprint on the ground at each revolution. The marker-shaft E′ also carries a cog-wheel, *g′*, and a cog-wheel, *h*, gears therewith and imparts motion to it. This wheel *h* is arranged to be shifted. Another cog-wheel, *i*, is on the axle and gears with the shiftable wheel *h*, which is mounted on an arm, *h′*, whose end pivots on the axle, and a shifting-rod, h^2, has one end connected to the arm or to the axis of the shiftable wheel. The other end projects up and back in convenient

position for the operator's hand. The shifting-rod has two notches, 2, which engage one at a time with a pin, 3, projecting from the side of the beam. By this arrangement the cog-wheel g', which drives the marker-shaft, may be started or stopped by simply pushing down the shifting-rod h^2 to bring the wheel h into engagement, or drawing up the said rod to take said wheel out of engagement. At the latter end of a row the marker should be stopped, and also the feed mechanism, to permit the machine to be turned for a new row. By preference, therefore, the marker-shaft is made to serve as the driver for the feed mechanism.

On the side of the machine opposite the marker a cog-wheel, k, is on the marker-shaft E′, and this drives a train which turns the two feed-rollers F F′. The hopper has two compartments, one designated by G, is for seed, the other, G′, is for fertilizer. The rollers are in the bottom of these compartments and in part occupy recesses in the beam. Each roller has a pocket, l, (see Figs. 3 and 4,) which, when uppermost, receives the seed or fertilizer, as the case may be, and as the roller turns the pocket will be brought below, and it will then empty its contents (seed or fertilizer) into the inclined duct l' leading to the drop-tube H. A brush, m, or equivalent scraping device, is fixed in the hopper to bear on each of the rollers, and as each roller turns its pocket l passes in contact with the brush. A plate, l^2, concaved in shape to fit against the round of the seed-roller, enters through one side of the hopper. The plate may be adjusted—that is, moved farther in or drawn out. There are two drop-tubes H side by side. The duct l' (see Fig. 4) inclines from the seed-roller pocket toward the rear and communicates with the seed drop-tube H, and another duct (indicated by broken lines in Fig. 4) inclines from the fertilizer-roller pocket toward the front and communicates with the fertilizer drop-tube. Each drop-tube has in its rear side a slot, through which enters a cut-off valve, j. This valve is attached to an arm, I, pivoted at its upper end to the beam. A spring, n, between the arm and tube serves to press the arm away from the tube, and thus open or draw out the cut-off valve. The valve is kept shut by means of a roller, p, on the back of the arm I, which roller bears on the rim of a cam-wheel, L, on the marker-shaft E′. The cam-wheel for the seed-tube valve has an abrupt notch, p'. When this notch comes to the roller p on the valve-arm, the said roller for the moment will have no support, and as the spring n presses the arm the valve will be opened, allowing the seed to drop, and then when the notch passes the roller p the latter will be again pressed by the rim of the cam and the valve j will cut-off or close. The cam for the valve of the fertilizer drop-tube differs from that of the seed-tube valve only in the shape of the notch p^2, which, instead of being abrupt at one side, (see Fig. 5,) is gradual from the deepest part up both sides, whereby this valve opens slowly. By this construction of feed mechanism it will be seen that the shifting-rod h^2 serves, when drawn up, to stop the feed-rollers in the hopper and the cut-off valves in the drop-tubes, and also, as previously stated, the rotation of the marker. In front of the drop-tubes is the plow or furrow-opener N. The standard q of this furrow-opener is attached to a shaft, r, which has bearings on the lower side of the beam, thereby the furrow-opener is pivoted. One end of a chain, s, is attached to the furrow-opener, and the other end to the forward end of the beam, and said chain draws the plow. An arm, r', is attached to the shaft r, on which the furrow-opener is pivoted, and a rod, r^2, is jointed to the said arm and extends back to the handles, so that its rear end is in convenient position for the operator's hand. This rod has two notches, 4, and a pin, 5, on the handles serves for one of the notches to be engaged therewith. By drawing back the rod r^2 the furrow-opener N will be raised, as indicated by broken lines in Fig. 2, and this raising is necessary at the latter end of each row in order to facilitate turning the machine. A coverer, O, has position at the rear end of the machine. It is attached to an arm, t, which is pivoted to the shaft or axis of wheel k'. A lifting-rod, t', is jointed to the coverer-arm and extends up past the handles. This rod has a notch, 6, which may be engaged with one of the cross-bars 7 between the two handles, and thereby sustain the coverer in an elevated position. By this arrangement the coverer will not interfere with turning the machine at the end of a row. The coverer of course follows or comes last, and is in such position as to throw the ridge of dirt (turned up by the plow or opener) over the seed lying in the furrow.

As already stated, the wheels C give motion to the mechanism.

In order to allow the machine to be moved backward, a ratchet-wheel, u, is fixed on the axle of wheels C, and said wheels have a pawl, v, to engage with the ratchet-wheel.

If desired, the cross-head D and rollers D′ may be dispensed with and a caster-wheel substituted, or the machine might be so balanced on the supporting-wheels C as to render a front wheel unnecessary.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a corn-planter, the combination of a beam, A, supported at its rear end on wheels C, two rollers, D′, at the front end of the beam, a seed-hopper on the beam having feed-rollers F F′, a shaft, E′, extending crosswise below the said hopper, having a cog-wheel, k, which drives the feed-rollers, and a second cog-wheel, g', and provided with a marker, E, a shifting cog-wheel, h, to gear with the said second cog-wheel, and having a rod, h^2, for mov-

ing it, and a guide-arm, J′, pivoted to the side of the beam and having at its end a vertical bar, J, as set forth.

2. In a planter, the combination of the drop-tube H, a cut-off valve in the drop-tube, an arm, I, pivoted at its upper end and attached to the cut-off valve, a cam-wheel, L, and a spring, *n*, whereby the valve is opened and shut, as set forth.

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

HENRY F. GRAETZEL.

Witnesses:
JOHN E. MORRIS,
WM. B. NELSON.