(No Model.) 2 Sheets—Sheet 1.

J. G. HARRIS.

CORN PLANTER.

No. 410,707. Patented Sept. 10, 1889.

Fig. 1.

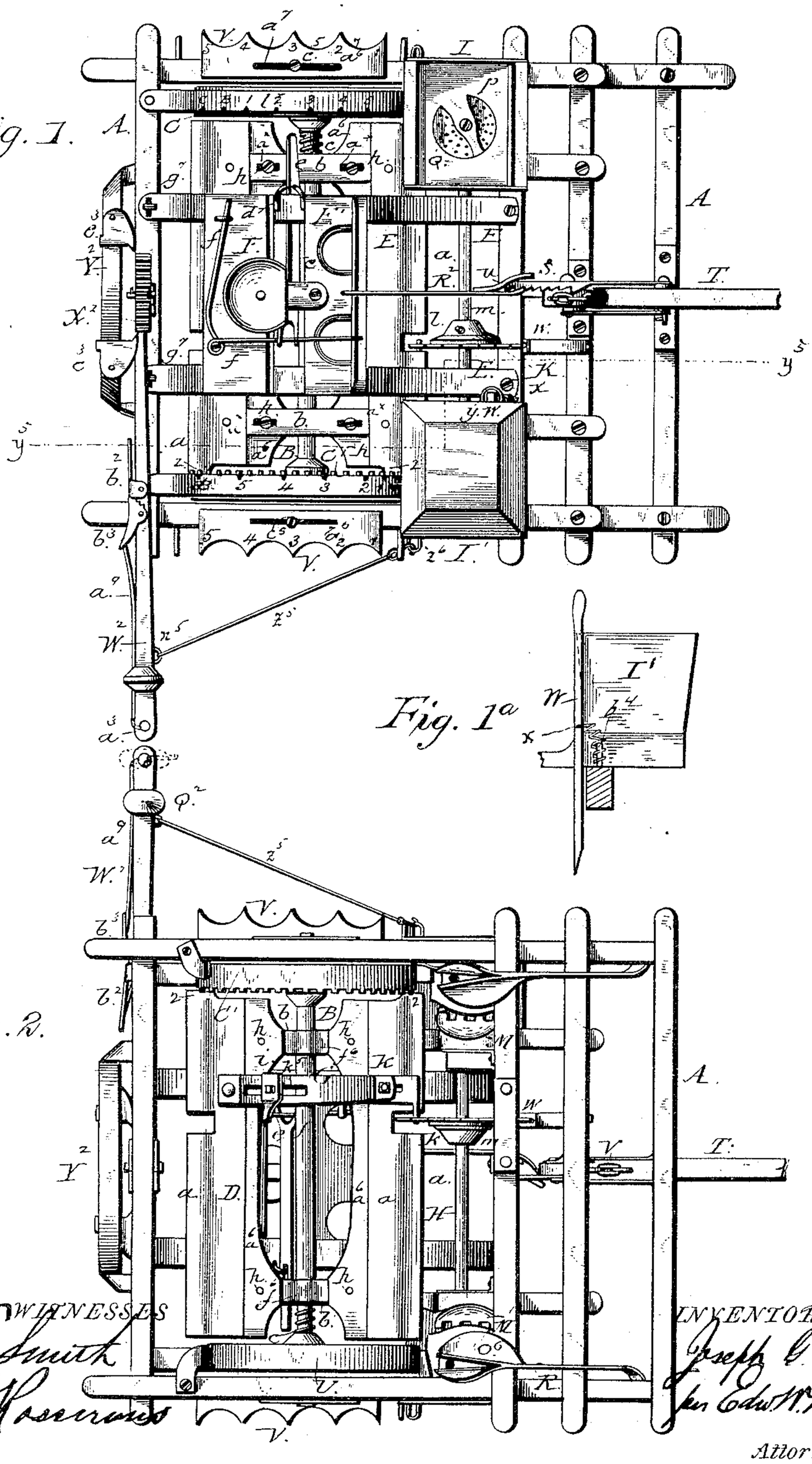

Fig. 1a

Fig. 2.

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Fig. 3.

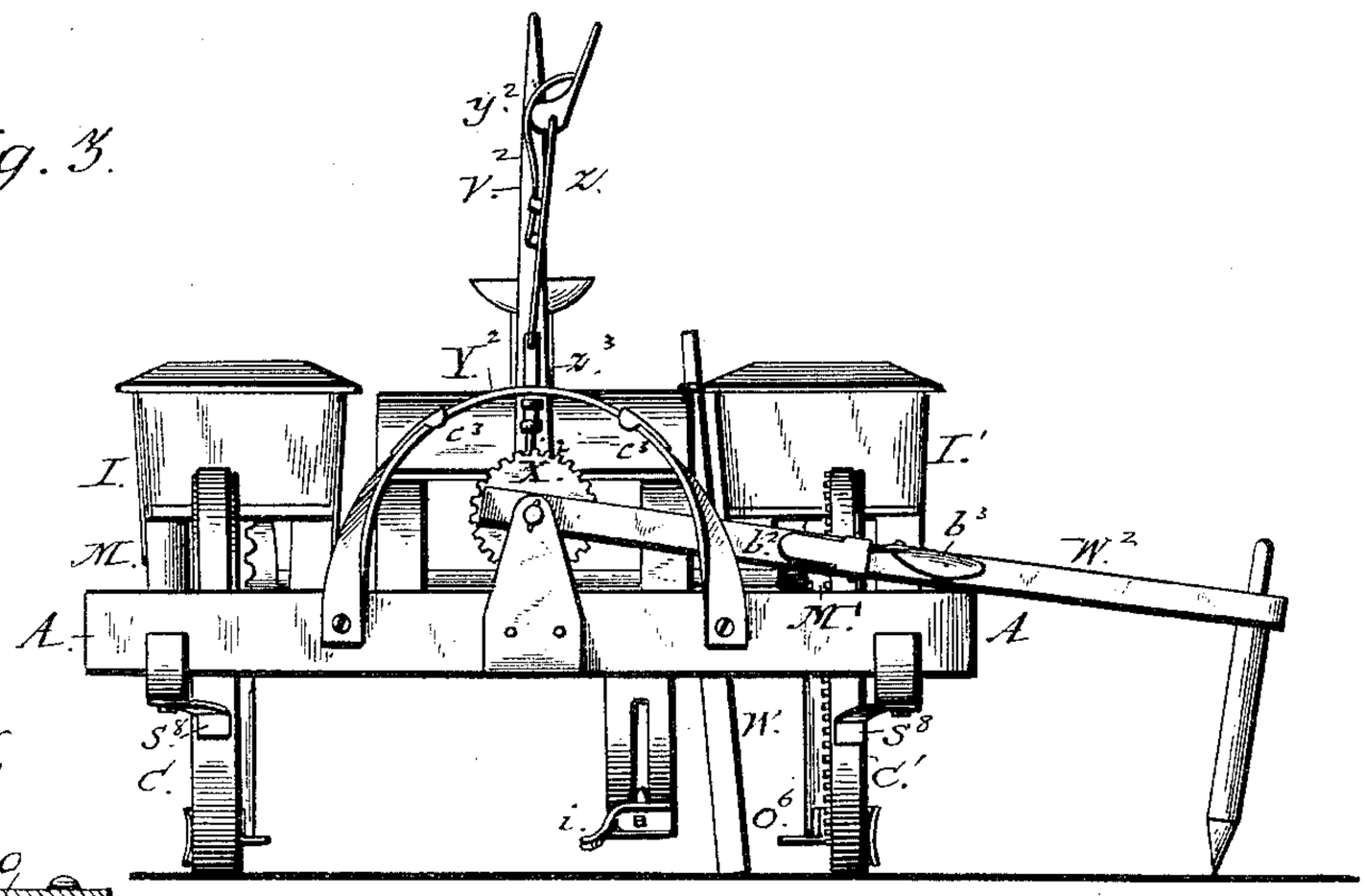


Fig. 6

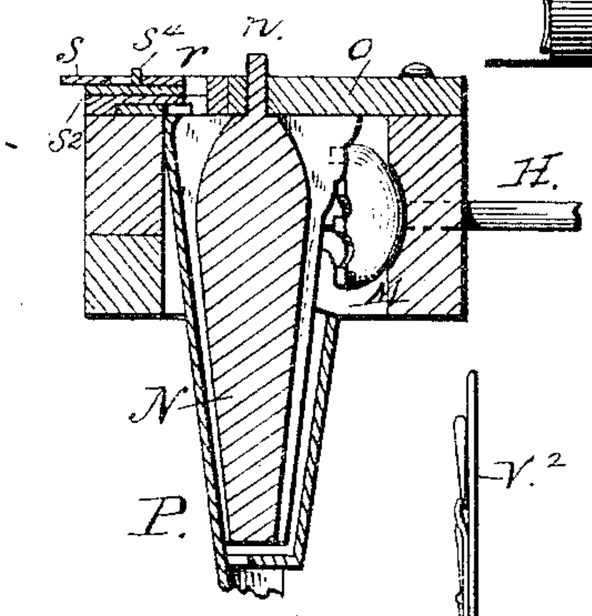


Fig. 5.

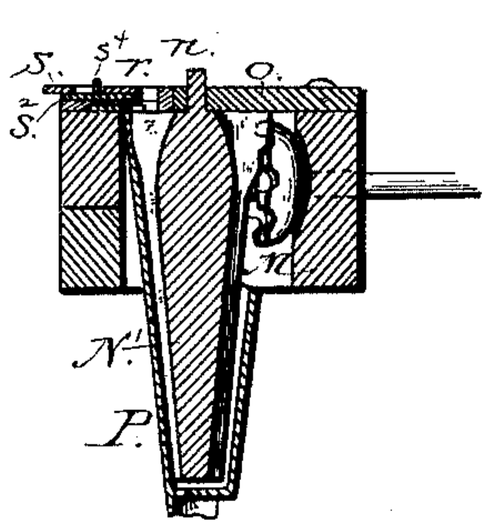
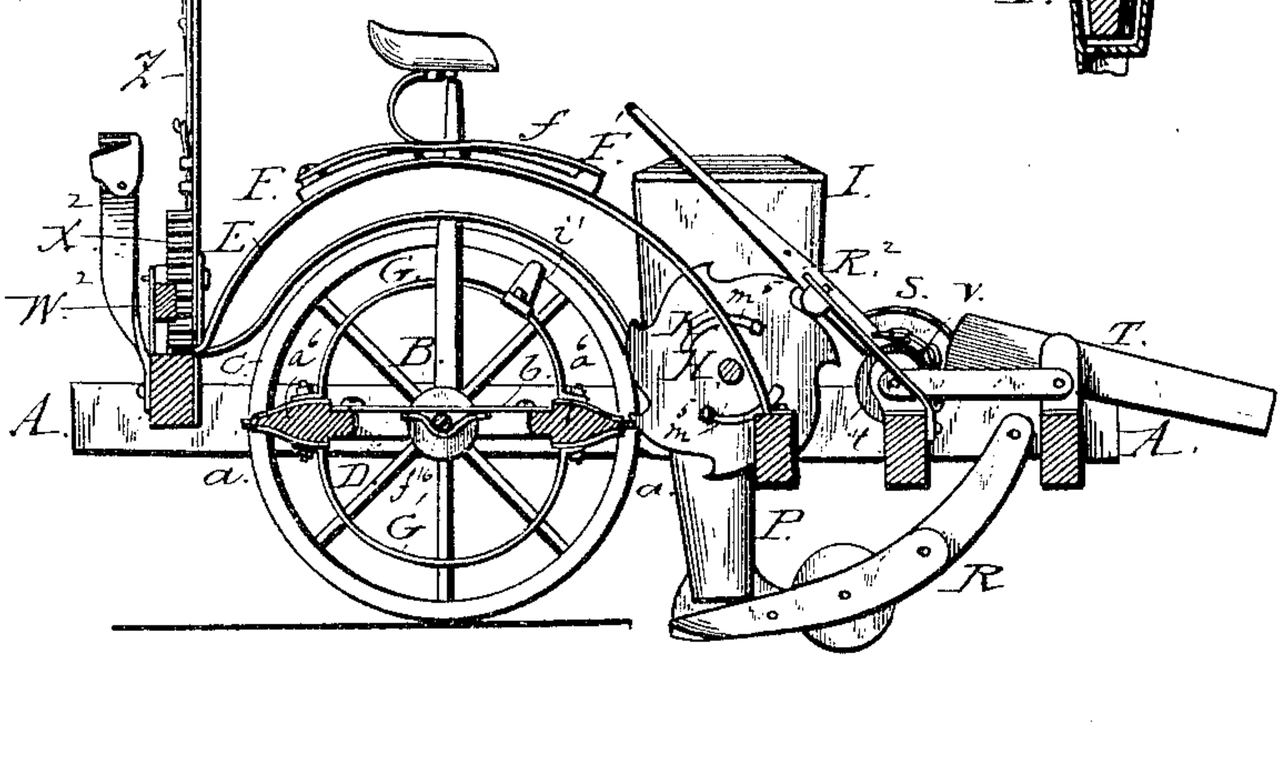


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH G. HARRIS, OF SEDALIA, MISSOURI.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 410,707, dated September 10, 1889.

Application filed September 25, 1888. Serial No. 286,343. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH G. HARRIS, a citizen of the United States, residing at Sedalia, in the county of Pettis and State of Missouri, have invented certain new and useful Improvements in Corn-Planters; and I do hereby 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 present invention relates to certain improvements in corn-planters; and the object of said improvements is to facilitate economically the operation of marking out the ground and forming the rows for the corn simultaneously with the planting of the same.

In the drawings, illustrating my invention, Figure 1 is a plan or top view of the machine. Fig. 1ª is a detail in elevation of the feed-box, with the marking-bar W in place; Fig. 2, a bottom view. Fig. 3 is a rear elevation. Fig. 4 is a longitudinal sectional view through line y^5 y^5, Fig. 1; and Fig. 5 is a vertical section through the bed-plate and grooved rollers. Fig. 6 is a similar sectional detail of the feed-box, shown in vertical section enlarged.

Similar reference-letters indicate like parts in all of the figures.

Referring to the drawings, A is the frame of the planter, composed of longitudinal and transverse beams horizontally placed and firmly secured together with screw-bolts in a substantial manner.

Arranged loosely in the long beams of the frame A is an axle B, which carries at its ends two bearing-wheels c c,′ the latter c' being provided on the inner edge of its tread with serrations or teeth, for a purpose hereinafter to be mentioned. Upon the said axle B is loosely set a cross-line marker D. This marker is composed of two metallic bars a of V form, as seen in transverse section, (see Fig. 4,) connected together by metallic plates or bars, b which have journal-bearings or loops f^6, which fit over the said axle or shaft B. These connecting-bars b are provided with slots $a^\times$, and in each of the long bars a is a core of wood a^6, for stiffening purposes, to which the said bars b are secured by suitable pins. Screws h pass through the slots of the bars b and into the wood to hold the two bars adjustably together. By loosening the said screws the long bars may be drawn together or farther removed from each other, in order that the depth of the cross-rows may be adjusted and fixed. The right-hand ends of the bars a have lips 2, which engage the serrated edge of the wheel c', when a spring c, which encircles the axle and bears between the hub of the wheel on the left and the cross-bars b, throws the said marker D to the right.

Pivoted to a staple d, fixed in the seat of the planter, is a forked lever e, which is held out of the way when not in use by a spring f, bearing on the under side of the forked lever e; but when needed said lever e is dropped down in the hands of the driver, and with it the marker may then be forced laterally against the spring c, to ungear it from the toothed wheel c'.

The seat-frame of the corn-planter is formed of two metallic bows E E and two light boards F F′, secured by bolts to said bars. The front ends of the bows E are slotted or notched out, so as to pass under the heads of screws secured to one of the transverse bars of the frame of the planter, and the rear ends of said bows have long holes g^7, through which the heads of screws may pass and be locked after the manner of buttons.

To the bars a of the cross-row marker are secured two spring metallic bows G G′, provided each with a long slot k^5. These bows are placed opposite each other and bolted to place. Adjustably secured in the slots of these spring-bows G G′ are nibs i i', with projecting points which engage a ratchet-wheel k, arranged on the shaft H of the seed-dropper. Two adjustable and reversible nibs k k are secured to the long bars of the cross-row markers, and are used when drilling corn. Extra nibs may be used in the bows G G′ when corn is dropped at unusual distances or in hills.

H is a shaft extending between two grain-boxes I I, which has secured to it a ratchet-wheel K, provided with a half-hub m on one side, secured adjustably to place by a set-screw l, which enters a groove in said shaft. The ratchet-wheel K is provided with concentric slots m^5, through which pass set-screws that adjustably secure said ratchet-wheel to the half-

hub *m*. The shaft H carries cog-wheels M M′ on its ends, which mesh with conical grooved rollers N N′. The said rollers are provided on their upper ends with pintles *n n*, extending up through the bed-plate *o*, grain-plate *q*, and the cap *p* over said grain-plate. From one angle of each of the bed-plates *o* above the grooved rollers N, is cut a slot *r*, which receives sliding bars *s* s^2. The bar *s* is adjustable with reference to the bar s^2 by means of a slot and a set-screw s^4, the latter of which passes through the former and into the said bar s^2. The bars *s* and s^2 are fixed together adjustably, and both together are to be adjusted with reference to the bed-plate. The bar *s* is provided with an opening for the passage of the grain, and when the bars *s* and s^2 are slid out together another opening will be formed between the bed-plates and the said bars, through which the grain may fall into the grooves of the rollers N N′, and thence into the furrows in rear of the said rollers. The rollers N N′ are set in conical metallic tubes P, which are secured to the frame of the planter and the runner in any convenient manner. The tubes P have at their upper ends flaring mouths to receive the seed from the grain-plate.

Q Q are the grain-feeding plates or disks, with holes of a given size, which fit over the pintles *n* of the grooved rollers N.

R are the runners, formed of two pieces of metal secured togther, so that they may be separated and sharpened when necessary. The outer pieces of said runners are of a plowshare shape, turned out at the heel, so that they may have a tendency to enter the ground; but the inner pieces have their upper edges o^6 bent nearly at right angles, and so shaped as to regulate the depth of entry of the said runners into the ground. The two portions of the runners are sufficiently separated to allow of the passage of the grain into the furrow unobstructed.

To the forward transverse beams of the planter is secured a ratchet-arc S, and pivoted to said arc is a lever R^2, with a drum *t*, and about the latter is fixed and wound a chain *v*, attached also to the tongue of the seeder. The tongue T is pivoted to the front transverse beam of the frame A in any suitable manner, and extends backward, so that in effect it answers the purpose of a lever.

R^2 is a lever, which has secured to it a spring-plate *u*, which rests against the smooth wedge-shaped side of the ratchet-arc S, the lever itself engaging on the opposite edge of said arc the teeth of the same. The lever R^2, drum *t*, and chain *v*, being united together, are moved by the driver to lift the forward part of the planter, and to do so he throws his weight back, bears upon the lever, and thus changes the relations of the planes of the tongue and the planter-frame and lifts the plows or runners from the ground when it is desirable to move the planter from place to place when not at actual work.

To the beam of the planter-frame, to which the lever R^2 is pivoted, is secured a detent or pawl *w*, provided with a block (rendered adjustable by means of a slot and screw) on its free end, which engages the teeth of the said ratchet-wheel and checks its movement, except when revolving in its proper direction.

On the longitudinal beams of the frame of the planter are graduated curved plates U and graduated pointed plates V, which assist, in a manner hereinafter to be described, in governing the starting in at the end after the first two rows are planted and to detect any variation caused by unevenness in the ground. The plates V are provided with long longitudinal slots a^7, through which pass clamping-screws c^5, which enter vertically into the said longitudinal beams. By means of these slots and the screws the said plates may be adjusted and secured, as desired. There are numbers placed opposite the points of these plates to be used by the driver, said points being any required distances apart. The plates U are divided up by numbered marks, which are placed about the same distances apart as the marks on the plates V. These plates are used in connection with the cross-line marker in the following manner: Let us suppose the No. 5 of plates V points to the cross-line in the row just planted. The cross-line marker (being out of gear) must now be turned about its axis until one of its edges coincides with the corresponding number of the plate U, and the said marker must now be thrown into gear to commence a new row.

W is a lever provided with a spiral spring *x*, which is to be attached to an upright pin b^4 next to the inside of the box I′. The upper end of the lever W is passed through a loop or staple *y*, fixed in the lid of said box. This lever is used for marking the hill or the point where the corn is to be dropped when regulating the machine for use. This lever, however, may be dispensed with, except when it becomes necessary to regulate for proper work in planting.

W^2 is a long lever at the rear of the planter, pivoted in suitable bearings, and its pivot forms the axis of a toothed wheel X^2, thereto fixed, and a lever V^2, which moves independently of the said lever W^2 and wheel X^2. A small rod Z, guided on the side of the lever V^2, is secured to a thumb-lever pivoted in said lever V^2, which is influenced by a spring y^2, also secured to said lever V^2. A tongue Z^3 of the rod Z is adapted to engage the teeth of wheel X^2 to lock the two levers W^2 and V^2 together. The lever W^2 is provided with a hole a^3 in its end to receive a pin, and on one side of said lever W^2 is a small bar a^9, provided with a hook which enters a slot in the end of said lever opposite the hole a^3. Two thumb-latches b^2 b^3 are pivoted near each other on the lever W^2, and to the latter b^3 the said rod a^9 is secured. The thumb-piece b^3 acts as a lever to draw the rod and

secure a pin that may be placed in the hole in the end of the lever W^2, and the latch b^2 serves as a lever to release the said rod a^9. When the pin is fixed in the hole of the lever W^2, the said lever may be brought down with the lever V^2 to drive the pin in the ground for marking purposes, after which said levers may be lifted. An arc-shaped plate Y^2 has ears c^3 c^3 pivoted thereto, which may be adjusted to hold or prop the lever W^2 and parts connected with it to given positions when not in use.

Q^2 is a pointed piece provided with an opening adapted to fit over the end of the lever W^2, where it may be secured by a pin which passes through a hole in said pointed piece and the hole for the end of the rod Z. The pointed piece Q^2, when adjusted and dropped down, serves as a marker to drive by. In using this marker the lever W^2 is let down to a horizontal position and braced to the frame of the planter by a chain or rope Z^5, which is secured to said lever and a staple Z^6 in either of the long beams of the planter-frame.

In using the planter it should be moved up slowly until one hill in each row is dropped, and to stop press the lever W straight down to mark the hill where the corn has been dropped. The planter is now moved up slowly and regulated by adjusting one of the nibs and the ratchet-wheel K until one edge of the cross-row marker marks the hill correctly. To the under side of the planter-beams are secured metallic scrapers S^8, which serve to remove any dirt sticking to the bearing-wheels.

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

1. In a corn planter or seeder, the cross-line marker composed of two long bars, two adjustable short transverse bars connecting said long bars, and interposed wooden bars, in combination with the wheel-shaft and two wheels arranged thereon, one of which wheels is provided with teeth and fixed to the shaft and the other loose with reference to said shaft.

2. The combination, with the cross-line marker formed as described and provided with adjustable nibs, of slotted bows G G′, adjustably fixed to the long bars of the cross-line marker, adjustable nibs i i', arranged in the slots of said bows, the ratchet-wheel fixed upon the seeder-shaft, and the spring-detent w, fixed to the frame of the planter, as and for the purpose specified.

3. The combination, with the cross-line marker, as described, of the shaft B, wheel C, toothed or serrated wheel C′, and the spring c, located between the said wheel C and plate b, as and for the purpose set forth.

4. The combination, with the frame of the planter, bows E, for the driver's seat, boards F F′, fixed to said bows, the forked lever e, and spring f, of the cross-line marker, the wheel C′, spring c, and the wheel C, whereby the cross-line marker may be thrown out of gear with the planter when it is desirable to move the latter from place to place, as set forth.

5. The combination, with shaft H, the hub m, fixed thereon, provided with pins, and the ratchet-wheel K, provided with segmental slots m^5, adjustably fixed to the said hub, and the pawl w, of the cross-line marker and the nibs adjustably fixed thereto, adapted to engage said ratchet-wheel, the gear-wheels on said shaft, and the grooved rollers, as and for the purpose specified.

6. The combination, with the planter-frame and the arc Y^2, secured to said frame, of the ears c^3, pivoted to said arc, each of which is provided with two holding-nibs, the one to catch and hold the lever W^2 and the other to take hold of the said arc as a brace, and the lever W^2, as and for the purpose specified.

7. The combination, with pointed lever W and spring X, secured thereto, of the planter-frame and the pin b^4 to receive the spring X, as set forth.

8. The combination, with the seeder-box, of the bed-plate fitting therein, slotted in one of its angles and fitted with two slides, one overlapping the other, each of said slides being arranged for limited adjustment, substantially as set forth.

9. The combination, with the cross-line marker, as described, of the pointed plate V and graduated concave plate U, as and for the purpose set forth.

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

JOSEPH G. HARRIS.

Witnesses:
ERNESTE R. BLAIR,
FRED W. PHIPPS.