

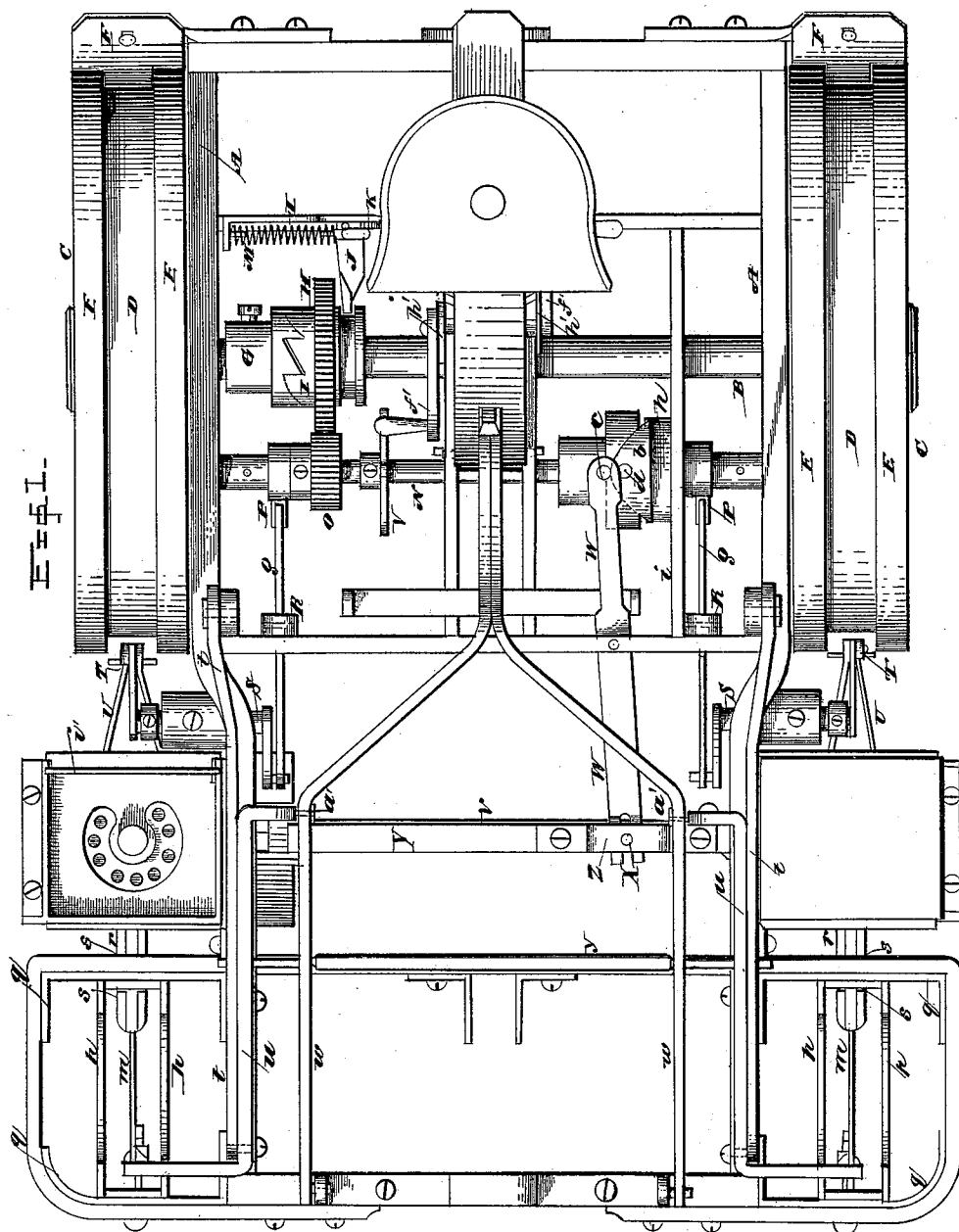
(No Model.)

4 Sheets—Sheet 1.

J. A. MUSSETTER.
CORN PLANTER.

No. 392,928.

Patented Nov. 13, 1888.



WITNESSES,
J. H. Ketchum
Jas. H. Mahan

INVENTOR,
Joseph A. Mussetter
By H. A. Toulmin
his Attorney.

(No Model.)

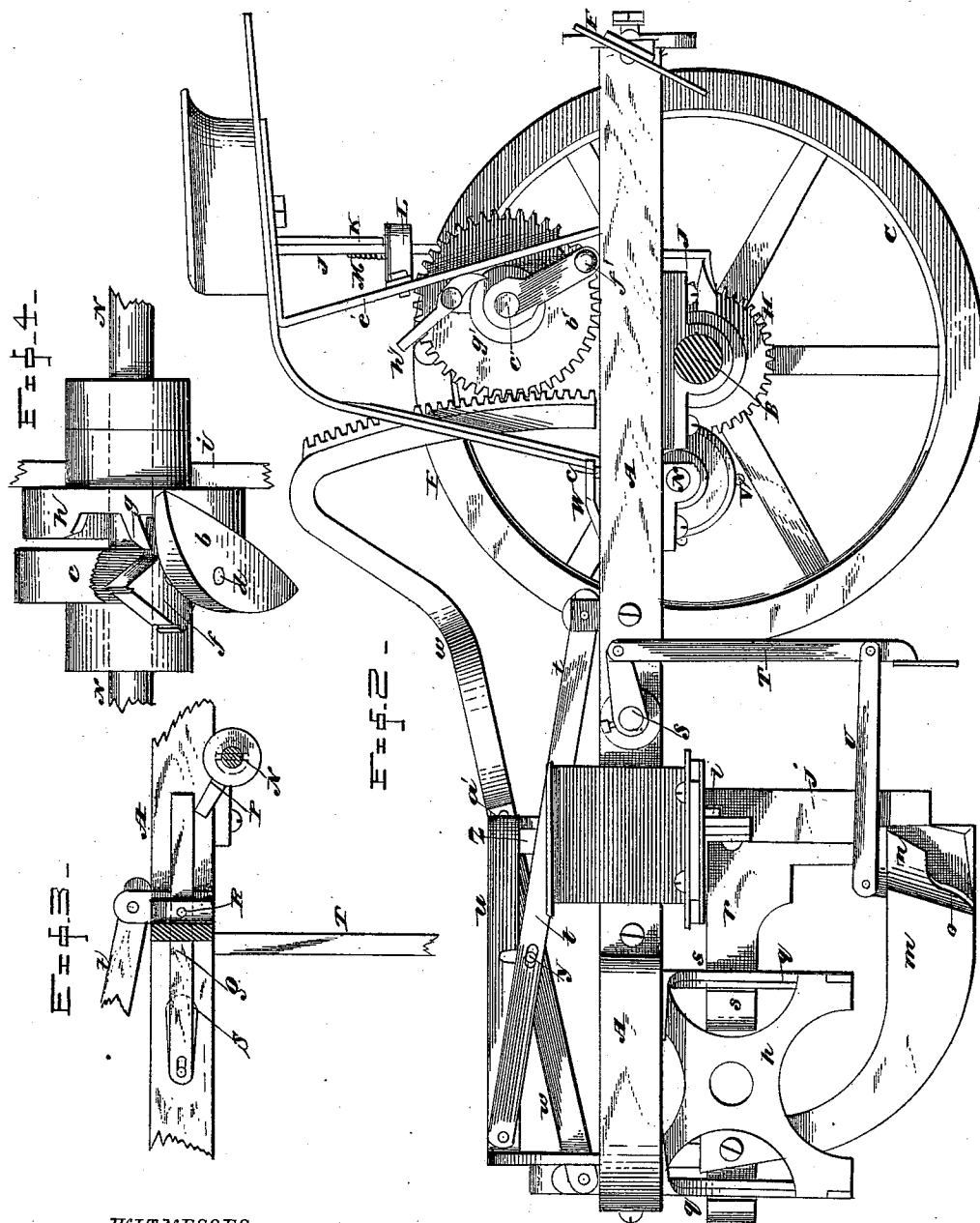
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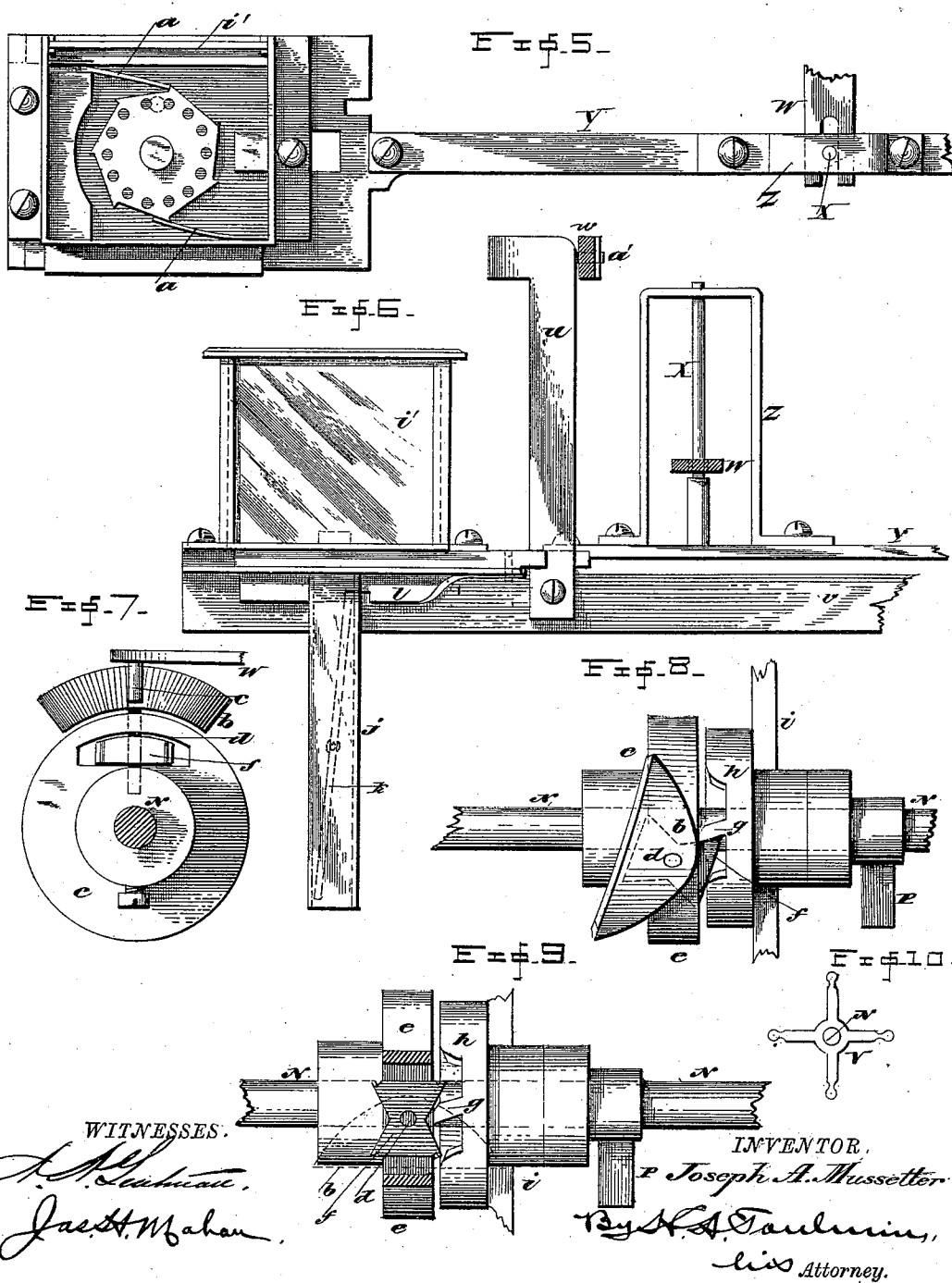
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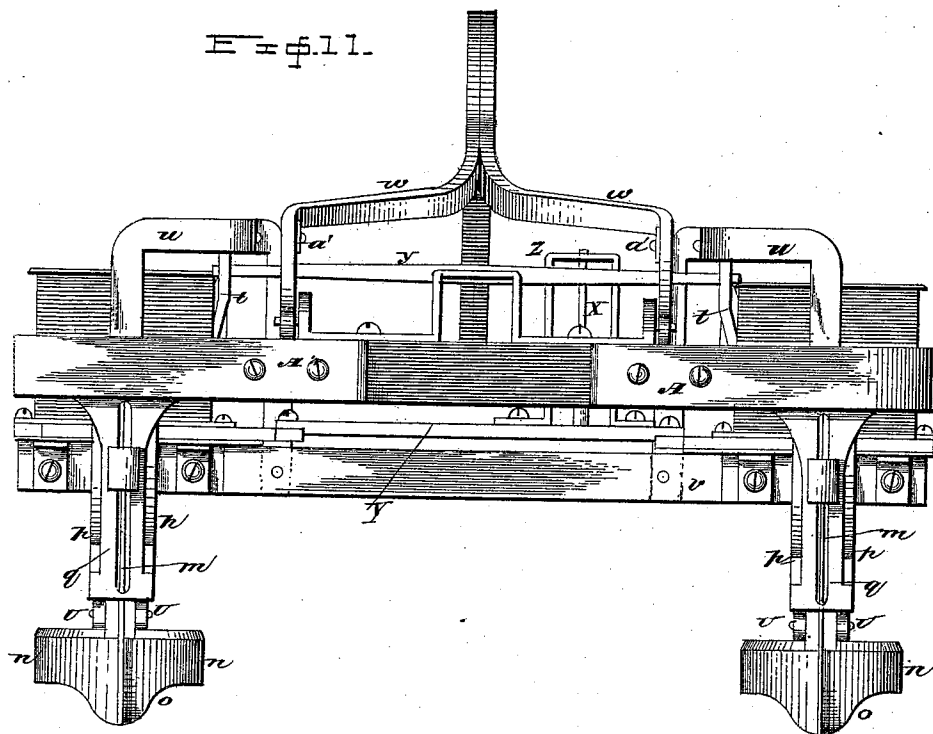
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UNITED STATES PATENT OFFICE.

JOSEPH A. MUSSETTER, OF PAINTERSVILLE, OHIO.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 392,928, dated November 13, 1888.

Application filed December 3, 1887. Serial No. 256,842. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. MUSSETTER, a citizen of the United States, residing at Paintersville, in the county of Greene and State of Ohio, have invented certain new and useful Improvements in Corn-Planters, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to new and useful improvements in corn-planters.

The objects which I have in view are, first, to avoid the use of the present well-known check-row wire and the attachments of the planter which co-operate therewith; second, to provide for adjusting the runners at different depths, so as to plant the corn at varying depths in the ground to suit the particular kind of soil at hand; third, to provide mechanism adapted to receive motion from the supporting-wheels and transmit motion to the seed-dropping mechanism at proper intervals of time to secure the necessary distance between the hills; fourth, to provide hoes instead of the usual coverers and elevate the hoes automatically at proper intervals of time to leave an accumulation of soil over the deposited seed; fifth, to keep the supporting-wheels clear of accumulations, so as to not increase their diameter, whereby the motion received through them to actuate the seed-dropping mechanism actuates it at regular and predetermined intervals, and, sixth, to provide a cam for actuating the seed-dropping mechanism intermittently and in proper time with respect to the forward travel of the machine.

In the accompanying drawings, forming a part of this specification, and on which like reference-letters indicate corresponding parts, 40 Figure 1 represents a plan view of my improved machine; Fig. 2, a side elevation of the same with one of the supporting-wheels removed; Fig. 3, a detail view of a portion of the hoe-actuating mechanism; Fig. 4, a detail view of the cam for actuating the seed-dropping mechanism; Fig. 5, an enlarged plan view of one of the seed-hoppers and its mechanism; Fig. 6, an elevation of a hopper, a boot, and the several adjacent devices; Fig. 7, 50 a sectional view of the auxiliary shaft, showing the cam for actuating the seed-dropping mechanism in elevation; Fig. 8, a detail view

of said cam similar to Fig. 4, but showing the cam proper in the reverse position; Fig. 9, another detail view of the cam, showing the cam-block in dotted lines in a position intermediate to those shown in Figs. 4 and 8; Fig. 10, a detail view of the auxiliary shaft and foot-reel, and Fig. 11 an elevation of the front end of the machine with the supporting-wheels and other parts removed.

The letter A designates the main frame of the planter, which consists, preferably, of bars of wrought-iron, though it may be made of wood or other suitable material. This frame is mounted upon an axle or shaft, B, supported by the wheels C, one of which is connected rigidly with the shaft, so as to revolve it. The periphery of the supporting-wheels C is provided with a flat groove, D, and with two flat beads, E, thus giving each wheel two diameters at the periphery. The larger diameter, composed of the flat beads, forms the tread which runs upon the ground, while the contracted portion D follows the line of the deposit of the corn and avoids unduly packing the earth over the corn.

To a suitable point of the frame adjustable scrapers F are attached, the construction of which enables them to keep the periphery of the wheels clear of accumulations, (so as to not increase their diameter,) and hence cause them to revolve the same number of times over a given length of ground. A fixed clutch, G, is secured to the axle B, and a gear-wheel, H, is slidingly mounted on the axle and provided with a clutch-surface, I, which engages the clutch-surface G. The gear-wheel is adjusted in and out of contact with the clutch G by a hand-lever, J, of any approved construction, and having the usual detent, K, adapted to lock with a bar, L. A spring, M, tends so to throw the lever as to keep the clutches G and I normally in engagement. An auxiliary shaft, N, is mounted in the frame and provided with a pinion, O, and two tripping-arms, P, which serve to rock pitmen Q, pivoted at R and connected at one end with rock-shafts S. These rock-shafts are connected with hoes T, the latter being held against the soil by the pivoted links U. Thus it will be observed that the hoes are automatically elevated at intervals as the tripping-arms P come upward and pass from under the adjacent ends of the

pivoted pitman Q. By this means the hoes accumulate more or less soil before them at the same time that they cover the furrows made by the runners. The action of the hoes is so timed that they rise just before reaching the place where the corn is deposited, leaving a hill over each deposit, and then drop down and recommence covering the furrow and accumulating the soil. The supporting-wheels pass over the hills thus formed; but by reason of their contracted diameter at D a hill or prominence is left to mark the place of planting the corn. The shaft N is also provided with a foot-reel, V, and by which the shaft is rotated when the clutch I is out of engagement with the clutch G, so as to properly set the tripping-arms P and the cam which actuates the seed-dropping mechanism with respect to the axle B, so as to form the hills and drop the corn at the proper place as compared to the last hills made when the machine was going in the opposite direction. This is important, because it might so happen in turning the machine around that it would not start up in such wise as to bring the hills then about to be made inline with those last made. This is prevented, however, by reaching down from the seat and placing the foot upon the reel V, or by otherwise setting the auxiliary shaft so as to bring the pinion O into mesh with the gear H at the proper point to bring the tripping-arms P against the levers Q and to cause the cam to actuate the seed mechanism and make the first return drop and form the first return hill opposite to the last drop and hill.

The letter W refers to a pivoted pitman, one end of which is engaged by a cam, to be presently described, and operated intermittently in one direction and then the other, with a sufficient rest between the motions to allow the machine to proceed the distance at which the drops are placed. This pitman is bifurcated at one end and embraces a vertical rod, X, secured to the dropping-slide Y and braced by the yoke Z. There is nothing peculiar in the construction of the slide of the hoppers or boxes, with the exception that the pawls a, by which the disks are rotated, are rigidly secured to the slide and are yielding like springs. By this construction they normally tend toward the disk and skip past the teeth or shoulders on the periphery thereof. They are cheaper than the pivoted pawls and are more certain in their action, because they, as above mentioned, of themselves normally tend toward the disks.

The cam already referred to consists of a pivoted block, b, curved at one end, substantially as seen in Figs. 1, 4, and 8, so as to readily engage the side of the projection or pin c, depending from the pitman W, as the cam comes up past it in its revolution with the shaft N. It is necessary, however, that the block b, which presents the curved surface at the opposite sides of the pin c, should be arranged so as to move the pitman W in first one direction and then the other, allowing the pitman in the interim to remain in the position to which it is last

moved. To effect this movement of the block b, I mount it upon a shaft, d, having bearings in a collar, e, or other suitable device secured to the shaft N. Also rigidly secured to the shaft d is a trip-block, f, whose sides are beveled inwardly at the proper angle and depth to allow the trip-block to swing round the stationary projection which stands in the path of the trip-block when the cam is in operative position, as suggested in Fig. 1. This projection in the present instance consists of a stud, g, formed on the collar h, mounted on the shaft N, and secured against rotation by connection or contact with a bar, i, of the frame of the machine. The collar is cut away at either side of the stud to form a recess, in which the corners of the trip block f play as it rotates. As shown in Fig. 4, the cam is passing from the position shown in Fig. 1 to the opposite position, during which movement it travels from the position shown in Fig. 4 to that shown in the dotted lines in Fig. 9. In Fig. 8 it is shown as having passed round and actuated the pin c from the opposite side to that shown in Fig. 1, and is about to be transferred back to the position shown in Fig. 1, ready the second time to actuate the pin c from that side. These movements are continued successively during the operation of the machine.

In the boot j is pivoted a cut-off, k, as shown in dotted lines in Fig. 6, and a slide, Y, is provided with a portion, l, notched to engage with the upper end of the cut-off and tilted from side to side. By this means the corn in being planted drops from the lower end of the boot, where it is held by the cut-off. The advantage of this arrangement is that the corn does not have to drop the entire distance from the box to the ground, but only from where it is caught in the boot to the ground, this being but a short distance, and hence the corn is deposited almost immediately upon the actuation of the slide and before the machine has had time to advance much farther forward. Of course there is always a hill ahead in each boot.

I will now refer to the raising and lowering of the runners.

The letter m designates the runners, which consist of a curved sharp plate provided near the rear end with a wing or mold-board, n, at either side. The mold-board is narrowed near the lower end, as at o, so as not to make too wide a furrow, while the wider portion spreads out and runs along the surface of the ground and smooths it off for the supporting-wheels which follow. The runner is shown up in Fig. 2; but when operating as just described is let down the proper distance. To the forward end of the frame I attach brackets p, between the bars q of which the upper portions, r, of the runners are fitted, so as to move in a vertical direction. The portion r is shouldered at s, at either side of the bars q, to prevent the runner from moving longitudinally. Bars t are pivoted to the frame and slidingly connected at their forward ends to stout bails

u, which stand above the general frame of the machine, and at their ends are connected with the runners and with a stout horizontal bar, *v*, extending from runner to runner. To the forward part of the frame is pivoted a stout yoke, *w*, in which is mounted a transverse rod, *y*, the ends of which project through slots in the pivoted bars *t*. The rear end of this yoke is provided with a rack-bar actuated in the manner presently to be described. The yoke *w* is also slidingly connected with the bails *u* at *a'*. Therefore when the yoke is operated up and down it will be seen that the bails *u* are moved in a perpendicular direction, because they are lifted at the forward point of the connection between them and the bars *t* and at the rear point of connection between them and the said yoke. The bars *t* are slotted and the bails *u* notched, as seen in Fig. 2, to accommodate the transverse rod *y*. A gear-wheel, *b'*, carried by a crank-shaft, *c'*, mounted in the bearings secured to one of the seat-standards *e'*, engages with the rack of the yoke *w*, and when actuated by the cranks *f'* elevates and lowers the yoke, so as to elevate and lower the runners. The shaft *c'* carries a ratchet and pawl, *g'* and *h'*, one at either side, and disposed in opposite directions, so as to lock the shaft *c'*. To the rear cross-beam of the frame I design to attach the usual marker, which I use in connection with this machine for the usual purposes of a marker.

The letter *i'* designates the rear side of the seed box or hopper. This I construct of glass for the purpose of enabling the operator to see the amount of corn therein without stopping to lift the cover.

It will be observed that by the use of my improved machine the usual check-row wire is avoided, together with the mechanism which usually co-operates with it; that the diameter of the supporting-wheels is preserved, so that they will not rotate more times in going across the field at one period than at another; that I leave hills in the field to indicate where the corn has been dropped in the preceding passage across the field; that I can adjust the depth of the runners to agree with the character of the soil; that the dropping mechanism is actuated intermittently, and that the power required to actuate the moving mechanism is received from the forward movement of the machine. I do not wish, therefore, to be understood as limiting myself to the particular details of construction shown and described, as they may be largely varied without departing from the spirit of my invention.

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

1. In a corn-planter, the combination, with the main frame, the supporting-wheels, and their axle, of an auxiliary shaft geared to the axle, and a cam on said shaft, composed of a rotating collar, a cam-block rotatably mounted thereon, a block secured to its shaft, and a fixed collar in the path of said block, whereby

the cam-block revolves on its own axis during the revolution of the auxiliary shaft and presents its cam-surfaces to the opposite sides.

2. The combination, with a rotating shaft and a collar carried thereby, of a cam-block rotatably mounted in the collar, and a block connected with the cam-block, and a fixed collar or projection located in the path of said block, whereby it is engaged in the rotation of the shaft and the cam-block caused to rotate on its own axis.

3. The combination, with a rotating shaft and a collar fitted thereon, of a cam-block the cam-surface of which is curved, a shaft for said cam-block mounted in said collar, and a block mounted on said shaft and having its sides converged toward the center, and a fixed collar supported on the rotating shaft and recessed in one edge to leave the projecting point for engagement with the converged sides of the said block.

4. In a corn-planter, the combination, with the supporting-wheels, the axle, and a gear clutched thereon, of an auxiliary shaft and cam thereon, a pinion which meshes with said gear, and one or more reel-arms to adjust the cam with respect to the said gear before clutching it with the axle, so as to start the cam at the proper time for actuating the seed-dropping mechanism.

5. In a corn-planter, the combination, with the main frame and vertical hanging brackets secured thereto, of runners movably fitted to said brackets and guided by them in a vertical direction, a lever to raise and lower the runners, and intermediate devices between said lever and runners connected to the forward and rear ends of the runners, whereby the runners are bodily moved in a vertical direction by said lever and said intermediate devices so connected.

6. In a corn-planter, the combination, with the main frame having vertical hanging brackets, of runners connected together by a transverse bar and having an upper horizontal portion fitted in said hangers, of a bail connected to each runner, a pivoted bar connected to each bail, and a pivoted yoke-lever having a transverse rod engaging with the said pivoted bars, a rack carried by said lever, a gear meshing therewith, and suitable locking pawls and ratchets.

7. In a corn-planter, the combination, with the main frame, the supporting wheels and axle, an auxiliary shaft having a cam and geared to the axle, and a pitman operated by said cam, of vertical ways or brackets and runners vertically adjustable therein, a lever and intermediate devices to raise and lower the runners and said dropping mechanism mounted upon said runners, a slide for said mechanism, and a vertical rod extending from the slide, with which said pitman slidingly engages, whereby the said dropping mechanism is operated irrespective of its altitude with respect to the pitman.

8. In a corn-planter, the combination, with

the main frame and vertical hanging brackets secured thereto, of runners movably fitted to said slides and guided by them in a vertical direction, seed-dropping mechanism mounted upon the rear ends of said runners and movable therewith, a lever to raise and lower the runners and said mechanism, and intermediate devices between said lever and runners connected to the forward and rear ends of the runners, whereby the runners and said incumbent mechanism are bodily moved in a vertical direction by means of said lever and said intermediate devices.

9. In a corn-planter, the combination, with a rock-shaft having a crank-arm at or near each end thereof, a bar depending from one of said crank-arms, a brace connecting said bar to the runner, a hoe suspended and braced against swinging backward by said bar and brace, a pivoted pitman connected to the other crank-arm, an auxiliary shaft having a tripping-arm which engages said pitman and which receives motion from the supporting-wheels.

10. In a corn-planter, the combination, with the runners and the supporting-wheels, each having a peripheral groove, of rock-shafts, hoes suspended from them between the runners and wheels, and actuating mechanism for said shaft, consisting of an auxiliary shaft operated by said wheels, and pitmen actuated at one end by said auxiliary shaft and connected to the rock-shafts at the other end to elevate the hoes just before they reach the deposited grain and drop them just after the passing of said grain, whereby hills of earth are left in the field to designate the place of the deposit of the grain and whereby the earth through the grooved wheel is properly packed.

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

JOSEPH A. MUSSETTER.

Witnesses:

JOS. W. HEBBLE,
JAMES M. STEWART.