

No. 611,652.

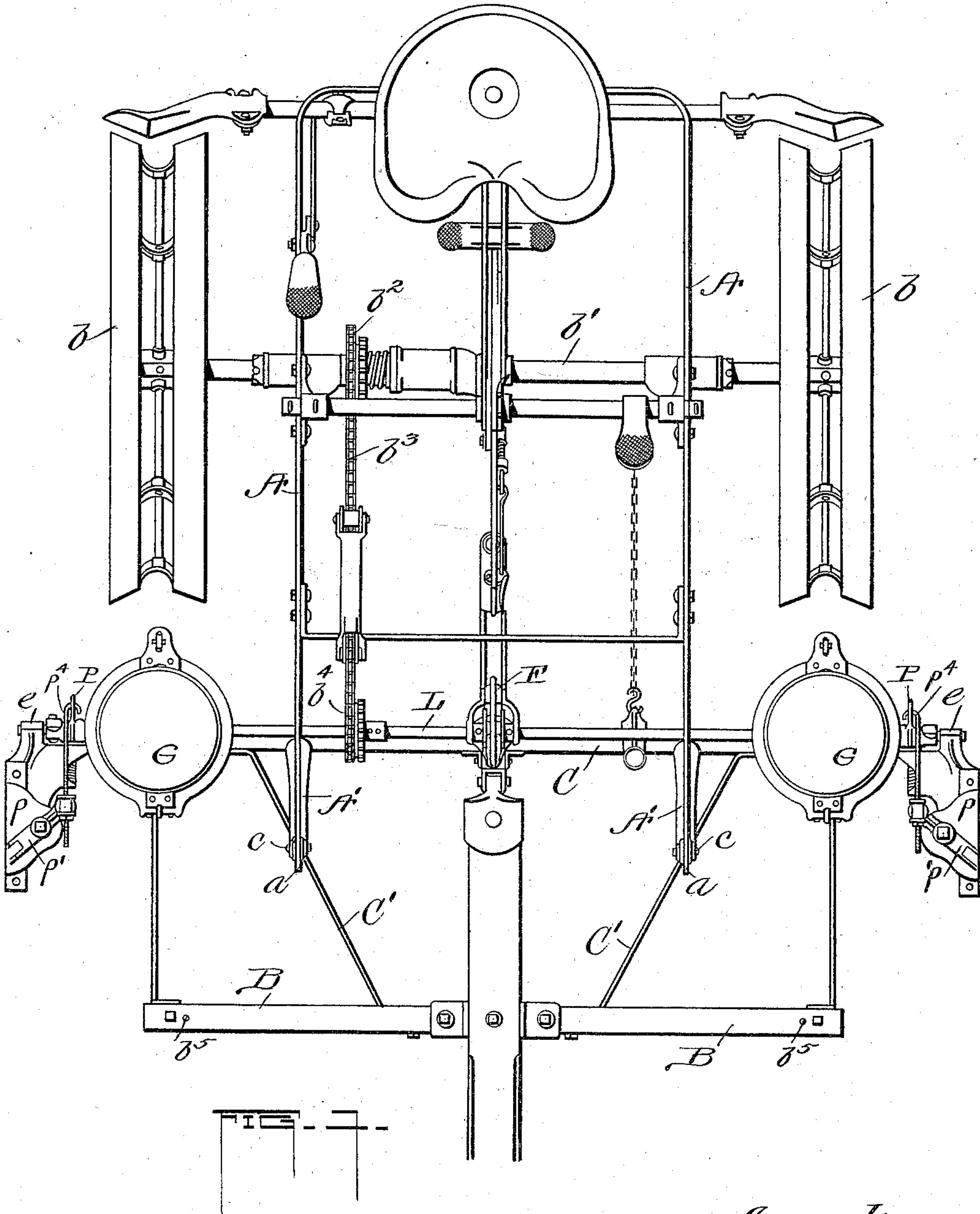
Patented Oct. 4, 1898.

C. J. SPURCK.
CORN PLANTER.

(Application filed Apr. 12, 1898.)

(No Model.)

4 Sheets—Sheet I.



Witnesses:
A. E. Francis
H. B. LaPorte

Inventor:
Charles J. Spurck
By, Chas. W. LaPorte
Atty.

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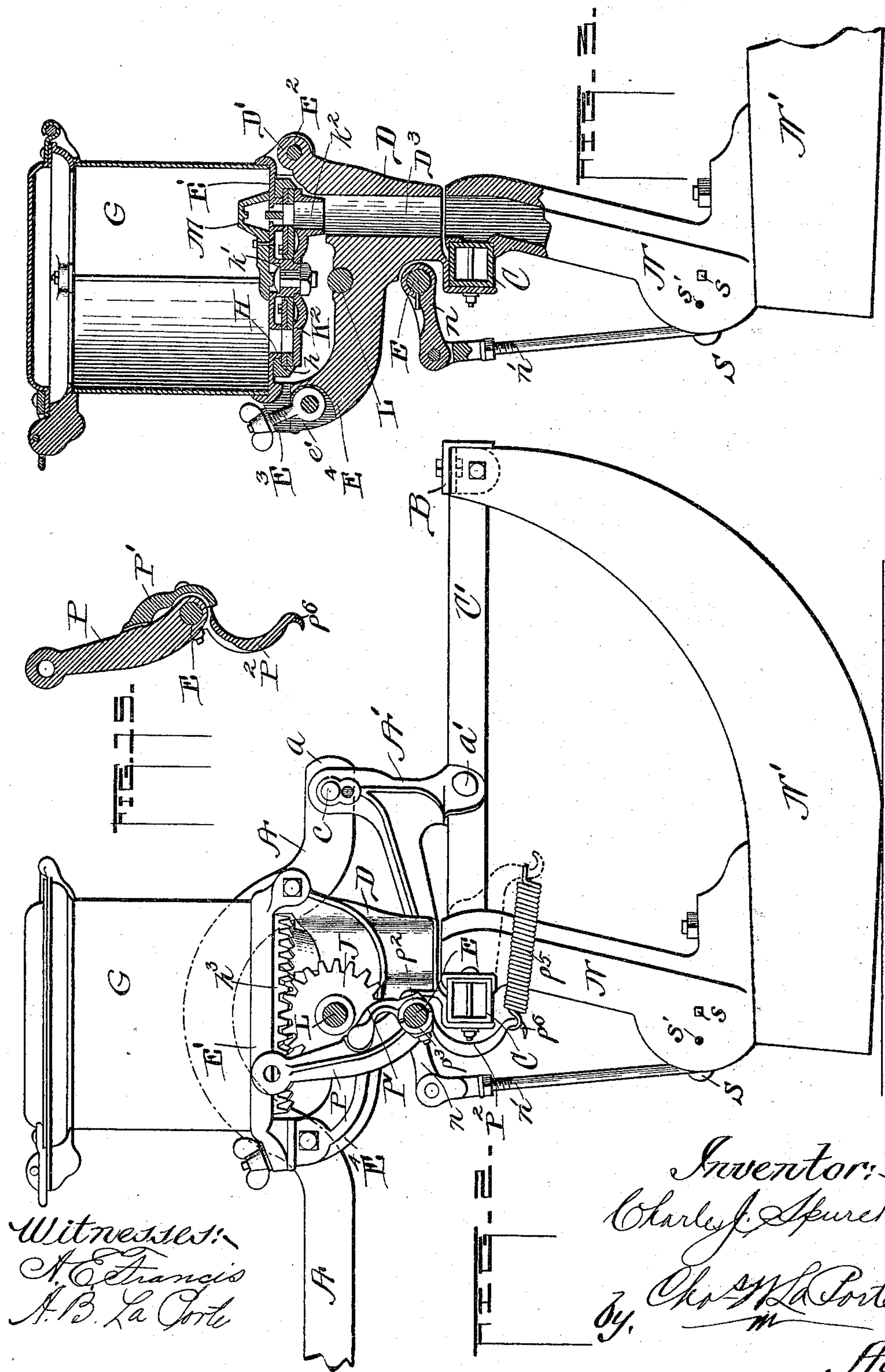
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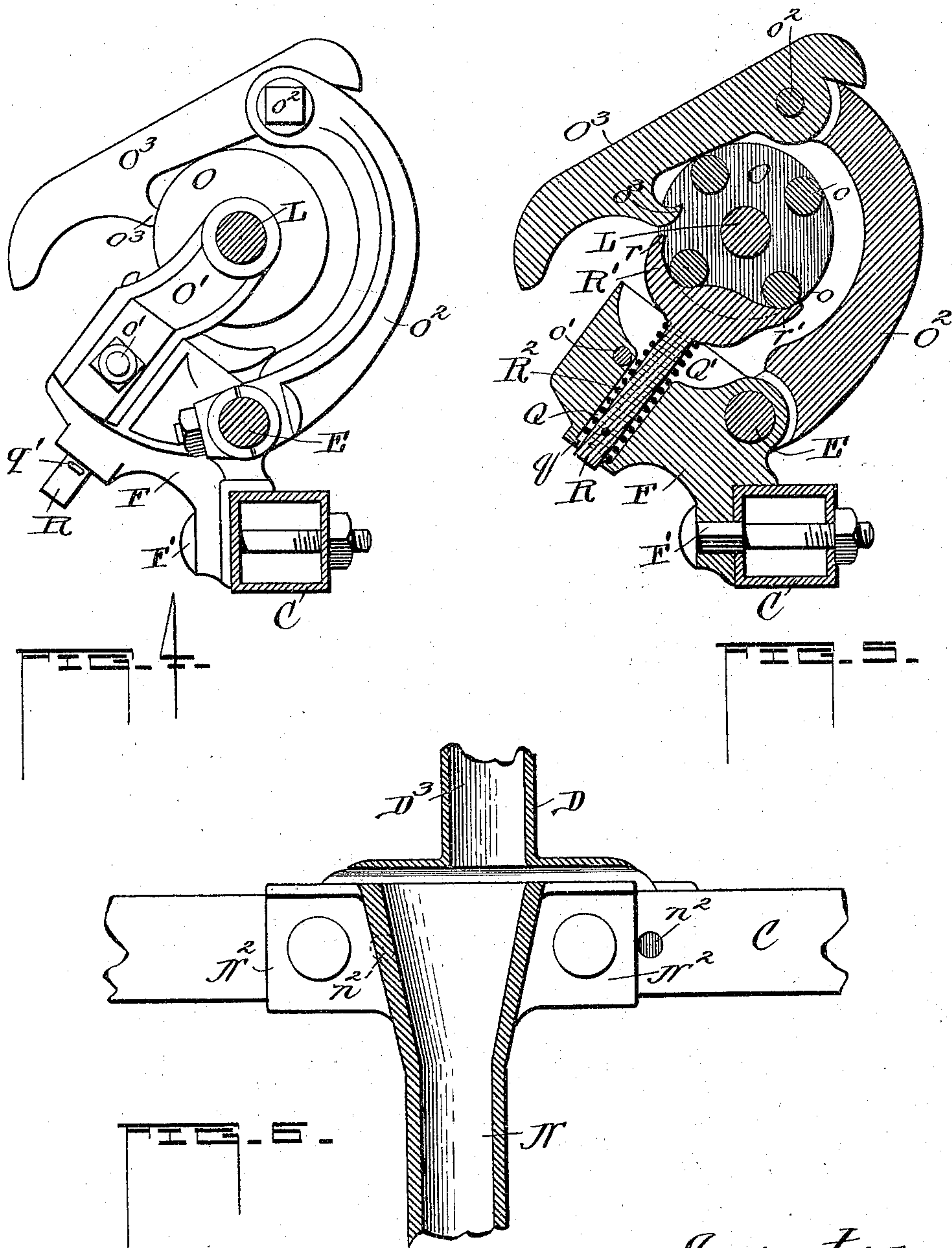
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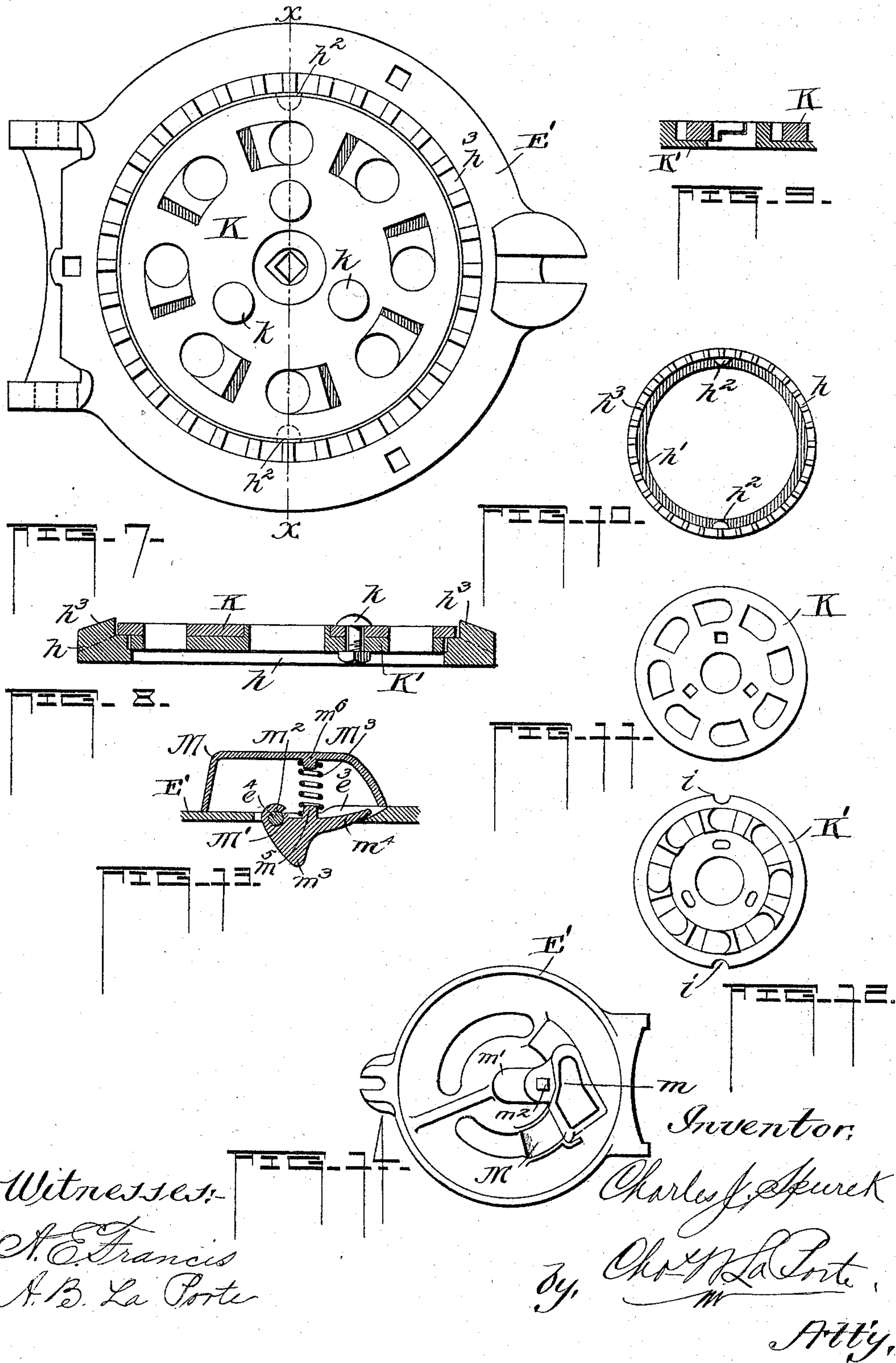
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4 Sheets—Sheet 4.



UNITED STATES PATENT OFFICE.

CHARLES J. SPURCK, OF PEORIA, ILLINOIS.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 611,652, dated October 4, 1898.

Application filed April 12, 1898. Serial No. 677,281. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. SPURCK, a citizen of the United States, residing at Peoria, in the county of Peoria 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.

My invention relates to certain new and useful improvements in corn-planters by means of which a planter is constructed that has certain novel features that are well adapted for the purpose designed.

More particularly my invention relates to that class of corn-planters by which an ordinary check-row planter may be converted into a drill-planter or to a hill-drop or to a hand and foot drop, the object being to facilitate an easy and quick adjustment of those parts, the same being accomplished either by the check-rower, the operating and rock shaft combined, or by the drive-wheels and the check-rower, as desired.

My invention consists, essentially, in the provision of a main frame, a runner-frame, of the corn-receiving boxes, and dropping mechanism, whereby the same may be opened without removing the grain therein to examine, adjust, or change the dropping-plates or other mechanism, of the planter-shanks, the means for adjusting the same upon the frame for planting rows of different widths, as desired, and of certain other details adapted to simplify the constructions heretofore employed in corn-planters.

In order that my invention may be more clearly understood, I have illustrated the same in the accompanying drawings, in which—

Figure 1 is a top plan view of a seed-planting machine having my invention applied thereto. Fig. 2 is a side elevation of the front portion of the planter. Fig. 3 is a sectional elevation, the section being taken transversely through the hopper and dropping mechanism. Figs. 4 and 5 are respectively detail views, one an elevation and the other a section, of portions of the planter. Fig. 6 is a vertical section of a portion of the shank and a stand for the seed-box, showing the relation of the one to the other and the manner of adjusting the shank

on the frame. Fig. 7 is a plan of the bottom for the seedbox and the manner of carrying the adjustable dropping-plates. Fig. 8 is a section on the line $x x$ of Fig. 7. Fig. 9 is a cross-section through the perforations in the dropping-plates. Fig. 10 is a plan of the ring. Figs. 11 and 12 are plan views of the dropping-plates. Fig. 13 is a vertical section of my improved knocker and the manner of carrying the same. Fig. 14 is a top plan of the bottom to the said box, showing the cut-off and its covering. Fig. 15 is a sectional detail view.

Like letters of reference indicate the several corresponding parts throughout the figures.

The framework upon which those portions of the machine which embody my invention are mounted may be of any usual or approved construction.

In the said drawings, A represents the wheel-frame, and B the runner-frame, of an ordinary corn-planter, the parts being suitably connected by means of the extension $a a$ of the frame A, adjustably coupled at c in the couplings $A' A'$, which are bolted to the beam C, the runner-frame being suitably secured to the couplings by means of the straps on the bars $C' C'$, which are bolted to the beam C and to the couplings at $a' a'$.

$b b$ are the carrying-wheels, which are arranged in the usual way on the shaft b' , which carries a sprocket-wheel b^2 , over which passes a driving-chain b^3 , which delivers power to the operating-shaft L through a suitable sprocket-wheel b^4 on said shaft, the shaft being suitably journaled in the stands D, which carry the seedboxes, and held in position by means hereinafter described.

E is a rock-shaft journaled in the bearings $e e$, suitably supported on the opposite ends of the beam C and also in the journal-box F, which is also provided for a purpose to be hereinafter more fully described.

G G are cylindrical-shaped seedboxes arranged at opposite sides of the planter and are constructed in the manner shown in Figs. 2 and 3, provided with the bottom or base E' , adapted to be hinged to the extension D' of the stands D and at E^2 thereon, the same being locked and held in position by means of the thumb-and-screw connection at E^3 , the stand D having the upward extension E^4 ,

the same being slotted at e' therein to adapt the screw to be slipped into or out of the slotted opening provided in the bottom E' for holding the same in position. The construction of the seedbox, its bottom, and the manner of carrying the seed-plates is very simple, the bottom of the box, which is detachable, serving the purpose of a bottom, forming the cut-off, and is adapted to carry therein a
 10 knocker, to be described.

The bottom or base E' of the seedbox is provided with the flange H , around which is adapted to be carried the driving-ring k , the said ring being provided with the base or
 15 flange extension h' , in which are adapted to be carried the dropping-plates, the same being held in position by means of the depressions i , which are adapted to engage the lugs h^2 on the ring h , the said ring being also
 20 provided with the gear-teeth h^3 , adapted to mesh in a pinion J on the operating-shaft L . The shaft L , which is journaled in the standard D and which is easily removable therefrom by simply raising the seedbox, is adapted to be firmly held in its journal by means
 25 of the engagement from the teeth of the ring h with the pinion J on the said shaft.

The dropping-plates, which will be referred to as K K' , are adjustable the one upon the
 30 other and are so adjustable by means of the bolts k , movable in suitable depressions in the plate K' .

K^2 is a bottom plate or covering serving as a support for the dropping-plates and the
 35 toothed ring, which plate is held in place by means of the bolt k' , carried through the base of the seedbox, and a nut screwed on the other end thereof and upon the outside of the plate K^2 , as shown in Fig. 3, the bolt serving
 40 as a journal-support for the dropping-plates and ring, the plate being also provided with the opening k^2 , adapted to match with the opening D^3 in the seedbox-stand D . The base E' of the box, as referred to above, is
 45 adapted to be used as a cut-off, the cut-off being shown best in Fig. 14 of the drawings and designated as m , its covering being referred to as M , having the extension m' and bolted to the base at m^2 , the extension m' adapted to be
 50 carried in a plane directly above the bolt k' and is adapted to hold the same in place.

M' is a knocker of an improved form which has certain novel features which adapts it for use in connection with the dropping-plates
 55 and causes the sure delivery of each grain of corn to its proper place in the shanks. The base E' is provided with a suitable slot e^3 and also the lug e^4 . The knocker is provided with the curved arm extension M^2 , adapting the
 60 same to act as a hinge upon the lug e^4 , the knocker being also provided with the extension m^3 m^4 and the lug m^5 . I have shown in connection with said knocker a compression-spring M^3 , carried around the lug m^5 on the
 65 knocker and around a lug projection m^6 from the covering M , the projection m^3 of the knocker in its adjustment being carried di-

rectly above the openings of the dropping-plate and concentric to the holes in the stand
 70 D , adapted when the holes of the dropping-plates are concentric to the lug m^3 to hold the plate in a position normally stationary for the dropping of the seeds adapted to be planted, the action of the said knocker being such as to
 75 provide against any clogging of seeds that may not fall through the holes in the plates, adapted when the plates are revolved to bear against its upper face and to force any stray seeds through the perforations that may not have dropped in the course of the operation. 80

In the adjustment of the planter I have provided means whereby the planter may be caused to drop in widths either a three-foot-six-inch or a three-foot-eight-inch width. The seedboxes, being stationary on the frame, are
 85 placed at a distance from center to center a width of three feet seven inches.

N N are shanks provided with the runner or furrow-opener N' N' , as shown, and having suitable valves S for controlling the outlet of
 90 the seeds as they are dropped into the shanks, the same being timed in their operation and controlled by the arm n , movable with the rock-shaft E , to the outer end of which said arm is attached a rod n' , controlling the operation of the valve S in the heel of the shank. 95
 The shanks N N are suitably bolted to the beam and adjustable thereon in the following manner: The upper portion of the shanks N are funnel-shaped and have the flange extensions N^2 N^2 . These flange extensions are provided with bolt-holes matching suitable holes
 100 n^2 in the frame C , the bolt-holes in the frame being arranged a distance of one inch apart, adapting the shank, when it is desired to be
 105 adjusted for planting rows three feet six inches or three feet eight inches apart, to be moved and the bolts adjusted as desired, the funnel shape of the upper portion of the shank being provided to take up this manner
 110 of adjustment, adapting the orifice in the stand and the shank to always be coincident, the runner-frame B in like manner being provided with the series of bolt-holes b^5 , adapting the runner to be simultaneously adjusted
 115 upon said frame as the shank is adjusted on the beam C .

On the opposite or outer ends of the rock-shaft E , I have shown a means adapted to be operated from the forked levers through the
 120 check-wire for actuating the rock-shaft and operating-shaft, which means is of a novel construction and is well adapted for the purpose designed.

P are heads carried in a suitable manner on
 125 the beam C , and p' are forked levers suitably pivoted on the heads p .

P' are check-arms loosely carried on the rock-shaft E , and P^2 are check-arm stops which are provided with half-boxings p^3 for
 130 holding arms P' firmly upon the shaft E . The check-arm stops P^2 are constructed in the manner shown in Fig. 15 and are shown having a bearing relation with the check-

arms P', the arm P' being always held in its normal position (shown in Figs. 2 and 15) by the loop from the rod p^4 , which is adjustable on the forked lever p' .

5 Referring to the half-boxings p^3 , P^2 is a curved arm extension from the boxing p^3 , which is adapted for use as a spring-holder, the spring p^5 being hooked on the hook p^6 of the arm p^3 , the opposite end of which is held
10 by the head P. This manner of securing the spring holds the check-arm stop P^2 under a continuous pressure.

Mounted on the operating-shaft L is a drum-ratchet wheel O, provided with the trundles
15 o, and O' are steady-brackets for the operating-shaft and are carried on either side of the drum-ratchet on the operating-shaft and are bolted at o' to the center journal-box F, which box F is bolted to the beam C at F', as shown
20 in Figs. 4 and 5. The rock-shaft E is provided with the upwardly-projecting curved arm-support O², to which is pivoted at o² the dog O³, which is provided with the hook o³, adapted to engage the trundles o of the
25 drum-ratchet as the arm O² is actuated by the movement of the rock-shaft E. The journal-box F is of a novel construction, being provided with the centrally-disposed opening Q and the enlarged opening or cavity Q', as
30 is best shown in Fig. 5. The opening Q is much smaller at its base and is provided with the inwardly-bearing flange q. Through the opening Q is purposed to be carried the plunger R, which is provided with the peculiarly-curved plunger-head R', having the pro-
35 jections r r' , which are adapted to engage the trundles o of the drum-ratchet and stop a forward or backward movement of the shaft L other than is necessary in the provision made
40 for the movement of the seed-dropping plate.

R^2 is a coiled spring carried around the plunger R and has a bearing relation with the flange q and the head R' of the plunger, holding the head under a continuous pres-
45 sure against the trundles of the drum-ratchet in the manner described. The plunger is also provided with the perforation q' in the lower end thereof, adapted when the plunger is not in use to be forced back into the opening Q, the head forced into the cavity Q', a cotter-
50 pin carried in the perforation q' , the manner of adjusting the same being best shown in Fig. 4.

The operation of the planter in its different
55 forms from a study of the drawings will be readily understood; but for conveniences and to show the many advantages derived from the combination herein described I will describe the manner of operating the machine
60 and the changes necessary to plant with the different forms such as described in the preamble of my specification.

In check-row planting it is unnecessary to change any of the elementary working parts,
65 the operation being such that when the forked levers p' are operated by the check-wire in the usual manner the check-arms P will be

caused to contact with the check-arm stops P', causing the rock-shaft to be actuated, which will operate the valves in the shanks, 70 the seed having been dropped by them caused by the rotation of the seed-plates through the rotation of the operating-shaft L, the pinion J, and the ring-gear N³. In using the planter to drill it will be seen that by removing the
75 pivot s, upon which the valve S swings, and placing the same in the perforation s' at the rear of the heel the planter has been quickly adjusted from a check-rower to a drill, and in planting in hills the manner of adjusting 80 the necessary parts is as quickly accomplished and without in any way interfering with the seedbox or the plates carried therein or without providing any auxiliary plates to facilitate in this manner of planting, the adjust- 85 ment of the parts being such that the dog O³ is displaced from its pivot in the arm O², the plunger held back in its normal position, (shown in Fig. 4,) the driving-chain b^3 hav-
90 ing the power for actuating the operating-shaft which rotates the seed-plate, the dropping of the seed being continued until the engagement of the check-wire engages with the forked lever p' , which controls the parts
95 as above referred to for opening the valve in the heel of the shank for dropping the seed in hills, as is desired.

It will be seen from the above that I am enabled by the provisions made to adjust the planter to almost any variety of work, using
100 it for a simple drill, as a combined drill and check-rower in which the drill operates continuously and the check-row devices only are operated by the wire, or it may be operated as a check-row planter, pure and simple, op-
105 erated through the agency of the foot-lever or by hand.

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

1. In a planter, a revolving shaft and seed-plates operated thereby, a rock-shaft operat-
115 ing a valve in the planter-shank, a drum-ratchet suitably journaled on the revolving shaft and a dog adapted to engage the trundles on said drum-ratchet, a plunger carried independently of said dog and in a suitable
120 stationary support provided for said plunger, suitable spring-pressure for forcing the fingers of said plunger into contact with the trundles of the drum limiting the rotation of
125 said drum when engaged by said dog, a perforation in the outer end of said plunger adapted to have inserted therein a suitable pin for the purpose of disengaging the plunger from the trundles of the drum to adapt a free
and easy rotation of said drum, all substantially as and for the purpose set forth.

2. In combination with a corn-planter having cylindrical seed-hoppers hinged to a fixed
130 base and provided with seeding devices intermittently actuated by a revolving shaft through a suitable pinion-gearing matching a pinion on said revolving shaft, dropping-

plates removably supported in said hopper and adjustable the one upon the other, a knocker bearing upon said plates and coincident with the perforation therein and actuated thereby, of a laterally-adjustable planter-shank mounted on the planter-frame and independently movable of said seedboxes and base, all substantially as and for the purpose described.

3. In a planter having seed-hoppers with seed-plates arranged therein hinged to a fixed base or support which is provided with a vertically-disposed opening, a planter-shank mounted on the planter-frame independently of said hopper and base provided with a funnel-shaped upper extension adapted in its several movements to be coincident with the opening in said base, bearing and supporting plates extending from the upper end of the shank adapted to be bolted to said planter-frame and which shank is adjustable thereon, all substantially as and for the purpose set forth.

4. In a planter, in combination with a cylindrical seed-hopper which is hinged to a fixed base and provided with a ring-gear and dropping-plates suitably carried in said ring and journaled on a stud carried through the bottom of the seedbox, a planter-shank removably mounted on the planter-frame independently of said box and base and adjustable laterally on said planter-frame for planting rows substantially as hereinbefore specified.

5. In a planter having seed-hoppers with seed-plates therein, a planter-shank mounted independently of said seedbox and support and laterally adjustable upon said planter-

frame, two parallel shafts one for operating the seed-plates and the other for operating the valves within the planter-shanks, a drum-ratchet on said operating-shaft, actuated by a dog intermittently operated by the rotation of the rock-shaft, of a plunger adapted to limit the movement of said drum-ratchet when moved by said dog suitably mounted independently of said dog and drum, of the means for rotating said rock-shaft and forcing said plunger into contact with said drum, all substantially as and for the purpose set forth.

6. In a planter, the combination with a revolving shaft for operating the hopper seed devices, and a rock-shaft for operating the valves in the planter-shanks, of a drum-ratchet suitably mounted on the revolving shaft, journal-supports for said shaft carried at opposite sides of the drum-ratchet and preventing lateral displacement of said drum, an arm on said rock-shaft, a dog suitably pivoted thereto to engage the trundles of said drum to cause a partial rotation of said revolving shaft when actuated by said rock-shaft, of a plunger held under spring-pressure and carried in a stationary frame-support independently of said frame and dog provided with fingers which are adapted to engage the trundles of said drum and to be operated substantially in the manner and for the purpose described.

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

CHARLES J. SPURCK.

Witnesses:

CHAS. W. LA PORTE,
ABRAHAM JACOBSON.