

(No Model.)

3 Sheets—Sheet 1.

M. & A. SATTLEY & M. HEINEKE. CORN PLANTER.

No. 574,578.

Patented Jan. 5, 1897.

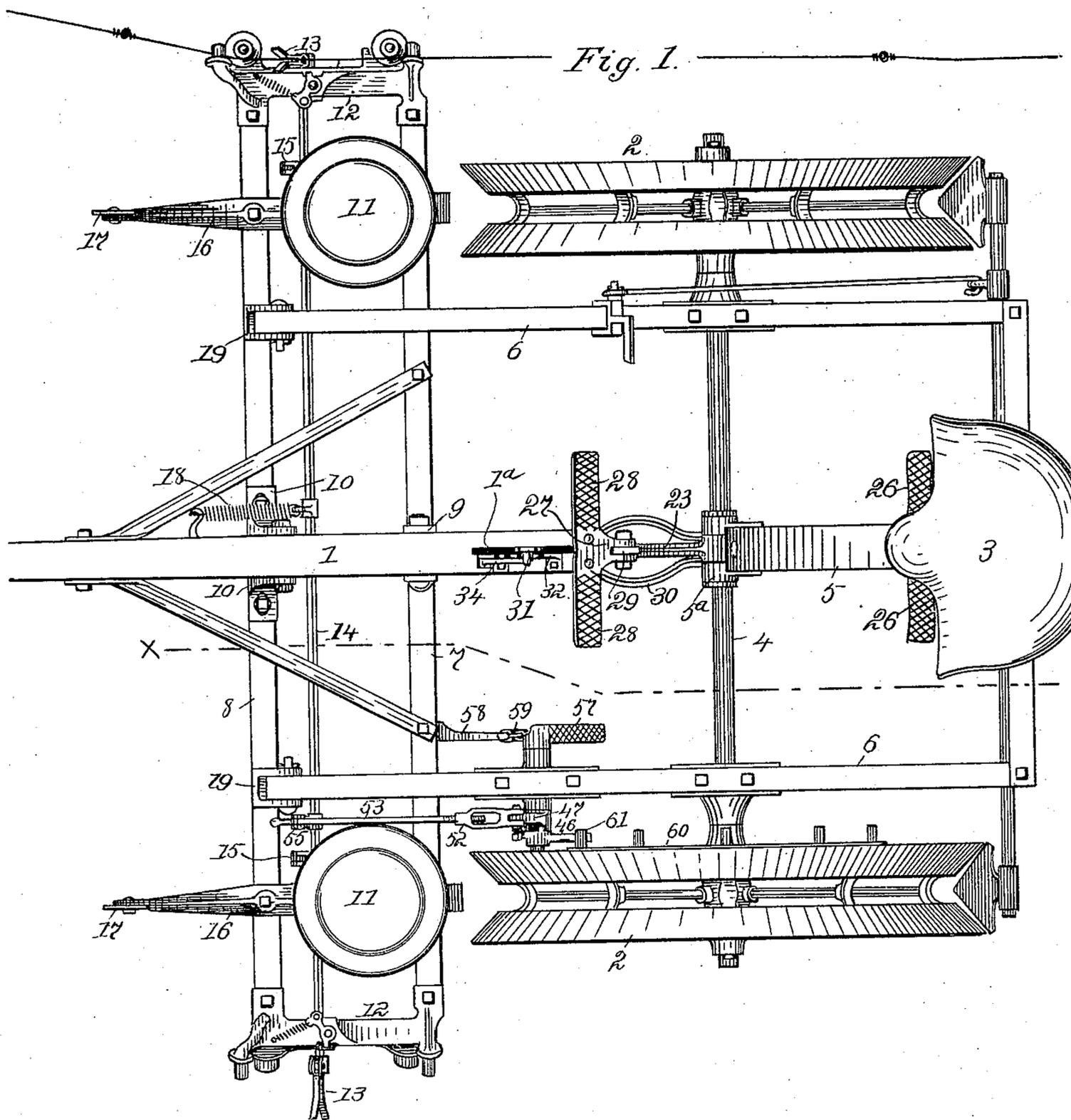


Fig. 1.

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Fig. 2.

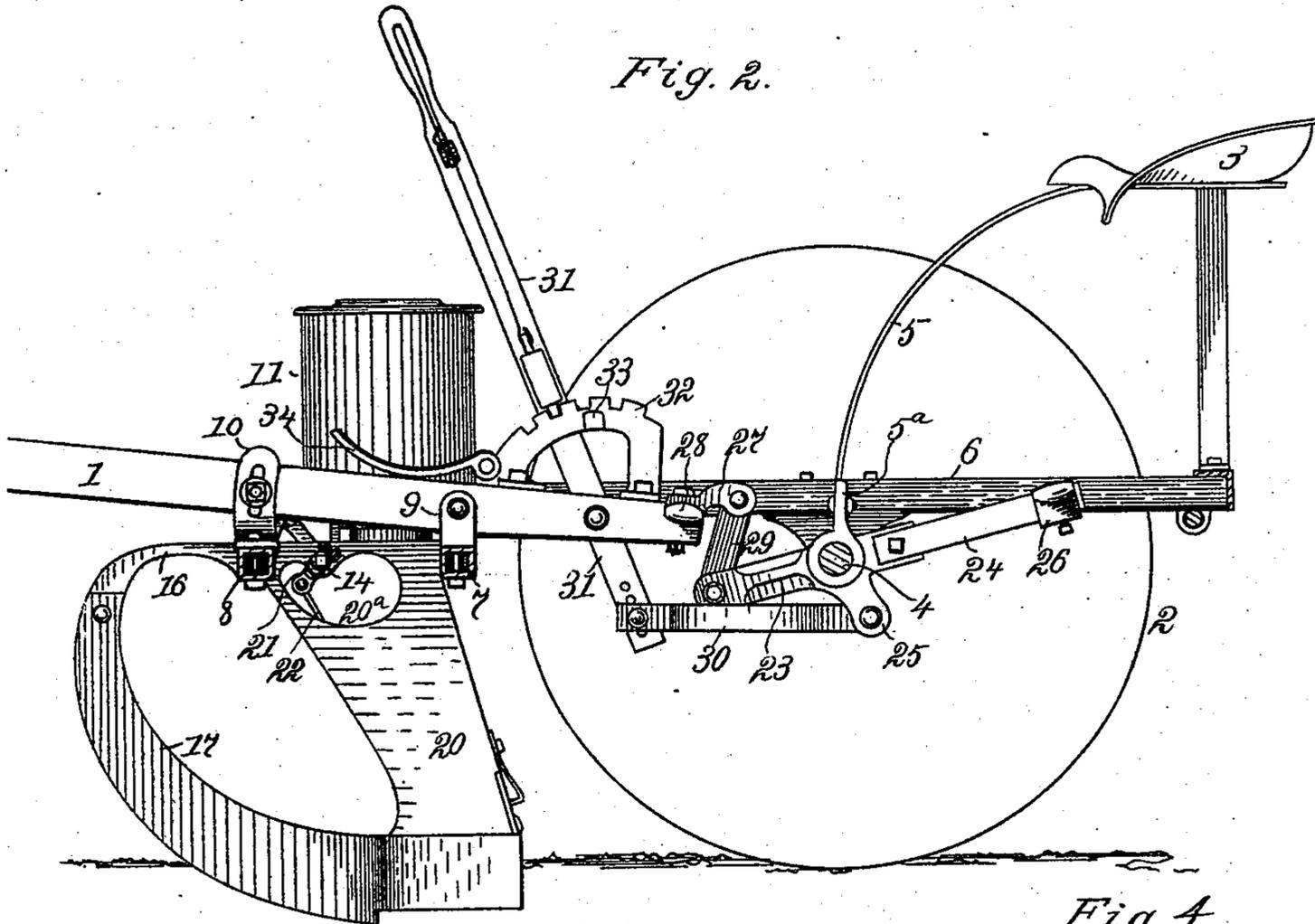


Fig. 4.

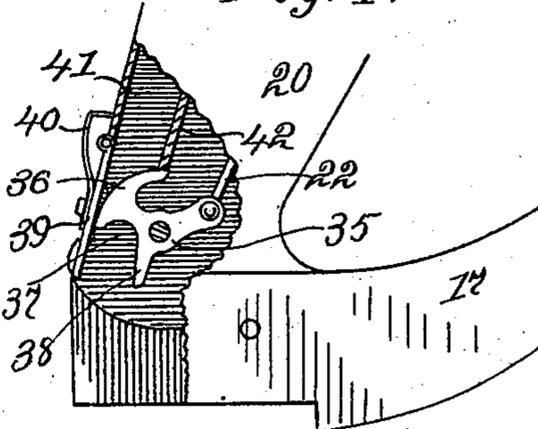


Fig. 3.

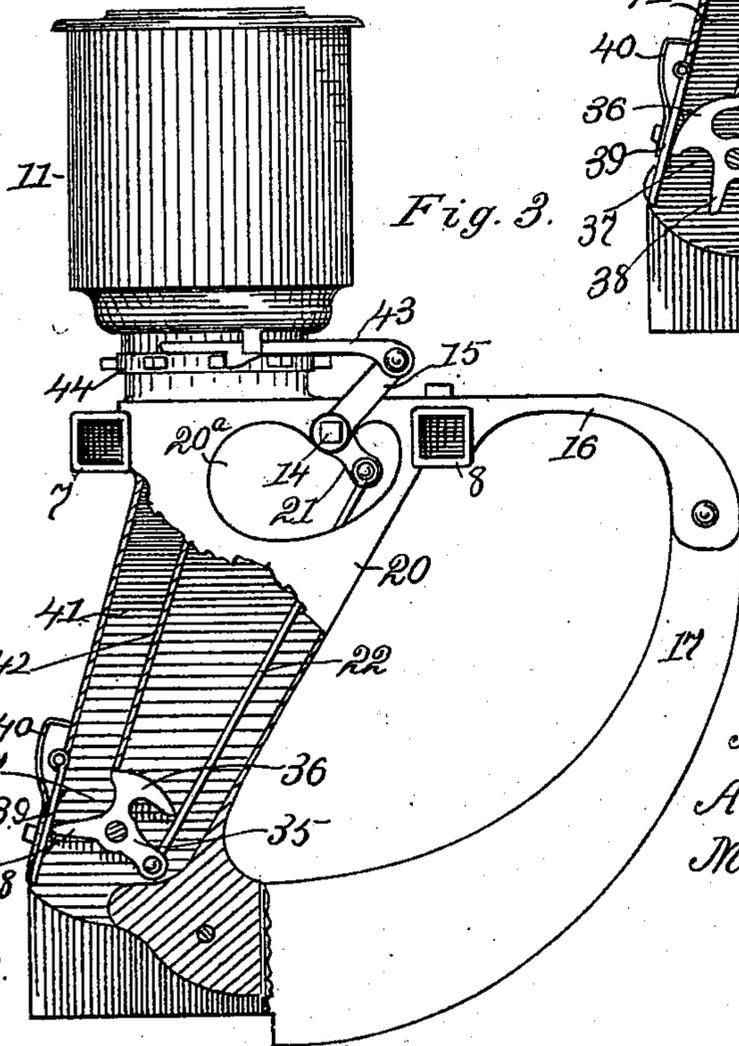
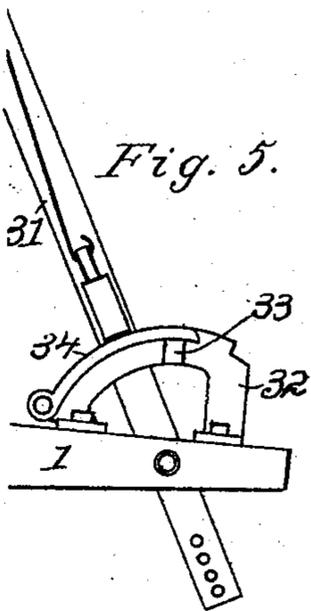


Fig. 5.



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(No Model.)

3 Sheets—Sheet 3.

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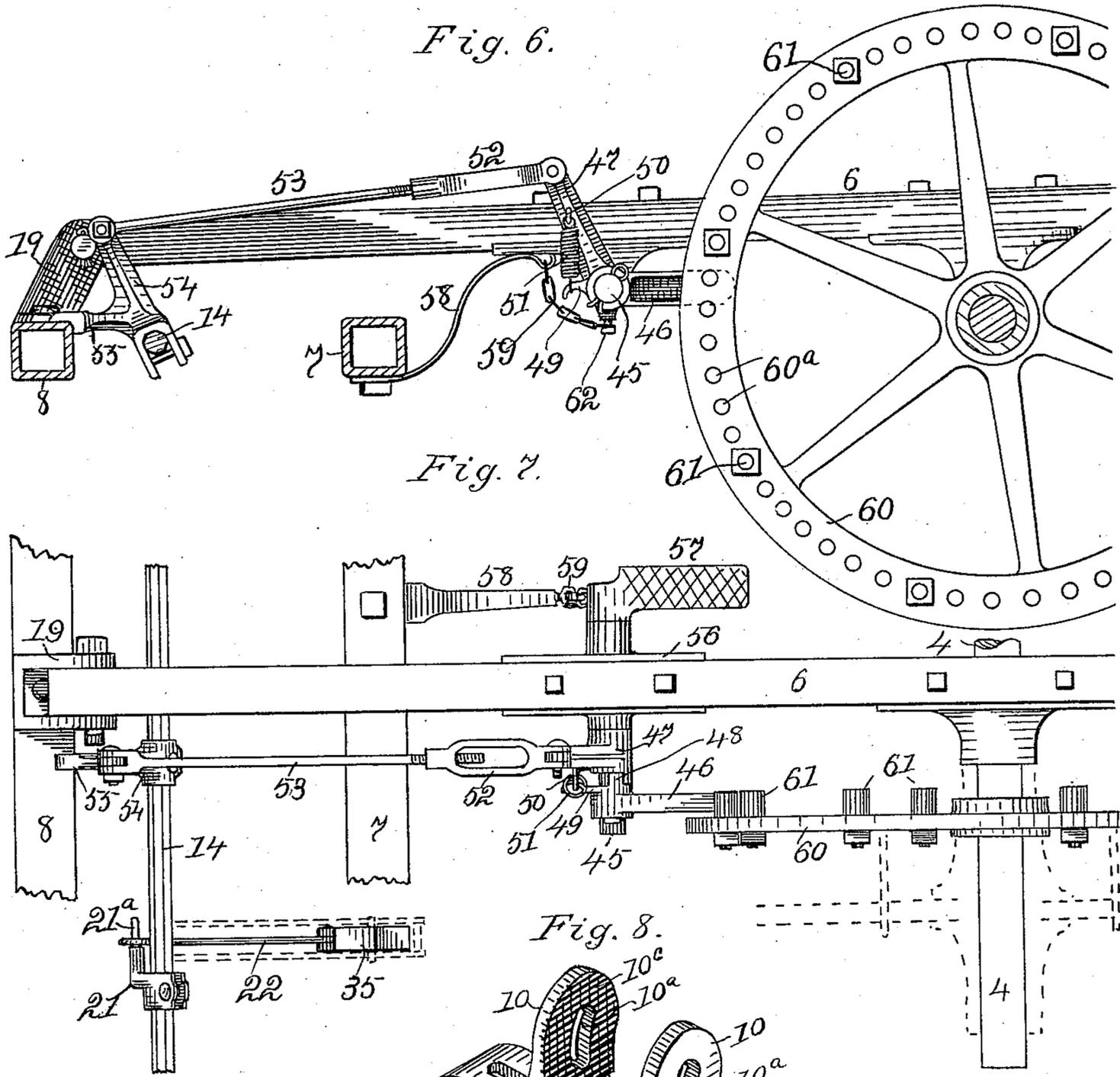


Fig. 7.

Fig. 8.

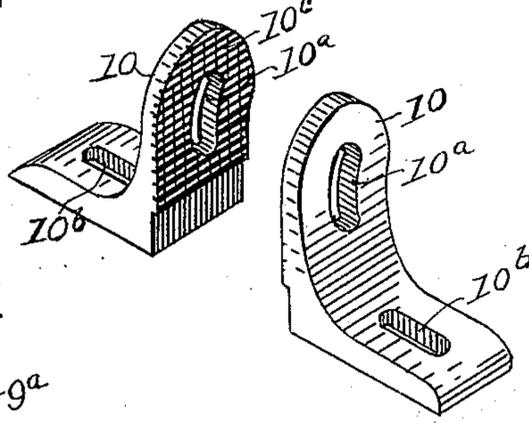


Fig. 9.

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UNITED STATES PATENT OFFICE.

MARSHALL SATTLEY, ARCHIBALD SATTLEY, AND MARTIN HEINEKE, OF
SPRINGFIELD, ILLINOIS, ASSIGNORS TO THE SATTLEY MANUFACTUR-
ING COMPANY, OF SAME PLACE.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 574,578, dated January 5, 1897.

Application filed March 23, 1896. Serial No. 584,453. (No model.)

To all whom it may concern:

Be it known that we, MARSHALL SATTLEY, ARCHIBALD SATTLEY, and MARTIN HEINEKE, of Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Corn-Planters, of which the following is a specification.

This invention relates to various details of a planter, all of which are capable of conjoint use. It is exemplified in the structure hereinafter described, and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is a plan of a planter embodying our improvements. Fig. 2 is a side elevation of the mechanism used for lifting the runners and regulating their depth of penetration, such elevation being taken on sectional line X in Fig. 1. Fig. 3 is a side elevation of a seed-hopper, shank, runner, and dropping mechanism, a wall of the shank and a wing of the runner being broken away to expose the second drop. Fig. 4 is a side elevation of the lower end of the shank and rear end of a runner, parts being broken away and showing the second drop in a discharging position. Fig. 5 is a side view of the lift-lever and adjuncts thereof. Fig. 6 is a side elevation of the drill mechanism, parts of the frame being shown in section. Fig. 7 is a plan of the drill mechanism. Fig. 8 is a perspective representation of the brackets used to connect the tongue with the front cross-bar of the runner-frame. Fig. 9 is a perspective representation of the bracket used to connect the tongue with the rear cross-bar of the runner-frame.

In making a planter having the different features of our invention considerable latitude is permissible in the general construction and in many of the details. We therefore describe herein the preferred form and arrangement of parts that combine with our improved devices to form a complete planter, permit the claims to distinguish between the old and the new, and leave the old features to be constructed as we describe them or in any other way the maker may desire.

The tongue 1 is slotted at its rear end, as shown at 1^a, and it is secured to the cross-bars

of the front frame in a manner to be hereinafter explained. The carrying-wheels 2 2 are mounted on the axle-shaft 4, and the shaft has bearings in a rear frame, of which bars 6 6 form an essential part. Seat 3 is supported from the rear end of the rear frame, and its bar 5 extends forward and downward and is fastened to the bracket 5^a, which is mounted on the axle-shaft. The runner-frame is composed of cross-bars 7 and 8, and the longitudinal bars of the wheel-frame connect with the front bar of the runner-frame through brackets 19 19. Bracket 9 (shown in detail in Fig. 9) is used to connect the tongue with the rear cross-bar of the runner-frame. It comprises a base or seat portion and upwardly-turned lugs thereon. It has holes 9^a in the lugs, through which the bolt passes that connects the bracket with the tongue, and it has the slot 9^b in its seat portion, which provides for the bolt that secures the bracket to the cross-bar. Brackets 10, which are shown in detail in Fig. 8, connect the tongue with the cross-bar 8. They each comprise a seat portion and an upward extension. The upward extensions have arc slots 10^a concentric with holes 9^a of bracket 9. The inner faces of such extensions are corrugated or roughened, as shown at 10^c, and the seat portions have slots, as 10^b.

The brackets 9 and 10 provide for adjustment of the tongue to conform to different heights in teams, and also enable the tongue to be set truly central with relation to the planter. The bolt in bracket 9 forms a pivot on which the tongue swings when changing the height of its forward end. The slots 10^b permit the brackets 10 to be disengaged from the tongue. The slots 10^a permit the tongue to swing, and the roughened or corrugated surfaces 10^c aid in holding the tongue firmly in position when the bolts are tightened.

The slot 9^b in bracket 9 enables the tongue to be swung to one side or the other to find the precise center of draft, and this feature will accommodate a tongue that is somewhat crooked, as it will enable the front end to be put into the proper position, *i. e.*, in line with the center of the planter.

The seed-hoppers 11 are preferably circular, and their distinguishing peculiarity is that

their lower portions are contracted to such an extent that the teeth of the disk-actuating wheel 44 are exposed. By means of this peculiarity the pawl 43, that imparts motion to the seed-disk, and, in fact, all the dropping mechanism except the cut-off and seed-disk is accessible from outside the hopper, and repairs or adjustments may be made with facility and without disturbing the corn in the hopper.

The check-row heads 12 are fastened to the ends of the cross-bars 7 and 8. The check-row shaft 14 is preferably prismatic in cross-section in order that the different arms connected therewith may line up properly and be free from danger of slippage. It has rocking bearings in collars located in the check-row heads and in the runner-shanks 20, and it has the customary forked levers 13 on its ends. Arms 15 are suitably fastened onto the check-row shaft, and they are provided with pawls, as 43, that actuate the toothed wheels 44 of the seed-disks. Another arm on the rock-shaft provides a point of connection for the retractile spring 18, and still other arms 21 are fastened to the shaft in position to engage the rods 22 of the second drop devices. Castings 16 extend forward from the front bar of the runner-frame, and they connect with the upper forward ends of the runners 17. The shanks 20 of the runners are divided internally into two compartments by partitions 42. The rear compartments 41 form chutes for passage of seed, and the front compartments contain the rods 22, that impart motion to the second drop devices. In the lower end of each shank is placed a second drop-valve that is swung on a transverse pivot and is located immediately below the partition 42, which forms the front wall of the grain-chute. The valve has a finger 38, that normally extends across the seed-chute and forms a closure therefor. It has an upward extension 36, the upper surface of which is concentric with the pivot of the valve. It has a rearward-extended arm 35, with which rod 22 connects, and a seed-cell is formed at 37 between the finger 38 and the upper extension 36. Immediately in the rear of the valve is a swinging door 39, that is held yieldingly closed by a spring, as 40, or other suitable means.

When the planter is used for planting in check-rows, the corn falls from the hopper onto finger 38 and is held in the cell 37 until the next row is reached, when motion of the check-row shaft is imparted to the valve through rod 22, and the corn is thrown downward and backward with a force depending entirely on the speed of the team that is drawing the planter. This effectually neutralizes the tendency of a fast-walking team to "carry past," *i. e.*, to deposit, the seed beyond the proper check-row line, and the desired result is obtained largely through the direction of throw. If a grain of corn should tend to wedge between the valve and the rear wall of the chute, the rear door 39 will yield suffi-

ciently to save the grain from crushing and permit its passage to the ground. It is a part of the function of the planter, however, to drill corn, and in that case the second drop-valve is not needed. To provide for its detachment in such case, the upper end of the shank is cut through, as shown at 20^a, and the arm 21 is formed, as shown in Fig. 7, supplied with the extended bearing-finger 21^a and clamped to the check-row shaft in a manner permitting sliding adjustment thereon. When it is desired to detach the second drop, the arm 21 is moved on the shaft until the finger 21^a is clear of rod 22, the pivot of the valve is withdrawn, and the rod and the valve are taken out through the opening or cut-away portion of the shank. Their replacement of course requires a reversal of the operation just described.

The mechanism used to drill the seed comprises an arm 55 on the check-row shaft, a connecting-rod extending backward from arm 55 to arm 47 on shaft 45, and a trip-finger 46 on shaft 45, connected with arm 47 and adapted to receive motion from tappets 61 on wheel 60. The shaft 45 has bearings in a journal-casting 56, that is fastened on one of the side bars 6 of the rear frame. The arm 47 is fastened to the shaft, and it has a recess into which a lateral projection 48 of the trip-finger extends. The correlation of the trip-finger and the arm is such that downward motion of the trip-finger is imparted to the arm through the lateral projection of the trip-finger, but upward motion of the trip-finger does not affect the arm. This peculiarity insures transmission of motion from wheel 60 to the check-row shaft when the planter is moving forward, and permits the planter to move backward without breaking the drill mechanism. The freedom of motion in one direction which is given to the trip-finger, for the reason just explained, permits development of backlash, and when the planter is run at considerable speed or when the corn is drilled at very short intervals such backlash may present the end of the trip-finger to a tappet and either lock the wheel or break the trip-finger. To avoid this, a spring 51 is made to connect an extension 49 on the trip-finger with a lug 50 on arm 47, and the function of the spring is to neutralize the backlash without interfering with upward swing of the trip-finger in case the team should move backward while the planter is in operative position. The rod 53 has a turnbuckle 52, by means of which the throw of the check-row shaft may be regulated, and arm 54 has a stop-finger 55, that strikes against cross-bar 8 and limits the forward inoperative throw of the drill mechanism. An arm 58 is fixed to cross-bar 7 of the front frame, and is connected with the shaft 45 in such way that when the front frame is raised, preparatory to turning or traveling, the shaft will be rocked in a direction and to an extent sufficient to lower the trip-finger out of the path

of the tappets. The means employed in this instance to connect the arm 58 with the shaft 45 consists of a chain 59, which connects with the bolt that fastens the foot-lever 57 to the shaft, but other connections are obvious.

When the planter is used for planting in check-rows, the trip-finger is turned forward out of the way of the tappets, spring 51 being first disconnected at one end, and under these conditions the drill mechanism other than the tappets and trip-finger may be used in connection with foot-lever 57 for checking short rows. The foot-lever is fastened onto the inner end of shaft 45, and it extends rearward in position to be easily reached by the driver.

The wheel 60 is fastened to a carrying-wheel

2. It has numerous holes, as 60^a, circumferentially disposed, and with some of such holes the tappets 61 engage. By means of the numerous holes or equivalent provision for changing the locations of the tappets such tappets may be set to drill the grains any required distance apart.

25 The mechanism employed to raise the runners clear of the ground and to regulate the depth of planting is constructed as follows: A lever 23 is pivoted on the axle-shaft and extends both forward and backward thereof. 30 It also has an L projection 25, extending downward beneath the axle-shaft or thereabout and forming, with the front extension, a bell-crank lever. Link 29 extends upward from the front end of the lever and connects 35 with casting 27 on the rear end of the tongue, both connections of the link being pivotal. A foot-rest 26 is connected with the rear end 24 of the lever, and links 30 connect extension 25 with the downward extension 31 of the hand-lever. The tongue is slotted at 40 1^a to receive the hand-lever, a bolt extends through the tongue and the hand-lever, forming a pivot for the latter, and a notched arc or rack 32 is fastened to the tongue adjacent 45 to the hand-lever. The hand-lever has a bolt adapted to engage notches of the rack and hold the runners raised or at any desired depth in the ground. Such bolt extends beyond the face of the rack, and the guard-finger 34 is pivoted to the front end of the rack 50 in position to be swung against the stop projection 33 of the rack. When the finger is in such position, as shown in Fig. 5, it prevents the bolt from entering all notches except the last or rearward one, and so permits 55 the runners to rise and fall subject only to pressure from the driver's feet on foot-rests 28 and 26. The links 30 are separated sufficiently to permit the front end of lever 23 to 60 pass between them, and the tongue, front frame, and runners are raised through link 29 either by use of the hand-lever or of the foot-lever, or of both together.

Having thus described our invention, we 65 claim as new and desire to secure by Letters Patent—

1. Lifting mechanism for planters, compris-

ing a hand-lever pivoted in the front frame, a bell-crank lever swung on a horizontal pivot in the rear frame and engaging the front frame 70 with one of its arms, and a link connecting the other arm of the bell-crank lever with the lower end of the hand-lever.

2. Lifting mechanism for planters, comprising a hand-lever pivoted in the front frame, 75 a bell-crank lever swung on a horizontal pivot in the rear frame and engaging the front frame with one of its arms, a foot-pressure arm extended rearward from the bell-crank lever, and a link connecting the other arm of the 80 bell-crank lever with the hand-lever.

3. Lifting mechanism for planters, comprising a hand-lever pivoted in the front frame, a bell-crank lever swung on a horizontal pivot 85 in the rear frame, a link extending upward from the front end of the bell-crank lever and connecting with the front frame, and a link connecting the downward-extended arm of the bell-crank lever with the hand-lever.

4. Lifting mechanism for planters, comprising a hand-lever pivoted in a rearward extension 90 of the tongue, a bell-crank lever pivoted on the axle-shaft of the rear frame, a link extending upward from an arm of the bell-crank lever and connecting with the tongue, a link 95 connecting the other arm of the bell-crank lever with the lower end of the hand-lever, a foot-pressure arm extending rearward from the bell-crank lever, and a foot-rest on the rear end of the tongue. 100

5. Lifting mechanism for planters, comprising a hand-lever pivoted in the front frame and supplied with a lock-bolt, a bell-crank lever swung in the rear frame on a horizontal 105 pivot and engaging the front frame with one of its arms, a link connecting the other arm of the bell-crank lever with the hand-lever, a rack adjacent to the hand-lever and thinner than the lock-bolt thereof, and a guard-finger adapted to be swung alongside the rack and 110 when so swung to hold the bolt from engagement with notches of the rack.

6. Lifting mechanism for planters, comprising a hand-lever pivoted in the tongue, a bell-crank lever pivoted on the axle-shaft of the 115 rear frame, a link connecting one end of the bell-crank lever with the end of the tongue, and a two-part link connecting the other end of the bell-crank lever with the hand-lever, such two-part link being separated to permit 120 play of forward arm of bell-crank lever.

7. Drill mechanism for planters, comprising a drive-wheel having tappets, a trip-finger mounted loosely on a shaft and adapted to be 125 actuated by the tappets of the wheel, a rock-arm on the shaft having such engagement with the trip-finger as to partake of its motion in one direction only, a spring between the rock-arm and the trip-finger tending to arrest backlash of the trip-finger, and a rod 130 connecting the rock-arm with the drop-actuating shaft of the planter.

8. Drill mechanism for planters, comprising a drive-wheel having tappets, a trip-finger

on the rear frame adapted to be actuated by the tappets of the wheel, a rock-arm receiving motion from the trip-finger, a rod connecting the rock-arm with the drop-actuating shaft
 5 of the planter, and an arm on the front frame adapted to swing the trip-finger out of the path of the tappets as the runners are raised, substantially as stated.

9. Drill mechanism for planters, comprising
 10 a drive-wheel having tappets, a shaft having a trip-finger adapted to be actuated by the tappets and capable of being turned out of the path thereof, a rock-arm fixed on the shaft, connected with the drop-actuating shaft of
 15 the planter, and adapted to receive motion from the trip-finger, and a foot-lever also fixed on the shaft of the rock-arm.

10. A front frame of a planter consisting,
 20 essentially, of two cross-bars, a tongue connected with the rear bar in any suitable man-

ner, and brackets 10 having slots 10^a and 10^b, and roughened faces 10^c, such brackets being adjustably secured to the front cross-bar and providing for vertical adjustment of the tongue, all in combination. 25

11. A front frame of a planter consisting, essentially, of two cross-bars, a tongue connected with the front bar in any suitable manner, and a bracket 9 connected with the rear cross-bar through slot 9^b and with the tongue
 30 through holes 9^a, substantially as set forth.

In testimony whereof we sign our names in the presence of two subscribing witnesses.

MARSHALL SATTLEY.
 ARCHIBALD SATTLEY.
 MARTIN HEINEKE.

Attest:

M. A. CHRISTY,
 J. H. MATHENY.