No. 682,473. Patented Sept. 10, 1901.

A. M. LINDSAY, JR.

CORN PLANTER.

(Application filed Dec. 5, 1900.)

(No Model.) 4 Sheets—Sheet 1.

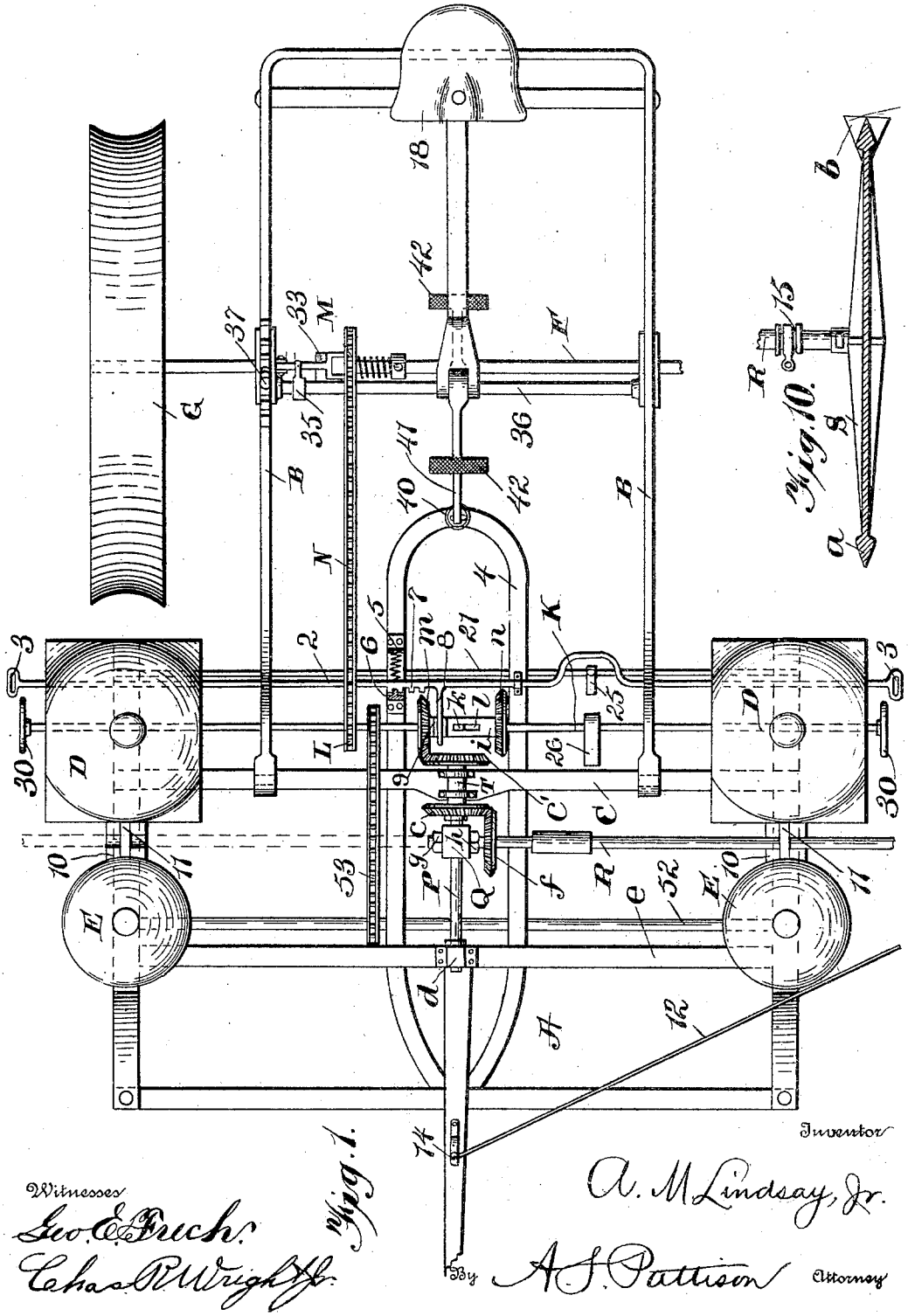


Fig. 1.

Fig. 10.

Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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(No Model.) 4 Sheets—Sheet 2.

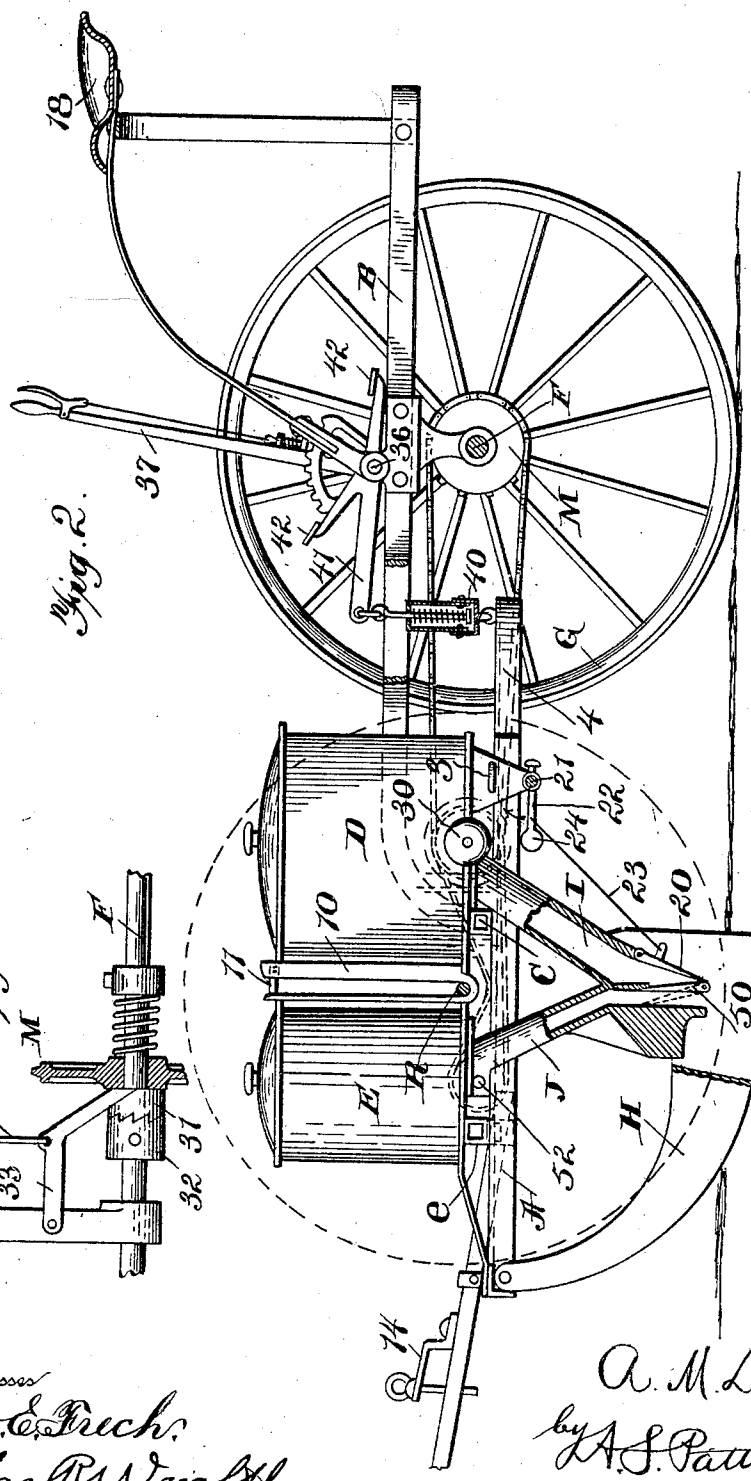


Fig. 2.

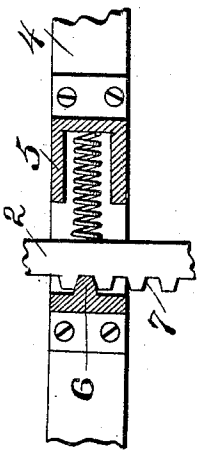


Fig. 9.

Fig. 7.

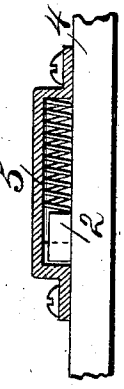


Fig. 8.

Witnesses
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(Application filed Dec. 5, 1900.)

(No Model.) 4 Sheets—Sheet 3.

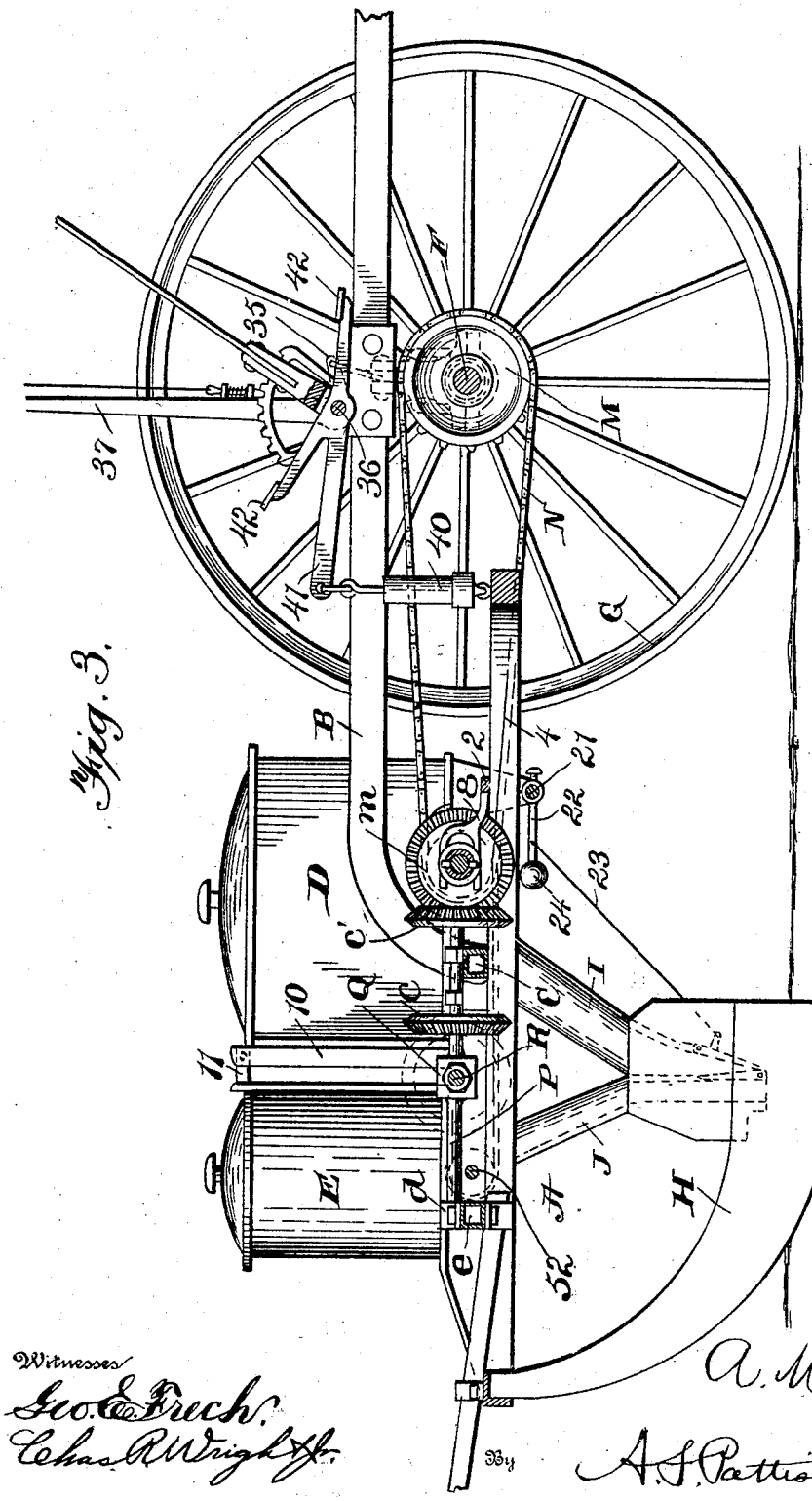


Fig. 3.

Witnesses
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(No Model.) 4 Sheets—Sheet 4.

Fig. 4.

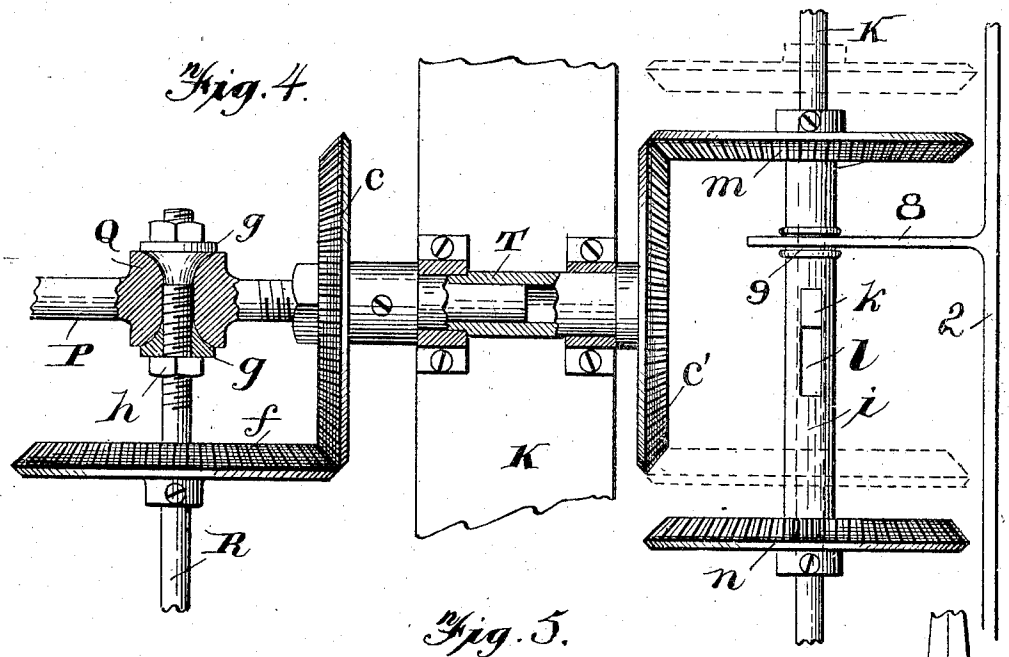


Fig. 5.

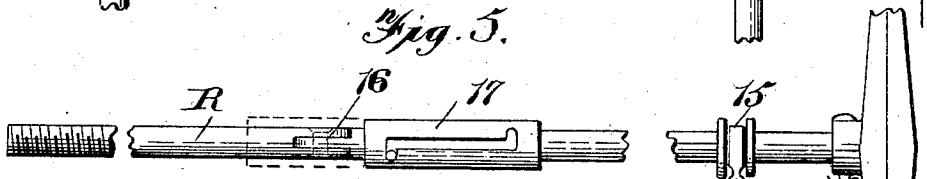
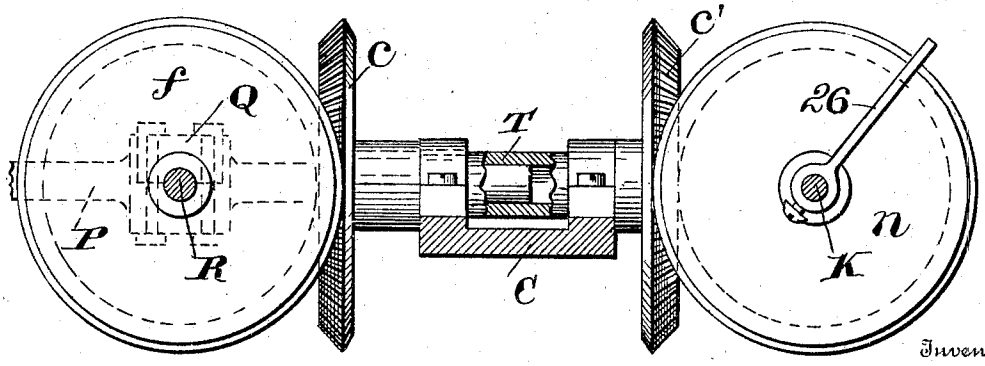


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

ALEXANDER M. LINDSAY, JR., OF LEESBURG, VIRGINIA.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 682,473, dated September 10, 1901.

Application filed December 5, 1900. Serial No. 38,774. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER M. LINDSAY, Jr., a citizen of the United States, residing at Leesburg, in the county of Loudoun and State of Virginia, have invented new and useful Improvements in Corn-Planters, of which the following is a specification.

My invention relates to improvements in corn-planters, all of which will be fully described hereinafter, and particularly referred to in the claims.

Figure 1 is a top plan view of a corn-planter embodying my invention. Fig. 2 is a side elevation of my improved corn-planter, the same being shown partly in section by omitting one of the driving-wheels and main frame on same side and showing the lower portion of the furrow-opener and the lower end of the grain and fertilizer passages in section. Fig. 3 is a central longitudinal sectional view of the machine. Fig. 4 is an enlarged plan detail view of the driving mechanism of the marking mechanism or wheel. Fig. 5 is a detail view of the folding marking-wheel shaft. Fig. 6 is an enlarged detail view of the planting or dropping and marking driving mechanism, the same being shown partly in section. Fig. 7 is a detached detail view of the clutch for throwing the machine in and out of gear. Fig. 8 is a detail sectional view of the guide and lock for the shifting rod. Fig. 9 is a similar view taken at right angles to Fig. 8 and shown in section. Fig. 10 is an enlarged sectional view of the free end of the marking-wheel shaft with the marking-wheel attached thereto.

My invention pertains to a corn-planter wherein an automatic dropper is in such connection with an automatic marker-wheel that the machine will not only drop corn automatically, but will mark a line for the next row with cross-checks on it directly in line with hills planted in previous rows and showing where corn must be planted in this row to be in a line with the previous hills.

Referring now to the drawings, A indicates a runner or furrow-opener frame, which, as here shown, is preferably of a rectangular form, though it may be of other shape without departing from my invention.

B is the wheel-frame, which is also preferably, though not necessarily, of a U shape in plan view, the inner ends of which are journaled upon the cross-bar C of the runner-frame A in any desired manner.

Located upon the runner-frame are the seed or grain boxes D, and located also upon the same frame and preferably in front of the said grain-boxes are suitable fertilizer-boxes E.

Journaled transversely on the wheel-frame B is a suitable driving-shaft F, carrying at its ends the combined driving and covering wheels G.

Located at opposite ends of the runner-frame are the runners or furrow-openers H, which are located immediately in front of the combined driving and covering wheels, whereby the said wheels in addition to serving as a means for driving the mechanism hereinafter to be described also serve to act upon the soil and cover the dropped grain.

The tubes or passage-ways I and J have their upper ends in communication, respectively, with the seed or grain boxes D and the fertilizer-boxes E and serve to convey the grain and the fertilizer therefrom in a manner to be fully described presently.

The construction of that part of my invention which pertains to the marking mechanism, whereby it is kept in unison with the dropping mechanism, as before stated, consists of a transversely-arranged shaft K, which has its ends extended into the seed or grain boxes D and geared in any well-known manner to any form of grain-feeding mechanism located within the grain-boxes for the purpose of gathering and feeding a predetermined quantity or number of seeds and delivering them to the upper end of the tubes or passage-ways I, which are in communication therewith. I do not show any form of feeding mechanism, as a feeding mechanism of any construction may be used, and the specific construction of said feeding mechanism forms no part of my present invention. This shaft K is provided with a sprocket or gear wheel L, which is operatively connected with a gear or sprocket wheel M, attached to the driving-shaft F, through the medium of a sprocket-chain N.

A short or counter shaft P is journaled longitudinal the machine and in front of the transverse shaft K. This shaft P carries a suitable transversely-arranged boxing or

bearing Q, in which is journaled the inner end of a marker-wheel shaft R. Attached to the outer end of this marker-wheel shaft R is a suitable marking-wheel S, the said marking-wheel having, preferably, a wedge or knife shaped periphery *a* for the purpose of marking the line of the row by engagement with the ground over which it is passing and a transversely-arranged fin *b*, which serves to make cross-lines upon the marked row and to indicate the point opposite to or at which the grain is dropped.

Suitably journaled longitudinal the machine upon the cross-bar C is a hollow shaft or sleeve T, which has connected to its opposite ends the gear-wheels *c c'*, the gear-wheels being connected rigidly therewith in any desired manner. The rear end of the counter-shaft P is journaled within the hollow shaft T, and its opposite end is journaled in a suitable boxing *d*, carried by a cross-bar *e* of the runner-frame.

The inner end of the marker-wheel shaft R carries a bevel-gear *f*, which meshes with the bevel-gear *c*, and the inner end of the said shaft R is provided, preferably, with the conical bearing-nuts *g* and the locking-nuts *h*, whereby the inner end of the shaft R is provided with a firm but adjustable bearing within the boxing-tube.

From this description it will be noted that the marking-wheel shaft R is adapted to revolve within the boxing of the counter-shaft P, while at the same time the counter-shaft is adapted to be oscillated for the purpose of permitting the marking-wheel shaft to be carried over in a vertical plane to the opposite side of the machine, as shown in dotted lines in Fig. 1, and consequently to carry the marking-wheel to the opposite side of the machine, which is necessary, (as is well understood by those skilled in the art,) as the machine is driven in opposite directions across the field.

The marking-wheel is placed at that side of the machine which is in advance of the planting, whereby the row is marked in advance of the dropping and planting of the grain. Hence the necessity for reversing the marking-wheel shaft to enable a row to be marked in advance of the planting thereon as the machine is driven back and forth across the field is evident.

Placed upon the shaft K is a movable sleeve *i*, which is locked thereon against independent rotation through the medium of suitable projections *k*, extending from the said shaft through the longitudinal slots *l*, formed in the said sleeve. Connected to opposite ends of this sleeve are the bevel-gears *m* and *n*, which are adapted to be respectively thrown into mesh and out of mesh with the bevel-gear *c'*, attached to the rear end of the sleeve T.

Any desired means may be provided for moving the sleeve *i* and carrying either one or the other of the gear-wheels *m* and *n* into or out of mesh with the bevel-gear *c'* or to carry both of the said gears *m* and *n* out of mesh with the bevel-gear *c'*. The means here shown for accomplishing this end consists of a transversely-arranged shifting rod 2, which extends across the machine and is provided at opposite ends, at points beyond the grain-boxes D, with suitable handles 3. An intermediate longitudinally-extending frame 4, located at the center of the machine, is provided with a combined guiding and locking member 5 for the said shifting rod 2. This guiding member is clearly illustrated in Figs. 8 and 9, and consists of a housing through which the said shifting rod 2 has a longitudinal and a lateral movement. The forward end of this housing is provided with a tooth 6 and the adjacent edge of the shifting rod with a plurality of notches 7, adapted to be engaged with the tooth 6, for the purpose of locking the rod in its adjusted position and in turn to lock the sleeve *i* and its gears. The shifting rod is operatively connected with the sleeve *i* through the medium of the laterally-extending arms 8, which project above and below the sleeve and between suitable peripheral projections or ribs 9, carried by or formed as a part of the sleeve *i*. Attention is directed to the fact that all of these bevel gear-wheels being of the same size and the dropping-shaft being geared to the marking-shaft the dropping and marking shafts are necessarily absolutely in unison with each other. It will also be noticed that the marking-wheel is not driven by its frictional contact with the ground, but is driven by the driving-shaft F, which is geared to the shaft K, the shaft K being in turn geared, through the medium of the mechanism already described, with the marking-wheel shaft R. In the operation of corn-planters it is frequently necessary to lift the marker for the purpose of permitting the machine to pass a large rock, stump, or other impediment. When this is necessary, it will be seen that the marking-shaft continues to revolve though the marking-wheel is lifted to permit the machine to pass the impediment, and hence is always in unison with the dropping mechanism. The marking-wheel is preferably of such diameter that each revolution thereof is a distance equal to the distance between the hills or planting-points of the machine. Hence the transverse marking-fin *b* when once set to register with the dropping mechanism must of necessity, owing to the arrangement before described, remain in unison therewith, thus insuring the marking of the several rows in corresponding transverse lines or points, which causes straight rows to be planted.

Situated at opposite sides of the machine and adapted to receive the marker-wheel shaft R are the vertical standards 10, carrying at their upper ends a suitable latch 11 for the purpose of preventing the marker-shaft from being displaced, and for the purpose of further bracing the marker-shaft I provide a wire,

cable, or other suitable brace 12, which has its inner end loosely connected with the doubletree-bolt 14, the opposite or outer end of the said brace being connected, as shown at 15, Fig. 5, to the outer end of the marker-wheel shaft. By means of the brace connected in this manner the marker can be transferred from one side of the machine to the other and the brace will serve to support the marker-shaft in its several positions.

For the purpose of convenience in transporting the machine the marker-shaft R is preferably jointed, as shown at 16, Fig. 5, and a movable sleeve 17 is adapted to span the said joint for the purpose of making a stiff shaft when the sleeve is in the position shown in dotted lines in Fig. 5. When, however, the sleeve is moved into the position shown in solid lines in Fig. 5, the said marker-shaft may be folded. When the machine is to be transported, the marker-shaft will be moved to a vertical position and the shaft folded backward and supported upon any suitable hook or other support located in rear of or adjacent the rider's seat 18. When so arranged, the marker-wheel will be in rear of the driver and the machine, of course, will be thrown out of gear in a manner to be explained hereinafter.

Located at and adapted to close the lower ends of the grain passage-ways or tubes I are the gates 20, which gates are adapted to be opened at the proper time for permitting the grain or seed to be dropped which have been fed by any desired feeding mechanism located at the bottoms of the grain-boxes D and operated through the medium of the shaft K, as before explained. This necessarily calls for close attention on the part of an operator in addition to the driver in order to drop the grain at the proper moment to have the hills in rows, as is well understood by those skilled in the art.

It is one object of my present invention to avoid the necessity of any attention on the part of an operator to cause the dropping of the corn, and the means here shown for accomplishing this consists in providing a transversely-arranged oscillating bar or rod 21, which carries at its opposite end the laterally-extending arms 22, which are connected through the medium of suitable rods 23 with the dropping-gates 20. As here shown, the transverse rod or bar 21 is normally held in the proper position for keeping the gates 20 closed through the medium of the weights 24, whereby the gates 20 are kept normally closed. The means for causing the opening of these gates automatically and mechanically through the driving mechanism of the machine consists in providing the rod or bar 21 with a laterally-projecting arm or stud 25, which is arranged in the path traveled by an arm 26, extending laterally from the feed-shaft K. Therefore as the feed-shaft K revolves the arm 26 engages the arm 25, causing an oscillation of the rod or bar 21 in the direction indicated by arrow in Fig. 2, and consequently the opening of the gates 20. As here shown, the arm 25 is preferably short and the arm 26 relatively considerably longer, whereby the opening of the gates is effected quickly or almost instantaneously upon the engagement of the long arm 26 with the short arm 25. This quick movement of the gates is also further insured owing to the relative length of the arms 22 in respect to the short arm 25, thus effecting a compound movement through the medium of this arrangement of the parts, and consequently a quick or practically instantaneous opening of the gates 20 at the proper moment.

In order to have the marking mechanism and the dropping mechanism in unison, whereby the transverse fin *b* of the marking-wheel S will indicate the points at which the corn is dropped or, in other words, indicate the hills of planted corn, it is necessary that the dropping and marking mechanism be set at the ends of the rows—that is to say, when the end of a row has been reached the machine is thrown out of gear and turned around for driving back across the field to plant another row. As before explained, owing to the turning around of the machine at the ends of the rows it is necessary to transfer the marking-wheel to the opposite side of the machine. This may be done in any desired manner—as, for instance, by the hand of the operator taking hold of the marker-shaft R and throwing it over to the opposite side of the machine or through the medium of a rope connected with the shaft R, as may be desired.

In order to set the dropping and marking mechanisms at the beginning of a row or passing an obstruction, so that the machine will mark and plant the hills in a line with those which have been already planted, it is necessary to move the sleeve T through the medium of the shift-bar 2, so that the bevel-gears *m* and *n* will be carried out of engagement with the bevel-gear *c'*. When thus thrown out of gear and the clutch mechanism shown in Fig. 7 also thrown out of gear (in a manner which will be presently explained) to throw the driving mechanism out of gear with the dropping and marking mechanism of the machine, the rod K can be freely turned from either side of the machine through the medium of a hand wheel or lever 30, located thereon, until the arm 26 is about to engage the arm 25. The marker-shaft is then revolved through the medium of the marker wheel or shaft until the fin *b* is so placed as to mark in a line with the rows already planted or in a line with the cross-marking of the row previously marked and which is next to be planted, and the machine is so arranged at the end of the row that when started up it will begin to drop and to mark in a line with the droppings and markings of the previously marked and planted rows. The machine being set at each end of the row and the marking mechanism and

dropping mechanism being near together, as before described, it will be seen that the marking and planting must be absolutely accurate in respect to those which have been previously made irrespective of the inequalities of the ground over which the marker and the machine are passing and also irrespective of the fact whether or not the marker is in contact with the ground or is raised for the purpose of permitting the machine to pass a large rock or a stump or other impediment.

Any desired clutch mechanism may be arranged upon the drive-shaft F of the machine for throwing it out of gear with the driving-sprocket M; but the form here shown consists in having the sprocket-wheel M movable longitudinally upon the drive-shaft F and the sprocket-wheel, carrying a clutch member 31, adapted to engage a corresponding clutch member 32, made fast to the driving-shaft. A lever 33 has one end pivotally connected to the frame of the machine, as shown in Fig. 7, and its opposite end adapted to engage the outer side of the sprocket-wheel M. This lever is connected, through the medium of a rod or link 34, with an arm 35, extending from the transverse shaft 36, arranged in suitable bearings upon the wheel-frame B. A hand-lever 37 is also connected with the transverse shaft 36, whereby when the hand-lever is moved the shaft 36 is correspondingly oscillated, and through the medium of the connection just described the sprocket-wheel M will be moved to carry its clutch member 31 out of engagement with the clutch member 32, and consequently throw the machine out of operation.

I provide the well-known means for lifting the furrow-openers out of contact with the ground, as when transporting the machine or when turning around at the end of the row, which consists, as shown in Figs. 2 and 3, of a spring connection 40, attached to a suitable lever 41, pivoted upon the transverse shaft 36 and adapted to be operated through the medium of the forwardly and rearwardly extending foot-levers 42. If desired, these levers can be made rigid with the transverse shaft 36.

The machine here shown is a combined planter and fertilizer-distributer, and the fertilizer-boxes E are in communication with the fertilizer passage-ways or tubes J, having open lower ends, as has been previously explained.

Some operators prefer to have the fertilizer fed in a continuous line or row in advance of the dropping of the grain or corn, while others prefer to have the fertilizer dropped in piles directly at the hills or planting-points of the rows. One feature of my present invention is to provide a simple means whereby the single machine is adapted to either feed the fertilizer in a continuous line or row in advance of the dropping of the corn or to drop it in piles at the hills or planting-points. This is accomplished by providing a gate 50, located at the junction of the lower end of the fertilizer and grain or corn tubes J and I. When the gate 50 is locked at the position shown in solid lines, Fig. 2, the fertilizer will be fed in a continuous line or row in advance of the dropping of the corn. When, however, it is desired to drop the fertilizer in piles at the planting-points, the gate 50 is turned to the position shown in dotted lines, Fig. 2, which will cause the fertilizer that is fed to be caught by the gate 20 and to accumulate there until the grain is dropped, when the fertilizer and the grain are together dropped at the planting-points. It will be noticed that the gate 50 is pivoted at its lower end and at the free end of the gate 20, the free end of the gate 20 practically closing against the lower pivoted end of the gate 50. By means of this simple mechanism a single machine is adapted to perform the two methods of fertilizing and planting which have just been described.

The fertilizer-boxes E will be provided with any desired form of feeding mechanism, and this feeding mechanism is operated through the medium of a transverse shaft 52, having its ends operatively connected in any desired manner with the feeding mechanism. This shaft 52 is geared through the medium of sprocket-wheels and a sprocket-chain 53 with the grain-feeding shaft K, as clearly illustrated in Fig. 1. I do not here show a feeding mechanism for the fertilizer, as this forms no part of my invention. Any desired form of feeding mechanism may be used.

Owing to the fact that the marker-wheel is revolved through the medium of the driving mechanism and owing to the fact that when the marker-wheel is at opposite sides of the machine it is desirable that the marker-wheel shall be revolved in the direction in which the machine is traveling in order to prevent any backward pull which would otherwise occur, I provide for this through the medium of the shifting-sleeve *i*, carrying at its opposite ends the bevel-gears *m* and *n*, whereby either of these bevel-gears may be thrown into mesh with the gear *c'* for the purpose of causing the marker-wheel shaft to revolve in the proper direction, according to which side of the machine it is located as the machine travels across the field.

If it should be desired to use this machine as a drill by dropping the grain direct to the ground as fast as it is fed to the tubes, the levers 22 will be loosened on the rod 21, turned upward, and again secured thereto in position to hold the gates open. When the machine is being so used, the necessity for having cross-marks made by the fin *b* on the marker is necessary, and the marker may be thrown out of gear, allowing it to revolve at will, but still marking for the return-row of planting and serving as a guide for the driver. It will also be understood that the boots H and the connecting grain-boxes are the distance apart of the desired width of rows and that the sprocket-gears M and L are of such size as to revolve all dropping and marking machines once in the same distance as the

machine is wide, thus planting hills of corn in perfect squares, or the boots and grain and fertilizer boxes may be made to slide on the frame in such a way as to allow the farmer to plant any width row he may wish, and by having two, three, or four sets of sprocket-wheels L on the rod K or M on F, or both in pairs, of such size that when geared by chain N to M they will gear the machinery to standard distances, the farmer may then plant any distance and width he chooses to set the machine and still plant in perfect squares.

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

1. A planter comprising a dropping mechanism, a driving mechanism operatively connected therewith, a shaft operatively connected and revolved by the dropping mechanism, the said shaft carrying a marking-wheel at its outer end, substantially as described.

2. A planter comprising a transversely-arranged dropping mechanism, a marker-wheel shaft geared to the dropping mechanism and revolved in unison therewith, the marking-wheel shaft carrying a marking-wheel, and the said shaft adapted to be transferred to either side of the machine, substantially as described.

3. A planter comprising a dropping mechanism, a marking-shaft carrying a marking-wheel adapted to be transferred to either side of the machine and operatively connected with the dropping mechanism, and means for causing the marking-wheel shaft to revolve in opposite directions according to the position of the said shaft, substantially as described.

4. A planter comprising a dropping mechanism, a revoluble marker-wheel shaft carrying a marker-wheel, a gearing between the marker-wheel shaft and the dropping mechanism including means for disconnecting the said gear whereby the marking and dropping mechanisms may be relatively set, substantially as described.

5. A planter comprising a dropping mechanism, a longitudinally-arranged counter-shaft carrying a gearing at opposite ends, the dropping mechanism including a transversely-arranged shaft having a gearing in engagement with one of the counter-shaft gears, a dropping mechanism operatively connected with the dropping-mechanism shaft, a marking-wheel shaft geared to the opposite gear of the counter-shaft and carrying a marking-wheel at its free end, substantially as described.

6. A planter comprising a dropping mechanism, a transversely-arranged marker-wheel shaft carrying a marker-wheel at its free end, the inner end of the shaft having an elongated longitudinally-arranged bearing whereby the marker-wheel shaft can be transferred to either side of the machine, and an operative connection between the marker-wheel shaft and the dropping mechanism, substantially as described.

7. A planter comprising a dropping mechanism, a longitudinally-arranged shaft carrying a transverse boxing or bearing, a marker-wheel shaft having its inner end journaled in said bearing and operatively connected with the dropping mechanism, the opposite and outer end of the marker-wheel shaft carrying a marker-wheel, whereby the marker-shaft may be transferred to either side of the machine, substantially as described.

8. A planter comprising a dropping mechanism, a marker-wheel shaft operatively connected with the dropping mechanism, the inner end of the shaft having a longitudinally-arranged bearing and carrying at its outer end a marker-wheel, the said marker-wheel shaft having an intermediate jointed connection whereby it can be turned in a vertical position and folded backward for transportation, substantially as described.

9. A planter comprising a transversely-arranged feeding-shaft, a grain-box having a downwardly-extending passage-way, a gate closing the lower end thereof, a transversely-arranged oscillating rod operatively connected with the said gate, and operative means between the said shaft and rod whereby the rod is oscillated for actuating the gate and dropping the corn or grain, substantially as described.

10. A planter comprising a grain-box, a feeding-shaft therefor, a downwardly-extending passage-way in communication with the grain-box, a gate closing the lower end thereof, operative means between the feed-shaft and the gate for opening it, a marker-wheel shaft operatively connected with the feed-shaft to move in unison therewith, the marker-shaft carrying at its outer end a marker-wheel, substantially as described.

11. A planter comprising a transversely-arranged feed-shaft having a sleeve carrying two bevel-gears, a counter-shaft carrying at one end a gear adapted to mesh with either of the said gears of the said sleeve when the sleeve is moved, the opposite end of the counter-shaft carrying a bevel-gear, a transversely-arranged marker-shaft having a bevel-gear in engagement with the last said bevel-gear, the marker-shaft carrying at its outer end a marker-wheel, substantially as described.

12. A combined planter and fertilizer-distributer comprising fertilizer and grain tubes having a communicating passage-way at their lower ends, a gate for controlling the lower end of the grain-passage, and a gate adapted to control the communication between the fertilizer and grain passage-ways, whereby the fertilizer passage-way may be thrown into or out of communication with the grain passage-way, substantially as and for the purpose described.

13. A combined fertilizer-distributer and planter comprising independent fertilizer and

grain tubes, the grain-tube having a passage-way establishing communication at their lower ends, a gate for controlling the lower end of the grain passage-way, and a gate pivoted at its lower end and adapted to control the communication between the said passage-ways, substantially as and for the purpose described.

14. A planter comprising a transversely-arranged feeding-shaft, a transversely-arranged dropping-shaft, the feed and drop shafts having laterally-extending arms adapted to travel in the same path, a marker-shaft geared to revolve in unison with the feed-shaft, means for throwing the feed-shaft out of operation, and means for revolving the feed-shaft and the marker-wheel shaft for carrying them in proper positions to mark and to drop in unison, substantially as described.

15. A planter comprising a transversely-arranged feed-shaft, a marker-wheel shaft adapted to be transferred to either side of the machine and carrying at its free end a marker-wheel, a gearing operatively connecting the marker-wheel shaft and the feed-shaft, a sleeve upon the feed-shaft carrying gears adapted to engage alternately with the connecting-gearing between the marker-shaft and the feed-shaft for the purpose of controlling the rotation of the marker-wheel shaft, and a transversely-arranged shifting-rod operatively connected with the said sleeve for the purpose described.

16. The combination with a planter having a transversely-arranged wheel *c*, of a rotating marker-wheel shaft adapted to swing from a point concentric said wheel, the said shaft operatively connected with said wheel, substantially as described.

17. The combination with a planter having a longitudinally-arranged driving-shaft, of a rotating marker-shaft adapted to swing from a point concentric with the axis of said longitudinal shaft and operatively connected therewith, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALEXANDER M. LINDSAY, JR.

Witnesses:

R. H. LYNN,

JAS. E. CARRUTHERS.