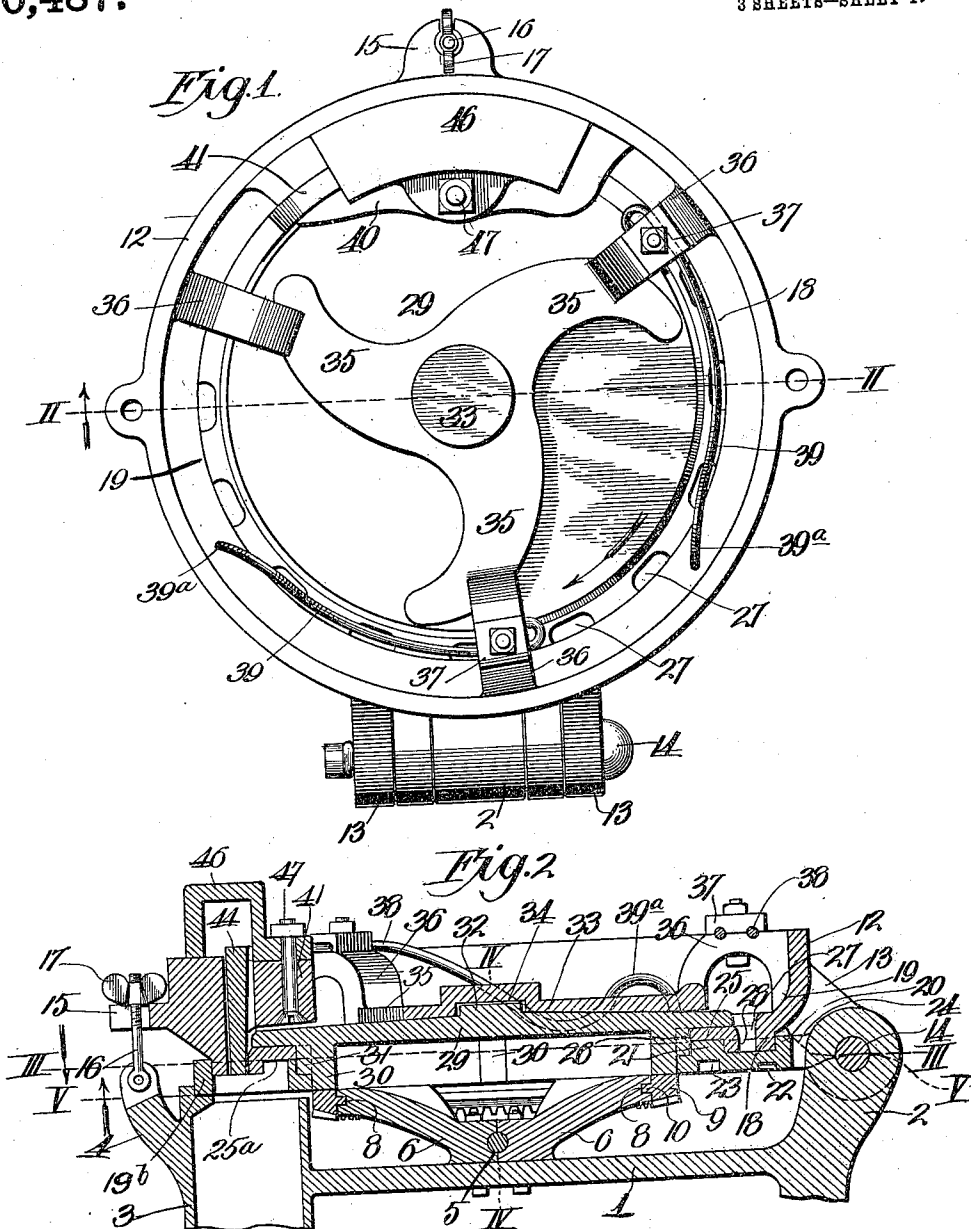


A. S. BEYMER.
CORN PLANTER.
APPLICATION FILED FEB. 3, 1909.

Patented June 7, 1910.

3 SHEETS—SHEET 1.

960,487.



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3 SHEETS—SHEET 2.

Fig. 3.

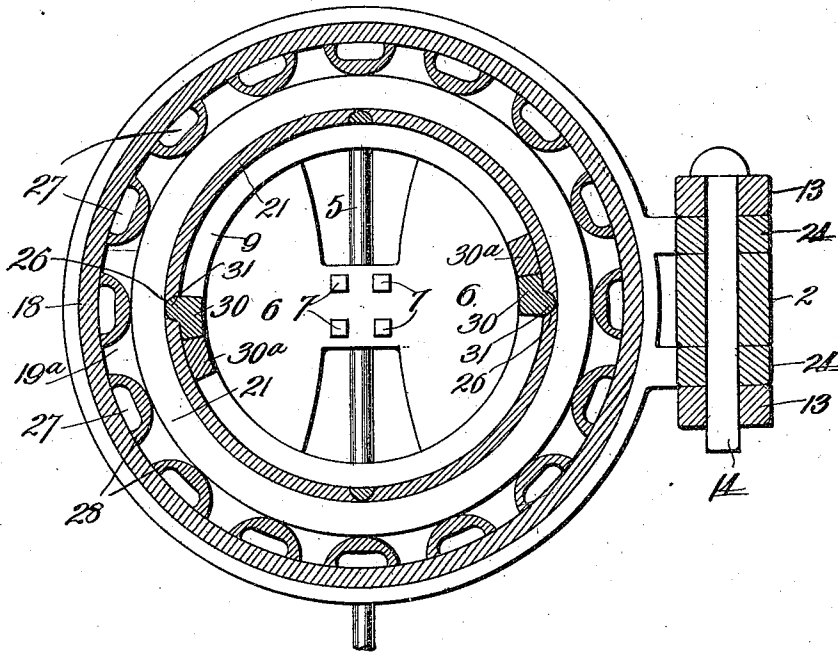
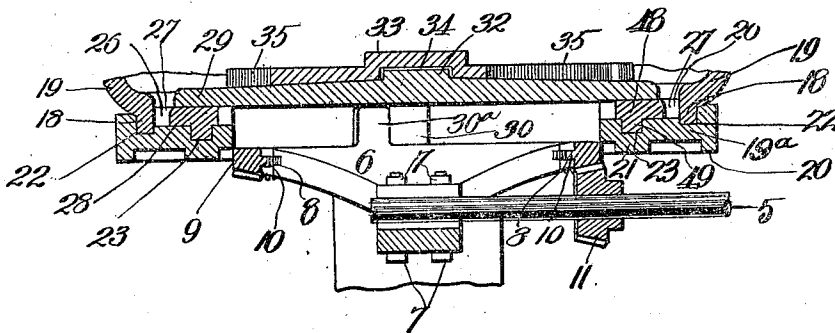


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

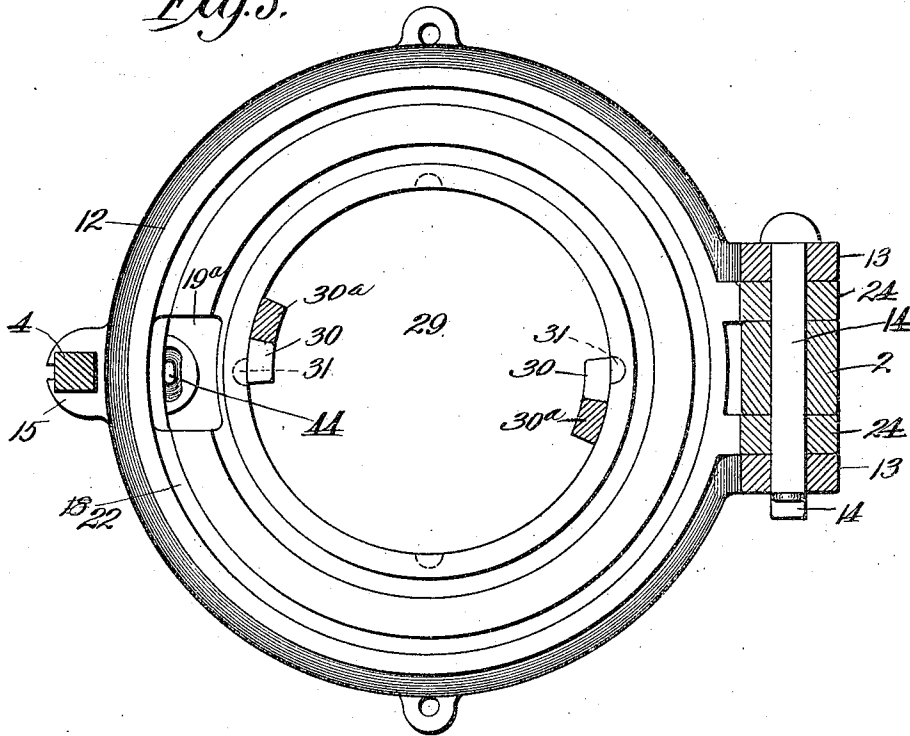


Fig. 7.

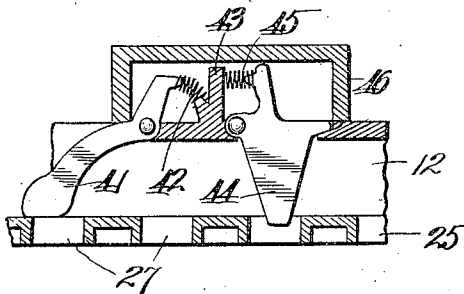
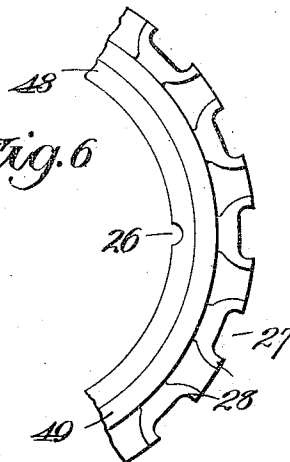


Fig. 6.



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UNITED STATES PATENT OFFICE.

ADELBERT S. BEYMER, OF KANSAS CITY, MISSOURI.

CORN-PLANTER.

960,487.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed February 3, 1909. Serial No. 475,909.

To all whom it may concern:

Be it known that I, ADELBERT S. BEYMER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Corn-Planters, of which the following is a specification.

This invention relates to corn planters and more especially to edge-drop corn planters and my object is to produce mechanism whereby grains of corn may be dropped at regular intervals and at uniform distances apart.

A further object is to produce a mechanism of this character in which it is practically impossible for grains to be cracked or broken.

A further object is to produce means for sweeping a grain from the mouth of a cell in the event that such grain is lying flatwise or for sweeping a plurality of grains from the mouth of a cell in order to give such cell an opportunity to be properly recharged before it reaches the cut-off of the mechanism.

A still further object is to produce means for reliably delivering the grains to the cells in a position lengthwise with respect to such cells.

A still further object is to produce a mechanism having a reversible bottom plate and a pair of seed-plates for mating with and engaging opposite sides of the bottom plate so that it shall be impossible for the seed-plate designed for use with long and slim or peg-tooth grains to be secured in position with the side of the reversible bottom plate for use in conjunction with the seed-plate to accommodate grains of ordinary form and vice versa.

A still further object is to produce a mechanism of this character having a rotary bottom plate which overlaps the seed-plate so as to provide a solid and unbroken or non-jointed bottom over which the grains of corn may freely and uninterruptedly slide, and which in conjunction with the base of the hopper shall form a circular channel whose bottom is formed by the underlying seed-plate.

With these objects in view the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in

order that it may be fully understood reference is to be had to the accompanying drawings, in which,

Figure 1, is a top plan view of the base portion of a seed-hopper equipped with seed-dropping mechanism embodying my invention. Fig. 2, is a vertical section of the same on the line II—II of Fig. 1, and also shows certain parts underlying the hopper. Fig. 3, is a horizontal section on the line III—III of Fig. 2. Fig. 4, is a section on the line IV—IV of Fig. 2, but with the bottom plate occupying its reversed position and surmounted by the seed-plate for use in connection with long and slim or peg-tooth grains. Fig. 5, is a horizontal section on the line V—V of Fig. 2. Fig. 6, is an inverted plan view of the thin seed-plate, that is the plate for use in connection with long and slim or peg-tooth grains. Fig. 7, is a vertical section showing the knocker mechanism for insuring the discharge of the grains of corn from the seed-plate as the cells of the latter successively pass under the knocker.

In the said drawings, 1 indicates a cross bar of the frame which underlies each seed-hopper. 2 is a hinge-lug projecting upward from the front end of said bar and 3 is the seed-spout or chute with an upwardly-projecting lug 4 at its rear side.

5 is a transverse shaft which extends clear across the machine and centrally underlies both seed-hoppers of the machine, one only being shown, and said shaft is journaled in bearing plates 6 bolted as at 7 to bar 1, said plates being of segmental form in plan view and provided peripherally with grooves 8 to receive the inwardly-projecting rib 10 of the circular gear-wheel 9, said gear-wheel being arranged horizontally and meshing with a driving-pinion 11 secured on shaft 5.

Arranged vertically above the gear-wheel and concentrically thereof and horizontally is the hopper, the drawing showing only the base 12 thereof, to which the upper part is adapted to be detachably secured in the usual manner, in superposed relation, and said hopper-base is provided with a pair of forwardly-projecting perforated ears 13 pivoted on a hinge-bolt 14 carried by the hinge-lug 2. The hopper-base is also provided at its rear side with a bifurcated lug 15 to receive the clamping bolt 16 hinged to lug 4 and equipped with a wing-nut 17 to be screwed down upon the bolt and the under-

lying lug 15 to clamp the hopper-base rigidly with respect to the underlying frame.

The hopper-base is of contracted diameter at its lower end and terminates in a depending circular flange 18 disposed inward of and concentrically with the body-portion, the latter curving downward and inward at 19 to the upper end of said flange.

Underlying the hopper-base is a reversible ring or base-plate 19^b provided with an exit-opening 19^a and at one side with a pair of concentric flanges or ribs 20 and 21 of equal height, the outer one being numbered 20 and the inner one 21, and the latter is disposed a slight distance outward of the inner margin. The opposite side of the base-plate is provided inward of its outer margin with a circular groove or channel 22 and with a deeper and concentrically arranged circular groove or channel 23 directly opposite the inner flange. The base-plate is arranged horizontally with its flanges 20 and 21 disposed uppermost when ordinary grains of corn are to be planted, as shown in Fig. 2, the marginal flange 20 snugly embracing flange 18, and projecting forwardly from the said base plate, is a pair of perforated ears 24 engaging bolt 14, the base-plate being supported also upon the spout or chute.

The seed-plate used in connection with grains of corn of ordinary form consists of a circular body-portion 25 provided with a circular groove 25^a receiving flange 21 of the base-plate and extending outwardly to the inner side of flange 18 of the hopper-base and provided in its inner edge with a plurality of notches 26 and in its outer edge with a plurality of notches or cells 27, and with flanges 28 which depend around cells 27 to the upper side of the underlying base-plate so as to produce cells corresponding in depth to the distance between the upper side of the seed-plate and the upper side of the base-plate, the inner face of flange 18 forming the outer walls of the cells, it being also noticed in this connection that said face of the flange projects to a higher plane than that occupied by the upper side of the seed-plate.

29 indicates a circular bottom-plate resting flatly upon the seed-plate, with its upper side occupying a slightly higher plane than the flange 18, the outer edge of said plate being disposed slightly inward of the peripheral notches or cells 27, and said bottom plate is provided with a plurality of depending-lugs 30 engaging lugs 30^a, projecting upward from gear-wheel 9, and provided also with offsetting lugs 31 engaging notches 26 and locking the rotary bottom-plate 29 to the seed-plate. The bottom plate is slightly conical at its upper side and is provided centrally with an upwardly-projecting boss 32 to engage the cavity 34 in the underside of a stationary plate 33, said

plate being equipped with horizontal fingers 35 which are of curved or hook-form, two of the fingers being preferably longer than the remaining finger so as to terminate barely inward of the margin of the bottom-plate 29, it being noticed that the convex edges of the fingers converge with respect to the margin of the bottom-plate and tend to feed the grains of corn into the channel, of which the seed-plate forms the bottom, lengthwise with respect to the cells in said plate, as hereinafter explained, and supporting said fingered or corn-deflecting plate centrally with respect to the bottom-plate, is a series of arches 36 which bridge the channel from said plate to the hopper-base, two of the arches being provided with superposed clamping plates 37 whereby are clamped rigidly to said arches spring or resilient sweeps 38 which extend downward and forward with respect to the rotatable movement of the seed-plate and are bent to form depending curved portions 39 slightly exceeding the cells in length so as to bridge without entering the same, and with terminals 39^a which extend outwardly so as to rest upon the upper end of flange 18 of the hopper-base and thus limit downward movement of said sweeps, for a purpose which hereinafter appears, it being noted that these sweeps are capable of springing laterally sufficient to avoid possibility of injuring the grains of corn.

At a suitable point the hopper-base is provided with an inwardly-projecting lug 40 overlapping the rotatable bottom and disposed vertically above the exit opening 19^a and spout or chute 3. The rear end of said lug is bifurcated and pivoted therein is a cut-off 41 held by a spring 42 yieldingly-depressed to prevent more than one grain in a cell passing, the lug having an upwardly-projecting arm 43 against which spring 42 bears. Pivoted to said lug is a knocker 44 which forces or knocks the grains downward out of the cells and into the spout or chute 3 underlying said knocker, the knocker being held yieldingly-depressed by a spring 45 interposed between it and arm 43, and overlying said knocker and part of the cut-off is a hood 46, the same being secured in place by a bolt 47.

In Fig. 4, the base-plate 19^a is shown in an inverted or reversed position from that shown in Fig. 2 and mounted upon the same is a seed-plate for slim or peg-tooth grains, said plate being numbered 48 and differing from plate 25 mainly in the fact that it is shallower and is provided with a depending circular rib 49 to engage the groove 23 in the base-plate, it being also noticed that when the base-plate is reversed the lower end of flange 18 of the hopper-base fits snugly in groove 22 so that the upper side of the base-plate shall occupy a relatively

higher plane when used with the seed-plate 48 than when used with seed-plate 25.

In practice, the rotation of shaft 5 results in the rotation of the bottom-plate and the seed-plate in the direction indicated by the arrow, Fig. 1, and as a result corn on the rotating bottom-plate is forced thereby against the convex edges of the fingers, which deflect such grains outwardly, the grains turning sidewise to the fingers in the event they abut against the same endwise, and traveling outward in such sidewise position along the convex edges of the fingers until pushed beyond the outer edge of the bottom-plate, it being noted in this connection, that the conical upper face of the bottom-plate facilitates the outward movement of the grains. If the channel is empty at the points where the grains are forced outward off the bottom-plate, they tilt and fall into the channel and lengthwise with respect to the cells, and into cells if the latter happen to be empty and in position to receive them.

If the cells are charged, such grains are carried in the channel until they are dislodged by a sweep or the cut-off and if dislodged by the latter they pass with the mass of agitated grains, between the short deflecting finger and lug 40 and eventually are redelivered to the channel and to the unoccupied cell.

If the channel should be occupied at the points of delivery by said deflecting fingers, the grains are forced across and beyond the channel, this being possible because the wall of the hopper is outward of the outer wall of the channel, and facilitated because the top of the last-named wall is below the upper side of the bottom-plate, as by such relation of said wall and the bottom plate there is less tendency of such grains abutting and being crushed against such outer wall of the channel. The oncoming succeeding grains of course tend to force the preceding ones farther outward and their engagement with the curved portion 19 of the hopper-base causes them to move upward and work inward and down upon the bottom-plate to be again carried thereby against one of the fingers and eventually deposited edgewise in an unoccupied cell.

In the event of a grain settling flatwise over or of a pair of grains wedging together in the mouth of a cell, and encountering one of the sweeps 38, such grain or grains are dislodged without being injured, so as to leave the cell to be properly charged before it reaches the cut-off, all cells improperly charged and all grains in the channel in advance of the second sweep, being dislodged by the cut-off as hereinbefore explained, the grains properly occupying the cells passing under the cut-off and dropping or being forced downward through the exit-opening 19^a of the base-plate into the spout or chute,

by which they are delivered to the ground, it being understood that the planter is adapted as usual for drilling or for planting in hills, the means in the spout or chute for hill-planting being omitted as forming no part of the invention.

From the above description it will be apparent that I have produced a corn planter embodying the features of advantage enumerated as desirable and which is obviously susceptible of modification in minor particulars without departing from the spirit and scope of the appended claims.

Having thus described the invention what I claim as new and desire to secure by Letters-Patent, is:

1. In a corn planter, the combination of a circular hopper-base having a diametrically-reduced lower end and a downwardly-tapering portion leading to such reduced end, a circular rotary bottom-plate arranged within and of less diameter than the reduced end of the hopper-base and disposed with its upper side occupying a plane slightly above said reduced end of the hopper-base and constituting the rotatable inner wall of a circular channel of uniform width of which the reduced end of the hopper-base forms the stationary outer wall, a circular seed-plate fitting snugly within the reduced end of the hopper-base and underlying and projecting outwardly beyond the circular bottom-plate and provided with peripheral cells communicating with said channel; and a base-plate underlying the hopper-base and the seed-plate and provided with an exit-opening with which the cells of said seed-plate successively communicate.

2. In a corn planter, the combination of a circular hopper-base having a diametrically-reduced lower end and a downwardly-tapering portion leading to such reduced end, a circular rotary bottom-plate arranged within and of less diameter than the reduced end of the hopper-base and disposed with its upper side occupying a plane slightly above said reduced end of the hopper-base and constituting the rotatable inner wall of a circular channel of uniform width of which the reduced end of the hopper-base forms the stationary outer wall, a circular seed-plate fitting snugly within the reduced end of the hopper-base and underlying and projecting outwardly beyond the circular bottom-plate and provided with peripheral cells communicating with said channel; a base-plate underlying the hopper-base and the seed-plate and provided with an exit-opening with which the cells of said seed-plate successively communicate, and a curved deflector above the rotary bottom-plate for forcing seeds outwardly upon and beyond the periphery of said bottom-plate.

3. In a corn planter, the combination of a circular hopper-base having a diametric-

ally-reduced lower end and a downwardly-tapering portion leading to such reduced end, a circular rotary bottom-plate arranged within and of less diameter than the reduced end of the hopper-base and disposed with its upper side occupying a plane slightly above said reduced end of the hopper-base and constituting the rotatable inner wall of a circular channel of uniform width of which the reduced end of the hopper-base forms the stationary outer wall, a circular seed-plate fitting snugly within the reduced end of the hopper-base and underlying and projecting outwardly beyond the circular bottom-plate and provided with peripheral cells communicating with said channel; a base-plate underlying the hopper-base and the seed-plate and provided with an exit-opening with which the cells of said seed-plate successively communicate, and a vertically and laterally yieldable sweep overlying the path which the cells describe in their rotary movement.

4. In a corn planter, the combination of a circular hopper-base having a diametrically-reduced lower end and a downwardly-tapering portion leading to such reduced end and a circular rotary bottom-plate arranged concentrically within and of less diameter than the reduced end of the hopper-base, with its upper side occupying a horizontal plane slightly above said reduced or concentric end of the hopper-base, a circular seed-plate fitting snugly within the reduced end of the hopper-base and underlying and projecting beyond the circular bottom plate and provided with cells, a deflector bearing a superposed relation to the bottom-plate and rigidly connected to the hopper-base, and a resilient sweep bearing a rigid relation at one end to the hopper-base and having its opposite end free to rest upon the hopper-base and provided with a depressed portion lying above the cells of the seed-plate.

5. In a corn planter, the combination of a circular hopper-base, a base-plate underlying said hopper-base and provided with an exit-opening, a rotary seed-plate fitting upon the base-plate and fitting snugly within the lower end of the hopper-base and provided peripherally with cells for successive communication with said exit-opening; a circular bottom-plate rotatable with the seed-plate and overlying the inner portion of the same and terminating inward of the cells thereof and having a conical upper side, a curved deflector above the rotary bottom-plate and bearing a rigid relation to the hopper-base, and a spring sweep secured at one end in rigid relation to the deflector and extending downwardly and forwardly with respect to the direction of rotation of the bottom-plate and provided at its lower or free end with a depressed portion outward

and in the horizontal plane of the bottom-plate.

6. In a corn planter, the combination of a hopper-base, a rotary seed-plate provided with cells fitting in the hopper-base, a base-plate underlying the hopper-base and the seed-plate and provided with an exit-opening with which the cells of said seed-plate successively communicate, a hood attached to the hopper-base and overlying the seed-plate directly above the exit-opening of the base-plate, means to prevent seeds from being carried under said hood unless fitting down in a cell of the seed-plate, means under the hood for insuring the discharge of such seeds down through the exit-opening of the base-plate, and a suitably supported sweep overlying the path described by the cells of the seed-plate and capable of yielding upward and laterally.

7. In a corn planter, the combination with a circular hopper-base of a reversible base-plate fitting against the lower end of the hopper-base and provided at opposite sides with circular concentric flanges of different diameter; the internal diameter of one flange corresponding approximately to the external diameter of the hopper-base and the external diameter of the other flange corresponding approximately to the internal diameter of the hopper-base.

8. In a corn planter, a base-plate provided at opposite sides with oppositely-projecting flanges of different diameter; the inner wall of one flange being circular and the outer wall of the other also circular and disposed concentrically and inwardly of the inner wall of the first-named flange.

9. In a corn planter, a base-plate having concentric circular flanges spaced apart projecting from one side and concentric circular grooves in the other side, the innermost groove being opposite the innermost flange and the outermost groove inward of the outermost flange.

10. In a corn planter, the combination of a hopper-base of circular form internally, a circular rotary bottom plate concentrically within and of less diameter than the hopper-base to provide a circular channel between the latter and the bottom plate, a non-rotatable base-plate underlying the bottom plate and provided with an exit-opening communicating with said channel, a rotary seed plate interposed between the said bottom plate and base-plate, provided with peripheral seed cells and rotatable with and projecting beyond the margin of the said bottom plate, a cut-off to prevent surplus grains and improperly-contained grains from being carried by the seed plate in said channel to the exit-opening of the base-plate, and a yieldable sweep to dislodge surplus grains and improperly-contained grains from the cells of the seed plate in the in-

terim between the passage of each cell by the said exit-opening and its approach to the said cut-off.

11. The combination of a circular hopper-base, a base-plate bridging the opening of the hopper-base at the lower edge of the same, and provided with an exit-opening in communication with the interior of the hopper-base and located near the lower edge of the hopper-base, a circular rotary bottom plate above the base-plate and arranged centrally within the lower end of the hopper-base and of smaller diameter than such end so as to provide in conjunction therewith a circular channel of which the base-plate forms the bottom, a circular seed plate interposed between the base-plate and the bottom plate and rotatable with and of greater diameter than the latter to project into said channel and provided in said projecting portion with grain cells, a curved deflector upon the bottom plate and rigidly connected to the hopper-base, a hood rigid with the hopper-base and overlying said channel and the exit-opening of said base-plate, a cut-off adjacent the said hood to dislodge surplus grains or improperly-contained grains from said cells, as they successively pass under said hood, and a yieldable sweep to dislodge surplus grains and improperly-contained grains in the cells in the interim between the passage of said cells by said exit-opening and their near approach to the cut-off preliminary to their second passage past said exit-opening.

12. The combination of a circular hopper-base, a base-plate bridging the opening of the hopper-base at the lower edge of the same, and provided with an exit-opening in communication with the interior of the hopper-base, and located near the lower edge of the hopper-base, a circular rotary bottom plate above the base-plate and arranged centrally within the lower end of the hopper-base and of smaller diameter than such end to provide in conjunction therewith a circular channel of which the base-plate forms the bottom, a circular seed plate interposed between the base-plate and the bottom plate and rotatable with and of greater diameter than the latter to project into said channel and provided in said projecting portion with grain cells, a curved deflector upon the bottom plate and rigidly connected to the hopper-base, a hood rigid with the hopper-base and overlying said channel and the exit-opening of said base-plate, a cut-off adjacent the said hood to dislodge surplus grains or improperly-contained grains from said cells, as they successively pass under said hood, and a spring-wire sweep bearing a rigid relation at one end to the hopper-base and projecting at its free end down into said channel for the purpose of remov-

ing surplus grains or improperly-contained grains from said cells in the interim between their passage by the exit-opening and their next approach to said cut-off.

13. In a corn planter, the combination of a hopper-base of circular form internally, a circular rotatable bottom plate arranged concentrically within the circular lower end of the hopper-base and of smaller diameter than the same to provide an interposed circular channel, a base-plate underlying the hopper-base and the rotatable bottom plate and provided with a flange projecting upwardly and fitting within the opening in the bottom of the hopper-base; said base-plate having an exit-opening communicating with the interior of the hopper-base, and a circular rotary seed plate interposed between the base-plate and the rotatable bottom plate and provided peripherally with bottomless cells communicating with the said channel and adapted to successively communicate with said exit-opening of the base-plate; the seed plate around the cells being in contact with the upper face of the flange of the base-plate.

14. In a corn planter, the combination of a hopper base, a base-plate under the hopper base and provided with an exit-opening, a rotary seed plate provided with seed cells for successive communication with the said exit-opening of the base-plate, a hood rigid with the hopper-base, above the seed plate and over the exit-opening of the base-plate, a cut-off adjacent the hood to dislodge surplus grains from the seed cells as they successively pass under the said hood, and a vertically and laterally yielding sweep to dislodge surplus or improperly-contained grains in the cells in the interim between the passage of said cells by said exit-opening and their near approach to the cut-off preliminary to their second or next passage under said hood and by said exit-opening.

15. In a corn planter, the combination of a hopper base, a base-plate at the lower end of the hopper base and provided with an exit opening communicating with the interior of the hopper base, a rotary seed-plate fitting upon the base-plate and fitting snugly within the lower end of the hopper base and provided with cells for successive communication with said exit opening, means for preventing upward movement of the seed plate, and a suitably-supported sweep overlying the path described by the cells of the seed plate and capable of yielding upward and laterally.

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

ADELBERT S. BEYMER.

Witnesses:

HELEN C. RODGERS,
G. Y. THORPE.