

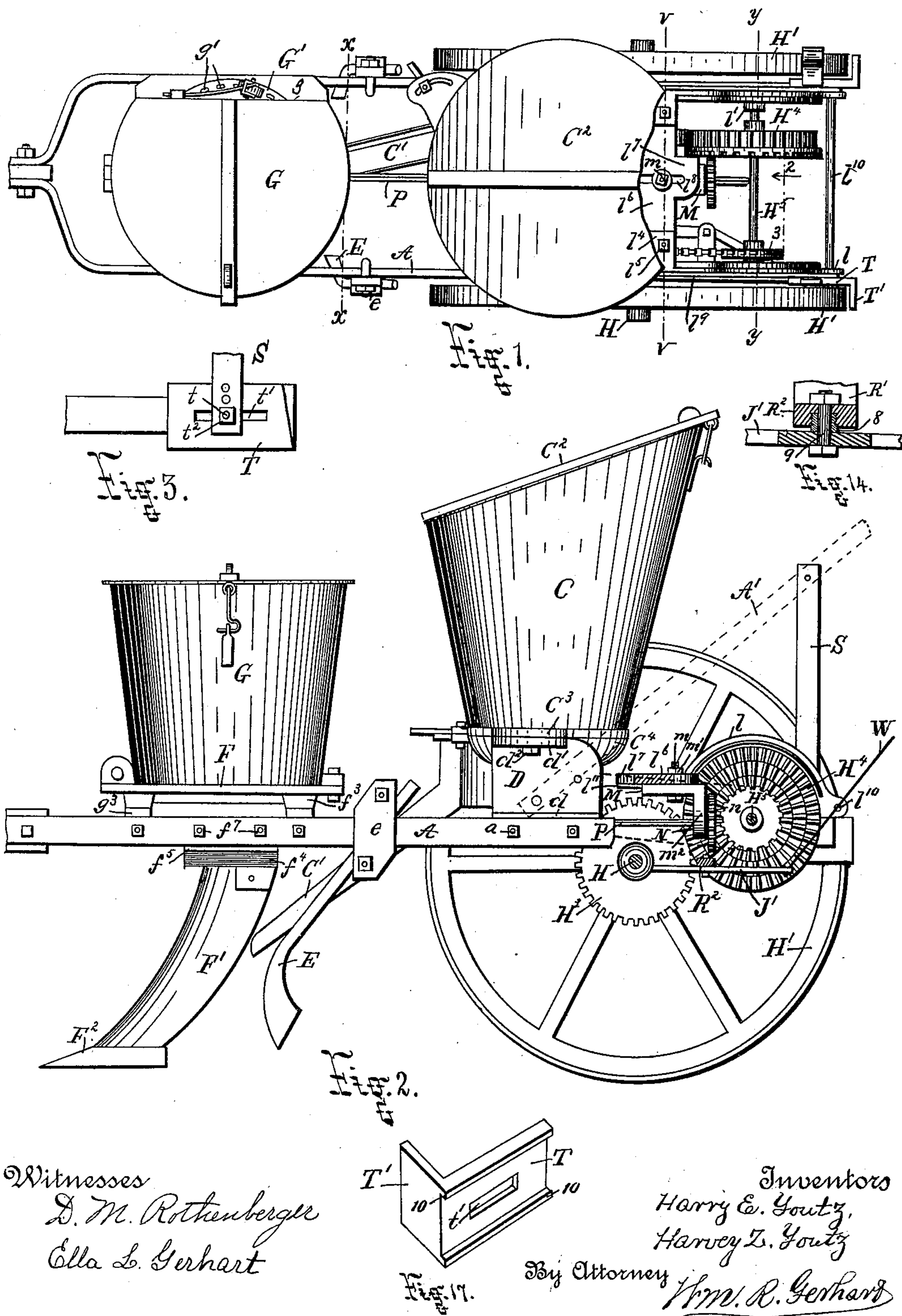
(No Model.)

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H. E. & H. Z. YOUTZ.
CORN PLANTER.

No. 552,224.

Patented Dec. 31, 1895.



Witnesses
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Inventors
Harry E. Youtz,
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By Attorney Wm. R. Gerhart

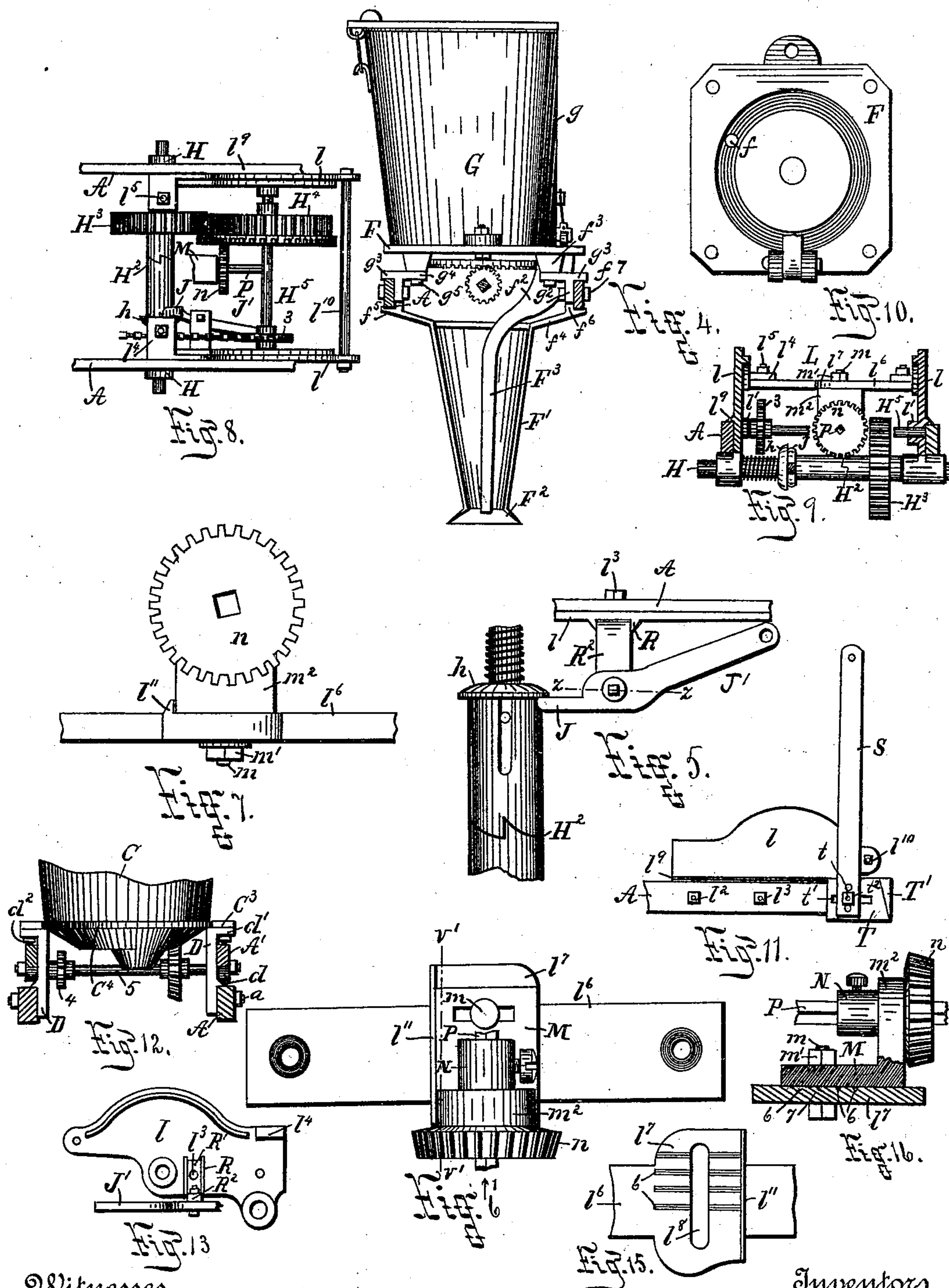
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UNITED STATES PATENT OFFICE.

HARRY E. YOUTZ AND HARVEY Z. YOUTZ, OF MOUNTVILLE, PENNSYLVANIA.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 552,224, dated December 31, 1895.

Application filed May 2, 1893. Serial No. 472,672. (No model.)

To all whom it may concern:

Be it known that we, HARRY E. YOUTZ and HARVEY Z. YOUTZ, citizens of the United States, residing in Mountville, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Corn-Planters, of which the following is a specification.

This invention relates to improvements in that class of corn-planters having fertilizer-distributers attached thereto behind the grain-holding hopper; and the objects of our invention are, first, to improve the mechanism for regulating the adjustment of the operating-gear; second, to support said gear from above; third, to facilitate the separation and assembling of the operating parts, and, fourth, to improve the connections of the parts supporting the clutch-actuating lever. We accomplish these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of the corn-planter, the rear of the fertilizer-hopper being cut away and the handles removed. Fig. 2 is a side view of the same, a handle being removed and one of the side bars cut away to show the gear actuating the mechanism of the hoppers. Fig. 3 is an enlarged side-view of the connection between one of the dirt-scrappers, a depending strap connecting one of the handles with the side bar of the frame, and said side bar. Fig. 4 is a rear elevation of the grain-hopper, the standard beneath it, and the grain-conveying tube located therein on the line $x x$ of Fig. 1. Fig. 5 is a bottom plan view of the clutch and the lever actuating the same. Fig. 6 is an enlarged bottom plan view of the pinion on the shaft operating the mechanism in the grain-hopper, and Fig. 7 an inverted elevation of the same, seen from the direction of arrow 1 of Fig. 6. Fig. 8 is a top plan view of the gear connected with the axle. Fig. 9 is a vertical section on the line $y y$ of Fig. 1, the parts being viewed from the direction of arrow 2. Fig. 10 is a top plan view of the bottom plate of the grain-hopper. Fig. 11 is a side view of the end of the frame carrying the gearing from which the mechanism in the hoppers is actuated and cut away in Fig. 2. Fig. 12 is a rear elevation of the fertilizer hopper, taken from

broken line vv of Fig. 1. Fig. 13 is an inner face view of the side plate to which the clutch-lever is attached. Fig. 14 is an enlarged vertical sectional view of the connection between the clutch-lever and the arm supporting it, taken on the line $z z$ of Fig. 5. Fig. 15 is a bottom plan view of the enlargement of the plate carrying the gear-wheel that meshes with the face-wheel. Fig. 16 is a vertical section on the line $v' v'$ of Fig. 6, and Fig. 17 is a perspective view one of the dirt-scrappers.

Similar letters and numerals indicate like parts throughout the several views.

Referring to the details of the drawings, A indicates the side bars of the frame, A' the handles for guiding the planter, and C the fertilizer-hopper, of any well-known construction and having a chute C' to carry the fertilizing material to the furrow behind the grain-conveying tube. The top C² of hopper C slopes downward from the rear toward the front to allow the operator to see the bottom of the grain-hopper, which is supported by vertically-disposed plates D. These plates are secured to side bars A by screw-bolts a , and have ribs d formed on their outer sides that rest on said side bars. From the upper edges of plates D there extend outwardly horizontal lips d' , on which rest corresponding lips C³, formed on the sides of base C⁴ of hopper C, the lips of said plates and hopper being fastened together by screw-bolts d^2 .

E represents the covering-arms, secured to side bars A at e in any well-known manner.

F indicates the bottom plate of the grain-hopper, F' the hollow standard supporting the share or furrow-opener F², and G the grain-hopper, one side g of which is cut away or set in from the edge of the annular depression or recess in the upper surface of plate F, in which is located the grain-carrier or feed-disk G', thus permitting the operator to see whether the grain is being regularly fed through the rim-openings g' of said grain-carrier without changing his position. Rim-openings g' register successively with an aperture f in bottom plate F, whence the grain drops into the conveying-tube F³, curved inward from aperture f to the center of standard F', as shown at f^2 , and thence extending downward through said standard. Beneath the corners of the bottom plate of grain-hopper G there are lo-

cated T-irons, having the stems g^2 thereof resting against the inner faces of side bars A. One end g^3 of the head of each bears on the top of one of said side bars, and the other
 5 g^4 extends under the bottom plate of the grain-hopper, to which it is secured by a screw-bolt g^5 passing through it and said bottom plate. These screw-bolts pass through bosses f^3 , formed on the under side of the bottom plate,
 10 whereby the hopper is elevated above side bars A, so as to bring the bottom of the hopper more fully within the view of the operator of the planter. On the sides of the upper edge of standard F' there are wings f^4 , having
 15 the outer ends f^5 taking under side bars A and provided with upwardly-extending lips f^6 , through which the standard is secured to side bars A by bolts f^7 .

H is the axle, to the ends of which ground-
 20 wheels H^1 are rigidly attached, and on which is secured the clutch-gear H^2 and spur-wheel H^3 . Spur-wheel H^3 gears with the cogs of the spur and face wheel H^4 , keyed to the shaft H^5 . The ends of shaft H^5 are journaled in
 25 openings through side plates l of frame L, around which openings there are formed hollow bosses l' on the inner faces of plate l to increase the bearings for the ends of shaft H^5 . The shaft H^5 and gears H^4 and n are
 30 placed behind the driving-wheel shaft or axle H, whereby the planter-frame is shortened. The frame L is formed of said side plates l , secured to the inner faces of side bars A by screw-bolts l^2 and l^3 , the screw-bolt
 35 l^3 also passing through and holding in place the support for the clutch-lever, to be described. Projecting inward from the tops of the front ends of plates l are lugs l^4 , to the
 40 under sides of which is secured by bolts l^5 a transverse plate l^6 . The center of plate l^6 has a horizontal enlargement l^7 , wherein there is formed a slot l^8 longitudinally of the planter. In the bottom of enlargement l^7 there are
 45 formed grooves 6, extending transversely of the frame, as shown in Fig. 15.

On the outer faces of plates l there are horizontal ribs l^9 , resting on side bars A, and in the rear ends of said plates there is supported a transverse rod l^{10} , whereon may be
 50 hinged a cap, (not shown,) such as is ordinarily used, to protect the mechanism between plates l from the weather, dirt, &c. To the under side of enlargement l^7 a plate M is secured by a bolt m and nut m' , said
 55 bolt passing through slot l^8 and thus permitting plate M to be adjusted longitudinally of the planter. From the rear end of plate M there depends a lip m^2 , through which there is a circular opening engaged by boss N on
 60 pinion n , adapted to mesh with any of the series of cogs on the face of wheel H^4 . Through boss N there is a square opening, through which passes the square shaft P, geared with the operating mechanism of the
 65 grain-hopper. This mechanism may consist of an annular rack on the bottom of grain-carrier G' and which meshes with a gear on

shaft P, carrying the pinion n , as is usual and as shown in Figs. 4, 8 and 9.

On the under side of enlargement l^7 of 70 transverse plate l^6 there is a rib l^{11} , formed parallel with slot l^8 and extending the whole length of said enlargement. One edge of adjustable plate M bears against rib l^{11} , which forms a guide regulating the distance at which 75 pinion n must be set from face-wheel H^4 to prevent gearing too deep therein. For, it must be understood, that by reason of probably slight inaccuracies in the construction of the connections and attachments of these 80 parts there may be a slight bulge or throw of the pinion or inequalities in the depth of the spaces between the cogs of the face-wheel, so that the meshing of the wheels too deep is apt to create undue friction or tear out the cogs. 85

On the upper face of adjustable plate M there is formed a transverse rib 7, adapted to engage grooves 6 in the bottom of enlargement l^7 , said groove being so arranged that the engagement therewith of rib 7 regulates 90 and insures the proper meshing of pinion n with the different series of cogs on the side of face-wheel H^4 , whereby injury to said cogs by improper adjustment of pinion n is prevented. 95

On the inner face of one of the plates l (see Fig. 13) there are formed vertical parallel ribs R, between which is engaged the vertical arm R' of an angle-plate, secured to said plate l by 100 a screw-bolt l^3 passing through it and the adjacent side bar A. The other arm R² of the angle-plate extends inward and has pivoted to its under side a clutch-lever, the jaws J of which embrace the clutch inside of an annular flange h formed thereon. The other end 105 J' of the clutch-lever has attached thereto a wire W, which extends upward and may be connected with a lever (not shown) on one of the handles A', as is usual.

In the under side of arm R² (see Fig. 14) 110 there is screwed a short tube 8, through which and a registering opening through said arm R² passes the bolt 9, on which said arm R² is pivoted, the lower end of the tube 8 projecting beyond the face of arm R² and serving as a 115 shoulder or bearing against which the clutch-lever rests.

To the rear ends of side bars A there are connected dirt-scrappers (shown in Figs. 1 and 2) constructed of angle-plates having one arm 120 T resting against the outer faces of side bars A and secured thereto by screw-bolts t , passing through slots t' in said arms T and perforations through side bars A, arms T being drawn up against said side bars by nuts t^2 . 125

On the inner edges of arms T there are inwardly-projecting flanges 10, that lap and embrace the upper and lower edges of side bars A, thus enabling each dirt-scra- 130 per to be held in place by a single bolt. The other arms T' of the angle-plates extend outward beyond the rims of wheels H^1 and serve as scrapers, the proximity of said scrapers to the wheels being regulated by loosening nuts t^2 and ad-

justing arms T longitudinally on bolts t. The depending straps or braces S, connecting handles A' and side bars A, are also secured to said side bars by the screw-bolts t and nuts t².

5 The mechanism in the fertilizer-hopper of, any ordinary construction, is actuated by a sprocket-wheel 3, Figs. 8 and 9, keyed to shaft H⁵ and connected with a similar wheel 4, keyed to shaft 5, that is located below said
10 hopper and journaled in plates D.

The location of the gearing for operating the mechanism in the hoppers behind the fertilizer-hopper and attaching it as shown permits the frame of the planter to be shortened
15 and the devices for attaching said gear to be made lighter and of more simple construction, and affords more and better facilities for setting the parts and detaching and replacing those worn out or broken. The arrangement of the connections between the
20 hoppers and side bars A simplifies and facilitates the attachment and removal of those parts. It also possesses the advantage of economy in permitting any single worn or
25 broken part to be detached and a new one put in its place without wasting any other part or parts of those connections. In placing the device for feeding the grain from the hopper to the tube carrying the same to the
30 ground on one side of the hopper the distance of said feed from the fertilizer-hopper is increased, and thus permits the operator to observe the working thereof more readily. In fact, this can easily be done when the frame of
35 the planter is shortened to bring the fertilizer-hopper so near the grain-hopper that the bottom of the latter cannot be seen from behind. Stress is laid on the shortening of the planter-frame, because such shortening enables it to
40 be handled more easily and readily. In casting the bottom plate of the grain-hopper it is very expensive to bring the top of the same to a perfectly smooth surface. This expense we reduce by making said bottom plate of
45 chilled iron, which facilitates its construction.

We do not confine ourselves to the details of construction herein shown and described, as it is obvious that many changes may be
50 made therein without departing from the spirit of our invention.

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

55 1. The combination, with a face-wheel, unyieldingly secured longitudinally of the shaft and having series of concentric teeth, of a transverse plate rigidly connected with the frame, a rib formed on the transverse plate
60 parallel with the side of the face-wheel, a movable plate attached to the transverse plate and bearing against and adjustable lengthwise of said rib, means for rigidly securing the movable plate in an adjusted position on the
65 transverse plate, a pinion unyieldingly supported by the movable plate in mesh with the

series of teeth of said face-wheel, and a shaft actuated by said pinion, for the purpose specified.

2. The combination, with a face-wheel having series of concentric teeth, of a transverse plate having a slot formed therein parallel with the side of the face-wheel, a rib on the transverse-plate parallel with said slot, a movable plate bearing against and adjustable
75 lengthwise of said rib, a bolt passing through the slot and adapted to secure the movable plate in an adjusted position, a perforated lip on the movable plate, a pinion constructed to mesh with the series of teeth of the face-
80 wheel, a boss on the pinion engaging the perforation in said lip, and a shaft engaging the boss and actuated by the pinion, substantially as and for the purpose specified.

3. The combination, with a shaft actuating
85 the mechanism in one of the hoppers, of a pinion on one end thereof, a transverse plate located above the shaft and having grooves formed in its lower face transversely of the frame, a face-wheel having series of concentric
90 teeth on one side adapted to mesh with the pinion, a movable plate having a perforated depending lip thereon supporting said shaft, said movable plate having a rib on its upper face adapted to engage the grooves in
95 the transverse plate, whereby a proper engagement of the pinion with different series of teeth on the face wheel is insured, and means for rigidly securing the movable plate in an adjusted position, for the purpose specified.
100

4. The combination, with a face-wheel having series of concentric teeth, of a transverse plate having a rib formed thereon parallel with the side of the face-wheel and a series
105 of grooves therein perpendicular to said rib, a movable plate attached to the transverse plate and bearing against and adjustable lengthwise of said rib, the movable plate having a rib adapted to engage the grooves in the
110 transverse plate, means for rigidly securing the movable plate in an adjusted position, a pinion supported by the movable plate and constructed to mesh with the series of teeth of the face-wheel, and a shaft actuated by the
115 pinion, for the purpose specified.

5. The combination, with a face-wheel having series of concentric teeth, of a transverse plate having a rib formed on the bottom thereof parallel with the side of the face-wheel, a
120 movable plate attached to the bottom of the transverse plate against said rib and adjustable lengthwise thereof, means for rigidly securing the movable plate in an adjusted position, a lip on the under side of the adjustable
125 plate, a pinion constructed to mesh with the series of teeth of the face-wheel, a boss on the pinion engaging a perforation in said lip, and a shaft engaging an opening in said boss and adapted to be actuated by the pin-
130 ion, substantially as and for the purpose specified.

6. The combination, with two hoppers secured to the frame, one in front of the other, the rear hopper being elevated above the side bars of said frame, of vertical plates removably secured to the side bars behind the rear hopper and extending above said bars, inwardly projecting lugs on the vertical plates above the side bars, a transverse plate removably secured to said lugs, a main shaft located back of the transverse plate and having a face-wheel thereon, a plate detachably secured to the under side of the transverse plate and adjustable thereon parallel with the side of the face-plate, a lip on the under side of the adjustable plate, a pinion constructed to mesh with series of teeth on the face-wheel, a boss on the pinion engaging a perforation in said lip, and a shaft beneath the rear hopper engaging an opening through the pinion and adapted to be actuated thereby, substantially as and for the purpose specified.

7. The combination, with two hoppers secured to the frame, one in front of the other, the rear hopper being elevated above the side bars of said frame, of vertical plates removably secured to the side bars behind the rear hopper and extending above said bars, a main shaft located behind the vertical plates and having a face-wheel thereon, a shaft beneath the rear hopper having its ends journaled in openings in the vertical plates and abutting against the side-bars, said shaft actuating the mechanism in the rear hopper and geared with the main shaft, inwardly extending lugs on the vertical plates, a transverse plate removably secured to the under sides of said lugs, a plate detachably secured to the under side of the transverse plate and adjustable thereon parallel with the side of the face-wheel, a lip on the under side of the adjustable plate, a pinion constructed to mesh with series of teeth on the face-wheel, a boss on the pinion engaging a perforation in said lip, a shaft extending beneath the rear hopper and engaging an opening through the pinion

and adapted to be actuated thereby, substantially as and for the purpose specified.

8. The combination, with a hopper, of vertical plates removably secured to the side-bars behind said hopper and extending above the side bars, inwardly projecting lugs on the vertical plates above the side bars, a transverse plate removably secured to said lugs, a shaft having a face-wheel thereon, a plate detachably secured to the under side of the transverse plate and adjustable thereon parallel with the side of the face-wheel, a lip on the under side of the adjustable plate, a pinion constructed to mesh with the series of teeth on the face-wheel, a boss on the pinion engaging a perforation in said lip, and a shaft engaging with the pinion and actuated thereby, said shaft actuating the mechanism of the hopper, substantially as and for the purpose specified.

9. The combination, with an arm, of a tube inserted partially through said arm and projecting beyond one face thereof, the arm having an opening of the diameter of the bore of the tube and registering therewith, a bolt passing through the tube and the opening in the arm registering therewith, and a lever fulcrumed on the bolt and bearing against the shoulder formed by said tube, for the purpose specified.

10. The combination, with an arm, of a tube screwed into and partially through said arm and projecting beyond one face thereof, the arm having an opening of the diameter of the bore of the tube and registering therewith, a bolt passing through the tube and the opening in the arm registering therewith, and a lever fulcrumed on the bolt and bearing against the shoulder formed by said tube, for the purpose specified.

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