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# A. C. EVANS.

## CORN PLANTER.

No. 265,949. Patented Oct. 17, 1882.

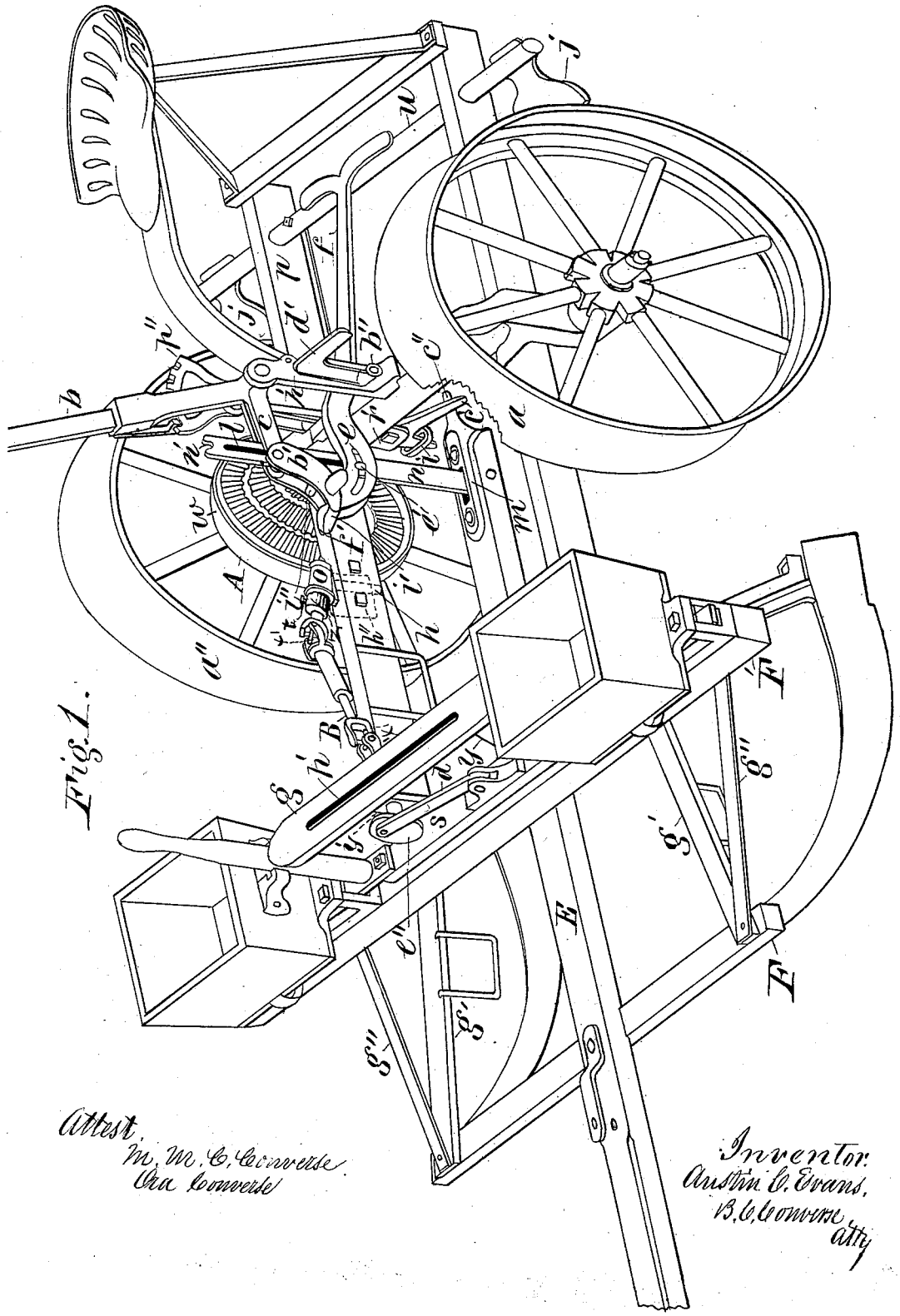

Fig. 1.

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## CORN PLANTER.

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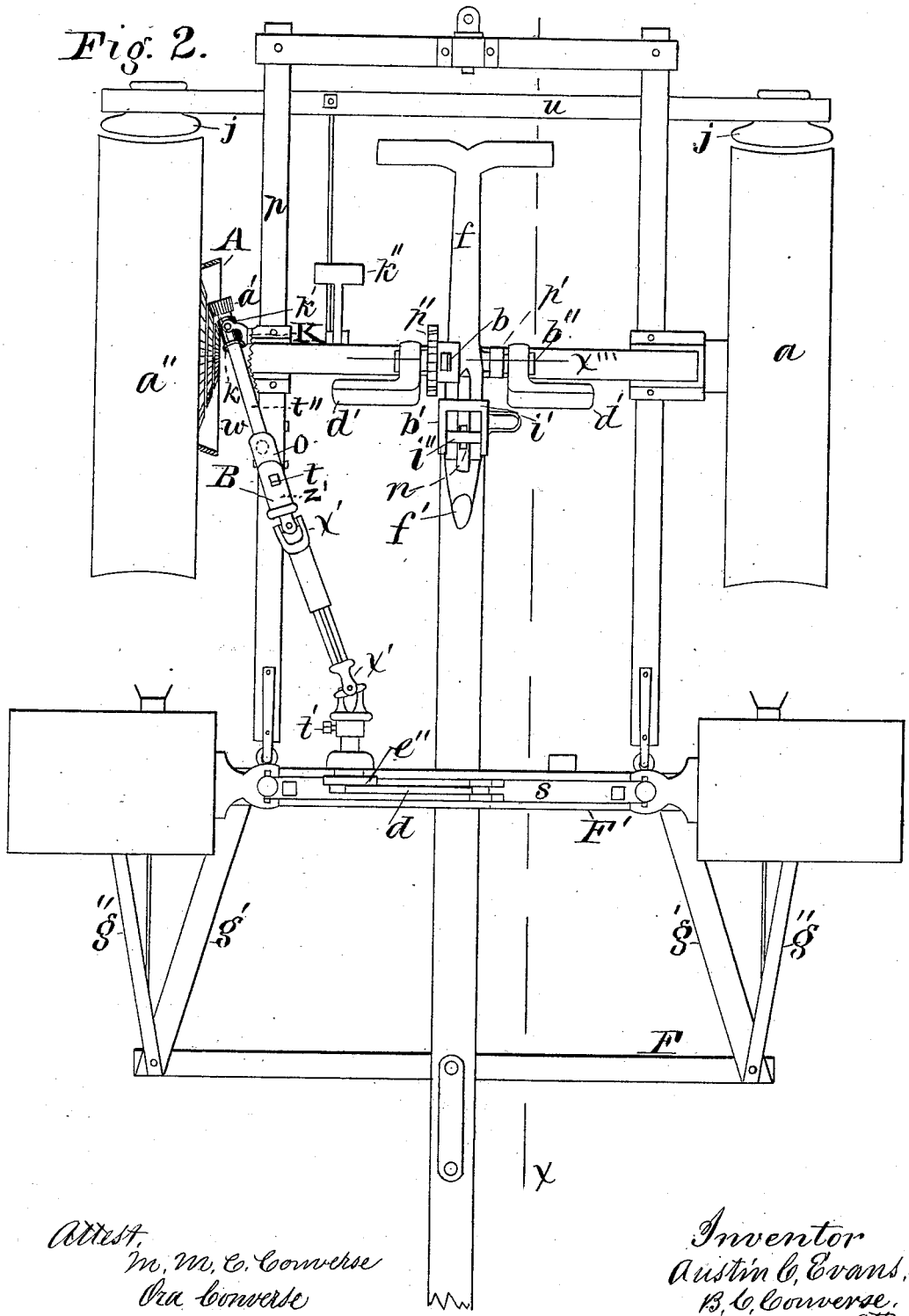
Fig. 2.

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## CORN PLANTER.

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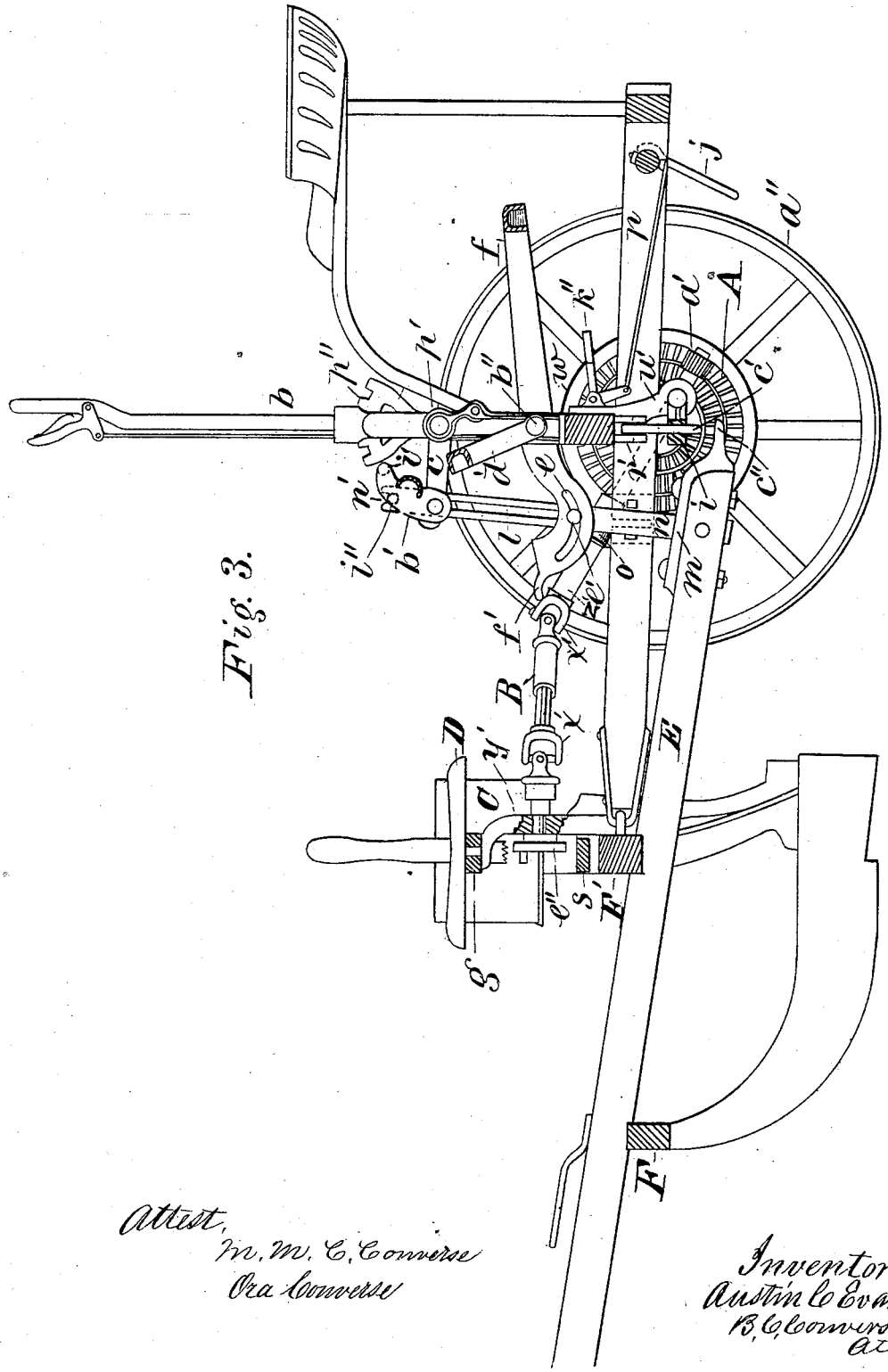

Fig. 3.

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## CORN PLANTER.

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Fig. 4.

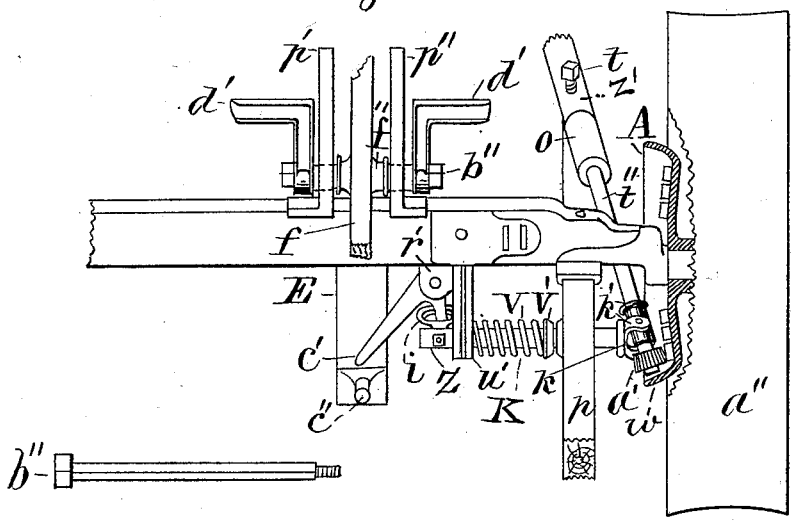



Fig. 5.

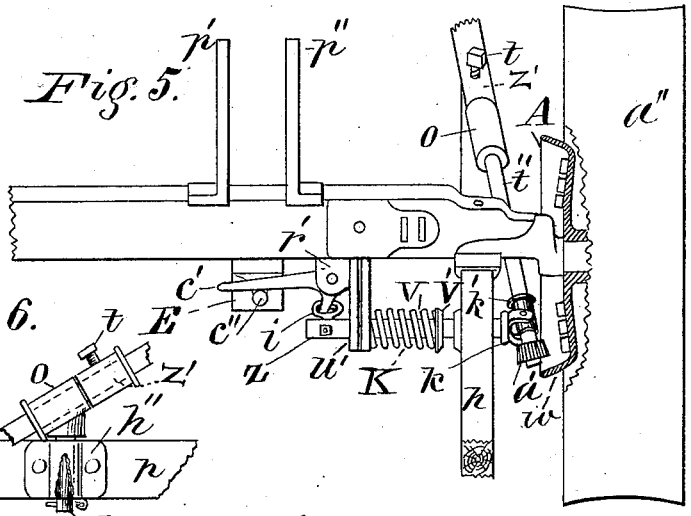



Fig. 6.

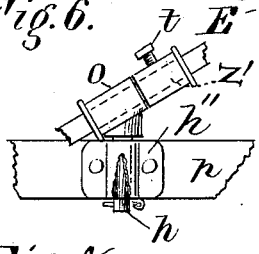



Fig. 7.

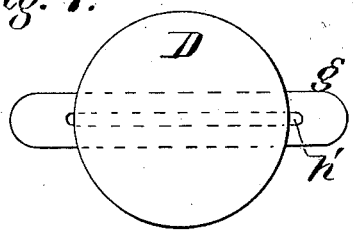



Fig. 8.

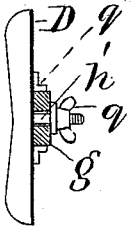
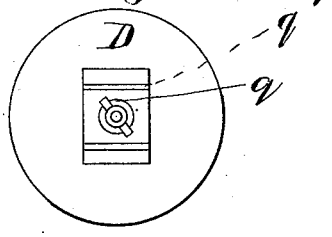



Fig. 9.

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## CORN PLANTER.

No. 265,949. Patented Oct. 17, 1882.

Fig. 10.

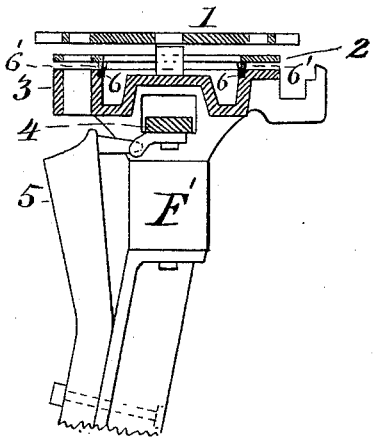



Fig. 11

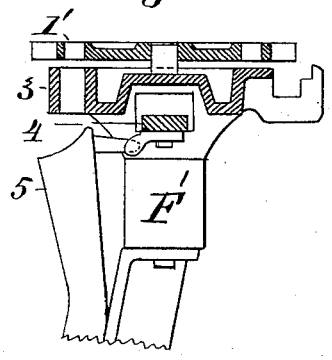



Fig. 14.

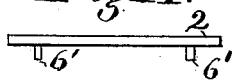



Fig. 13.

Fig. 12.

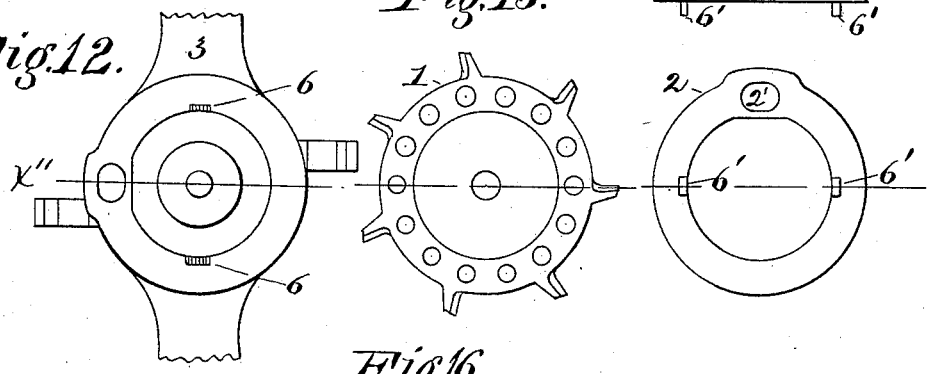
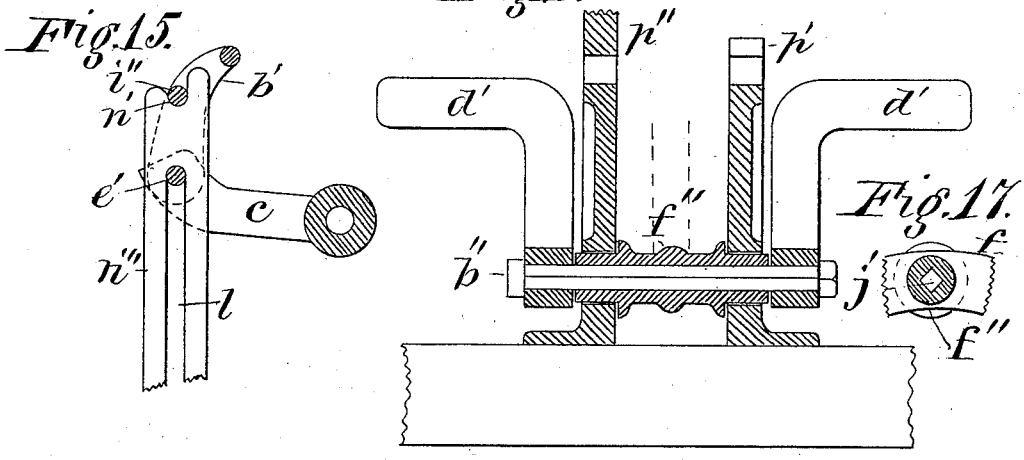



Fig. 16.

Fig. 15.

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atty.

# UNITED STATES PATENT OFFICE

AUSTIN C. EVANS, OF SPRINGFIELD, OHIO.

## CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 265,949, dated October 17, 1882.

Application filed December 7, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, AUSTIN C. EVANS, a citizen of the United States, residing at Springfield, in the county of Clarke and State of Ohio, have invented certain new and useful Improvements in Corn-Planters, of which the following is a specification.

My invention relates to improvements in corn-planters by which the machine is used either automatically as a drill or by hand for the same purpose, and which can be changed to a dropper, when desired.

My invention relates, also, to improvements in the devices for elevating the front section of the machine for holding the runners into the ground and releasing them therefrom.

My invention relates, also, to the means for throwing the drilling devices in and out of gear.

My invention relates, further, to the seed-plates used in the drilling devices and to the removal and substitution of parts in the seed-dropping devices.

My invention relates, further, to the manner of pivoting the foot-levers used in manipulating the sections of the implement in their standards.

Figure 1 is a perspective view of my improved corn-planter with the drilling attachment applied thereto. Fig. 2 is a plan view of the same with the driver's and dropper's seats and the seat-bar of the latter removed. Fig. 3 is a vertical section through line *x*, Fig. 2, with the dropper's and driver's seats replaced, also the seat-bar. Fig. 4 is a view of the right drive-wheel and its connections, with a vertical section of the gear-wheel thereon. It also shows the pinion which connects it with the drilling attachment in gear with the driver. The through-bolt which connects the foot-levers through the standards is shown also in detail in this figure. Fig. 5 is a view of the parts seen in Fig. 4, with the foot-levers removed. The drilling attachment in this figure is shown thrown out of gear. Fig. 6 shows the manner in which the tumbling-shaft connecting the driving-gear with the slide-lever is pivoted. Fig. 7 is a top view of the dropper's seat and bar which supports it. Fig. 8 is a side view of the same, the seat-bar being shown in cross-section. Fig. 9 is a view of the seat from the under side detached from the seat-bar. Fig. 10 is a vertical section of the seed-plate, washer, and the supporting-frame shown in Figs. 12, 13, and 14, taken on the line *x''*. Fig. 15 is a view of the arm C of the hand-lever and its connections in detail. Fig. 16 is an enlarged view of the foot rests or levers and their pivoted connection with the standards on the rear axle. The latter parts are shown in vertical section through line *x'''*, Fig. 2, with a portion of the axle to which the parts are attached. Fig. 17 is a cross-section of the sleeve part of the foot-lever by which it is pivoted, also a part of the foot-lever broken off.

A is a concentric gear-wheel, attached to the right covering-wheel, which drives the drilling devices. It has a shield, *w*, which extends around it, projecting inward sufficiently to entirely shield the gear from dirt.

B is a tumbling-shaft, having the coupling connections *x'* and extensible sections, so as to allow of self-adjustment. It is connected with the slide-lever *s* through the crank-wheel *c''* and the pitman *d*, which latter is pivoted to the slide-lever. The tumbling-shaft is bent at an angle at the rear cross-joint, extending through the sleeve-head *o* of the pintle *h*, which latter is pivoted vertically in a socket-plate, *h''*, bolted to the side rail, *p*, and reaches the gear-wheel A on the lower rear side, as seen in Figs. 1, 2, 3, 4, 5, and 6, the latter figure of which shows the manner of adjusting the coupling-shaft to the different gear-rings on the driver A by means of the set-screw *t* in sleeve *Z'*, above the pintle-head *o*. The pinion *a'*, on the rear end of shaft B, is thrown into gear or engaged with the teeth of wheel A and disengaged therefrom by means of the spring-coupling K, which is pivoted to a sleeve, *k'*, just above the pinion. The shaft Z of coupling K is supported by hangers *w'* from the axle and side bar, *p*, and is operated by the spring V.

On the inner end of the shaft Z is an oblong loop, *i*, through which the lower and shorter limb of the angular lever *c'* extends. The longer arm of the lever extends (in the same vertical plane with the axle) inward, inclining downward over an extended prolongation, *c''*, at the rear end of the tongue. This prolongation is an extension of the cast plate *m*, bolted upon the rear end of tongue E. As this end of the tongue is raised or lowered by the foot-levers, (through the connecting devices, which

will be hereinafter more fully described,) this angular bar will operate the spring-coupling K.

In Fig. 4 the end of the tongue E is lowered below the long arm of $c'$, and the shaft B swinging upon its pivot $o\,h$, (see Fig. 6 also,) its pinion $a'$ is thrown into engagement with one of the gear-rings, A. In Fig. 5 the end of the tongue E is raised, and the prong $c''$, coming in contact with the long arm $c'$, throws it up, thus disengaging the gear. The angular lever $c'$ is pivoted at its angle in the hanger $r'$ under the axle, as seen in Figs. 1, 3, 4, 5, and 6.

In using the implement as a dropper or in drilling by hand the coupling-shaft can be detached by removing the set-screws $t$ and $t'$. (Seen in Figs. 2, 4, and 5.) The dropper's seat D rests on a longitudinally-slotted bar, $g$, extending from one seed-hopper to the other, (but not touching either,) supported upon standards attached to the main cross-bar over the slide-lever, and is secured at any point thereon by a clamping-bolt, $q$, extending through the slot $h'$. This slot allows of the seat being shifted toward either seed-hopper to suit the convenience of the operator in using the hand-lever upon either side.

The foot-levers $d'$, which are pivoted upon the same bolt with the foot-lever $f$, outside of the standards $p'\,p''$, over the axle, have their lower ends pierced with a square hole, as seen in the enlarged detail view, Fig. 16. In the same view the pivotal shaft $f''$ of the foot-lever $f$ is seen. It will be noticed in this figure that the shaft $f''$ extends at each end through the standard, forming the pivotal bearing for itself; also, that it has a square hole through its entire length, and that the square bolt $b''$ (shown in detail, Fig. 4) extends through it and the foot-levers $d'$, securing the whole together. A skilled mechanic will see the advantage of this mode of constructing the parts, as the holes in both the foot-levers $d'$ and the shaft are cast over a square core, so as to allow the bolt $b''$, which is square also, to be inserted through them and secured by a nut without the necessity of any fitting or drilling, thus making the levers $d'$ and $f$ virtually in one. The manipulation of the foot-levers in the implement can be better understood after giving their construction by reference to Figs. 1, 2, 3, and 4. The slotted vertical bar $n$, the lower end of which is pivoted loosely in the rear end of the tongue, having been embraced (together with a hand-lever pivoted over the axle) in a former patent, I shall not here claim this combination broadly, but certain improvements herein shown and described are properly the subjects of my present invention. The foot-lever $f$, extending from under the driver's seat and forward of the axle, and pivoted as heretofore described, is not only slotted through its front end vertically to accommodate its movements up and down over the upright bar $n$, but, instead of a single pin-hole through it, it has a transverse semicircular slot, $e$, in it. A pin, $e'$, connects the lever and upright bar through slot $l$ in the upright $n$. As the lever $f$ is thrown up or down the pin $e'$ revolves in these slots, and binding or locking of the parts is obviated.

It will be seen by reference to the Figs. 1 and 3 that lever $f$ has a hook, $f'$, on its front end, the point of which is bent downward. This hook is shown in Fig. 1 caught over the front cross-bar, $i'$, of the link $b'$, which latter is pivoted at its rear end to the front end of the arm $c$ of the hand-lever $b$, (see also Fig. 15, which shows the link and pivot of the hand-lever $b$ in cross-section, enlarged.)

The operation of these devices is as follows: In forcing the cutters into the ground hand-lever $b$ is thrown up to a vertical position, as seen in Fig. 3, which brings the arm $c$ of the same up with its front end high enough to allow the link $b'$ to be thrown back, so that its middle bar, $i''$, will catch in the notch $n'$ on the top of the slotted bar $n$, the feet of the operator being placed upon the foot-levers $d'$ on either side of the standards $p'\,p''$, with his hand against the top of lever $b$, he pushes with both feet and hand forward. The pin $e'$ being now at the bottom of the slot $l$ in the upright bar $n$, the pressure upon foot-levers $d'$ centers at this point, while the pressure upon the top of the hand-lever, through its arm $c$ and the link $b'$, (with its bar $i''$ in the notch $n'$,) brings all the power of the operator to bear upon the rear of the tongue, and, as the shoes or cutters are rigidly attached to the main cross-bar through their standards, the amount of leverage secured by this arrangement is such as to make the operation comparatively easy.

To elevate the front section, the link $b'$ is thrown forward out of notch $n'$, the feet of the operator being placed upon the foot-pieces at the rear of lever $f$, which elevates (by pressing it downward) the front end. Lever $b$ is now pushed forward until the front bar of link $b'$ slips over the point of hook $f'$ at the front of $f$. Now the hand-lever $b$ is pulled backward, and the rear bar of link $b'$ is thrown to the top of slot $l$, and, as the foot-lever pressure greatly aids the operator, he can easily raise the front section clear of the ground by this movement. The tongue being in the neck-yoke, the point of resistance is in the neck-yoke ring.

A rack-bar (seen on the right standard, $p''$) allows the locking of the hand-lever therein in either operation at whatever degree of elevation or depression the operator may require.

I am aware that means for elevating and depressing the front section are not new. I am also aware that the manner of utilizing the rear end of the tongue as one of the factors in the operation is not new, and I therefore shall not claim it.

A further improvement in my implement is shown in the connecting-bars $g'$ and $g''$, which extend from the front bar, F, to the main cross-bar F'. (See Figs. 1 and 2.) It will be noticed that they diverge from the point of attachment over the point of the shoe, where the ends of both are fastened to the bar F by the same bolt to the main cross-bar, forming, when viewed from the top, a pair of V-shaped braces

to each end of the main cross-bar F′. As the bracing of the shoe and its connections upon the bar F′ is of the utmost importance to keep the runners or shoes and covering-wheels in line, the advantage of this feature will be seen. Referring again to the gear-wheel A, it will be noticed, in Figs. 1, 2, 3, 4, and 5, that this wheel has three sets or rings of teeth on it, permitting the shifting of pinion *a′* from one to the other in changing the speed given to the drilling devices. To provide for this the shaft *t″* is easily shifted lengthwise by loosening the set-screw *t*, Figs. 4 and 5, and slipping it forward or backward in the sleeves *k′* and *o*, in which it revolves. As the two couplings *x′ x′* are each provided with telescopic shafts, they readily adjust themselves to any movement of the pinion *a′* and its shaft in changing gear. In the spring-coupling K, having shaft Z and spring V, the pressure of the latter is regulated and the movement of Z longitudinally controlled by a washer, V′, (see Figs. 4 and 5,) which can be set on the shaft so as to give the pinion freedom of movement without meshing too deep in the teeth of gear-wheel A.

The seed-plates for drilling and their contiguous parts are seen in Figs. 10, 11, 12, 13, and 14. The ordinary seed-plate, 1′, is seen in cross-section on its pivot in Fig. 11. It will be noticed that it is about twice the thickness of the seed-plate 1 for drilling. (Seen in Fig. 10.)

To use the implement as a drill, the seed-plate 1, Fig. 10, and a washer-plate, 2, of same thickness, both together being about equal to the thickness of plate 1′, are substituted for the latter. The washer 2 has two lugs, 6′, which slip down into the slots 6 in the supporting-frame 3. Washer 2 consists of a thin circular plate in the form of a flat ring, with a throat-hole, 2′, in one side fitting over the seed-tube 5. To retain it in position the lugs 6′ are cast on it, projecting downward from the inner edge of the plate, as shown in the edge view, Fig. 14, and also in the bottom view under the former. The seed-plate 1 for drilling does not differ from the dropper-plate 1′, except in being only one-half as thick, so that its cells shall hold but a single grain of corn each, instead of three grains, as in the latter. The difference is easily distinguishable in the two views, Figs. 10 and 11. By reference to these views it can easily be understood that the object of the washer 2 is to fill the interspace occupied by the thicker dropper-plate 1′ and not taken up by the thin drilling-plate 1.

I am aware that it is old to attach a foot-lever, for depressing a section of a corn-planter, to one end of a shaft, a foot-lever to the other end for elevating said section, and a hand-lever intermediately of the two for locking the sections, and this I do not claim. I am also aware that plates provided with perforations varying in number from one to a circle of them, so that different quantities of seed could be dropped, are old, but am not aware that plates of various thicknesses have ever been used to accomplish the same object.

I claim as my invention—

1. In drilling-machines for corn-drills, a tumbling-shaft made of telescopic sections coupled together and longitudinally adjustable, for the purpose set forth.

2. In drilling devices for corn-drills, a tumbling-shaft made of adjustable telescopic sections coupled together, the inner section mounted upon and combined with a pivot which permits of lateral motion of the shaft, for the purpose set forth.

3. In drilling devices for corn-drills, the combination, with the slide-lever and the driving-gear, of a tumbling-shaft connecting said lever and gear and made of adjustable telescopic sections mounted in a pivoted sleeve, which permits of longitudinal and lateral motion of the shaft, for the purpose set forth.

4. In drilling devices for corn-drills, the combination, with a tumbling-shaft made of adjustable telescopic sections, and having a crank-wheel at one end and a pinion at the other, of driving-gear connected to said pinion, and of a slide-lever connected to said crank-wheel by a pitman, for the purpose set forth.

5. In drilling devices for corn-planters, the combination, with the tumbling-shaft made of longitudinally-adjustable sections coupled together, one of which is mounted upon a pivot and provided with a pinion, of a gear-wheel or driver having several concentric gearings, and of coupling attached to the shaft above the pinion and adapted to engage or disengage said pinion, for the purpose set forth.

6. A concentric gear-wheel having a shield encircling its periphery for protecting the teeth, said wheel and its shield being cast in a single piece, as shown and specified.

7. In a corn-planter, a pintle, *h*, mounted in a socket, $h^2$, and having a sleeve, *o*, in combination with a shaft longitudinally adjustable within the sleeve *o*, and supported and radially adjustable by means of the pintle, substantially as set forth.

8. In combination with the sectional shaft B, having a pinion, *a′*, on its gear end, and pivoted in the manner described, the spring-coupling K, having the short sleeve *k′* pivoted in its coupling-fork *k* to allow the shaft section *t″* to have a radial and longitudinal movement therein when operated by said coupling and its auxiliary devices through the hand-lever of the implement.

9. In drilling devices for corn-planters, having an adjustable shaft and pinion pivoted in the manner described, the spring-coupling K, connected therewith, located beneath and in line with the axle, and operated by the hand-lever *b* and foot-levers *d′* and *f* through its auxiliary intermediate devices, substantially as hereinbefore set forth.

10. In drilling devices for corn-planters, having an adjustable shaft connecting the driving-gear with its seed-sowing devices, pivoted to

allow a radial movement of its end section, so that the pinion thereon may be thrown in and out of gear with the driver, a spring-coupling, K, having a spring, V, on its shaft Z made adjustable by a collar, V′, whereby the depth of the mesh of said pinion with the gear of the driver A may be regulated, substantially as hereinbefore specified.

11. In drilling attachments for corn-planters, having an adjustable shaft connecting the drive-wheel with the slide-lever, operated as described, the combination therewith of a spring-coupling having a sleeve within which it is free to rotate pivoted between the forks on its outer end and a loop attached to its inner end, whereby the shaft of the coupling is operated and its movements controlled through an angular lever pivoted to the axle above said loop, and having one arm of the same extending downward through it and the other arm over a prong on the tongue of the implement, so that when the latter is elevated by the hand-lever the arm of the angular lever extending over its prong will be raised and its depending arm extending through the loop on the shaft of the spring-coupling will be thrown inward in the same vertical plane and operate the coupling to throw the pinion out of gear with the driver, substantially as shown and specified.

12. The combination, with a device for operating the gear engaging and disengaging mechanism, of a tongue, E, having a slotted plate provided with a prong, $c''$, on the rear end for tripping the operating-lever of said mechanism, for the purpose set forth.

13. In a corn-planter, the combination, with hand-lever $b$, foot-levers $d$ and $f$, and their several connecting devices, of mechanism for engaging and disengaging the gearing, and of mechanism for operating the front section, which, when depressed, operates the engaging mechanism and when raised disengages the same.

14. The combination, with the standards $p'$ $p''$, of the foot-lever $f$, having a hollow shaft, $f'''$, with the square hole $j$ therein, located between standards $p'$ $p''$, of foot-levers $d'$, located one on each side of standards $p'$ $p''$, and of bolt $b''$, which extends through the shaft $f'''$ and secures the two sets of foot-levers together in the standards to give them a common fulcrum in elevating and depressing the front section.

15. In a corn-planter, the combination, with a pivotal shaft having its bearings in standards fixed upon the axle of said standards, one at each end of the pivotal shaft, of a square bolt passing through the standards and pivotal shaft, and of two foot-levers, one on each side of the standards and attached to the square bolt, for the purpose specified.

16. The foot-lever $f$, pivoted in standards upon the axle, extending from under the driver's seat to a point forward of said axle, having a vertical slot in its front end through which the upright slotted bar $n$ extends and is operated, and a semicircular slot, $e$, extending transversely through and cutting the plane of the vertical slot, within which a loose pin, $e'$, extends, connecting the lever and upright, which pin is free to rotate therein from end to end of the semicircular slot as the foot-lever is raised or lowered, thereby giving greater scope to the movements of the implement and more flexibility to its connections.

17. The combination, with the tongue E and upright $n$, having slot $l$, of lever $f$, having semicircular slot $e$, and the loose pin $e'$, extending through the lever and upright, for the purpose hereinbefore set forth.

18. In combination with the hand-lever $b$, pivoted in the top of standards $p'$ $p''$, and having arm $c$ and link $b'$ for operating the front section of a corn-planter through the upright vertical bar $n$, in connection with the foot-levers, constructed and pivoted as described, the tongue E, having prong $c''$, the pivoted angular bar $c'$, and the spring-coupling K and shaft B, whereby the drilling devices of the implement are thrown into engagement and are disengaged automatically, substantially as specified.

19. The combination of the hand-lever $b$, having arm C and link $b'$ pivoted therein, with foot-lever $f$, having hook $f'$, whereby the sections of the planter are locked rigidly together when its runners are out of the ground by having the bar $i'$ of the link caught by the hook and the hand-lever latched in its rack to retain the parts in position, as shown in Fig. 1, for the purpose specified.

20. In a corn-planter convertible from a dropper to a drill, the combination, with the supporting-frame 3, the slide-lever 4, seed-tube 5, and their several operative devices, of the thin seed-disk 1 and the washer-plate 2, substantially as shown, for the purpose set forth.

21. In a seeding device, the combination, with the chamber for the feeding-plate, having a predetermined depth, of interchangeable plates of various thicknesses, as described, so that the device may be used as a drill or dropper, for the purpose set forth.

22. In corn-planters convertible from a dropper to a drill, the combination, with the supporting-frame 3, having slots 6, of the washer-plate 2, having lugs 6′ fitting into said slots to prevent the washer-plate from displacement and to fill the interspace between the thin disk 1 and said supporting-frame, substantially as shown and specified, for the purpose set forth.

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