3 Sheets—Sheet 1.

F. W. SHELLABARGER.

CORN-PLANTER.

No. 190,087. Patented April 24, 1877.

Fig. 1.

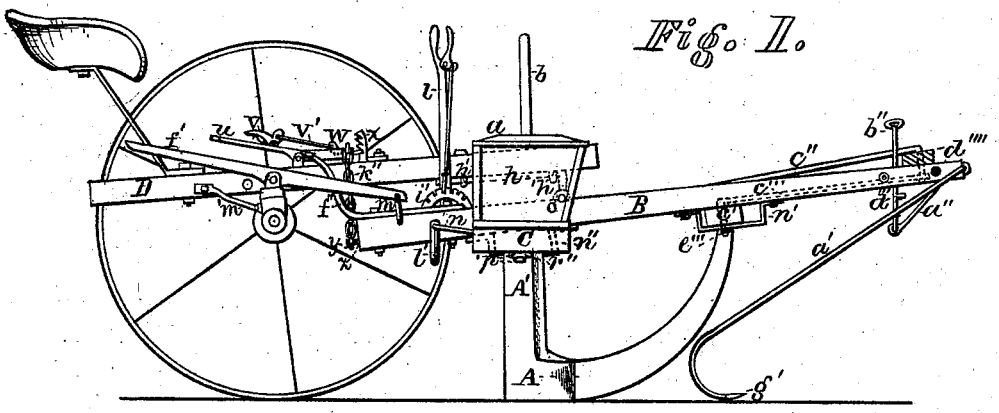
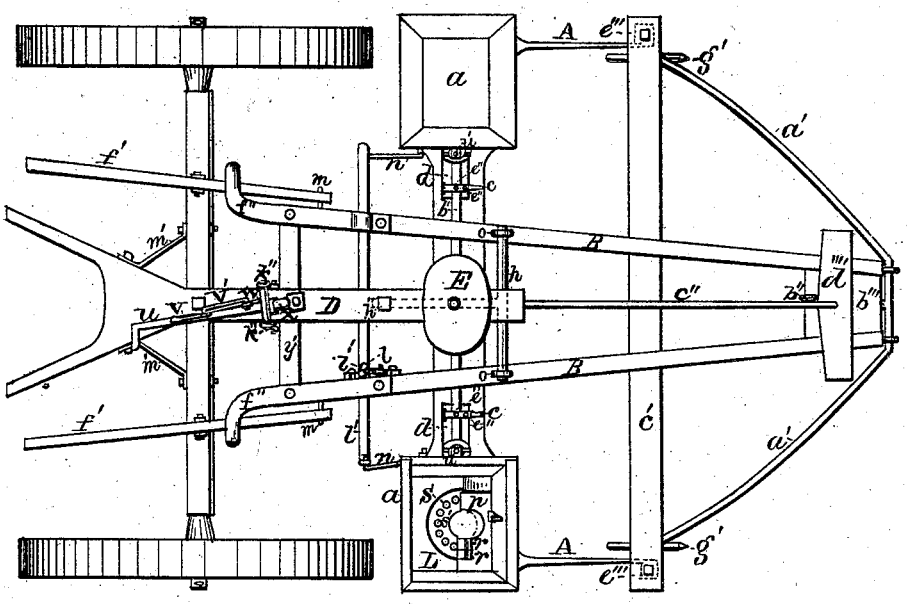


Fig. 2.



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3 Sheets—Sheet 2.

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Fig. 3.

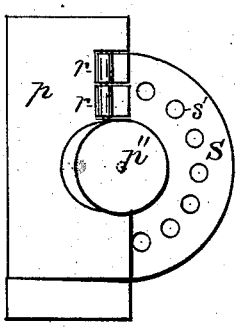

Fig. 4.

Fig. 5.

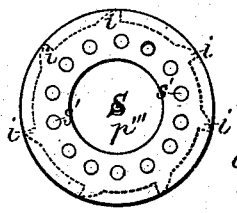

Fig. 6.

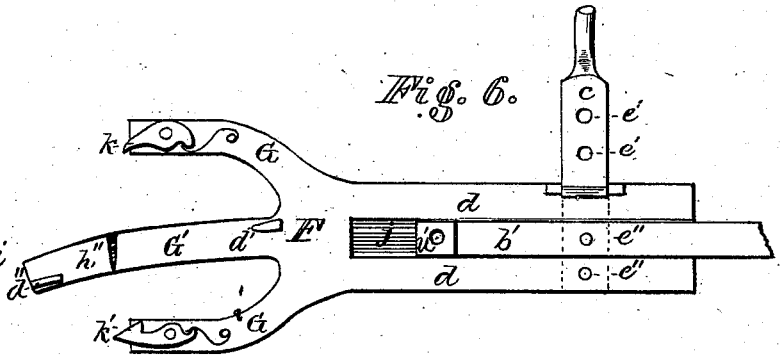

Fig. 8.

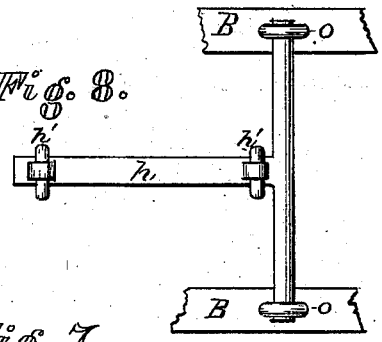

Fig. 9.

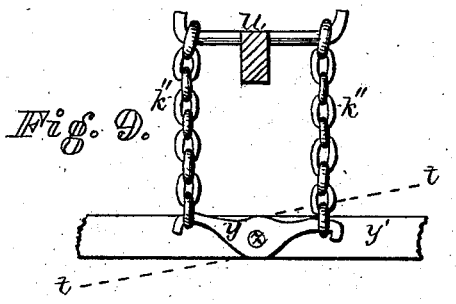

Fig. 7.

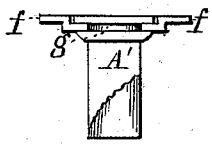

Fig. 10.

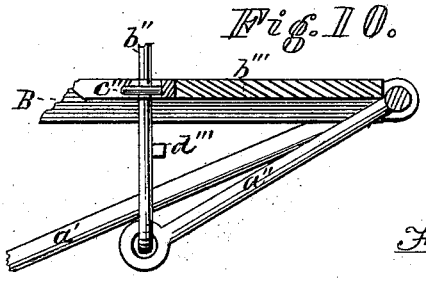

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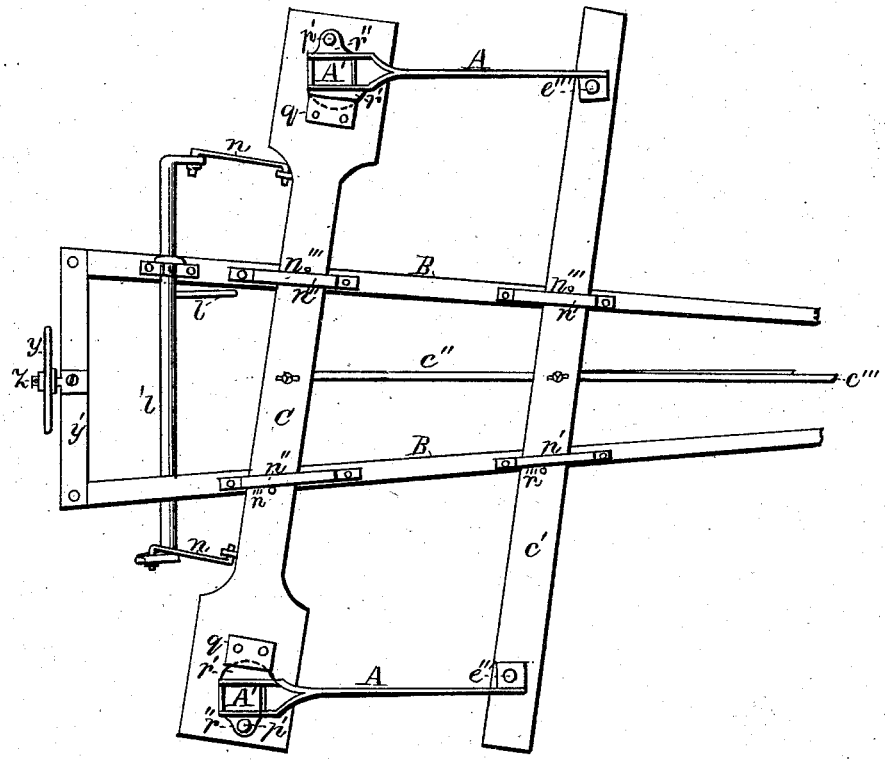
Fig. III.



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UNITED STATES PATENT OFFICE.

FLAVIOUS W. SHELLABARGER, OF MIAMI COUNTY, OHIO.

IMPROVEMENT IN CORN-PLANTERS.

Specification forming part of Letters Patent No. **190,087**, dated April 24, 1877; application filed April 12, 1876.

To all whom it may concern:

Be it known that I, FLAVIOUS W. SHELLABARGER, of the county of Miami, in the State of Ohio, have invented certain Improvements in Corn-Planters, of which the following is a specification:

My invention relates to a double or two-horse corn-planter; and consists in constructing the same as fully described hereafter, to insure certainty, uniformity, and efficiency of operation, enable either dropper to be used at pleasure, regulate the depth of the furrows, and generally to adapt the machine to perform properly its duties under all circumstances.

Figure 1 is a side elevation of a corn-planter with my improvements. Fig. 2 is a plan view of the same. Fig. 3 is a plan view of the dropper-plates and cut-offs. Fig. 4 is an edge view of the top plate with its cut-offs. Fig. 5 is a plan view of the rotary dropper-disk. Fig. 6 is a plan view of the trident-plate and attachments, which operate the rotary disk S, (shown in Figs. 3 and 5.) Fig. 7 is a view of the upper end of a dropper-tube or hollow post of the shoe, with the flanged plates by which it is pivoted to the cross-bar. Fig. 8 is a plan view of the T-shaped swiveled coupling by which the sections are connected. Fig. 9 is a rear view of the head of the foot-lever U, its chains, and the pivoted bar of the front section, showing the manner of their connection. Fig. 10 is a sectional view of the track-clearer attachment, showing its connection with the tongue and the lever for raising it. Fig. 11 is a plan view of the under side of the front section of the planter, showing the relative position of the parts in the zigzag or oblique movement.

A is the shoe of the planter; A′, its hollow post or dropper-tube. The point of the shoe A and the upper end of its post A′ are both pivoted at their points of attachment to the ends of the two cross-bars C and *c′*, so as to allow of the movement of these cross-bars when operated by the lever *l l′* and rock-shaft *n n*, which are connected to the main cross-bar C.

Fig. 1 shows the position of the hand-lever *l*, with its latch-rod working over the circular toothed rack *i′* on the side of one of the bars B of the tongue. The said lever *l* is rigidly attached to the rock-shaft *l′*, which latter extends across the machine in rear of the main cross-bar, its right end under the right tongue-bar and its left end on the top of the left tongue-bar. It is journaled in boxes on said bars B. Its ends are bent at reverse angles, upward and downward, and are flexibly connected with the cross-bar C by link-rods *n n*, which hook into them and into eye-bolts on the rear edge of said bars C. Lever *l* being thrown forward, the right arm of rock-shaft *l′*, by its rod *n*, pushes the right end of cross bar C, with its dropper furrowing-shoe, and the right end of cross-bar *c′*, all forward, while the arm on the left end of said shaft *l′*, through its rod *n* on that side, pulls back the left ends of the cross-bars with their dropper and shoe. When the hand-lever is thrown backward the positions are reversed. These oblique movements allow the operator to drop the grain into the intersections of the furrows, whether they be straight or crooked, and to turn the planter more easily by throwing the outside furrowing-shoe forward of the other. The central pivots of cross-bars *c* and *c′* are formed by the ends of the two draft-rods *c″* and *c‴*, which extend back from the double-tree *d‴* and the block *b‴* at the intersection of the tongue-bars B, and are bent at right angles, and inserted down through their centers. *c″* also pivots the double-tree. A ring is turned on the front end of *c‴*, which is slipped over the end of *c″* under block *b‴*, connecting both rods together. (See Fig. 1.)

Fig. 7 shows one form of pivoting the shoe-post A′. It is made round at its top part, and has a flanged end and a collar below it, leaving a groove, *g*, between them. The flange-plates *f* are cut out to fit snugly up to the post in the groove *g*, and are bolted to the under side of cross-bar C, so as to confine the top of the post to the bar, and to form a complete pivot-joint.

Another form of pivoting the posts is shown in Fig. 11, which is less expensive than the other.

The top end of A′ has flanges *r′* and *r″*, turned out on the two sides. *r′* is made circular, to allow it to pass easily under the plate *q′*, which extends over it, and by which it is held in place, said plate being bolted to the cross-bar C. The outside flange *r″* is held to the bar by the pivot-bolt *p′*. The position of these parts in turning can be readily understood by the view given of the under side of the frame in this figure. The point of the shoe A, which is attached to the forward cross-

bar c', is turned out at right angles in the same way on either side, and is pivoted to the bar by the pivot-bolt e'''. In order to allow of sufficient space for the movements of the cross-bars C and c', the stirrups n' and n'', by which they are held to the tongue-bars B, are made long enough to accommodate their operation. Small pins n''' prevent any movement endwise of the two bars, and the ends of the two draft-rods c'' and c''', which form their central pivots, keep these points in line, and hold them equidistant from each other.

In dropping the corn on the side of a hill, where one side of the planter is considerably elevated above the other, by throwing the shoe on the lower side forward of the upper one the machine is kept more steady, as it lengthens the line of support on that side. The distance can, of course, be varied with the change in the position of the cross-furrows in passing over the elevation.

a a are the dropper-boxes on each end of the main cross-bar C. The dropping device consists of a rotary disk, S, with holes s' through it for the passage of the grain, (see Figs. 2, 3, and 5,) and angles *i* on the periphery of its under side, by which it is rotated. In Figs. 3 and 4 the top plate *p* is also seen with its two cut-offs *r r*. This plate extends over one-half of the disk S, and its depressed part p'' fits into a recess, p''', in the disk S, to retain it in position while turning in the cavity formed for it in the bottom plate L of the box *a*. The spring cut-offs *r r* are made of metal, and sloped off to a thin edge in front, and pivoted with their inner ends in contact on the same rod. They are placed so that the line of division between them is coincident with the line of a circle on the plane of the disk, cutting through the centers of the holes s'. Should a kernel of corn become lodged under one of them the other will continue to operate, while in the single cut-off a lodgment of the kernel under it stops the operation of the cut-off entirely.

b is a hand-lever for operating the droppers, of the ordinary kind, fulcrumed in a ring on the inner side of the box *a*. The pointed end of this hand-lever is inserted into the hole u' in the end of the horizontal sliding lever b'. (See Fig. 6.) The end of b' is lapped over on itself, to prevent the point of *b* from touching the bottom of the groove *j* in the trident-plate F, when the two pieces are disconnected. *c* is a lock-latch, with holes e' e', which allow the pins e'' e'' in *d* and b' to project through them when it is shut down, as seen in Fig. 2. This latch is hinged to the edge of one of the sides *d* of the trident-plate F. The groove *j* allows the separate sliding bar b' to move in it when the two pieces are not in gear.

In operating the droppers the disk S is rotated to the left by the operation of the push-pawls *k k'* on the prongs G G. The middle prong G' extends to the farther side of the disk S, is bent to one side, and has raised stops d' and d'' at opposite ends. The former operates in the thrust, and the latter in the draw movement of the plate F, alternately catching behind an angle, *i*, and holding the disk at each movement. The peculiar shape of prong G' is such as to give certainty to the movements of the disk S, and its arresting-stops d' and d'' prevent any danger of registering incorrectly. The holes s' are of even number, and the angles *i* (of half the number) are odd. The prong G' is bent down, so as not only to bring it away from the line of the discharge-hole, but also to enable stop d'' to catch behind the proper angle.

Between the two dropper-boxes *a a* is the attendant dropper's seat E. This is placed on the coupling-bar D, which extends forward over the cross-bar C, and is coupled to the tongue-bars B (between them) by the coupling-iron *h*. (Shown in detail, Fig. 8.) This iron, which is round and T-shaped, has its stem extending along under the coupling-bar, to which it is swiveled by the eyebolts h'. Its head, extending across the two tongue-bars, is similarly pivoted to them by the eyebolts *o*. This coupling allows of the oscillation of the forward section in any direction without affecting the dropper's seat.

The coupling-bar D is bolted to the center of the axle and terminates in a wide fork, the two branches of which extend far enough behind the axle to support a suitable scraper-bar for cleaning the covering-wheels. It also forms a support for the seat of the driver. The angular braces m' m' extend from the outsides of the fork part to the rear of the axle, making this part very strong.

The tongue-bars B are connected at their rear ends by the piece y', and have the foot-pieces f''' (curved upward and outward) bolted to them.

The foot-levers f', for raising each side of the front section, are pivoted in Y-bolts on the top of the axle, and their front ends connected with the rear of the tongue-bars by link-rods *m* on each side, so that they can be operated independently of each other. (See Figs. 1 and 2.)

To regulate the depth for pressing the furrowing-shoes into the ground an adjustable foot-lever, U, is mounted in a Y-bolt on the coupling-bar D, just forward of the axle. It has a latch-lever, V, on the top, connected by a rod, V', with a slide, W, which works in a slot in the front end of lever U. This catches into the teeth of the upright rack X, also bolted on the top of said bar D. The front end of lever U is formed with a cross-bar or T-head, the ends of which are turned up to form hooks, from which depend the chains k'' k'' each side of the coupling-bar. These are connected at their lower ends with the ends of the vibratory bar Y, pivoted centrally on the rear side of the piece Y', which connects the rear ends of the tongue-bars B B.

To operate this device the heel of the foot is placed on the end of foot-lever U, and the toe on the spring-latch or secondary lever V, to

withdraw the slide W, and adjust it to any desired height, while pressing down lever U. The undulatory motions of the front section and the relation of the parts are shown in Fig. 9, the dotted lines *t t* showing the up-and-down movements of the piece Y′, while the bar Y, pivoted to it by bolt Z, keeps its level position by the connections shown with the foot-lever U. The bolt Z and stem of coupling *h* form the pivots for the front section when subjected to up-and-down side movements. *a′* is a round rod of iron, which forms the track-clearer attachment. It is pivoted at its middle part in eyebolts or staples at the front end of the tongue-bars B, and extends down on each side to the ground in front of the furrowing-shoes A. Its lower ends turn downward in the form of circular hooks, for the purpose of catching any stalks or other obstructions that may be in their way. Fig. 1 shows their position when ready for operation. Extending downward and backward from midway of their pivoted points is an arm, *a″*, with a ring in its end, which connects it (below block *b‴*) with a lifting-lever, *b″*. In Fig. 10 a sectional view of the end of the left tongue-bar is shown, and a section of the track-clearer, with its lever attached. The vertical lifting-lever *b″* passes up through a staple, *c⁗*, or a slot in the tongue-block *b‴*, as may be preferred. It is provided with a stop, *d‴*, to hold it up when elevated or not in use. The hooks *g′* are intended to rest on the ground, (when it is operated,) just inside of the line of the furrowing-shoes. (See Fig. 2.)

I claim as my improvement—

1. The combination, in a planter, of a recessed dropper-plate and a cut-off, consisting of two plates, *r r*, arranged to operate independently, but both simultaneously, in relation to the same hole, as and for the purpose set forth.

2. The combination of the plate *p*, the recessed dropper-plate S, and the two plates *r r*, pivoted side by side to the plate *p*, and arranged to operate simultaneously in relation to the same hole, as set forth.

3. A rotary dropper-disk, S, constructed with an even number of holes, *s′*, and an odd number of angles, *i*, in combination with a three-pronged or trident-shaped fork-plate, F, for operating the same, substantially as and for the purpose specified.

4. Trident-plate F, with its prongs G G G′, and their accessory parts, consisting of push-pawl *k*, catch-pawl *k′*, and stops *d′* and *d″*, adapted to operate the rotary disk S, and arrest the motion of the same, as shown and described, for the purpose hereinbefore set forth.

5. The combination of the fork-plate, the disk S, operated thereby, the sliding plate *b′*, and a latch, or its equivalent, whereby the two plates may be connected or disconnected, for the purpose set forth.

6. Latch *c*, with its holes *e′ e′*, in combination with plate F and slide-lever *b′*, with their pins *e″ e″*, as and for the purpose specified.

7. The independent or detachable slide-lever *b′*, having its ends lapped over on itself, with a hole, *w′*, in the overlapped part for the insertion of the end of the hand-lever *b* for operating it, and provided with a pin, or equivalent, for connecting it to the fork-plate of the dropper by latch *c*, substantially as shown and described, for the purpose set forth.

8. In combination, lever *b*, slide-lever *b′*, latch *c*, plate F, with its groove *j*, prongs G G G′, and their accessories, disk S, plate *p*, cut-offs *r r*, as described and set forth.

9. Flange-plates *f f*, in combination with groove *g* of a pivoted dropper-tube or shoe-post, and the cross-bar C, as and for the purpose specified.

10. In a two-horse corn-planter, with furrowing-shoes attached to its front section, as shown and specified, the pivoted shoe-post A′ and shoe A, in combination with the pivoted cross-bars C and *c′*, operated substantially as set forth.

11. Draft-rod *c″*, in combination with main cross-bar C, double-tree *d⁗*, tongue-block *b‴*, and tongue-bars B, as and for the purpose hereinbefore set forth.

12. Draft-rod *c‴*, in combination with cross-bar *c′*, tongue-block *b‴*, draft-rod *c″*, and tongue-bars B, as and for the purpose hereinbefore set forth.

13. The long open stirrups *n′* and *n″* and tongue-bars B, in combination with cross-bars C and *c′*, with their pins *n‴*, for the purpose of allowing side motion to said cross-bars when operated, as shown and specified.

14. The combination of the cross-bar C and the crank-lever *l′*, turning in bearings on the bars B, connected flexibly with the bar C by links *n*, and operating with said bar, substantially as and for the purpose specified.

15. In combination with the shoe-post A′, the retaining-plates *q*, flanges *r′* and *r″*, and cross-bar C, as shown and specified, for the purpose hereinbefore set forth.

16. The T-shaped coupling-iron formed in one piece, with its central stem extending backward beneath and secured to the coupling-bar D, (by ring-bolts,) and with its lateral arms pivoted at the ends to the bars B B, connecting the bars B and D, all as and for the purpose specified.

17. The forked coupling-bar D, bolted upon the top of the axle, and connected, by the braces *m′*, with the rear of the same, as a means of strengthening this part, as hereinbefore set forth.

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