

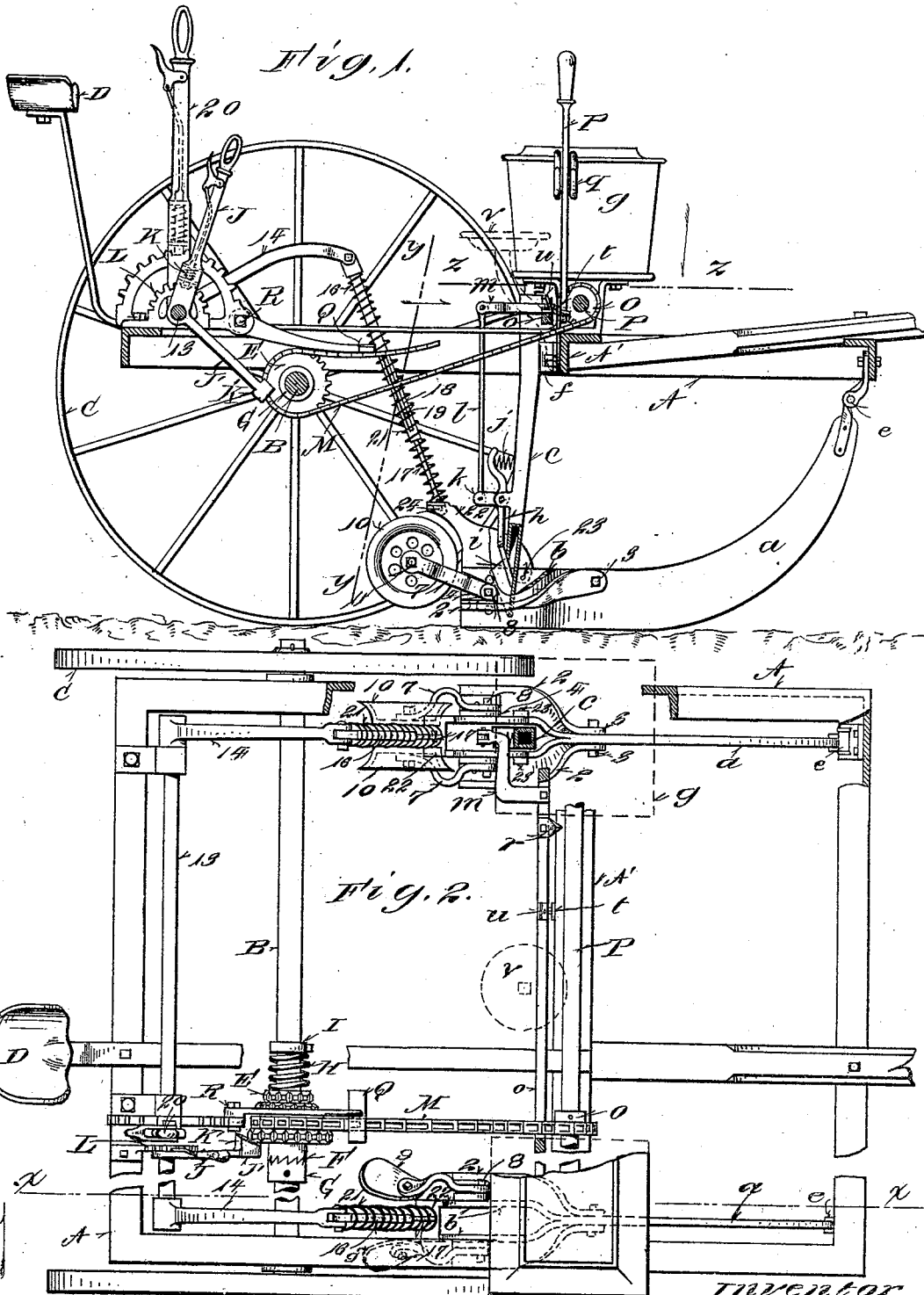
(No Model.)

2 Sheets—Sheet 1.

G. W. CAMPBELL.
CORN PLANTER.

No. 515,046.

Patented Feb. 20, 1894.



Witnesses
Jas. C. Hawley
St. M. McRae.

Inventor
Geo. W. Campbell,
By H. A. Paulmin,
his Attorney.

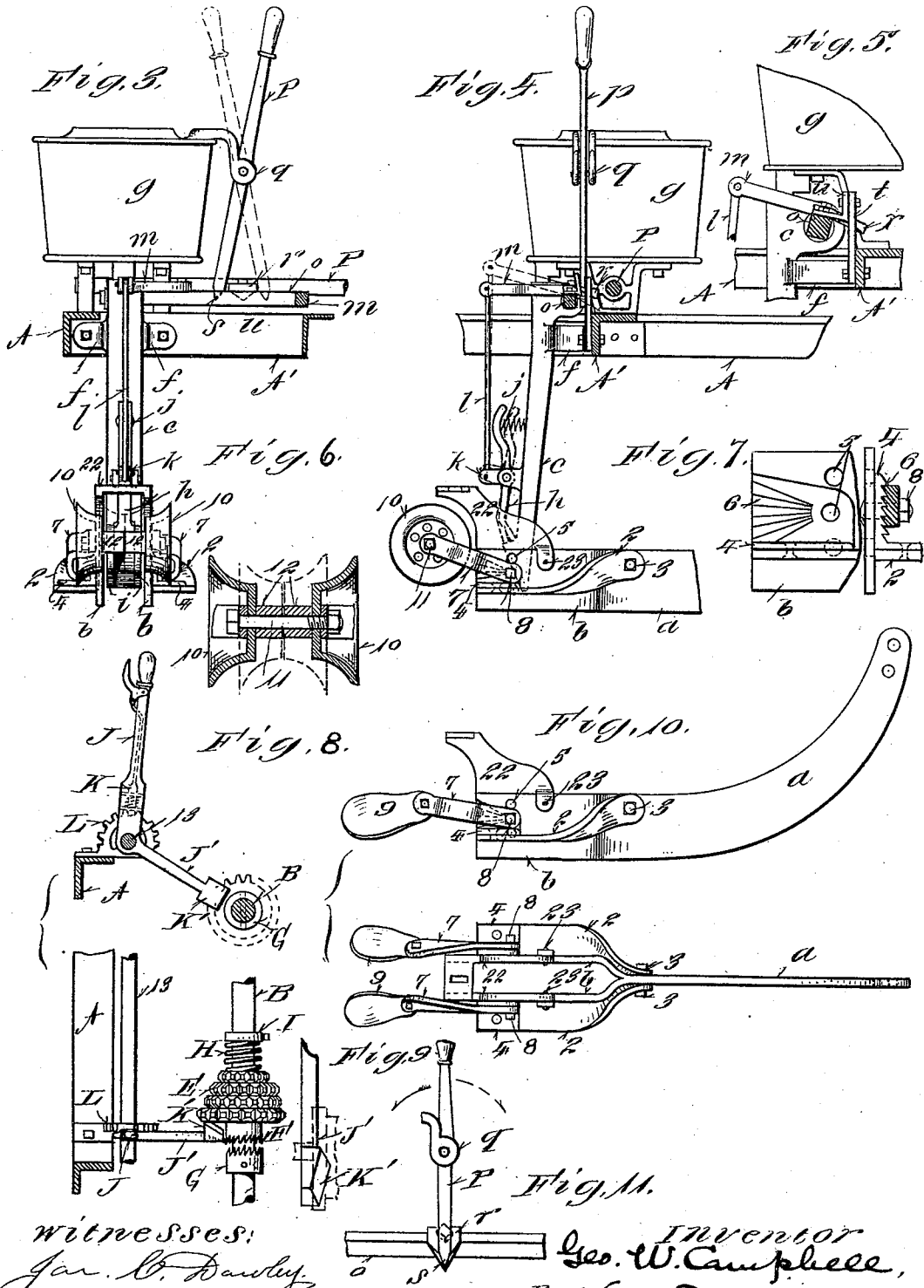
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UNITED STATES PATENT OFFICE.

GEORGE W. CAMPBELL, OF LIMA, OHIO.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 515,046, dated February 20, 1894.

Application filed May 2, 1893. Serial No. 472,778. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. CAMPBELL, a citizen of the United States, residing at Lima, in the county of Allen and State of Ohio, have invented certain new and useful Improvements in Corn-Planters, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in corn planters; and the several combinations and peculiarities of construction and organization will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings on which like reference letters and numerals indicate corresponding parts: Figure 1, represents a sectional view taken on the line xx of Fig. 2, with the more remote parts shown in side elevation; Fig. 2, a plan view with a portion in section on the line zz of Fig. 1; Fig. 3, a partial rear elevation and sectional view on the line yy of Fig. 1; Fig. 4, a side view with the parts in section; Fig. 5, a similar view showing the rock shaft in another position; Fig. 6, a detail sectional view through the axis of the covering wheels; Fig. 7, detail views showing part of the guard and covering arm and their serrated interconnection; Fig. 8, detail views of the clutching and unclutching lever and the sprocket cone in elevation and plan; Fig. 9, a detail view showing the relative position of said lever and said cone when the lever is down; Figs. 10, side and plan views of the runner with a different form of cover; and Fig. 11, a detail view of the rock shaft, its cam plate and the operating lever.

A frame A of any suitable construction is mounted upon an axle B carried by wheels C. There is nothing peculiar about these parts so far as my invention is concerned. The same is true of a seat D.

The first peculiar feature of my invention I will now describe. This consists of a cone E, of sprocket wheels either all made in one piece or separately made and connected together. This cone is loosely mounted on the axle B, is provided with clutch teeth F at one end, which are thrust against and into clutch teeth in a collar G fixed on the axle. A spring H pressing against the cone and a shoulder I performs this function. To break the clutch

connection the unclutching lever J is operated to lift its arm J', whose cam K' engages with one end of the cone and moves it against the spring and away from the collar G. As long as the arm J' is left against the cone it holds the clutches out of engagement but when the arm is dropped down by releasing its detent K from the toothed segment L, the spring H again engages the cone with the collar G. When engaged the cone rotates with the axle. A sprocket chain M runs from one of the cone sprockets to a sprocket wheel O on the usual dropper shaft P. Thus the speed of this shaft may be varied so as to drop the grain faster or slower without changing the speed of the machine over the field. The distance in a full sized machine between the sprocket wheel O and the cone sprocket wheels E is such that the variance in the alignment of the sprocket chain M when on one cone sprocket or the other is not sufficient to cause the chain to run off. Its links are dropped out or added to vary its length for each adjustment. The dropping mechanism forms no part of my invention and hence is not shown. Any of the forms well known in this art, which can be operated by a rotary drop-shaft P, may be used. In changing the sprocket chain M from one cone sprocket to that of next smaller size, the chain need not be altered in length because by pressing upon the loose side of it with the pivoted hanger arm, shown at Q and pivoted at R the slack may be taken up.

Referring now to another feature of my invention, the letter a designates a runner, constructed of a blade of metal divided in the rear portion into two branches b , between which stands the lower end of the fixed and rigid spout c . It will be noticed that the extreme upper forward end of the runner is connected to the frame A by a hinge or pivot joint e . The rear end of the shoe, which is some distance back of this point of connection and also some distance below it, must have some means of guiding it to prevent its lateral deflection, particularly when overcoming the resistance due to obstructions incidentally met with in passing over fields, as hard places in the ground, inequalities in it, stones, &c. The instrumentality employed to perform this function of guiding the rear

end of the runner, must not, however, interfere with the vertical play bodily of the runner, an incident to its operation. Nor must such instrumentality lose its control laterally over the runner in the respect here stated when the runner is operating either at extreme low position or extreme high position, according as it may have been adjusted for the particular work then to be done. I have said that the spout *c* descends into the space between the parts *b* of the runner, and that this spout is rigid. The upper end of it has lugs *f* which are bolted to the cross piece *A'* of the frame. Thus the spout performs this important function and still does not interfere with the adjustments and incidental up and down movement of the runner. The spout also receives the grain from the dropping mechanism in the grain hopper *g* and delivers it between the portions *b* of the runner and into the furrow opened by the forward part of the runner. In order to control the dropping of the corn a valve or cut-off *h*, is pivoted to the spout and extended at its lower end between guiding lips *i* and across the opening in the spout; while its upper end is operated upon by a spring *j* to keep the valve normally closed. A lug *k* on the valve has connected to it a rod *l*, actuated by an arm *m*, carried by a rock-shaft *o*. This shaft is rocked so as to lift the arm *m*, and thence operate the valve to withdraw it from the spout, by a lever *p* in bearings *q*, carried by the hopper. A cam-plate *r* secured to the rock shaft and beveled on its upper corners and slightly turned down, is pressed against by the lever *p* in such a manner that the lower beveled end *s* of the lever will pass over and upon the cam-plate forcing it down and thereby rocking the shaft *o*. When this lever passes from one side to the other of the cam-plate, a reverse movement of it will bring it back over against the plate so as to again depress it. In Fig. 3 it is shown in full lines at one side of the plate and in dotted lines at the other side. It will depress the plate when operated in either direction. Thus the operator can let the corn out of the spout in a regular manner by working this lever back and forth as he sits upon the seat indicated in dotted lines at *v* in Figs. 1 and 2. When this lever is left at rest the spout is closed. When the rock shaft is locked by the devices *t* and *u*, shown in Fig. 5, the spout is held open. Any other suitable instrumentality for rocking this shaft might be used, but this is one effective method. In Fig. 5 I have illustrated a bracket *t* secured to the cross-piece *A'* and a short projection *u*, secured to the rock-shaft so that when the shaft is adjusted to open the valve it may be secured by fastening this bracket and projection together with a bolt.

The next feature of my invention is that relating to the adjustable guard and adjustable coverer carried by the runner. First as to the guard: this consists of two plates 2

pivoted to the runner at 3 and extending out from the side portions *b*, so as to form surfaces that will bear upon the surface of the ground and limit the depth of the cut or furrow made by the runner by the means presently to be referred to. To either of these plates 2 is secured a right angle bracket 4, which is bolted to the runner through any one of the holes 5 in either side portion *b*. Thus the guards may be adjusted up and down and then secured in the adjusted position so as to limit the depth at which the runner may be depressed. The outer faces of these brackets 4 are serrated, as shown at 6 in Fig. 7. The coverer arms 7 are likewise serrated in that part which fits against these brackets so that when these arms are drawn up tight by the bolt 8 they will not slip. They may be adjusted up and down to vary the pressure of the coverer on the ground. Two forms of coverers are shown. On one side of Fig. 2 and in Fig. 10 covering wings 9 are shown fastened to the arms. The other form of coverer consists of two wheels 10, with their tread inclined inward so as to crowd the soil toward each other and thereby more thoroughly fill in the furrow; by preference the peripheries of these wheels are curved as clearly shown in Fig. 6. They are mounted on an axle bolt 11, carried by the arms 7 and are separated the required distance by spools 12. The wheels may be brought together by removing the spools from between them and placing the spools on the outside of them. This changes the width of the coverer constituted of the two wheels. When far apart they will pack the soil less firmly than when close together. By changing them from one position to the other the degree of packing may be varied, according to the soil and other conditions. The means of pressing the runners into the ground and for lifting them above the ground consists of the rock shaft 13 with its arms 14 carrying tubes 16, in which reciprocate rods 17. A slot 18 in the tubes receives a pin 19 carried by the rods, so that when the arms 14 are raised by throwing back the lever 20 the pins 19 reach the lower limit of the slot 18, whereby strain is brought upon the runners and they are lifted. To depress them a spiral spring 21 is placed about each tube 16 and its rod 17 so that when the lever 20 is thrown forward and the spring compressed, its expansive force is exerted against the runners, holding them yieldingly down to the limit determined by the adjusted position of the guards 2; and each runner carries a yoke 22 which fits upon the portions *b* and is bolted, as seen at 23. A rod 17 passes through an opening in the yokes and is prevented from drawing out by a pin 24, as seen in Fig. 1. Thus it will be understood that my improvements have reference to a pivoted vertical yielding runner in combination with a spout acting to maintain the runner against lateral deflection, and yet not interfering with the up and down adjustment and incidental vibra-

tions of the runner; to a valve mechanism to open and close the spout; to an adjustable guard for the runner, and to a peculiar type of coverer, adjustable to and from the ground and also adjustable in width to vary in the degree of packing the soil. These various improvements I have ascertained in a practical way to be of value in the field and to be capable of rapid and economical manufacture.

10 While I have shown and described the cone sprocket on the axle, it is obvious that it may be transferred to the dropped shaft, and become the driven part instead of the driving part; the sprocket wheel on the dropped shaft in such case being placed on the axle and becoming the driving part.

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

20 1. In a corn planter, the combination with the spout and a valve pivoted thereto, with a portion of the valve extending above the pivot, a spring acting on the latter portion to force the lower portion across the spout, a rod secured to the valve and adapted to move it on its pivot and compress the spring, a rock-shaft, an arm connecting the rock-shaft with said rod, and a cam plate and lever to operate the rock-shaft.

30 2. In a corn planter, the combination with a runner pivoted at the forward part, means to depress its rear end, and a guard to limit its descent into the soil, of a spout operating in conjunction with said runner and acting to maintain it against lateral deflection without interfering with the up and down movement of the runner.

40 3. In a corn planter, the combination with the runner pivoted to the frame at the forward part; adjustable up and down in the rear part, and mechanism to yieldingly de-

press and hold the runner down, and guards to limit its descent, of a rigid spout extending down into the runner and telescoping with it when the runner vibrates up and down, and at the same time preventing the lateral deflection of the runner, and a suitable valve to open and close the spout.

4. In a corn planter, the combination with a runner pivoted at the forward part and adjustable up and down in the rear part, of a spout operating in conjunction with the runner, and preventing it from lateral deflection.

5. In a corn planter, the combination with a runner pivoted at the forward part, and mechanism to yieldingly depress it into the ground in the rear part, of guards and a coverer carried by the runner, the guards and the coverer being adjustable to different positions and devices to fix them in either of such positions.

6. In a corn planter, the combination with a runner pivoted to the frame at the forward end, a lever mechanism with an interposed spring to depress the runner yieldingly into the soil, guards carried by the runner and adjustable at their rear end up and down, and a coverer also carried by the runner and independently adjustable up and down.

7. In a corn planter, the combination with a runner, of guards consisting of plates pivoted to the runner at their front ends, and a coverer consisting of arms adjustable up and down at their rear ends, two wheels carried by the arms and adjustable to and from each other.

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

GEORGE W. CAMPBELL.

Witnesses:

OLIVER H. MILLER,
WARREN M. MCNAIR.