

(No Model.)

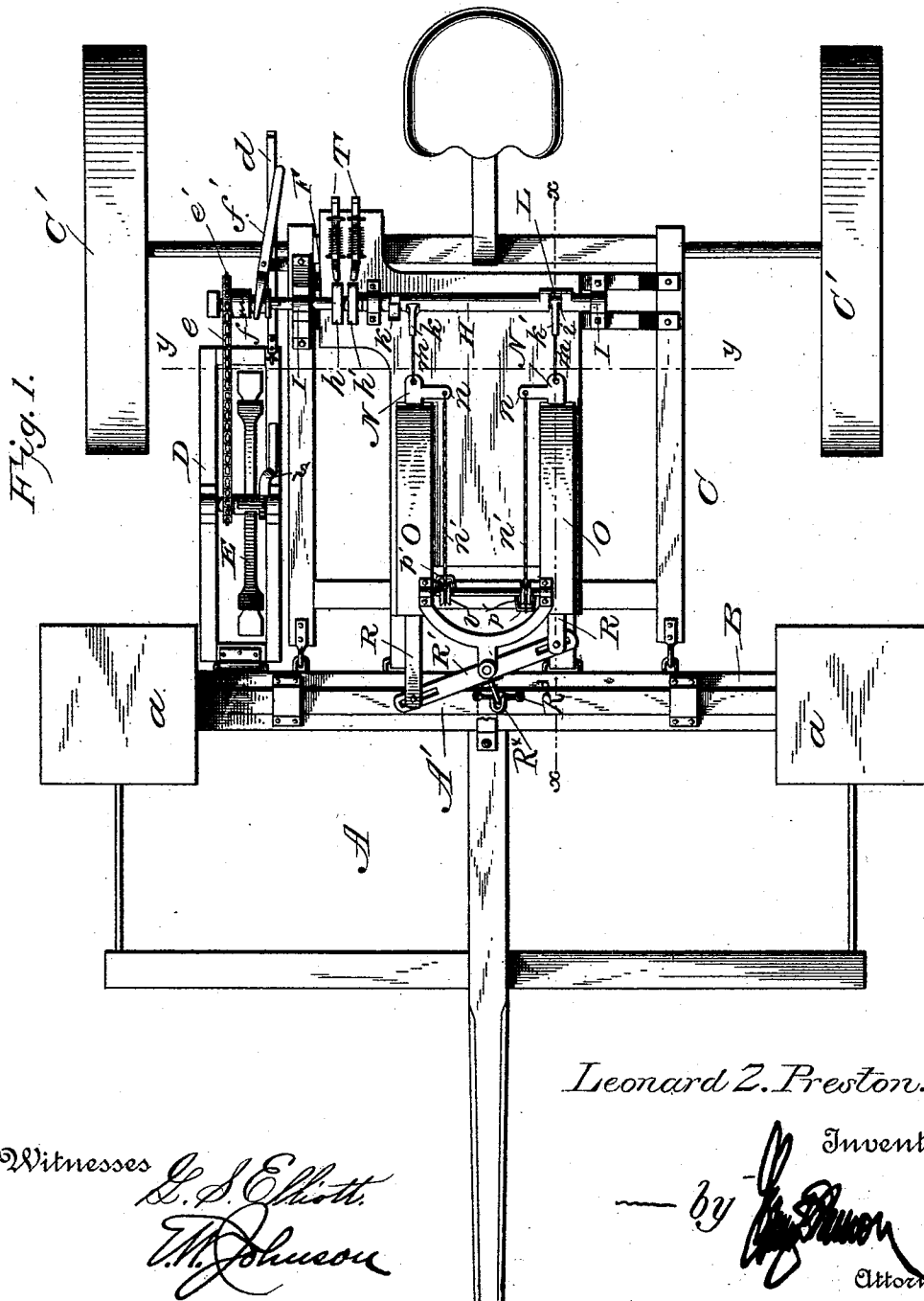
3 Sheets—Sheet 1.

L. Z. PRESTON.

SEED DROPPING MECHANISM FOR CORN PLANTERS.

No. 498,727.

Patented May 30, 1893.



Leonard Z. Preston.

Inventor

by

Attorney

Witnesses

L. S. Elliott.
W. M. Johnson

(No Model.)

3 Sheets—Sheet 2.

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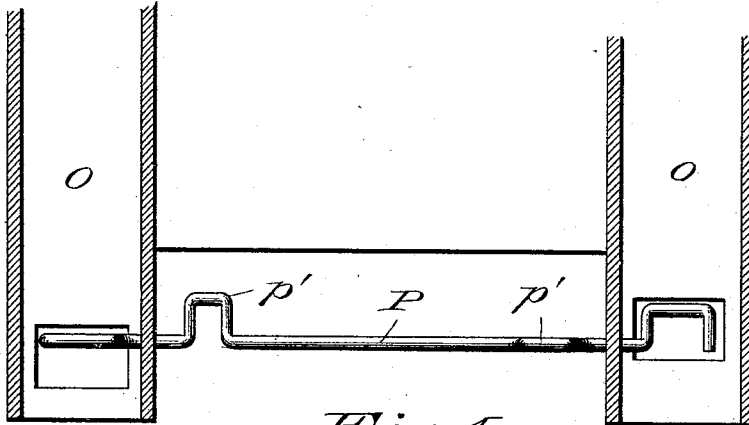
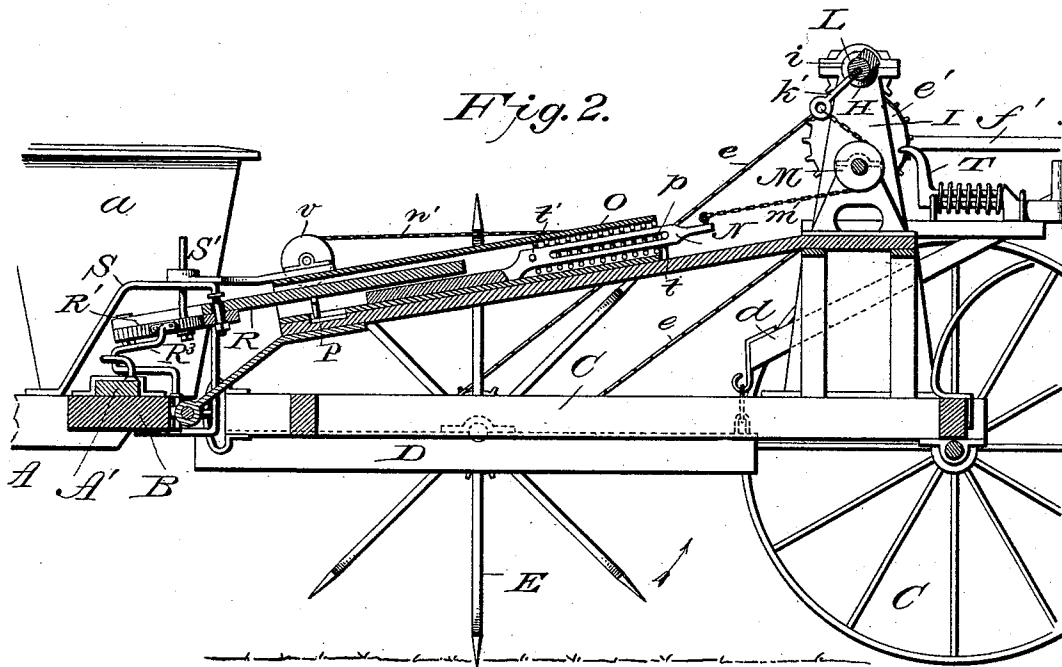


Fig. 4.

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(No Model.)

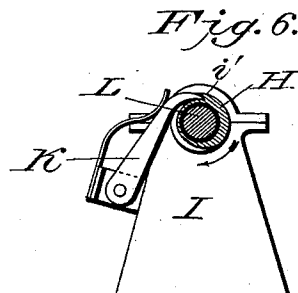
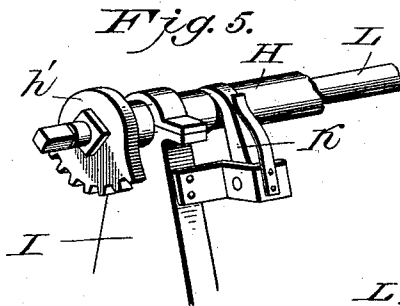
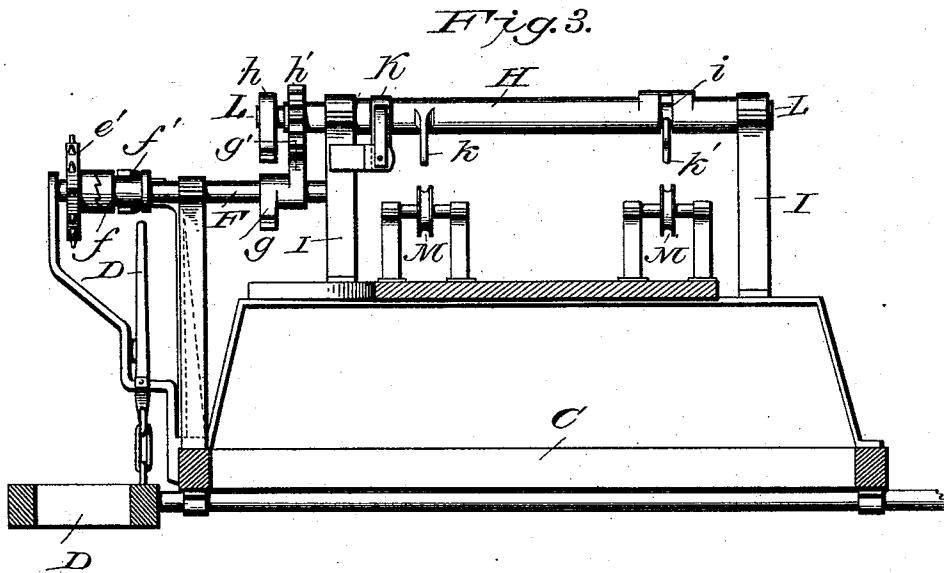
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L. Z. PRESTON.

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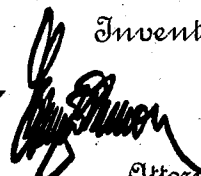
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Witnesses
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UNITED STATES PATENT OFFICE.

LEONARD Z. PRESTON, OF CHAMPION, ASSIGNOR OF ONE-THIRD TO
STEPHEN C. McELROY, OF IMPERIAL, NEBRASKA.

SEED-DROPPING MECHANISM FOR CORN-PLANTERS.

SPECIFICATION forming part of Letters Patent No. 498,727, dated May 30, 1893.

Application filed October 20, 1892. Serial No. 449,436. (No model.)

To all whom it may concern:

Be it known that I, LEONARD Z. PRESTON, a citizen of the United States of America, residing at Champion, in the county of Chase and State of Nebraska, have invented certain new and useful Improvements in Seed-Dropping Mechanism for Corn-Planters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in means for operating the seed dropping mechanism of corn planters.

The object of the invention is to provide improved means for operating the seed slide at regular intervals, the mechanism being so constructed that it can be readily thrown in and out of gear and adjusted for setting the same; and the invention consists in the construction and combination of the parts, as will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification: Figure 1 is a plan view showing my improvements applied to a corn planter. Fig. 2 is a sectional view taken on the line $x-x$ of Fig. 1. Fig. 3 is a sectional elevation taken on the line $y-y$ of Fig. 1. Fig. 4 is a detail view partly in section of the crank-shaft and boxing or casing which supports the same. Fig. 5 is a detail perspective view of a hollow shaft through which a shaft carrying a mutilated gearwheel passes, and Fig. 6 is a sectional view showing the engagement of a pawl with said hollow shaft.

A designates the front or runner frame of a corn planter, which is provided with seed boxes $a a$ and a reciprocating bar A' which carries the seed slides, said seed slides being of ordinary construction.

To the beam B of the front or runner frame of the planter is connected the rear or wheel frame C, which is supported at its opposite end by the wheels C' , said wheels being mounted on a suitable axle. To the rear of the beam B of the front frame is connected a rectangular frame D, the opposite end of

which is supported by a lever d pivoted to a bracket secured to the rear frame, so that by depressing the rear end of the lever d the frame will be swung upward to elevate the drive-wheel E above the level of the ground. This drivewheel is a rimless one, and the ends of the spokes are sharpened and flattened so that they will enter the ground and get a secure hold thereon. One side of the hub of this wheel is provided with ratchet-teeth with which a spring pawl S engages to prevent the backward rotation of said wheel, and the opposite side of the hub carries a sprocket-wheel over which passes the sprocket-chain e , said sprocket chain also passing over a sprocket-wheel e' carried by the shaft F. The sprocket-wheel e' is loosely mounted on the shaft F, and the hub thereof has a ratchet or clutch face which is adapted to engage with the teeth or clutch face of a slide f which is also mounted on the shaft F and is held in connection therewith by a feather or spline, the slide being operated by a lever f' suitably supported. The shaft F has rigidly attached near its end opposite the sprocket-wheel e' toothed segments g and g' , which are preferably attached to the same sleeve or hub and are arranged diametrically opposite each other and out of line; these segments being adapted to engage with the toothed segments h and h' rigidly secured to the shafts H and L, which will be hereinafter described.

The shaft or hollow sleeve H is supported in suitable bearings or standards I carried by the raised platform on the frame C. This hollow shaft is apertured as shown at i and is also provided with an arm k which extends forwardly as shown. The sleeve has an eccentric portion which terminates in a ratchet-tooth i' , with which a spring actuated pawl K is adapted to engage so as to hold the hollow shaft or sleeve against rotation except in the direction indicated in Fig. 6. To the end of this hollow shaft or sleeve is attached the toothed segment h' with which the toothed segment g' engages.

L designates a shaft which passes through the hollow shaft H, and the end of this shaft is squared to receive the toothed segment h which engages with the toothed segment g . The shaft L is held within the hollow shaft

or sleeve H by an arm k' , which passes through the recess i in said hollow shaft or sleeve. The outer ends of the arms k and k' are provided with eyes in which are fastened flexible connections m which lead therefrom over suitable guide pulleys M M to spring actuated slides N located within the boxings or housings O, said boxes or housings being secured to the inclined portion of the elevated platform, as shown in Fig. 2. The spring actuated slides N are slotted as shown at p , and are encircled by helical springs which bear at one end against staples t secured to the elevated platform and pass through slots in the slides, while the other end bears against a pin t' projecting on each side of the slide. At the rear ends of these slides N are formed laterally projecting portions n to which are secured flexible connections n' , which pass over suitable guide pulleys v mounted on a shaft journaled upon the boxes or housings O, from which they extend to the crank portions $p'p'$ of the double crank-shaft P, the ends of said crank shaft entering the boxes or housings where they are bent as shown in Fig. 4. The spring actuated slides N have their lower ends shaped so as to rest immediately upon the bottom of the boxes or housings.

R R designate reciprocating bars, the ends of which enter the housings O and rest above the bent ends of the shaft P, the forward ends of said bars being pivoted to the ends of a cross-bar or lever R' , said lever having centrally a forwardly projecting arm R^3 which engages with a loop R^4 , carried by the reciprocating seed slide A' and reciprocates the same. It will be noted that the bars R R are pivoted in slots formed in the ends of the lever R' so as to allow said bars to be reciprocated on a straight line. The cross-bar or lever R' is fulcrumed upon suitable supports S and S' extending from the runner frame A and housings O O, the connection being such that the frame C can swing upon the frame A without throwing the parts out of gear.

If desired the elevated platform of the frame C may be provided near the toothed segments g and g' with spring actuated pawls T, the tendency of the springs being to hold the pawls out of engagement with the teeth of said segments, said pawls being thrown in engagement with the segments by direct pressure. By providing the shaft F with the sliding clutch e' said shaft can be thrown out of rotation with the sprocket wheel, and by properly operating the pawls T the segments g and g' can be adjusted to bring them in proper engagement with the segments h and h' located above the same.

In operation, as the planter is drawn over the ground the spoke of the rimless wheel E will enter the ground so as to be turned in the direction indicated by the arrow, and by means of the sprocket-chain e impart a rotary motion to the shaft F, and the parts of the apparatus being properly set the toothed segments g and g' which are rigidly mounted on

the shaft F will alternately engage with the toothed segments h and h' keyed on the shaft L and sleeve H respectively; when the sleeve H is rocked the arm k to which the flexible connection m is secured will draw upon said flexible connection so as to compress the spring which encircles a part of the slide N, and at the same time the flexible connection n' is drawn upon to raise one of the bends in the terminal portions of the crank shaft P, thus permitting the reciprocating bar R to move so that the end thereof will be on a line with the end of the slide N. So soon as the segment h' is turned sufficient to be out of engagement with the segment g' tension upon the connection m will be released and the slide N forced by the spring to its normal position, and during said movement will contact with the end of the reciprocating bar R within the housing to move the lever R' upon its pivot, said lever being connected to the reciprocating seed slide moving the same. The operation is repeated by the shaft L and arm k' carried thereby; the parts being duplicated are arranged to operate alternately by reason of the toothed segments and bent shaft P, the bends in said shaft being opposed to each other as shown in Fig. 4.

This device may be attached to corn planters of ordinary construction, and insures regularity in dropping the seed without the employment of a check row cord.

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

1. In a seed planter having a reciprocating seed slide, a lever carrying an arm which connects therewith, bars adapted to engage with said lever located in a housing, said housing containing a spring actuated slide and the bent end of a crank-shaft P, the crank-shaft and slide being connected to each other, and means for actuating the slide, substantially as shown, and for the purpose set forth.

2. In a planter having housings, bars which enter the same, a crank-shaft for alternately elevating and lowering said bars, a lever upon which said bars act, and spring actuated bars located within the housings so that the movement of said bars when acted upon by the springs will contact with the ends of the bars attached to the lever, substantially as shown.

3. In a planter, the combination of the boxes or housings O O, bars which are spring actuated in one direction located within said housings, bars R which enter said housings and are connected with a lever, the lever having a forwardly projecting arm which engages with the seed slide, flexible connections n and n' connected with the slides N and with means for alternately elevating the bars R, and flexible connections connected with the operating mechanism for alternately moving the spring actuated slides N, substantially as shown, and for the purpose set forth.

4. In a planter, the combination of a frame D carrying a single rimless wheel E, a sprocket-

chain adapted to be driven therefrom and turn a shaft F carrying toothed segments *g* and *g'*, said toothed segments being adapted to engage with segments carried by shafts H and L, said shafts having forwardly projecting arms *k* and *k'* from which flexible connections extend to operate slides N, substantially as shown.

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5. In a device for converting the rotary motion of a drive-wheel to a horizontal reciprocating motion, the combination of a driven shaft having toothed segments *g* and *g'* secured thereto, a hollow shaft or sleeve H carrying a toothed segment *h'* and an outwardly projecting arm *k*, a shaft L which passes par-

tially through the sleeve or hollow shaft H, said shaft carrying a toothed segment *h* and an arm *k'* which passes through a slot in the sleeve H, connections attached to the arms *k* and *k'*, sliding bars N and R, and lever R' 20 having a central arm which engages with a reciprocating bar, substantially as shown, and for the purpose set forth.

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

LEONARD Z. PRESTON.

Witnesses:

C. O. MEAD,
FRANK PINE.