

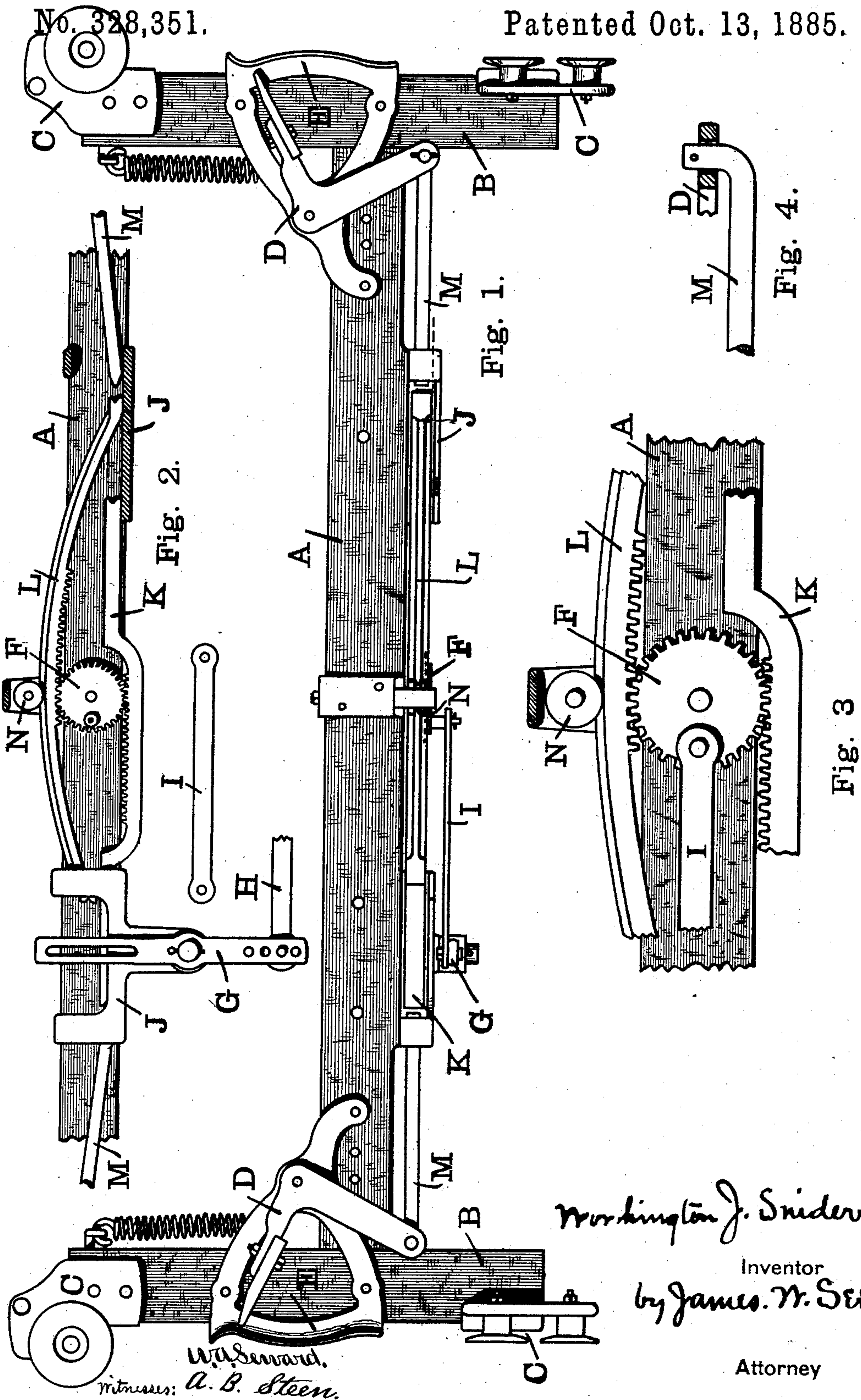
(No Model.)

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CHECK ROWING ATTACHMENT FOR CORN PLANTERS.

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Patented Oct. 13, 1885.



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CHECK-ROWING ATTACHMENT FOR CORN-PLANTERS.

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To all whom it may concern:

Be it known that I, WORTHINGTON J. SNIDER, of Madison City, (post-office address Heno,) Butler county, Ohio, have invented certain new and useful Improvements in Check-Rowing Attachments for Corn-Planters, of which the following is a specification.

There is a general class of corn-planters in which a suitable wheeled frame is provided with two seed-boxes having spouts or the like to deliver corn into two parallel furrows, the corn being admitted to the spouts from the seed-boxes by a periodical operation of valves connected to the seed-boxes, the valve-operating mechanism of the two seed-boxes being connected by a cross-rod, the reciprocation of which rod serves to operate the valves, the rod being reciprocated by hand in a hand-planting operation, by the machine-axle in a drilling operation, or by a check-row wire in a check-rowing operation.

My invention relates to an attachment to be secured to a corn-planter of the above-mentioned class, the object of the attachment being to receive actuations from the check-row wire and to convert and transmit these actuations to the reciprocating-bar, which operates the valves of the planter.

My invention will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a plan of my improved attachment; Fig. 2, a rear view of the central portion of the same with some parts shown in vertical section, and with the link removed from its normal position and shown isolated; Fig. 3, an enlarged repetition of the central portion of Fig. 2, except that the link is shown as properly attached; and Fig. 4, a vertical section of the end bearing of one of the bell-crank levers.

In the drawings, A indicates a long cross-piece adapted to reach across the corn-planter and be attached to the two seed-boxes; B, frame-pieces attached to the ends of the cross-pieces forming T's at each end of the same; C, the usual roller-work secured to the end piece of the frame and adapted to retain and guide the check-row wire in the usual manner; D, the usual bell-crank pivoted near the

ends of the frame-work and arranged to be oscillated as each check-row button is passed, the retractive oscillation of the levers being effected by the usual springs; E, the usual fence for insuring the engagement of the buttons of the check-row wire with the bell-crank levers; F, a pinion provided with a crank-pin and mounted at the center of the frame, the axis of the pinion being horizontally disposed parallel to the wires; G, a vertical lever pivotally carried by a pivot-support attached to the frame and disposed to one side of the pinion, the pivot-axis of the lever being parallel with the axis of the pinion; H, a connecting-rod attached to the lower end of the lever, and intended to have its other end provided for attachment to the valve mechanism of the corn-planter in such manner that the oscillations of the lever effect the proper actuation of the seeding-valves, as usual; I, a link connecting the upper end of the lever with the crank-pin of the pinion, this link being shown in Fig. 2 as detached and isolated; J, guide-castings secured to the cross-piece of the frame at each side of the pinion, these guides forming, virtually, mortises parallel with and against the face of the frame-piece; K, a rack with its teeth engaging below the pinion and having its ends resting upon the floor of the guides; L, a curved rack engaging above the pinion and having its ends disposed within the guides, the rack being at liberty to oscillate—that is, the pinion supports the rack at some mid-portion and the two ends of the rack are at liberty to rise and fall; M, pawl-rods having their outer ends coupled to the bell-crank levers and having their inner ends resting upon the floor of the guides, the inner ends of the pawl-rods being somewhat chisel-formed and adapted to engage notches formed in the ends of the racks, and N a roller supported by the frame-piece and disposed vertically over the pinion, so as to engage the top of the upper rack, the top of the rack being provided with a longitudinal rib engaging a peripheral groove in the roller.

It is to be understood that this attachment is operated by a check-row wire traversed by one end of the attachment, the other end of the attachment remaining idle until the return trip of the machine across the field, when

the wire is to be shifted from one end of the attachment to the other. We will assume that the wire is engaging the right-hand end of the attachment as the attachment appears in the drawings. When the button of the wire comes in contact with the bell-crank lever, the lever will be oscillated and the pawl-rod will be pushed far into the guide, after which the bell-crank and pawl-rod are returned to their normal positions by the action of the springs. As the pawl-rod advances into the guide it makes contact with the end of the upper rack and pushes that rack to the left, thus revolving the pinion a half-revolution. As the pinion revolves it causes the lower rack to move to the right. The ends of the two racks will naturally come into contact at about the middle of the stroke of the racks, and when this occurs the end of the upper rack rises and rides upon the surface of the lower rack, the end of the pawl-rod rising also and continuing to push the upper rack to the left. When the stroke has been completed, the end of the lower rack will occupy the position shown in the drawings as being occupied by the end of the upper rack, the end of the upper rack will be resting upon the upper surface of the lower rack, and will occupy a position to the left corresponding with the position shown in the drawings as being occupied by the end of the lower rack, the pawl-rod will occupy its normal position shown in the drawings, the crank-pin of the pinion will have made a half-revolution, and the lower end of the lever G will have been oscillated to the left, thus giving actuation to the seeding devices. When the next button strikes the bell-crank lever, the pawl-rod will operate upon the lower rack, pushing it to the left, thus returning the pinion to its original position and giving another actuation to the lever G and the seeding mechanism. While the pawl-rod is advancing on this stroke the upper rack is caused, by the rotation of the pinion, to move to the right, during which movement its end rides upon the pawl-rod. When the spring returns the pawl-rod to its normal position, the end of the upper rack drops down upon the floor of the guide into the position shown in the drawings, ready for the next advance of the pawl-rod. In this manner each stroke of the pawl-rod moves the rack to the left and causes a half-revolution of the pinion, the racks being operated upon alternately, and the pinion rotating through a half-revolution in alternate directions at each stroke.

It is seen that the upper rack partakes of an oscillating motion as its ends rise and fall, the axis of this oscillation being the point of engagement of the rack with the pinion. The roller forms a convex upper bearing for the rack, which permits this oscillation while pre-

venting the rising of the rack out of engagement with the pinion. A roller would perform this function in case it was not free to revolve, in which case the roller might be looked upon as being a rigid top support with a convex bearing-surface over the rack.

The two ends of the attachment are alike, and when the check-row cord is operating upon the left-hand end the motions are the same as have been indicated, the pawl-rod upon the idle end of the attachment remaining in its outward position.

The bell-crank mechanism at the ends of the attachment illustrates one type of button-operated mechanism employed in check-rowers. I contemplate the employment of any of the other well-known types of construction adapted to convert and transmit the button-produced effect into reciprocations of the pawl-rods.

Check-rowing attachments have been heretofore devised in which a pinion was engaged by a pair of reciprocating racks; but such devices have, essentially, involved elements not essentially involved in my contrivance, and elements are essential in my contrivance which do not appear involved in the older devices.

It is essential in my device that one of the racks be oscillated, and that there should be a convex abutment-bearing to keep the rack to the pinion.

I claim as my invention—

1. In a check-rower, the combination of a pinion, a guide at each side of the pinion, a rack engaging below the pinion and having its ends supported in the guides, an abutment-bearing provided with a convex under surface above the pinion, an oscillating rack engaging above the pinion below said abutment-bearing and having its ends disposed within the guides, and reciprocating pawl-rods having their ends disposed within the guides and adapted to engage and actuate the racks alternately, substantially as and for the purpose set forth.

2. In a check-rower, the combination of cross-piece A, pinion F, mounted thereon, guides J, supported by the frame, reciprocating pawl-rods M, having their ends disposed within the guides, rack K, engaging below the pinion and having its ends supported in the guides, the roller N, supported by the cross-piece and disposed above the pinion, and the oscillating rack L, engaging the pinion and roller and having its ends disposed within the guides, substantially as and for the purpose set forth.

WORTHINGTON J. SNIDER.

Witnesses:

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W. A. SEWARD.