

No. 657,246.

Patented Sept. 4, 1900.

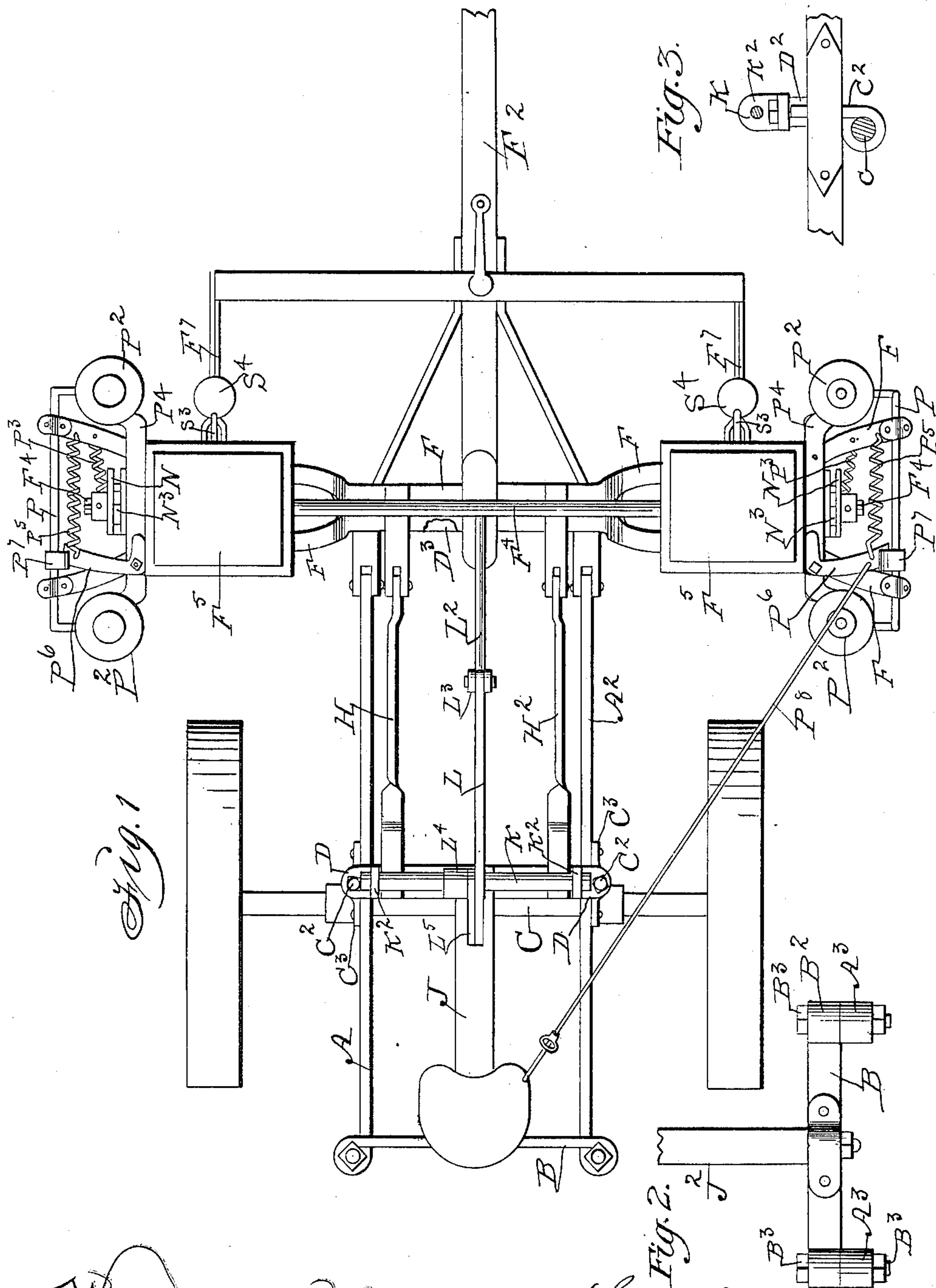
L. J. LINDSAY.

AUTOMATIC CHECK ROW CORN PLANTER.

(Application filed Apr. 9, 1900.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses: } Inventor: Leroy J. Lindsay,
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Thomas G. Orwig, Attorney.

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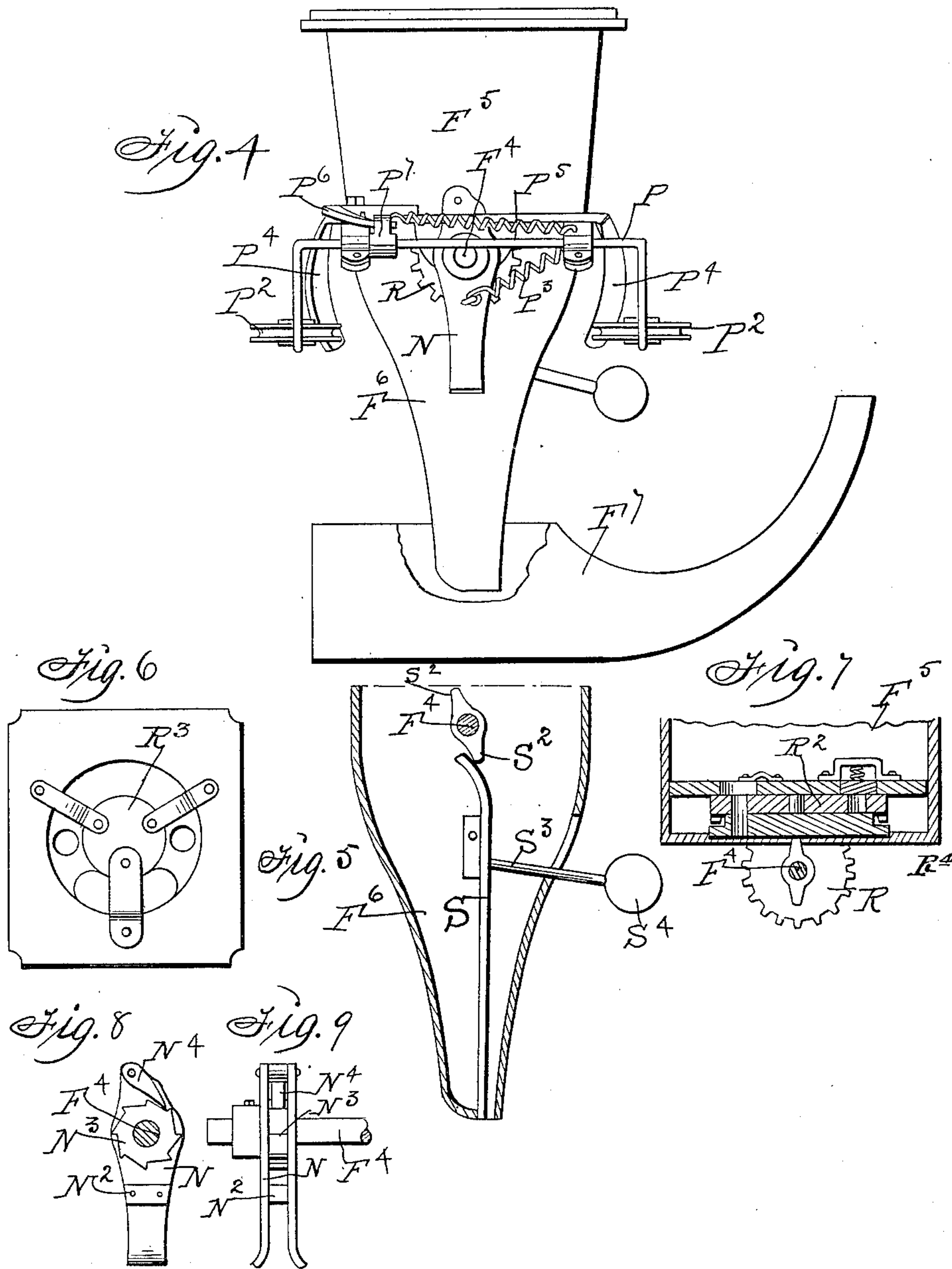
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3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

Fig. 10.

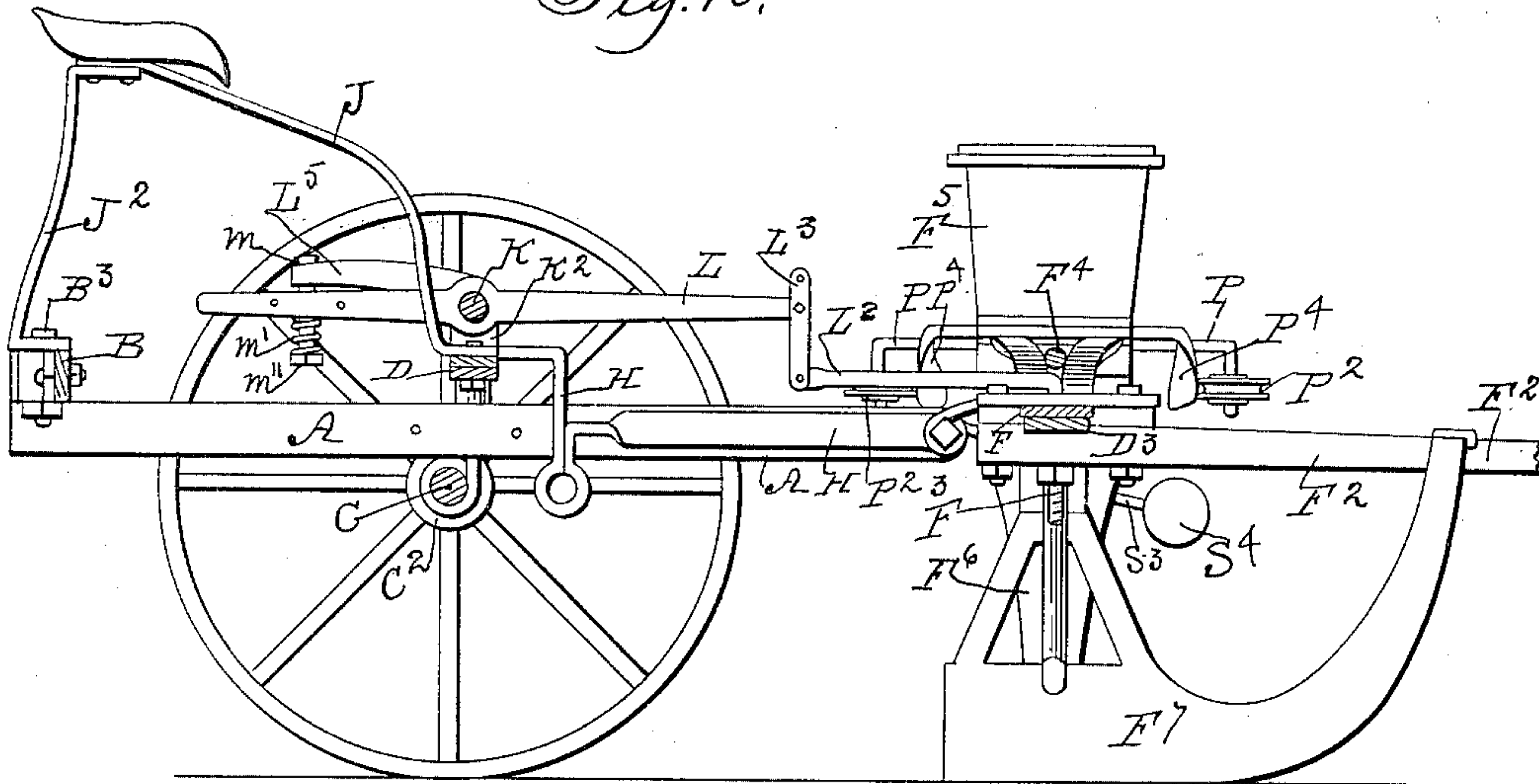
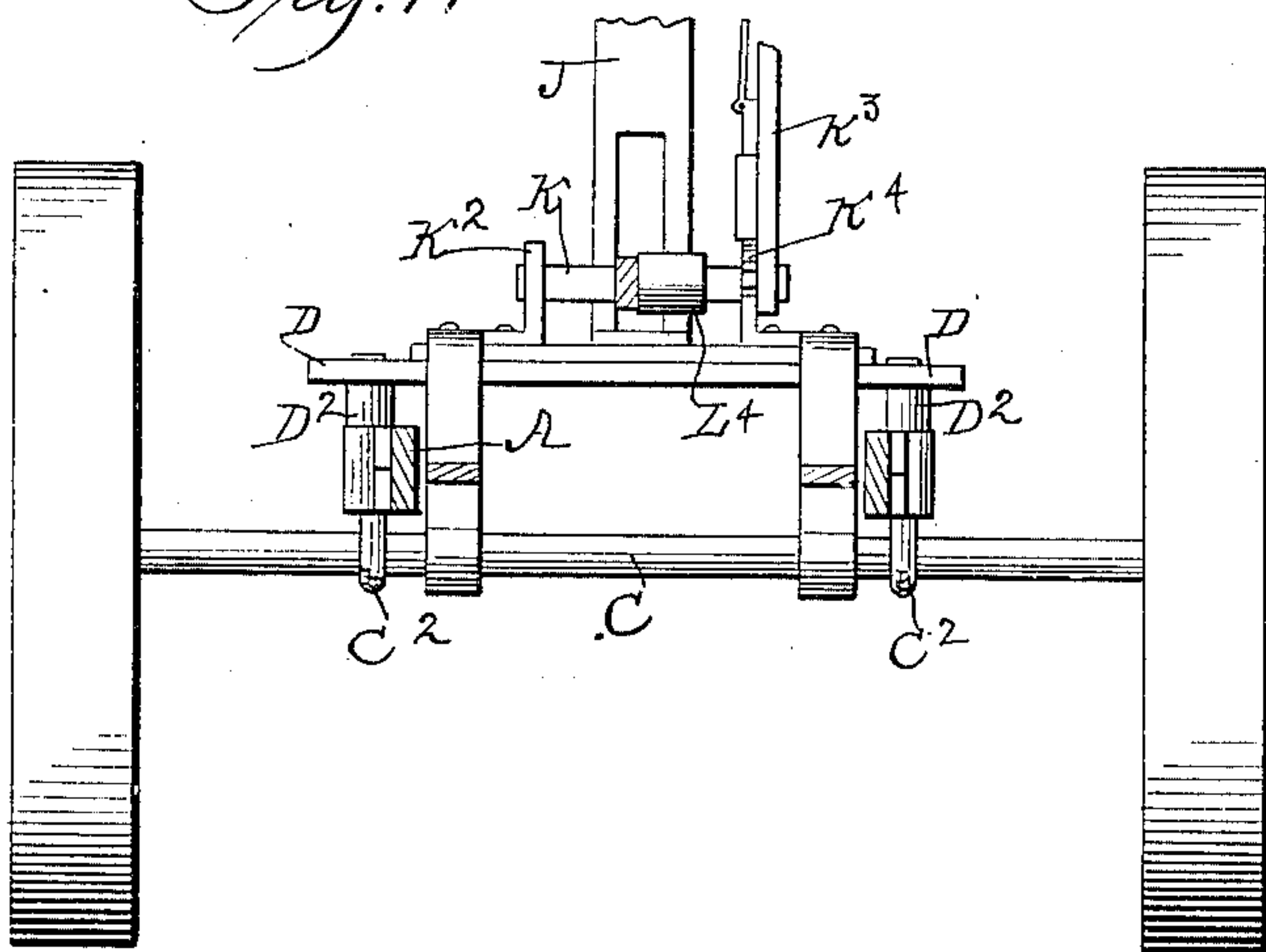


Fig. 11.



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UNITED STATES PATENT OFFICE.

LEROY J. LINDSAY, OF SEYMOUR, IOWA, ASSIGNOR OF ONE-HALF TO J. T. PHILLIPS, OF SAME PLACE.

AUTOMATIC CHECK-ROW CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 657,246, dated September 4, 1900.

Application filed April 9, 1900. Serial No. 12,076. (No model.)

To all whom it may concern:

Be it known that I, LEROY J. LINDSAY, a citizen of the United States, residing at Seymour, in the county of Wayne and State of Iowa, have invented a new and useful Improvement in Automatic Check-Row Corn-Planters, of which the following is a specification.

My invention relates to the automatic check-row corn-planter shown and described in my applications for patents filed February 15, 1900, Serial No. 5,312, and February 27, 1900, Serial No. 6,685; and it consists of the improvements hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings to adapt the flexible carriage to be advantageously used for operating the seed-dropping mechanism by means of a knotted wire.

Figure 1 is a top view showing the relative positions of all the operative parts. Fig. 2 is a view of the rear end of the carriage-frame and portion of the seat-support. Fig. 3 is a detail view of the swivel connection of the rotatable axle with the carriage-frame. Fig. 4 is an enlarged side elevation of the seed-dropping mechanism connected with a runner and a seedbox. Fig. 5 is a sectional elevation and detail view of a seed-conveyer and valve operated by a weight. Fig. 6 is a top view, and Fig. 7 a transverse sectional view, of the seed-dropping mechanism in the bottom of the seedbox. Figs. 8 and 9 are detail views of the operating-lever adapted to be actuated by a knotted wire for operating a seed-dropping valve in the bottom of a seedbox. Fig. 10 is a vertical longitudinal sectional view of the flexible carriage and operative mechanism connected therewith. Fig. 11 is a transverse sectional view on a line in front of the rotatable carriage-axle that has a swiveled connection with the carriage-frame and illustrates how the runner-frame is pivotally connected with a cross-bar that has pivotal connections with the side bars of the flexible carriage-frame.

A and A² are the mating sides of a carriage-frame. They are made of flat metal bars and coiled at their rear ends to produce hinge members A³, adapting them to be pivotally connected with a cross-bar B, that is also

coiled at its ends to produce hinge members B² in such a manner that it can be placed on top of the side bars and pivotally connected therewith by means of screw-bolts B³, passed through the overlying hinge members, as shown in Fig. 2, to produce a three-sided flexible frame.

C is a rotatable axle in bearers C², that are swiveled to the side bars of the frame by means of plates C³, fixed to the outside faces of the side bars and extended up through coinciding apertures in the ends of a cross-bar D, through which the screw-threaded top ends of the bearers C² extend and are pivotally secured thereto by means of nuts and riveting the extremities of the bearers on top of the nuts. Collars D², interposed between the tops of the side bars and the ends of the cross-bar D, retain the bar elevated.

D³ is the bench or cross-bar of the runner-frame, to which the front ends of the mating side bars A and A² are hinged in such a manner as to allow vertical motion.

F is a bolster and seedbox-support pivotally connected with the cross-bar D³ and the tongue F² by means of a bolt F³ and a nut on the bottom of the bolt, as clearly shown in Fig. 10.

H and H² are mating bars fixed to the cross-bar D, that is pivotally connected with the swiveled axle-bearer C², and hinged to the bolster F at their front ends as required to allow vertical motion. A flexible connection is thus produced between the carriage-frame and the bolster that allows lateral deflection from the line of advance, as required to facilitate turning about at the end of a field. The downward extensions of the bars H and H² (shown in Fig. 10) are designed to be used as bearers for the rotatable shaft of a marker whenever desired.

J is a seat-support fixed to the cross-bar D, and J² is an additional seat-support pivotally connected with the cross-bar B at the rear end of the flexible carriage-frame, as shown in Figs. 2 and 10, or in any suitable way that will not interfere with the lateral motion of the side bars of the carriage-frame and the auxiliary frame composed of the mating bars H and H², the pivoted bar D, and the bolster F, that is pivoted to the cross-bar D³.

K is a rock-shaft mounted in bearers K², fixed on top of the pivoted cross-bar D.

K³ is a hand-lever fixed to the rock-shaft and provided with a spring-actuated pawl to engage a rack K⁴, formed on or fixed to one of the bearers K².

L is a lever fixed to the rock-shaft K. Its long arm is extended forward and adjustably connected with an arm L², that extends rearward from the pivot or bolt F³, by means of a link L³. The short arm of the lever is extended rearward.

L⁴ is a collar on the rock-shaft K, and L⁵ is an arm extending rearward and adjustably connected with the short arm of the lever L by means of a screw-bolt *m*, that extends down through a bearing in the end of the arm L⁵ and a coinciding bearing fixed to the short arm of the lever L. A coil-spring *m'* on the bolt and interposed between the said bearings allows vertical motion of the arm that extends from the collar L⁴ relative to the short arm of the lever L. A nut *m''* on the lower end of the bolt *m* secures the spring in its place and also serves as a means for regulating the tension of the spring.

The ends of the pivoted bolster F are bifurcated and bent upward to extend horizontally in a plane above the rotating shaft F⁴. Seed-boxes F⁵ are mounted on the bifurcated ends of the bolster and seed-conveying tubes F⁶ connected with their bottoms to extend into the heels of the runners F⁷.

N is a lever composed of two mating parts pivoted to the rotatable shaft F⁴ and fixed together by means of a block N² and rivets to fasten them to the block. A ratchet-wheel N³ is fixed to the shaft F⁴ and a pawl N⁴ pivoted in the top of the lever to engage the ratchet-wheel, as shown in Figs. 8 and 9. The lower end of the lever is bifurcated for the passage of a knotted wire that will actuate the lever to impart rotary motion to the shaft F⁴ at regular intervals of time and space as the machine is advanced to drop seeds into the furrows opened by the runners.

A rock-shaft P is mounted on the ends of the bolster F and has arms on its ends that carry direction-pulleys P² to retain a knotted wire in line with the lever N, so that every time a knot in the wire contacts with the lever it will vibrate it as required to impart motion to the seed-dropping mechanism in the bottom of the seedbox. A contractile spring P³, fixed to the lever and one of the branches of the bifurcated bolster F, retains the lever N in its normal perpendicular position.

P⁴ is a duplex fender fixed to the bolster to aid in retaining a knotted wire on the pulley P², and P⁵ is a contractile spring that normally retains the free end of the latch P⁶ in engagement with a catch P⁷, fixed to the rock-shaft as required to retain the pulleys in operative positions. A cord P⁸, fixed to the latch and to the driver's seat, as shown in Fig. 1, serves as a means for operating the latch to

release the rock-shaft P and to stop the operation of the knotted wire relative to the seed-dropping mechanism.

A toothed wheel R, fixed to the shaft F⁴, engages the rotatable disk R² under the bottom R³ of the seedbox F⁵ to impart intermittent rotary motion to the disk as required to bring its seed-cups successively into coinciding position with an opening in the fixed auxiliary bottom R⁴, so as to allow seeds to drop into the conveyer F⁶.

S is a valve pivoted in the conveyer F⁶ in such a manner that seeds dropped from the seedbox will be retained in the conveyer until the valve is operated. The top of the valve is inclined laterally and adapted to be engaged by cams S² on the shaft F⁴, so that at every half-revolution of the shaft the valve will be actuated as required to drop seeds from the conveyer into the furrow at the heel of the runner. An arm S³, having a weight S⁴ on its free end, will by force of gravity automatically reverse the motion of the valve to close it.

Corresponding seed-dropping mechanism is connected with each seedbox and each end portion of the rotatable shaft F⁴ and conveyer F⁶.

Having described the construction, functions, arrangement, and combination of all the parts, the practical operation and utility of my complete invention will be obvious to persons familiar with the art to which it pertains.

What I claim as new, and desire to secure by Letters Patent therefor, is—

1. A flexible carriage-frame for corn-planters composed of two mating side bars having hinge members at their rear ends and a cross-bar having hinge members at its ends connected with the said hinge members of the side bars by means of bolts, and bolts extended through the overlying hinge members in the manner set forth for the purposes stated.

2. A flexible carriage-frame for corn-planters composed of two mating side bars having hinge members at their rear ends and a cross-bar having hinge members at its ends connected with the said hinge members of the side bars by means of bolts, bolts extended through the overlying hinge members, axle-bearers swiveled to the mating side bars and a rotatable carriage-axle in said bearers, arranged and combined in the manner set forth for the purposes stated.

3. In a corn-planter, a flexible carriage-frame composed of two mating side bars and a cross-bar having a hinged connection with their rear ends, axle-bearers swiveled to the said side bars, a rotatable carriage-axle in said bearers, a runner-frame and the front ends of said side bars hinged to the cross-bar of the runner-frame, arranged and combined to operate in the manner set forth for the purposes stated.

4. In a corn-planter, a flexible carriage-frame composed of two mating side bars and

a cross-bar having a hinged connection with their rear ends, axle-bearers swiveled to the said side bars, a rotatable carriage-axle in said bearers, a runner-frame and the front ends of said side bars hinged to the cross-bar of the runner-frame and cross-bar pivotally connected with the tops of said swiveled axle-bearers, arranged and combined to operate in the manner set forth for the purposes stated.

5. In a corn-planter, a flexible carriage-frame composed of two mating side bars and a cross-bar having a hinged connection with their rear ends, axle-bearers swiveled to the said side bars, a rotatable carriage-axle in said bearers, a runner-frame and the front ends of said side bars hinged to the cross-bar of the runner-frame, a cross-bar pivotally connected with the tops of said swiveled axle-bearers, a rock-shaft mounted on said pivoted cross-bar, mating bars fixed to the cross-bar at their rear ends and hinged at their front ends to a bolster and seedbox-support, a bolster and seedbox-support pivoted to the cross-bar of the runner-frame, and means for raising and lowering the runner-frame relative to the flexible carriage-frame, all arranged and combined to operate in the manner set forth for the purposes stated.

6. In a corn-planter, a flexible carriage-frame hinged at its front end to the cross-bar of a runner-frame, axle-bearers swiveled to the side bars of the carriage-frame, a cross-bar pivoted at its ends to the swiveled axle-bearers, a bolster pivoted to the cross-bar of the runner-frame, mating bars fixed at their rear ends to said pivoted cross-bar on the swiveled axle-bearers and hinged at their front ends to the said bolster, a rock-shaft mounted on said pivoted cross-bar, a hand-lever fixed to the rock-shaft to project vertically and a second lever fixed to the rock-shaft to extend forward, a coupling-bolt in the runner-frame having an arm extending rearward and a link connecting it with the front end of said forwardly-extended lever, all arranged and combined to operate in the manner set forth for the purposes stated.

7. In a corn-planter, the rock-shaft K, the lever L, the collar L⁴ having an arm L⁵ and the rear end and short arm of said lever adjustably connected with the end of said arm in the manner set forth for the purposes stated.

8. In a corn-planter, a rock-shaft mounted on a flexible carriage and hinged to a runner-frame, a lever fixed to said rock-shaft and connected with the runner-frame and ex-

tended rearward from the rock-shaft, a collar on the rock-shaft having an arm extended rearward, a bolt connected with the rear end of said arm and the rear portion of said lever, a coil-spring in the bolt and means for operating the rock-shaft, arranged and combined in the manner set forth for the purposes stated.

9. In a corn-planter, a flexible carriage-frame, consisting of two rigid mating side bars and a rigid cross-bar pivotally mounted on their rear ends, axle-bearers swiveled to the side bars of the frame, a cross-bar pivotally connected with said axle-bearers, a seat-support fixed to said cross-bar, a seat fixed to the top of said support, a second seat-support fixed to the seat and pivotally connected with the rear cross-bar of the flexible frame, arranged and combined as shown and described for the purposes stated.

10. In a corn-planter, a pivoted bolster having bifurcated ends, seedboxes fixed on said ends of the bolster, a rotatable shaft having fixed toothed wheels at its end portions for operating rotatable disks in seedboxes, a spring-actuated lever pivotally connected with each end of the shaft and bifurcated at its lower end, a rock-shaft in bearings fixed to the bifurcated ends of the pivoted bolster and seedbox-supports, arms on the ends of the rock-shaft, direction-pulleys on the ends of said arms, a spring-actuated latch pivoted to the seedbox-support, a catch on the rock-shaft, and means for operating the latch connected with the latch and a driver's seat, arranged and combined as shown and described for the purposes stated.

11. In a corn-planter, a seed-conveyer fixed under a seedbox, a valve pivoted in the conveyer, an arm extending from the valve and a weight on the end of the arm for retaining the valve normally in a closed position, as shown and described.

12. In a corn-planter, a seed-conveyer fixed under a seed-box, a valve pivoted in the conveyer, an arm extending from the valve and a weight on the end of the arm for retaining the valve normally in a closed position, a rotatable shaft extended through the top of the conveyer and cams on the shaft to engage the top of the valve, arranged and combined as shown and described.

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