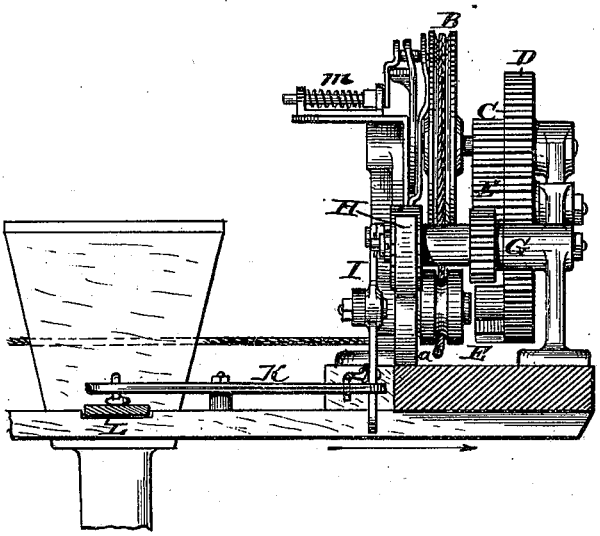
2 Sheets—Sheet 1.

G. J. HYER.

Check-Row Planter and Drill.

No. 212,469. Patented Feb. 18, 1879.

Fig. 2.



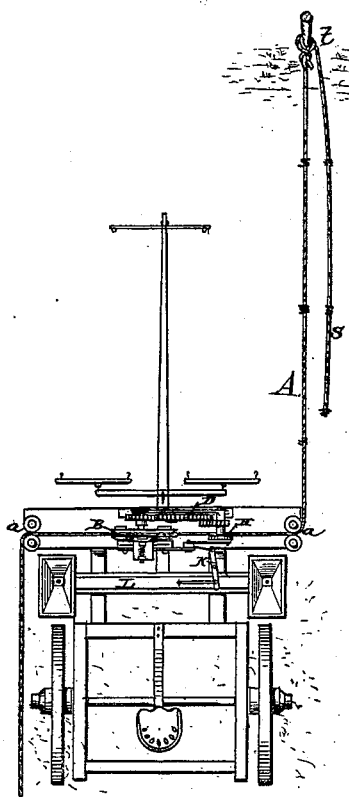
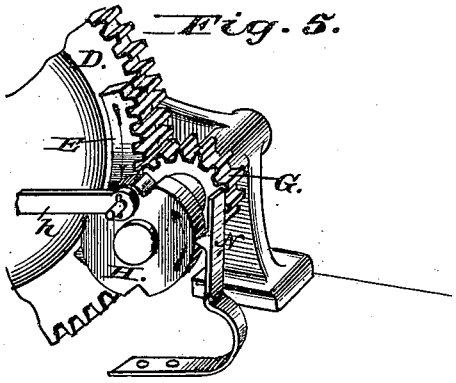
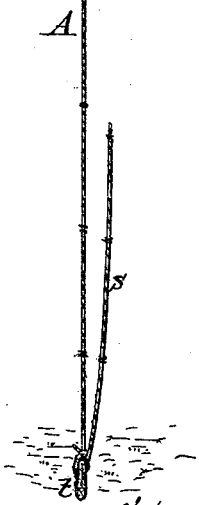


Fig. 1

Fig. 5.





Attest:
H. L. Perrine
M. Gardner

Garitt. J. Hyer.
Inventor.
By. James H. Mandeville
Atty.

G. J. HYER.

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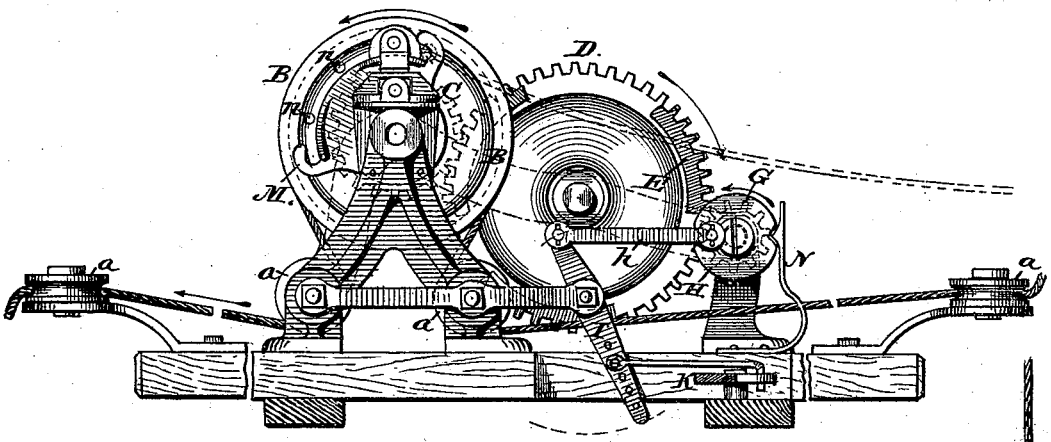
Fig. 3.



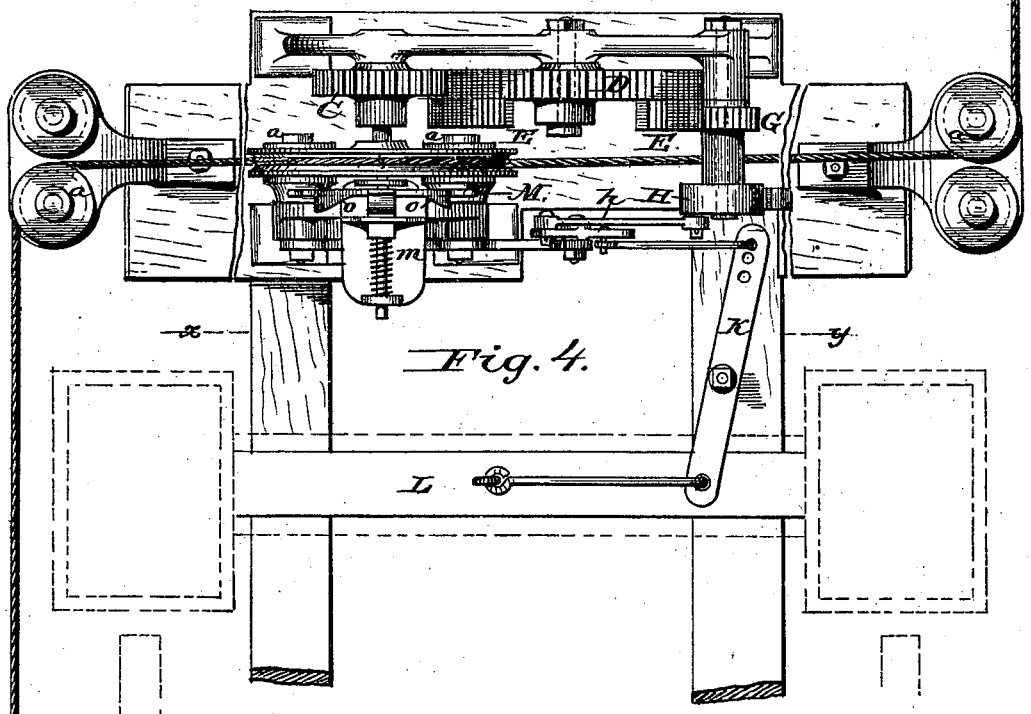


Fig. 4.

Attest:
H. L. Perrine
M. Gardner

Garitt J. Hyer.
Inventor:
By James H. Mandeville,
Atty.

UNITED STATES PATENT OFFICE.

GARITT J. HYER, OF CLINTON, ILLINOIS.

IMPROVEMENT IN CHECK-ROW PLANTER AND DRILL.

Specification forming part of Letters Patent No. **212,469**, dated February 18, 1879; application filed October 7, 1878.

To all whom it may concern:

Be it known that I, GARITT J. HYER, of Clinton, in the county of De Witt, in the State of Illinois, have made a certain new and useful invention, which I call an "Interconvertible Check-Row and Drilling Mechanism for Corn-Planters," of which the following is a specification:

I have described an invention where a knotted rope is used in another application of even date herewith.

Figure 1 is a plan view of the check-row as it appears while crossing the field. Fig. 2 is an end view, in elevation, showing the relative situation of the driving-pulley and its locking device, the gear mechanism, and the levers connected with the slide-bar of the planter. Fig. 3 is a side elevation of the same parts. Fig. 4 is a plan view of the invention as used upon the planter. Fig. 5 is an enlarged view, in detail, of a part of the gear mechanism.

My invention consists, first, in combining a check-row cord with intermittent gear mechanism, constructed so that the check-row may be converted into drilling mechanism for corn-planters; second, in unlocking the driving-pulley automatically with a piece of short rope at a point where the row should begin, in order to have a uniformity of rows, by making a correct starting-point; third, in operating a portion of the gear mechanism at intervals by means of detachable cog-segments, whereby the invention is made, according to the number of segments used, either a check-row or a drill.

It is obvious that the driving-wheel may be propelled by a rope, wire, or chain.

A represents the rope, which is not knotted, but marked at even distances and stretched across the field. It is kept taut on the machine by means of pulleys *a*, suitably arranged. B is a grooved driving-wheel, and operated by the rope. C is a pinion upon the same axle with the pulley. D is a large cog-wheel, turned by the pinion C, and having one or more segments, E. The segments, arranged upon the side of the cog-wheel, turn the pinion G upon the same axle with the pitman-head H and pitman *h*, connected to the upright vibrating lever I, which, through the horizontal vibrating lever K, operates the slide-bar L of the planter.

It is understood that the distance between rows is calculated and determined by the size of the pulley and the number of cogs contained in the different wheels which comprise the gear mechanism.

The device for locking the driving-wheel is a spring-bolt, *m*, and it enters the pulley only at two points, *n n*, which are two holes arranged with reference to the segment E, so that the segment engages with its pinion to move the slide-bar just at the moment the pulley is unlocked. This is done by the cam-lever M, that is pivoted in its center to the frame of the machine. To lock the pulley the driver sets the lever in a horizontal position, when the spring forces the bolt into one of the holes *n* of the pulley; but when it is desired to unlock the pulley, one end of the lever is pulled down, whereby one of its cams *o o* is brought into contact with and forces back the spring-bolt.

The lever M is pulled down by a short rope, which, preferably, is separate from the one that extends across the field. This rope also has marks or indications upon it at measured distances, or the space between rows. One end of the short rope is fastened to the stake at the end of the row, as in Fig. 1, while the other end is attached to the lever in any convenient way, but so that it will detach itself at the moment the pulley is unlocked. This short rope is only used at the end of the row, and by means of the indications upon it the driver measures his starting-point, or first hill in the row, and with it he unlocks the pulley just where it should be unlocked, in order to have the cross-rows at an even right angle to the other rows.

The long rope, which is stretched across the field, and is used to drive the pulley, has marks upon it for its entire length, and the distance between the marks is the same as between the rows. The object of these marks is to determine the dropping-point when the check-row has to be locked while crossing the field, so as to go across a bad place, or any piece of ground where it is necessary to cease dropping the corn. As the field has not been marked there is nothing to indicate where the

rows are located, and it is obvious that the driver would lose his calculations without some marks upon the long rope to enable him to decide the exact point, in a true line with the cross-rows, where to begin again to drop the corn. It is intended that the marks on the field-rope will come opposite a certain point on the pulley at every revolution.

The slide-bar is reciprocated by mechanism which is actuated by a cog-segment, E, on the large cog-wheel D. The number of teeth required on the segment is just enough to give its pinion G a half-turn and no more.

One segment is sufficient for a check-row; but in converting the machine into a drilling mechanism for corn-planters two or more segments are used, which, being made independdently, can be easily attached to the side of the cog-wheel.

It is obvious that the seed-slide will be moved during a revolution of the cog-wheel as often as there are segments upon it, and that the corn could be drilled into the ground at a distance of six or twelve inches simply by attaching the proper number of segments to the large cog-wheel.

The pitman-head H has two V-shaped notches on its periphery, in order to receive the spring-latch N, which enters a notch upon every half-turn of the pinion and pitman-head, which move together. It is necessary to lock the pitman-head at each full throw of the slide-bar, so that the bar may be held fast until it is thrown full back the other way, for if there should be any gain or loss in the throw of the slide-bar the machine would not properly drop the corn.

In all prairie country experience is beginning to show that more corn is raised to the acre, and at less cultivation, by drilling the corn in rows running only in one direction instead of planting it in rows at right angles by means of the check-row. It is therefore desirable to offer to the farmer a machine which, at a reasonable cost, is interconvertible at pleasure into a check-row or into drilling mechanism for corn-planters.

In the arrangement of the gear mechanism of the check-row it will be observed that it takes two revolutions of the pulley to make one of the large cog-wheel, and that all this produces only a half-revolution of the pinion G and the pitman-head, all of which is simply a matter of calculation; but when the check-row is converted into a drilling mechanism, then the pinion and pitman-head are turned half-way round as often as there are segments used upon the cog-wheel.

It is believed that the interchangeability of these machines by means of an intermittent gear mechanism that can be increased or lessened by the use of a simple segment, or a number of segments, is a novel invention of great importance in corn-planters.

I claim—

1. The combination of the driving-wheel B, pinion C, cog-wheel D, and segment or segments E with the pinion G and pitman-head H, arranged and operating substantially as shown and described.

2. In a check-row for corn-planters, the detachable cog-segments E, whereby the check-row may be converted into drilling mechanism, substantially as described.

3. In a check-row for corn-planters, the combination of a check-row cord, or its equivalent, and intermittent mechanism, substantially as described, whereby the machine is adapted to operate either as a check-row or as a drill, substantially as set forth.

4. The cam-lever M, for unlocking the spring-bolt, in combination with the spring *m* and driving-wheel B, substantially as shown and described.

In witness whereof I hereunto subscribe my name, in presence of two attesting witnesses, at Washington city, this 7th day of October, 1878.

GARITT J. HYER. [L. S.]

Witnesses:
WALTER H. SMITH,
FRANK E. SMITH.