

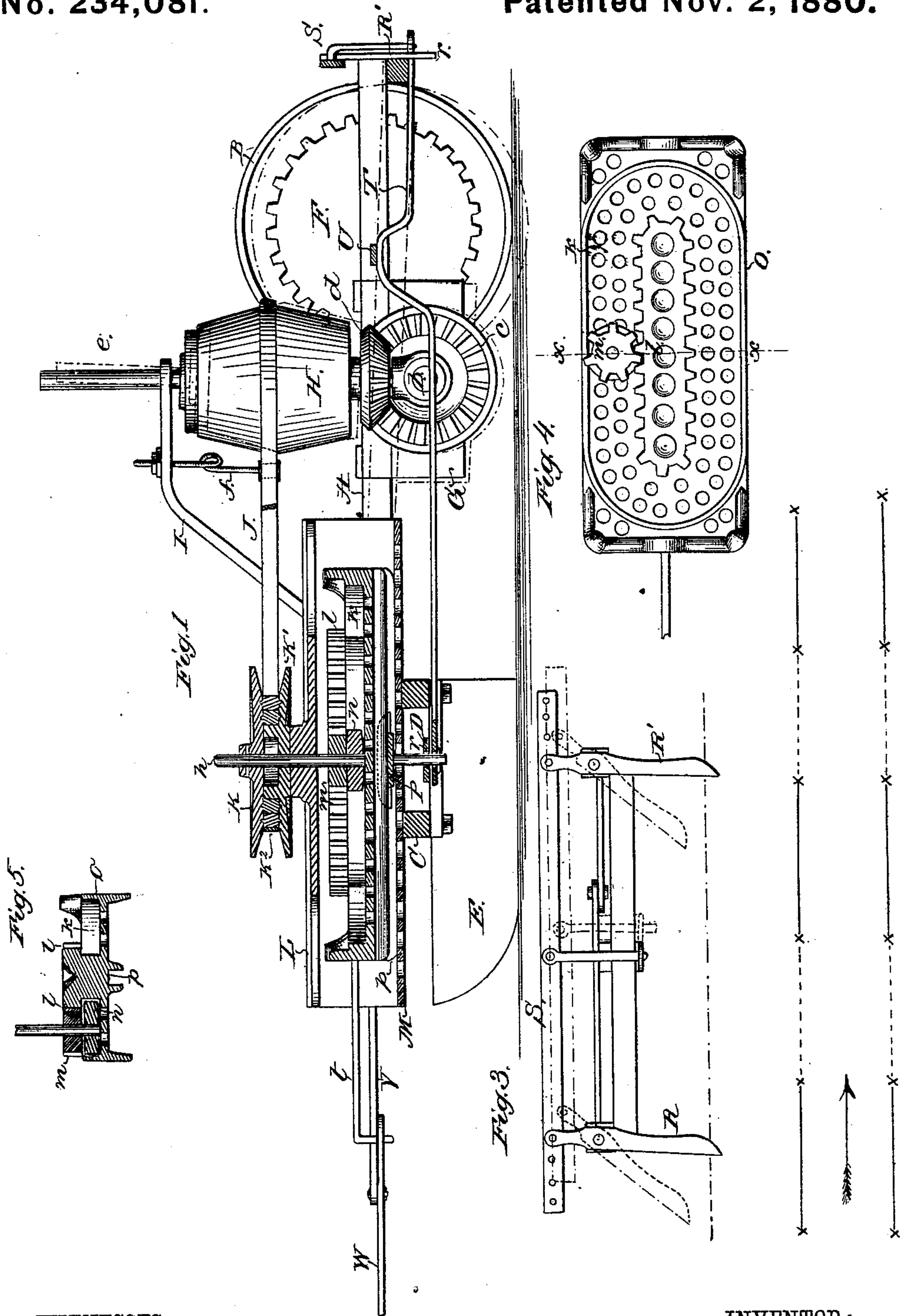
(No Model.)

2 Sheets—Sheet 1.

A. J. SIMMONS.
Check Rower.

No. 234,081.

Patented Nov. 2, 1880.



WITNESSES:

John F. C. President

Edw. W. Byrnes,

INVENTOR:

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Attorneys.

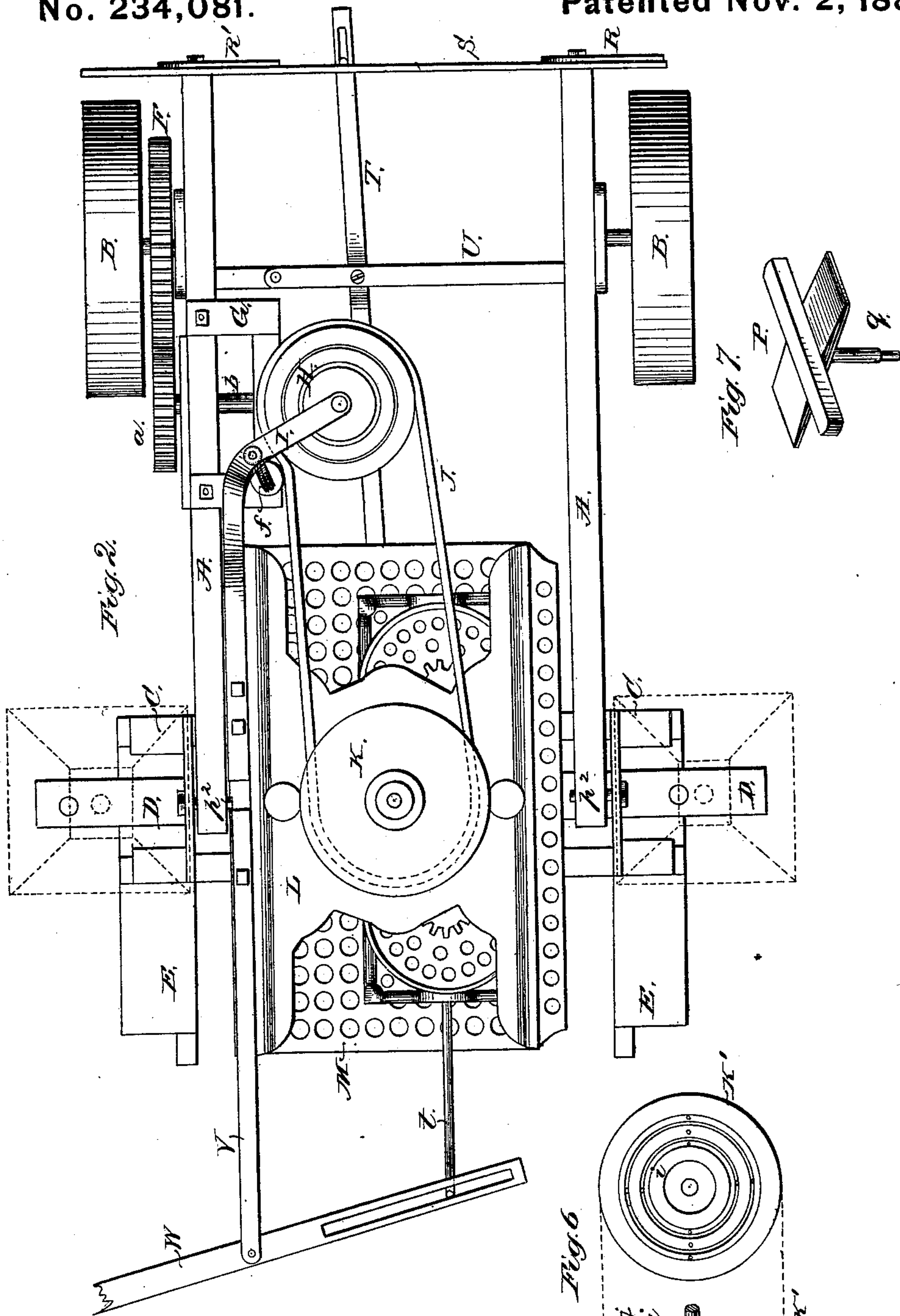
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UNITED STATES PATENT OFFICE.

ALONZO J. SIMMONS, OF PANA, ILLINOIS.

CHECK-ROWER.

SPECIFICATION forming part of Letters Patent No. 234,081, dated November 2, 1880.

Application filed March 10, 1880. (No model.)

To all whom it may concern:

Be it known that I, ALONZO JENISON SIMMONS, of Pana, in the county of Christian and State of Illinois, have invented a new and Improved Check-Rower; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section. Fig. 2 is a plan view. Fig. 3 is a rear view, showing the marking devices, with a diagram of the marks shown below. Fig. 4 is a detail plan view of the sliding four-motioned block. Fig. 5 is a cross-section of Fig. 4 through the line *x x*. Fig. 6 shows a cross-section of the drive-pulley and an inside face view of one of the disks forming the same. Fig. 7 shows, in perspective, a detail of the sliding tongue moving in the groove of the sliding block.

My invention relates to an improved check-row corn-dropper, or device for automatically planting corn in perfect check-row; and it comprises the following features: first, means for rendering the distance between the hills dropped uniform and independent of the rough character of the surface of the soil; secondly, in the peculiar construction of a driven pulley for varying the distance between the hills; thirdly, in a peculiar mechanism for converting the rotary movement of the driving-shaft into the reciprocating movement of the seed-slide; fourthly, in the peculiar construction and arrangement of the marking devices; and, fifthly, in the peculiar construction and arrangement of the devices for starting the machine in check at the beginning of a row, as hereinafter fully described, and pointed out in the claims.

In the drawings, A A represent the side bars, B B the rear wheels, and C the front cross-frame, carrying a transverse seed-slide, D. To the ends of this cross-frame C, above the ends of the seed-slide, are attached the seed-boxes, (shown in dotted line in Fig. 2,) and to which frame C, beneath the seed-boxes, are fastened shoes or runners E E, upon which the forward end of the machine is supported.

The construction of the frame as so far de-

scribed is that of many forms of planters already in use, and to which my invention is generally applicable.

To one of the rear wheels B is rigidly attached a gear-wheel, F, which meshes with a pinion, *a*, keyed to a short horizontal shaft, *b*, journaled in bearings in a detachable frame, G, fixed by bolts or otherwise to one of the side bars, A. This short shaft has upon its inner end a rigid crown or bevel wheel, *c*, which engages with and drives the bevel-pin-
ion *d*, fastened to and revolving with the loose and double-conical drum H, which drum or pulley is carried by the vertical shaft *e*, and which shaft is loosely mounted upon the inner end of the short shaft *b*, and is stayed at the top by any suitable support, I.

Around the center of the largest portion of the double-conical drum there runs a belt, J, which passes forward to a pulley, K, and operates the seed-dropping devices. Now, when the seed-dropping devices are actuated by the drive-wheels, as in this case, it will be seen that in passing over obstructions, like clods, and down into holes in the field, the supporting-wheels will travel a greater distance in their revolution in going from one fixed point to another than they would if they ran on a perfect level, and as the seed-dropping devices are positively connected with and operated by the said wheels, it will be seen that the hills will not be dropped the same distance apart. To counteract this difficulty I make the drum H in the shape of a double cone, largest at the center, while the wheels and rear frame I connect loosely to the forward frame by pivots *p*². Now, in normal action the belt has a tendency always to ride the largest diameter of the drum and keep in the center thereof. If, however, the wheel should drop below or rise above the general level of the ground, the drum also rises or falls and throws the belt on a smaller portion of its periphery to make the movement of the seed-dropping devices slower. In other words, the seeding devices are "slowed up" automatically, to wait for the increased travel which the wheels have to make in rising above or falling below the ordinary level, thus dropping the hills a uniform distance

apart in spite of said irregularity in the surface of the ground. As the belt rises or falls to a smaller diameter of the drum the slack which would otherwise exist is taken up by an automatic belt-tightener or tension device, *f*, which shortens the belt; or, in the place of this belt-tightener, the belt may be made elastic.

To increase or diminish the distance between the hills, the pulley *K*, which drives the seed-slide, is made with different diameters in a peculiar manner, as follows, (see Figs. 1 and 6:) *K K'* are two disks or plates, which are rigidly keyed to the drive-shaft *h*. One of these disks, *K'*, has a small circular flange, *i*, about its center, which separates the two disks and constitutes the face of the pulley when a very rapid motion of the seed devices is required and when the hills are to be planted close together. When a slower motion and a greater distance between the hills is required, one or more of a series of concentric rings, *K²*, are slipped over the flange *i* and constitute an enlarged face for the pulley. These rings are made to revolve rigidly with the disks or plates without turning loosely by reason of lugs or spurs *j*, which enter corresponding holes in the plates when the latter are fastened together.

In relation to the feature of my invention just described, I would state that I am aware that the pulley which actuates the seed-slide has heretofore been made with an expanding and adjustable periphery to regulate the spaces between the hills, and that drive-pulleys have been also made with a set of detachable jackets or cylinders to increase or diminish its size. I therefore only claim in this connection the detachable rings as rigidly held between the two disks in connection with the seeding devices.

With respect to the peculiar mechanism for converting the rotary movement of the drive-shaft into the reciprocating movement of the seed-slide, I would state that I do not claim this broadly, as it is made the subject of another separate application as a mechanical movement, which application was filed March 10, 1880.

To transmit the driving effect of the pulley *K* to the seed-slide *D*, the vertical shaft *h*, upon which the pulley *K* is fastened, passes through and is journaled in a housing, *L*, bolted down to a subjacent plate, *M*. Within the housing *L*, and upon the surface of plate *M*, there slides a block, *O*, Figs. 4 and 5, which has upon its upper surface an oblong groove, *k*, and centrally within the same a raised elongated gear, *l*, forming a double set of racks, with their teeth projecting outwardly and running into each other at the ends. Upon the lower end of shaft *h* is keyed a pinion, *m*, which meshes with the elongated gear *l*, while the extreme lower end of the shaft *h* rests in a friction-roller, *n*, which traverses the groove *k*.

Now, as the shaft *h* is rotated by the driving mechanism its pinion *m* causes the block *O* to slide back, sidewise, forward, sidewise, and then back again, producing a four-motio-

rectangular sliding action. On the bottom side of the block *O* is formed a longitudinal central groove, *p*, (see Fig. 5,) in which fits the tongue of a second slide-block, *P*, Fig. 7, which has a downwardly-projecting stem, *q*, that projects through a lateral slot in the bottom plate, *M*, and enters a slot, *r*, in the seed-slide *D*. This block *P* remains stationary when the block *O* is sliding longitudinally; but when the latter is moved sidewise the block *P* is carried with it by reason of its tongue-and-groove connection, and the pendent stem *q* is made to alternately actuate the seed-slide with its lateral movement. The base-plate *M* and other parts of this device are made with holes for the sake of lightness and for the purpose of allowing all dust and dirt to sift out.

For marking the rows as they are planted I pivot upon the rear ends of the frame *A A* bars *R R'*, jointed to a horizontal transverse bar, *S*, so as to swing in a vertical plane at right angles to the line of draft and be either dropped down into the soft earth or be lifted above the same, as desired. These markers are designed to make parallel rows or furrows in the earth of a length equal to the distance between the hills, then to be raised out of contact with the earth for a similar distance, and then projected again against the ground. This forms a set of broken furrows or marks, the ends of which furrows locate the corn-hills, as shown in the lower portion of Fig. 3. For operating the same a lever, *T*, is loosely connected with any part of the seed-slide in front, and, after being fulcrumed to a cross-bar, *U*, extends farther rearward, and is connected to the cross-bar *S* by means of a downwardly-projecting stem, *r*, which passes through a slot in the rear end of the lever. Now, when the seed-slide is thrown in one direction to drop seed, the lever *T* is thrown to one side and the markers *R R'* are thrown into contact with the earth, as in Fig. 3, where they drag and form a furrow or straight mark until the lever is thrown to the other side to drop another set of hills, at which time the markers are raised, as shown in dotted lines, and kept raised until the next set of hills are to be dropped, and so on.

For starting in proper registration with the preceding rows when commencing a new one, I mount upon a forwardly-projecting bar, *V*, a lever-pointer, *W*, fulcrumed upon the end of bar *V*, and having its inner end slotted and connected with the sliding block *O* by a rod, *t*. These parts are so adjusted with respect to each other that when the other end of the pointer *W* is placed over a hill of corn previously planted, the block *O* will then stand in such relation to the seed-slide that it will drop corn whenever the seed-boxes have progressed to a position in line with said row, the outer end of the pointer moving backward as the machine advances.

Having thus described my invention, what I claim as new is—

1. The combination, with a pulley driving

the seeding devices and a belt, of a drum or pulley having a double-conical face, a frame loosely connected with the frame of the seeding devices and carrying said double-conical drum or pulley, and mechanism connecting the drum with the running wheels, as and for the purpose described.

2. The combination, with the seeding devices, of the driving-pulley composed of the plates or disks K and K' and the concentric detachable rings K², rigidly fastened between the disks and adapted to increase or diminish the size of the periphery of said pulley, for planting the hills a greater or less distance apart, as described.

3. The combination of the housing L, plate M, shaft *h*, having pinion *m*, the sliding block O, having elongated groove *k*, teeth *l*, and sub-jacent groove *p*, and the laterally-sliding block

P, connected with the seed-slide, substantially as and for the purpose described.

4. The combination, with the sliding block O, geared to operate the seed-slide, as described, and the rod *t*, of the slotted pointer-lever W and the fulcrum-bar V, for adjusting the machine to registration with the previous rows, as described.

5. The combination of the markers R R', cross-bar S, lever T, and seed-slide D, substantially as described, and for the purpose set forth.

The above specification of my invention signed by me this 25th day of February, 1880.

ALONZO J. SIMMONS.

Witnesses:

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