

(No Model.)

2 Sheets—Sheet 1.

O. J. COLTON.

CHECK ROWER.

No. 321,087.

Patented June 30, 1885.

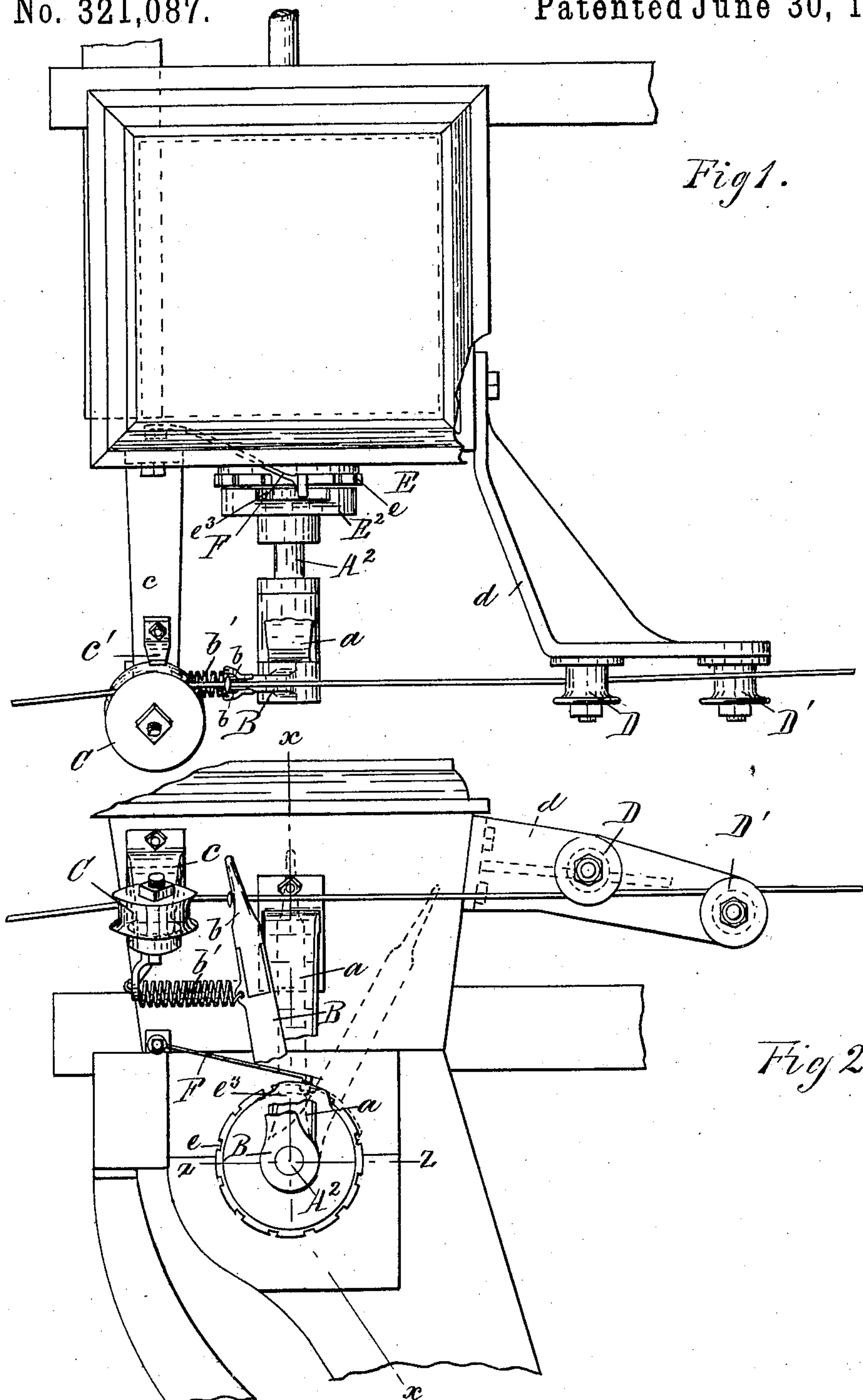


Fig 1.

Fig 2

Witnesses
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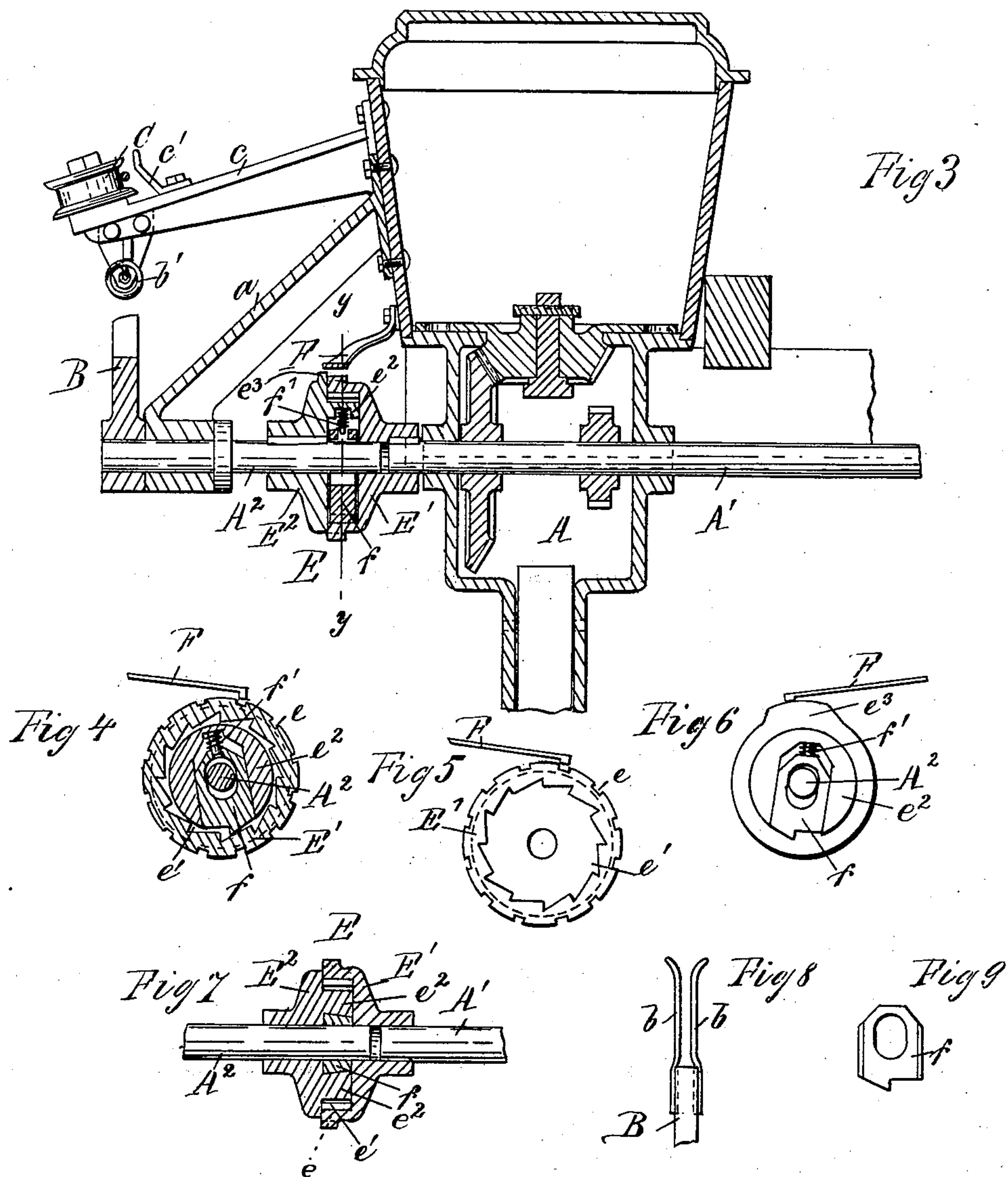
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UNITED STATES PATENT OFFICE.

OCTAVIUS J. COLTON, OF GALESBURG, ILLINOIS.

CHECK-ROWER.

SPECIFICATION forming part of Letters Patent No. 321,087, dated June 30, 1885.

Application filed February 9, 1885. (No model.)

To all whom it may concern:

Be it known that I, OCTAVIUS J. COLTON, a citizen of the United States, and residing at Galesburg, in the county of Knox and State of Illinois, have invented certain new and useful Improvements in Check-Rowers, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

10 Figure 1 is a plan view of a portion of a corn-planter having my improved check-row mechanism applied thereto; Fig. 2, a side elevation of the same; Fig. 3, a sectional view of the same on the line *x-x* of Fig. 2; Fig. 4, a
15 detail sectional view on the line *y-y* of Fig. 3, looking toward the body of the machine; Fig. 5, a face view of the inner portion of the clutch; Fig. 6, a face view of the outer portion of the clutch; Fig. 7, a horizontal sectional view of the clutch on the line *z-z* of
20 Fig. 2; Fig. 8, a detail elevation of the upper end of the lever, and Fig. 9 a detail view of the sliding pawl detached.

Like letters refer to like parts in all the
25 figures of the drawings.

My invention relates to check-row attachments for corn-planters whereby the seed-dropping mechanism is automatically operated by means of a wire or cord extending across
30 the field, and provided at suitable distances with buttons or lugs to intermittently operate the said mechanism at suitable intervals, as is well understood.

In the drawings, I have shown my improved
35 check-row mechanism applied to a corn-planter provided with the seeding devices set forth and claimed in an application filed by me of even date herewith, to which application reference is made for further description of the
40 said seeding mechanism, as the same forms no part of my present invention.

In the said drawings, A represents the seed-
ing device, operated by means of an inter-
mittently-rotating shaft, A', and it is for the
45 purpose of imparting to this shaft the requisite intermittent rotary motion that I have devised the check-row mechanism, which I will now proceed to describe. It will be understood that this mechanism is arranged in
50 duplicate on each side of the machine, the construction of the two sets of mechanism

being identical, but the arrangement reverse, so that it will only be necessary to describe one of them, it being understood that the same description is equally applicable to the other. 55

A suitable bracket-arm, *a*, attached to the frame of the machine, or, as shown in the present instance, to the seed-box, is provided with a bearing to receive a shaft, A², arranged in line with and forming a continuation of the shaft A', and connected to said shaft, as hereinafter described. On the outer end of the said shaft is arranged the lever-arm B, by means of which the various parts are operated, the upper end of this arm being constructed, substantially as shown in Fig. 8 of
60 the drawings, with two parallel forks or branches, *b*, diverging at their upper ends, the said forks being a sufficient distance apart to admit the check wire or cord which passes
70 between them but being too close together to allow the buttons on the said check wire or cord to slip through. In front of the lever-arm B, I arrange a guide-pulley, C, mounted on a bracket-arm, *c*, projecting out from the
75 body of the machine, said pulley being inclined substantially as shown, in order to properly receive and guide the check-row wire. A suitable retaining guard-finger, *c'*, is mounted
80 on the bracket *c* to retain the check-wire in position against the pulley. In the rear of the lever B are arranged two other guiding and supporting rollers, D and D', mounted on a suitable bracket-arm, *d*, the first of
85 these rollers being arranged above the path of the wire, and the second below it, substantially as shown in Fig. 2 of the drawings. A suitable spring, *b'*, is attached to the lever B to hold the same normally in an upright position, or substantially so, the said spring being
90 shown in the present instance as connected to a suitable lug on the under side of the bracket-arm *c*.

It will be seen that the check-row wire passes directly through the machine, as shown
95 in Figs. 1 and 2, in a direct line as the machine advances, so that when one of the buttons thereon comes in contact with the lever B the said lever will be thrown to the rear, as shown in dotted lines in Fig. 2, the button
100 gradually approaching the top part of the lever-arm until it finally escapes from between

the diverging ends of the arms *b*. In the check-row lever-arm of the usual construction, the button and that portion of the check-row wire to which it is attached are carried upward as the lever-arm moves upon its pivot, thereby increasing the amount of wire between the rollers which correspond to the rollers C and D in my machine, and creating a tension upon the wire and a strain upon the rollers and lever-arm which cause great wear of all these parts. In my present device it will be observed that the lever-arm starts from a position which is substantially vertical, and that the point thereof with which the check-row button is in contact when it begins to act upon the said lever practically never reaches a higher point than at the start, but descends all the time instead of rising for one-half of its travel, as in the ordinary way. By reason of this fact, and of the fact that the lever-arm B is so long that its upper end swings in a very flat arc, all lifting of the check-row wire at the middle of the stroke is avoided. This construction also enables me to arrange the roller D entirely above the plane of the wire, and the roller D' entirely below the plane, instead of having these two rollers arranged practically in the same horizontal plane, so as to give the wire which passes over them a double bend, an arrangement which has been found necessary in machines as heretofore constructed, owing to this lifting of the wire hereinbefore mentioned, and which tends to greatly increase the wear and strain on the parts, these disadvantages being entirely obviated by my arrangement of the rollers.

As soon as the check-row button has passed face of the lever arm B, the spring *b'* returns the lever-arm to its first position, where it is ready to receive the next button on the wire. The series of buttons on the wire thus impart a rocking or oscillating motion to the shaft A², which is transmitted to the shaft A' as an intermittent rotary motion in one direction by means of the coupling E. This coupling consists of two parts—the head E', attached to the outer end of the shaft A', and the head E², attached to the inner adjacent end of the shaft A. The head E' is provided on its outer periphery with a series of notches, *e*, forming a ratchet engaged by a pivoted catch, F, suitably attached to the machine-body. The inner face of the head E' is hollowed out, as shown in Figs. 3, 5, and 7 of the drawings, the inner wall of the resulting flange being provided with ratchet-teeth *e'*, while the head E² is provided with a boss or projection, *e*², which enters the hollow in the head E', the said boss being provided with a sliding spring-pawl, *f*, having one or more teeth to engage with the ratchet-teeth *e'* upon the head E'. This sliding pawl *f* moves in a dovetailed or grooved way in the projection *e*², as shown in Fig. 7 of the drawings, being normally thrust outward radially by means of the spring *f'* between its rear portion and the rear wall of the recess in

which it slides. It will be observed that the ratchet-teeth *e'* and the pawl *f* are so shaped that the said pawl will engage with the teeth when the shaft A² is rotated in one direction and thereby cause the shaft A' to rotate, while it will slide over the said teeth when the shaft A² rotates in the opposite direction and allow the shaft A' to remain stationary. On the outer periphery of the head E² is arranged a lug or projection, *e*³, over which, as well as over the notched periphery of the head E', the catch F projects, the said projection *e*³ being of sufficient height to raise the catch F out of the notches *e*, and hold the same up so as to permit the head E' and shaft A' to be rotated along with the head E² and shaft A². When the lever B is in its normal position, the lug *e*³ will raise the catch F, and the catch will be held clear of the notches *e*, so that the shaft A' and the seed-dropping mechanism operated thereby may be rotated by the movement of the lever. The shaft A² extends, as shown in Fig. 3 of the drawings, some little distance beyond the head E² and into the hub of the head E', in which it fits snugly but loosely, the head E' thereby forming a bearing for the inner extremity of the shaft A², and at the same time insuring a correct alignment of the shafts A' and A², and the proper relative arrangement of the heads E' and E².

The operation of my device will be readily understood from the preceding description. The check wire or cord being stretched across the field and secured at each end, the buttons or lugs thereon as the machine advances will come in contact with the lever B and cause the same to vibrate, as hereinbefore described. As the lever B starts backward on each stroke, rotating the shaft A² and the head E², the lug *e*³ will hold the catch F out of the notches *e*, and the pawl *f* will engage with the ratchet-teeth *e'* of the head E', and cause the said head and the shaft A' to which it is attached to rotate and operate the seed-dropping devices. When the lever reaches the end of its stroke in this direction, the catch F will drop into one of the notches *e*, the lug *e*³ having passed clear of the catch, and will prevent the inertia of the shaft A' and the seeding devices from causing these parts to continue to rotate. When the lever B returns to its original position upon the escape of the button, the shaft A² and the head E² rotate in the reverse direction, and the pawl *f* will slide over the ratchet-teeth *e'* without engaging with them, thus allowing the shaft A' to remain stationary. During this return movement of the lever the lug *e*³ will raise the catch F and hold it clear of the notches *e*, in position for the next stroke of the lever. This operation is repeated as each button on the check-line comes in contact with the lever B, thereby causing an intermittent rotation of the shaft A', by means of which the seed-corn is dropped at suitable predetermined intervals.

It is obvious that various modifications may

be made in the details of construction and in the application of my device without departing from the principle of my invention. For instance, although I have shown my check-row devices as operating in connection with a seed-dropping mechanism of my invention, as hereinbefore specified, I do not wish to be understood as limiting myself to its use in combination with this particular seed-dropping mechanism, as any approved form thereof may be employed in conjunction with the check-row mechanism described.

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

1. The combination, with the vibrating lever B and its shaft A², of the intermittently-rotating shaft A' and a yielding clutch connecting the said shafts, substantially as and for the purposes specified.

2. The combination, with the head E', having internal ratchet-teeth, e', of the head E², provided with spring-pawl f, to engage the said ratchet-teeth, substantially as and for the purposes specified.

3. The combination, with the shaft A' and the seed-dropping mechanism operated thereby, of the head E', mounted on said shaft and having internal ratchet-teeth, e', and the oscillating head E², provided with spring-pawl f to engage said ratchet-teeth, substantially as and for the purposes specified.

4. The combination, with the shaft A', which operates the seed-dropping mechanism, the said shaft being provided with a head, E', having internal ratchet-teeth, e', of the shaft A², carrying the vibrating lever B, and having a head, E², provided with a spring-pawl, f, to engage the ratchet-teeth e', substantially as and for the purposes specified.

5. The combination, with the shaft A', having head E', provided with internal ratchet-

teeth, e', of the shaft A², arranged in line with the shaft A', and provided with a head, E², having a spring-pawl to engage with the ratchet-teeth e', the inner end of the shaft A² having its bearing in the hub of the head E', substantially as and for the purposes specified.

6. The combination, with the shaft A', having head E', provided with internal ratchet-teeth, e', and external notches, e, of a catch, F, to engage with the said notches e, and the oscillating head E², provided with a spring-pawl, f, to engage with the ratchet-teeth e' and with the lug e³ to raise the catch F, substantially as and for the purposes specified.

7. The combination, with the shaft A', having a hollowed head, E', provided with the internal ratchet-teeth, e', of the shaft A², having a head, E², provided with a boss or projection, e², fitting within the hollow in the head E', and a pawl, f, sliding in ways in the projection e², and thrust radially outward by a suitable spring to engage with the ratchet-teeth e', substantially as and for the purposes specified.

8. The combination of the intermittently-rotating shaft which operates the dropping-mechanism, the oscillating shaft, a yielding clutch connecting the said shafts, and a stop arranged to engage and fix the first-named shaft at the end of the operative movement, substantially as and for the purposes set forth.

9. The combination, with the notched head E', mounted on the shaft A', of the oscillating head E², provided with a lug, e³, and the catch F, substantially as and for the purposes set forth.

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Witnesses:

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