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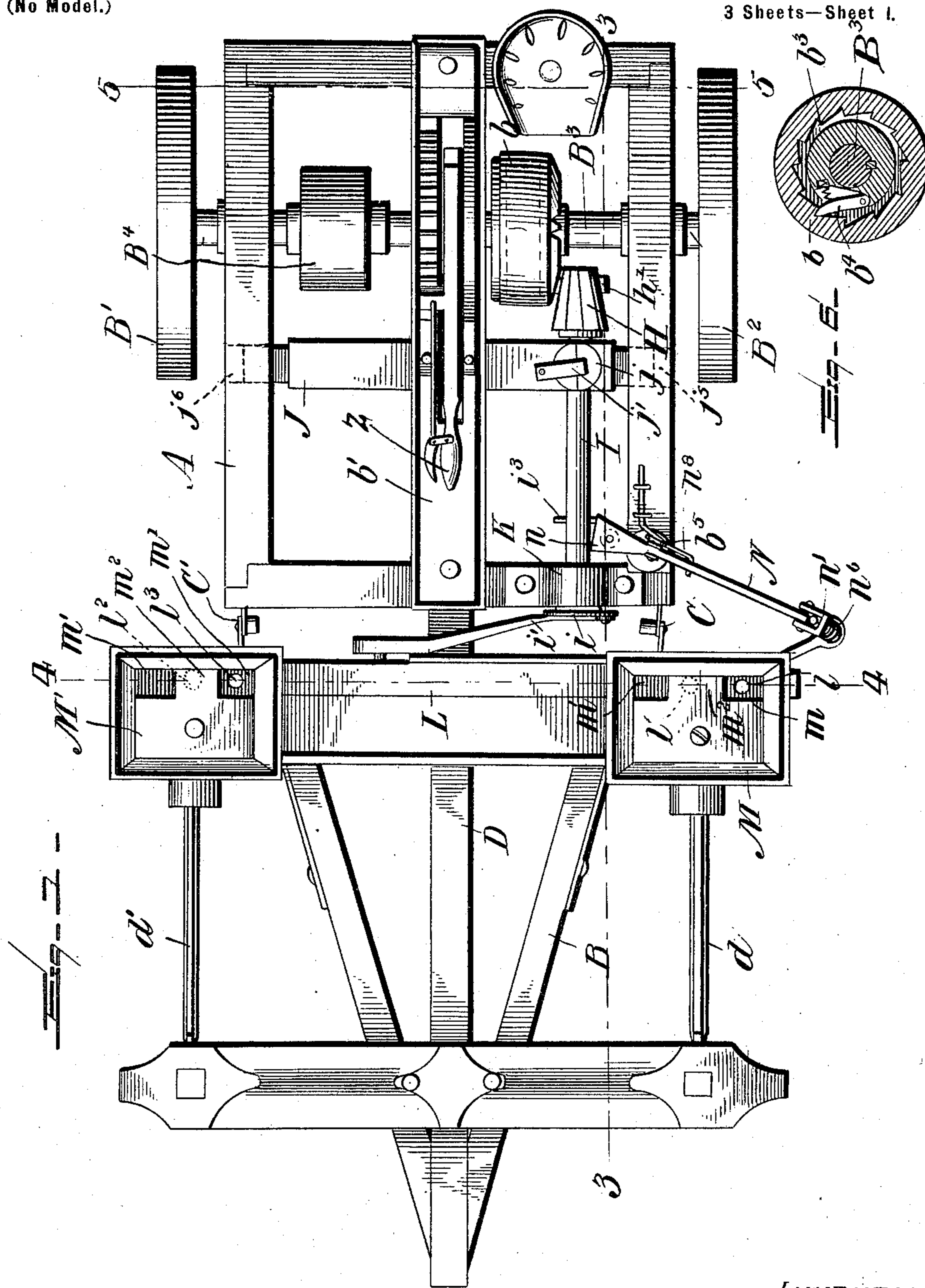
Patented July 15, 1902.

R. E. DIAL & M. E. GARWOOD.
CORN PLANTER.

(Application filed June 3, 1901.)

(No Model.)

3 Sheets—Sheet 1.



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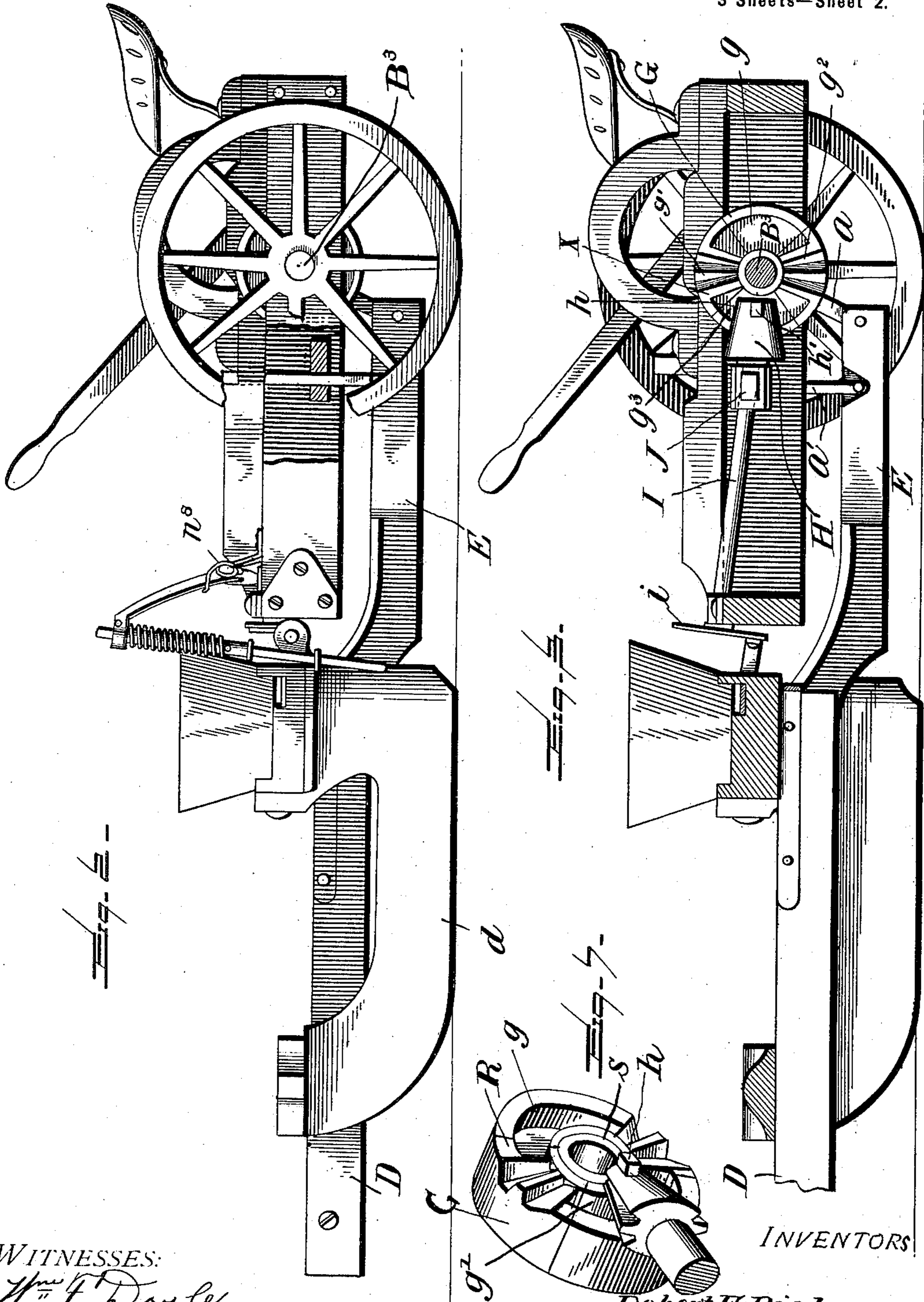
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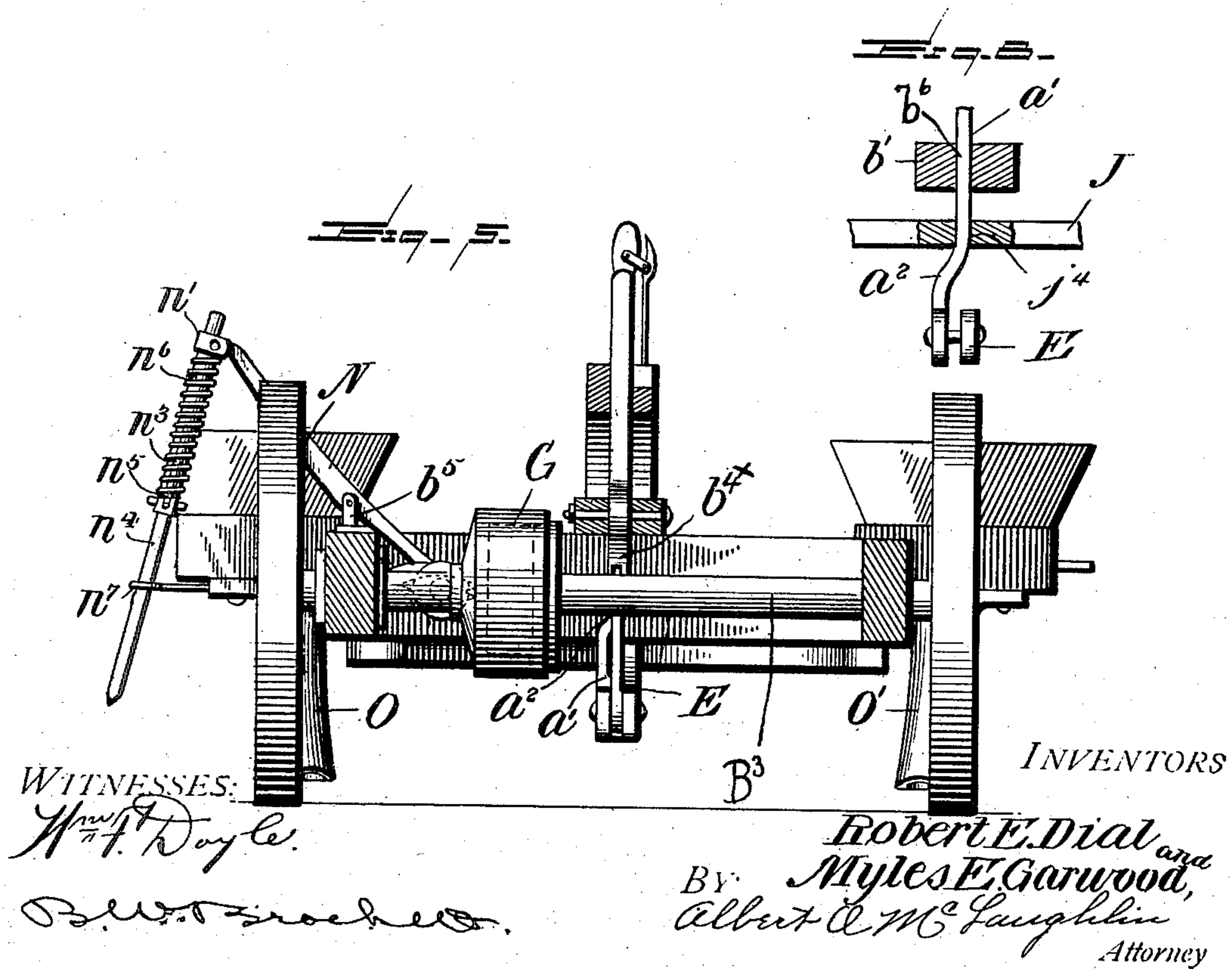
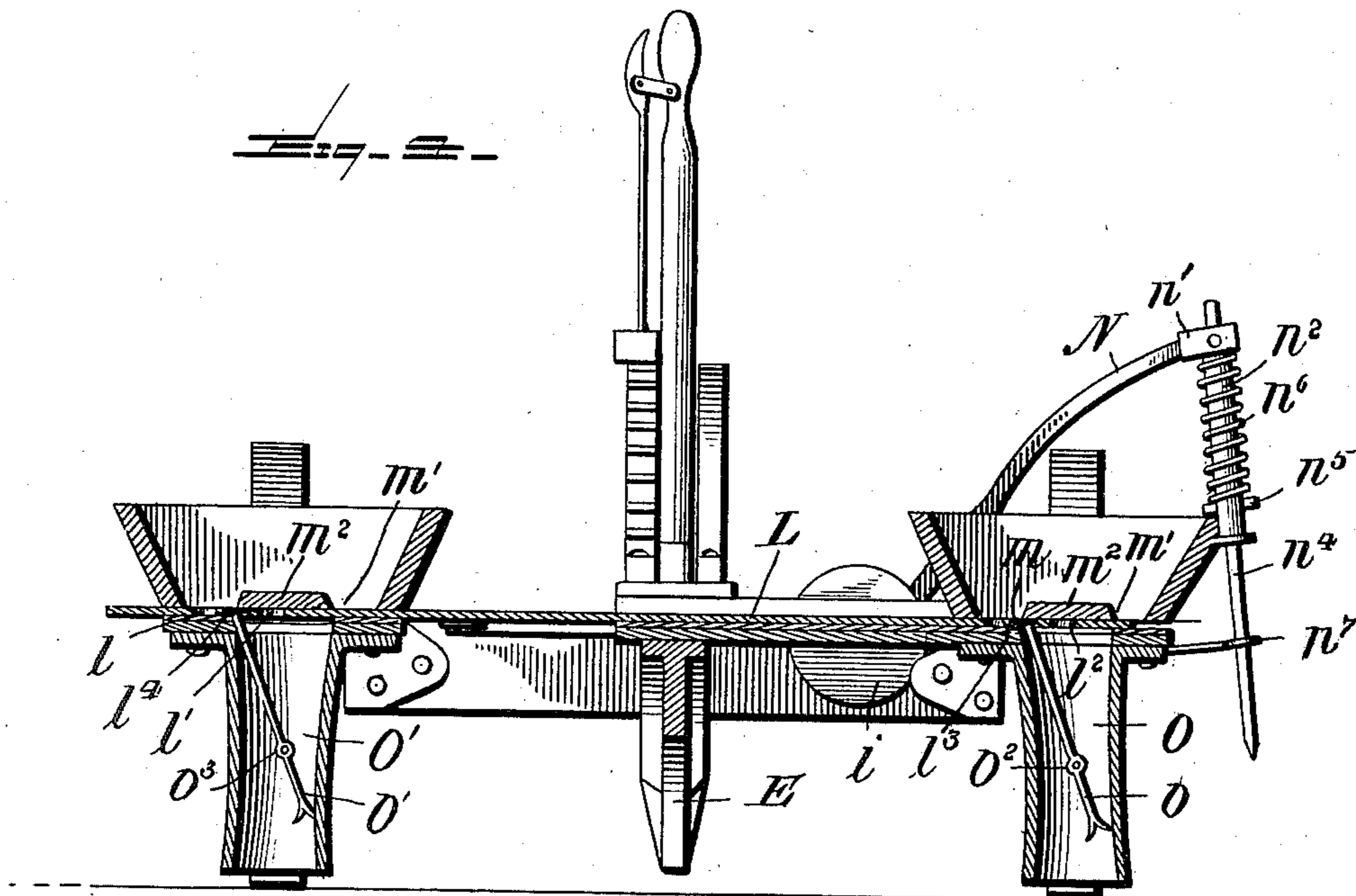
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3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

ROBERT E. DIAL AND MYLES E. GARWOOD, OF FONTANET, INDIANA; SAID
GARWOOD ASSIGNOR TO SAID DIAL.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 704,622, dated July 15, 1902.

Application filed June 3, 1901. Serial No. 63,005. (No model.)

To all whom it may concern:

Be it known that we, ROBERT E. DIAL and MYLES E. GARWOOD, citizens of the United States, residing at Fontanet, in the county of Vigo and State of Indiana, have invented new and useful Improvements in Corn-Planters, of which the following is a specification.

Our invention relates to improvements in corn-planters; and it consists in the novel features of construction hereinafter described, reference being had to the accompanying drawings, which illustrate one form in which we have contemplated embodying our invention, and said invention is fully disclosed in the following description and claims.

Referring to the drawings, Figure 1 represents a top plane view of our improved corn-planter. Fig. 2 is a side elevation of the same. Fig. 3 is a longitudinal vertical section on the line 3 3, Fig. 1. Fig. 4 is a sectional view on the line 4 4, Fig. 1. Fig. 5 is a sectional view on the line 5 5, Fig. 1, showing the supporting-wheels in elevation. Fig. 6 is a detail sectional view of the gearing. Fig. 7 is a perspective view of the gears, and Fig. 8 is a detail view of the gear-shifting mechanism.

The object of our invention is to provide a planter wherein the seed-dropping mechanism and the row-checking device are operated by the supporting-wheels, and, further, to so arrange the parts that the seed-dropping mechanism, the checking device, and the drills are thrown out of operation by one movement of a hand-lever.

The framework of our improved planter is divided into two sections—A, the rear or wheel section, provided with the usual supporting-wheels B^1 B^2 , mounted on the axle B^3 , and a differential gear, as shown at B^4 , so that the wheels are capable of independent movement, and B, the front or runner section. These two sections are flexibly united to each other at the point C C'. The front section is provided with the usual draft beam or tongue D, running through the center of the frame, as shown, and also with the shoes or furrow-openers d d' . Rigidly secured to this beam or tongue D is an extension E, extending rearwardly underneath the rear section A to a point just forward of the axle B^3 .

On the end of this extension E is attached a link a , secured to the bell-crank arm b^{4x} of the ratchet-and-pawl mechanism of ordinary construction. An upwardly-extending arm a' is also fastened to said extension E. This arm a' passes up through a suitable opening in the framework and is provided with a cam a^2 , by means of which the feeding mechanism is thrown into and out of operation, as will more fully hereinafter appear.

On the axle B^3 , before mentioned, is mounted the driving gear-wheel b . This gear-wheel is provided with internal ratchet-teeth b^3 and any suitable pawl b^4 , as shown, so that the said gear-wheel may be rotated in a reverse direction for the purpose of allowing any back movement which may be present in the gears and bringing the seed-dropping mechanism into immediate operation when the planter is started, as will be more fully hereinafter described.

On a suitable bar b' , secured to the wheel-frame A, is mounted a pawl, ratchet, and lever mechanism of ordinary construction, the bell-crank arm b^{4x} of which being attached to the link a , hereinbefore mentioned, and being adapted to raise and lower the extension E. The raising of the extension E will raise the rear portion of the shoes or furrow-openers by reason of said extension acting as a lever upon the forward portion of the said shoes as a fulcrum, thereby taking the seed-delivery portion, which is the rear portion, of the said shoes out of the ground. It will also be noted that upon raising the extension E the upwardly-extending arm a' will be moved in an upwardly direction, thereby throwing the seed-feeding mechanism out of operation. The row-checking mechanism, hereinafter described, is also thrown out of operation with the seed-feeding mechanism and at the same time.

The seed-feeding mechanism and row-checking device, hereinbefore referred to, are constructed as follows: On the shaft or axle B^3 of the supporting-wheels is mounted a gear-wheel G, of substantially the form shown in Fig. 3, having two sets or series of three teeth opposite each other and on the face of said gear-wheel and recessed portions g and g^3 between each set, as shown. Mesh-

ing with this gear-wheel G is a small pinion H, mounted on the shaft I and having two lugs h h' , adapted to enter the recesses g and g^3 and two sets of teeth opposite each other 5 and between said lugs. The pinion H when in operative position, as will hereinafter appear, remains stationary until the first tooth of one series—*i. e.*, x —strikes the lug, which, as before stated, normally remains in the recess which is at that time forward of the axle, 10 when the pinion is rotated, and the two teeth of said pinion engage in the spaces between the three teeth on the face of the gear-wheel G, hereinafter mentioned. It is obvious from 15 the above explanation that an intermittent motion of a rotary character is conveyed to the pinion. This pinion H is mounted on a suitable shaft I, running at right angles to the axle of the supporting-wheels. The end 20 of the shaft I adjacent to the pinion is mounted in a bearing j , secured in a cross-beam J by means of the keeper j' . The cross-beam is loosely mounted in the side beams of the rear or wheel section of the frame, so that 25 said beam reciprocates therein. The other end of the shaft I is mounted in a bearing K, secured to the front beam of the rear section A. The bearing j is cylindrical in form, as indicated by the top plane view, (shown in 30 Fig. 1.) the object being that when the beam J is reciprocated back and forth across the machine said bearing will be free to turn therein, thus permitting the shaft I to oscillate with respect to said beam J. The bearing 35 j is also made in two sections, as shown, in order that the shaft I may be readily removed therefrom. The forward bearing K of the shaft I is made in a manner such that the said shaft I can move freely from side to 40 side therein.

It will be seen from the foregoing description that the pinion, and consequently the shaft I, can be thrown into and out of operation by operating the beam J through the extension E and the arm a' . The upper portion 45 of the upwardly-extending arm a' , before mentioned, passes through a suitable opening j^4 (see Fig. 8) in the beam J and then through the opening b^6 in the frame b' , so that when the arm is raised the cam a^2 , before referred to, engages the side of the opening j^4 and forces the said beam, with the said pinion, in a direction away from the gear-wheel G, and thus the pinion and its shaft 55 are thrown out of operation by raising the extension E, this being brought about through the medium of the bell-crank arm b^{4x} of the pawl-and-ratchet mechanism, as shown in Fig. 5. The shaft I is also provided with a 60 transverse pin i^3 , which projects out from either side of the same, for a purpose which will later appear.

Mounted in a suitable support b^5 , secured to the frame A, is a lever N, one end of which 65 is provided with a flattened portion n , the flattened portion n being normally held in a depressed position by the spring n^8 and pro-

jecting to a point in the path of the pin i^3 and the other end pivoted in a clip n' , mounted on the end of a hollow cylinder n^2 . (Shown 70 in Fig. 4 and hereinafter described.) The hollow cylinder n^2 is provided with two longitudinal slots n^3 and incases a rod n^4 , which has a pin n^5 extending from either side thereof through the longitudinal slots n^3 . A coiled 75 spring n^6 encircles the hollow cylinder n^2 and exerts its force between the rigid clip n' and the pin n^5 , thus allowing the rod to give when too great pressure is exerted upon it. A suitable guide n^7 , attached to the frame, is provided for the rod n^4 to direct the same in a 80 line with the seed-feeding chutes.

The construction just described constitutes the row-checking mechanism and is so arranged that it will operate in unison with the 85 seed-feeding mechanism.

On the end of the shaft I is secured a crank-disk i , connected to the reciprocating plate or slide L by means of a link i' . This plate is adapted to reciprocate between the bottoms of the seed-hoppers M M' and the seed-chutes O O', which run down through the drills, and is provided with two openings at each end thereof l , l' , l^2 , and l^3 , two of these openings l l^2 being covered, and hence shown 95 in dotted lines in Fig. 1. The under side of the plate L, between the two openings and at each end thereof, is provided with a recess l^4 , for a purpose hereinafter described. The bottom of each of said hoppers is provided with 100 two openings m m' , having between them a solid portion m^2 , which is sufficient in size to register with the seed-openings in each of said drills and serves as a cut-off.

The seed-feed chutes, hereinbefore referred 105 to and lettered, respectively, O O', are each provided with oscillating valves o o' , o being pivoted at o^2 and o' at o^3 . The valves are arranged substantially as shown in Fig. 4, so that the entire amount of grain to be planted 110 at each operation of the plate L will be held in the chute and dropped all at once, thereby preventing the scattering of the grain along the trail.

In operating the device the operator lowers 115 the rear end of the shoes or furrow-openers by advancing the hand-lever Z of the pawl-and-ratchet mechanism, which operation also throws into place the seed-feeding mechanism, hereinbefore described. The planter is 120 then drawn forward, and for each revolution of the ground-wheels two droppings of corn are planted. With each dropping the checker mechanism is operated, so that each cross-row is marked thereby. The operator having 125 planted one row of corn the operating mechanism is thrown out of operation. The planter is then turned around and the shoes or furrow-openers placed in a line with marks made by the checker in the last hill of corn, thus 130 keeping the rows in a line. Before starting, however, the gear-wheel G must be turned by hand, as before stated, until the tooth x is just in position to engage the lug nearest it

on the pinion H, the seed-operating mechanism having been thrown out of operation when the gears were in the position shown in Fig. 3 of the drawings.

5 The size of the wheels and gears may be changed so that the seed-feeding mechanism will operate at different intervals without departing from the spirit of our invention.

10 In Fig. 7 of the drawings the gear-wheel G is represented as being divided into four equal parts on the lines R and S. This arrangement is provided so that the recessed portions may be removed and portions supplied having teeth similar to those at *g'*.

15 Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a corn-planter having a frame provided with shoes or furrow-openers, the combination with the supporting-wheels and the axle, of mechanism for feeding grain, a gear-wheel mounted on said axle, a small pinion meshing with said gear-wheel, a shaft carrying said small pinion for operating said feeding mechanism, and a cross-beam loosely mounted in said frame and carrying a bearing for said shaft, said beam being adapted to move said pinion in and out of contact with said gear-wheel, substantially as described.

30 2. In a corn-planter having a frame provided with shoes or furrow-openers, the combination with the supporting-wheels and the axle, of mechanism for feeding grain, a gear-wheel mounted on said axle, a small pinion meshing with said gear-wheel, a shaft carrying said small pinion for operating said grain-feeding mechanism, a cross-beam loosely mounted in said frame, a cylindrical bearing in said cross-beam adapted to carry said shaft, said beam being adapted to move said pinion in and out of contact with said gear-wheel, substantially as described.

45 3. In a corn-planter having a frame divided into a front or runner section carrying shoes or furrow-openers and a rear or wheel section, the combination with the supporting-wheels and the axle, of mechanism for feeding grain, a gear-wheel mounted on said axle, a small pinion meshing with said gear-wheel, a shaft carrying said small pinion for operating said grain-feeding mechanism, and a cross-beam

loosely mounted in the rear or wheel section of said frame and having a bearing therein for said shaft, said beam being adapted to move said pinion in and out of contact with said gear-wheel, substantially as described. 55

4. In corn-planter having a frame divided into a front or runner section carrying shoes or furrow-openers and a rear or wheel section, the combination with the supporting-wheels, 60 of suitable mechanism for feeding grain, a gear-wheel mounted on said axle, a small pinion meshing with said gear-wheel, a shaft carrying said small pinion for operating the grain-feeding mechanism, a cross-beam 65 loosely mounted in the rear or wheel section of said frame and carrying a bearing for said shaft, said beam being adapted to move said shaft with the pinion in and out of contact with said gear-wheel, a rearward extension 70 or tongue rigidly secured to said front or runner section, an upwardly-extending arm secured to said extension or tongue and a cam provided on said arm for operating said cross-beam, substantially as described. 75

5. In a corn-planter having a frame divided into a front or runner section carrying shoes or furrow-openers and a rear or wheel section, the combination with the supporting-wheels, 80 of suitable mechanism for feeding grain, a gear-wheel mounted on said axle, a small pinion meshing with said gear-wheel, a shaft carrying said small pinion and having connections with said grain-feeding mechanism, a cross-beam loosely mounted in the rear or 85 wheel section of said frame and carrying a bearing for said shaft, said beam being adapted to move said pinion in and out of contact with said gear-wheel, a rearward extension or tongue rigidly secured to said front or runner 90 section, an upwardly-extending arm rigidly secured to said extension or tongue, a cam provided on said arm for operating said cross-beam, and a resilient row-checking device, substantially as described. 95

In testimony whereof we affix our signatures in presence of two witnesses.

ROBT. E. DIAL.

MYLES E. GARWOOD.

Witnesses:

HERAATEN J. SENERBET,

SYLVESTER T. DIAL.