

No. 662,912.

Patented Dec. 4, 1900.

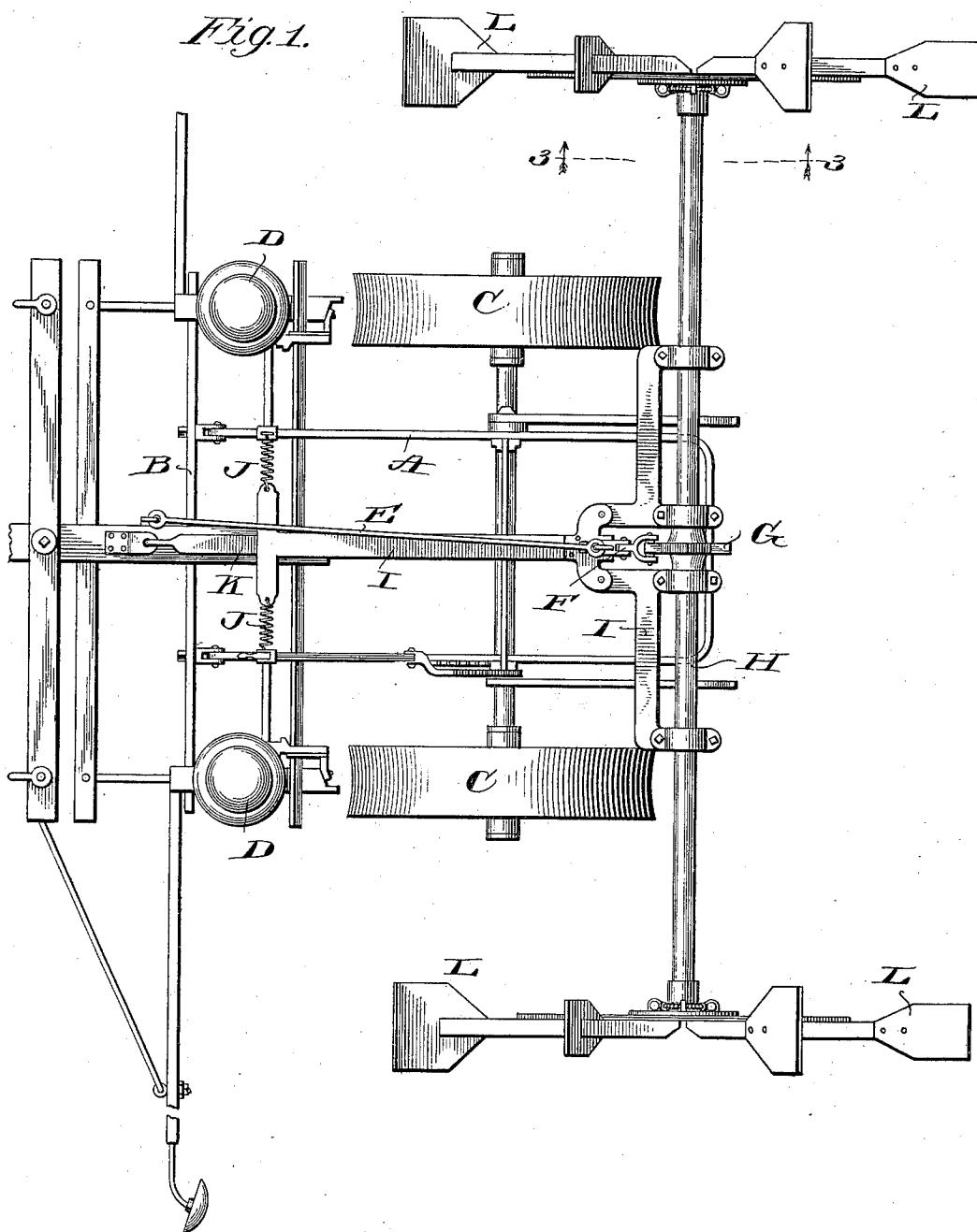
C. I. BURT.
AUTOMATIC CORN PLANTER.

(Application filed June 22, 1900.)

(No Model.)

4 Sheets--Sheet 1.

Fig. 1.



Witnesses:
J. B. Stein
J. D. Perry

Inventor:
C. I. Burt
By
J. B. Stein
Attys

No. 662,912.

Patented Dec. 4, 1900.

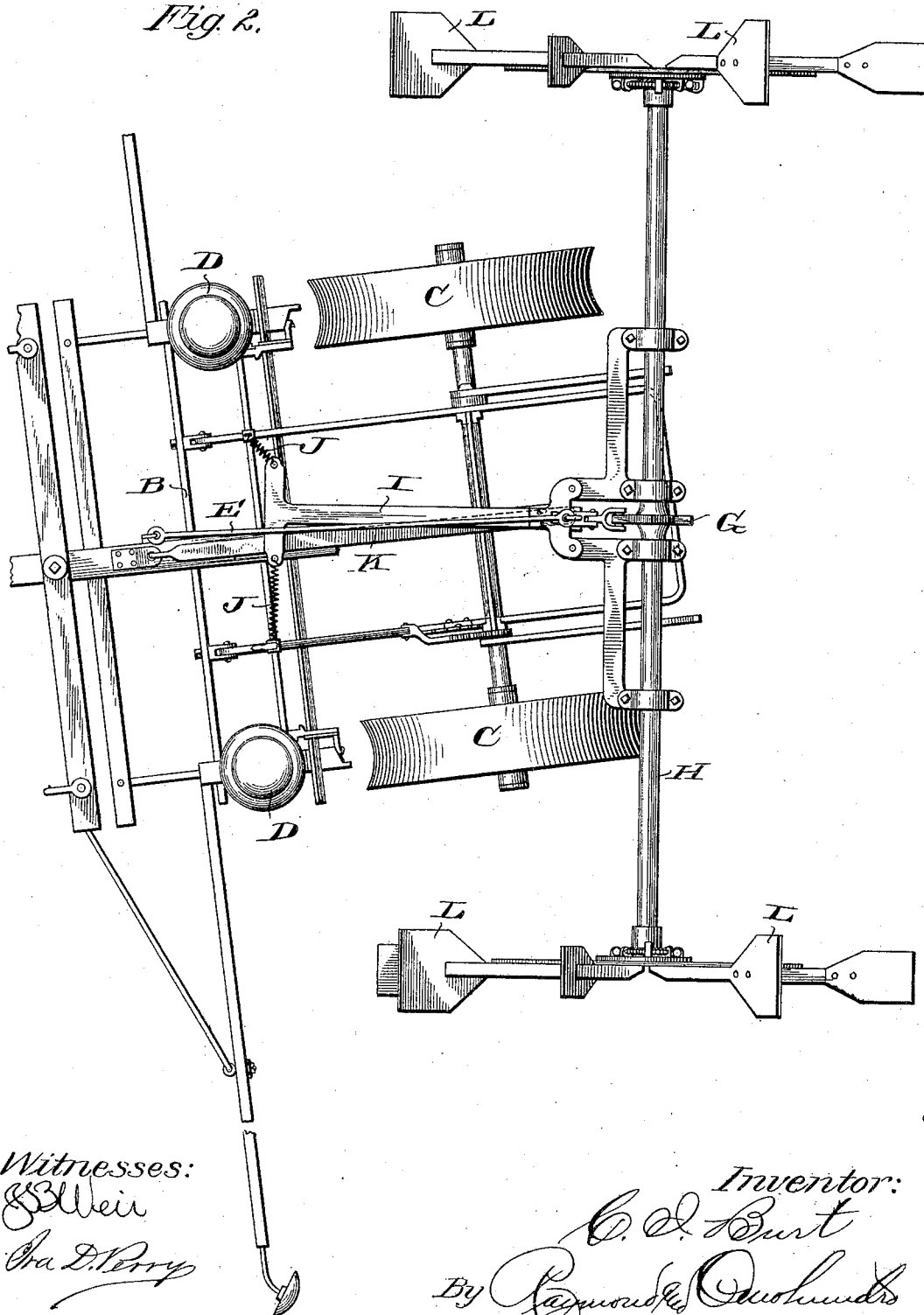
C. I. BURT.
AUTOMATIC CORN PLANTER.

(Application filed June 22, 1900.)

(No Model.)

4 Sheets--Sheet 2.

Fig. 2.



Witnesses:

W. H. Blair
Chas. D. Perry

Inventor:

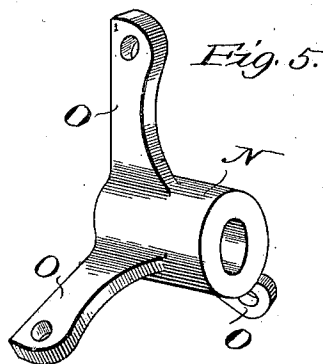
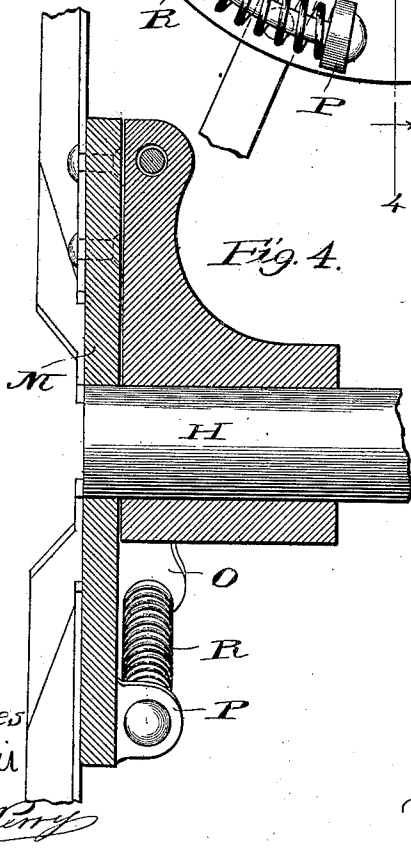
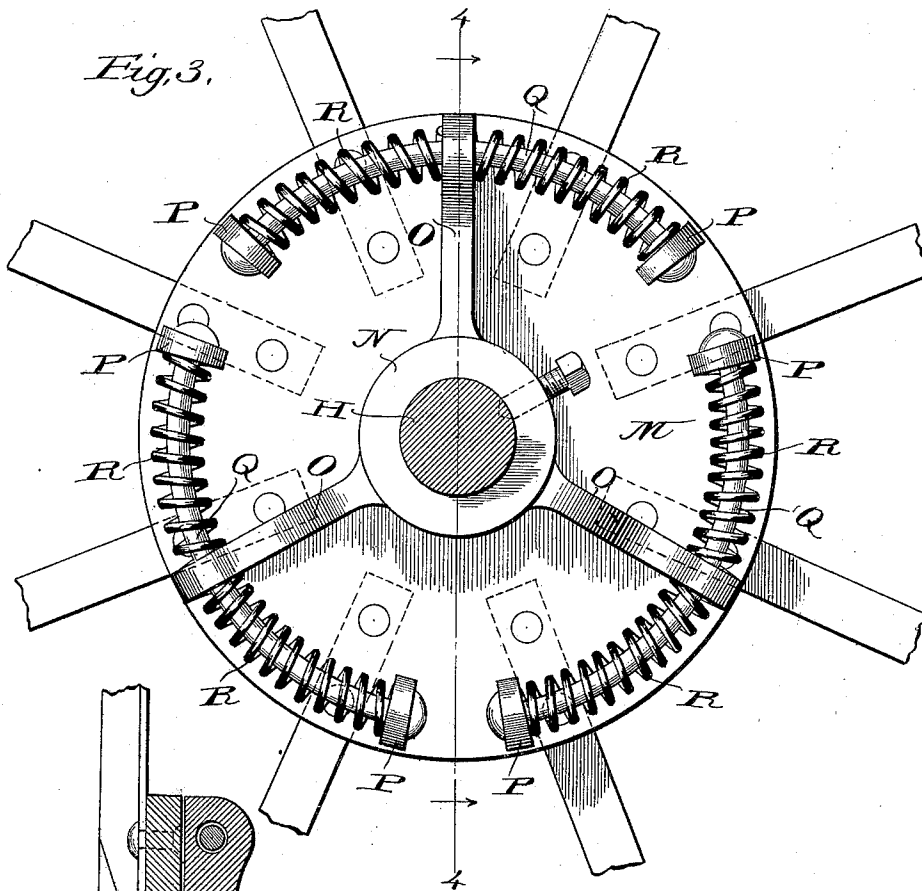
C. I. Burt
By *Raymond S. Quinlan*
Atty

C. I. BURT.
AUTOMATIC CORN PLANTER.

(Application filed June 22, 1900.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses
S. B. Keil
J. A. D. Perry

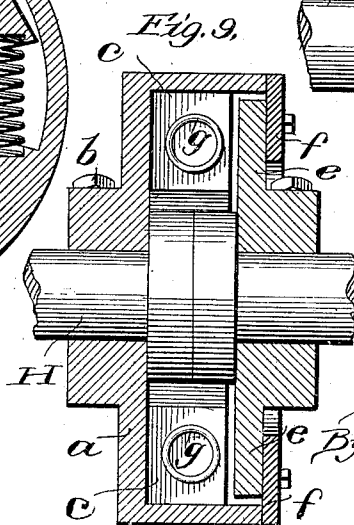
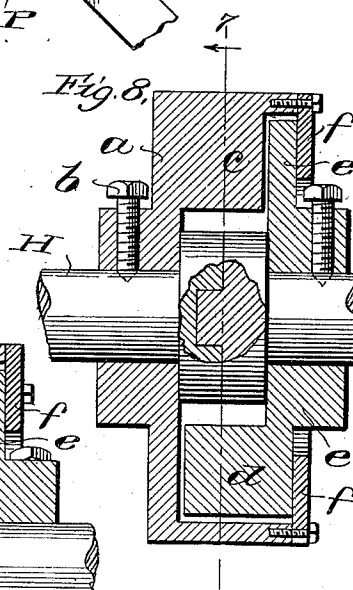
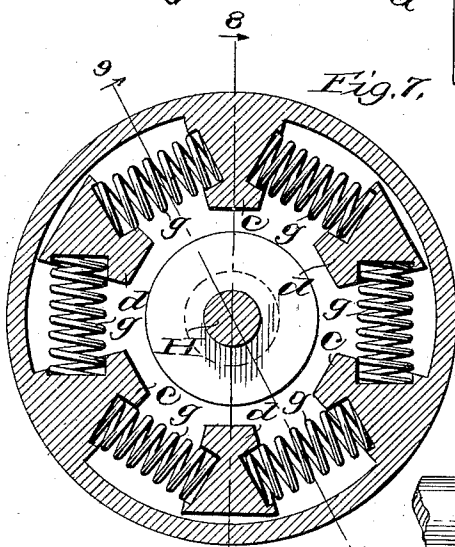
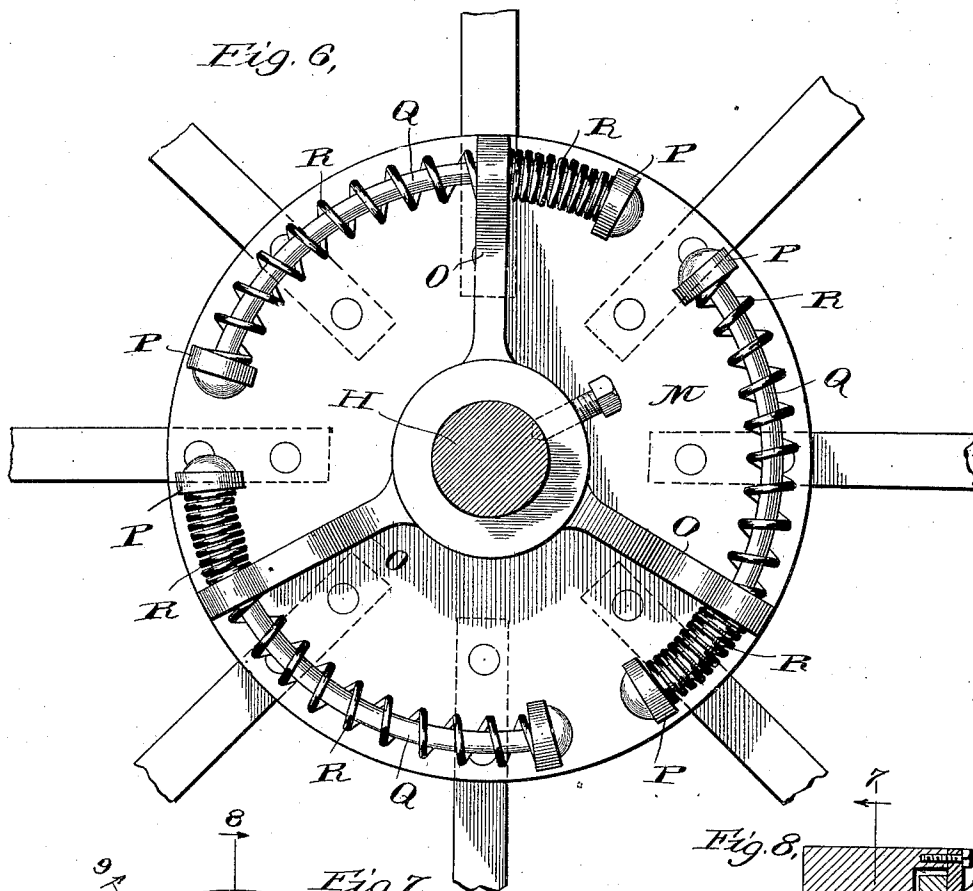
Inventor
C. I. Burt
By, Raymond S. Quinlan
Attys

C. I. BURT.
AUTOMATIC CORN PLANTER.

(Application filed June 22, 1900.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses
J. B. Keir
Chas. D. Perry

Inventor
C. I. Burt
By Raymond W. Cummings
Attys

UNITED STATES PATENT OFFICE.

CHAUNCEY I. BURT, OF DAVENPORT, IOWA, ASSIGNOR TO THE IMPLEMENT MANUFACTURING COMPANY, OF SAME PLACE.

AUTOMATIC CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 662,912, dated December 4, 1900.

Application filed June 22, 1900. Serial No. 21,175. (No model.)

To all whom it may concern:

Be it known that I, CHAUNCEY I. BURT, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Automatic Corn-Planters, of which the following is a specification.

This invention relates to improvements in automatic corn-planters of that type known as "wireless" and in which the operation of the seed-planting mechanism and the checking of the rows is done by marking-wheels directly engaging the ground, which in some cases are mounted upon the frame of the planter, while in other cases they are trailed along behind the planter.

While my invention has no especial connection with or dependence upon any particular construction or mode of operation of the marking devices and their connection with and mode of operating the seed-dropping mechanism therefrom, I have found in practice that the best results from the use of my invention are derived from its application to a planter of that type in which a trailing marker is employed which has a flexible connection with the planter of such character that the marker will not be deflected by the turning of the planter out of a straight line, which class of machines is exemplified by Letters Patent No. 638,721 for the invention of James B. Jarmin, granted December 12, 1899.

During an extensive practical use of machines constructed in accordance with the before-mentioned Letters Patent during the present planting season it developed in many instances that while a machine would do its work perfectly over acres of ground it would suddenly and without any apparent reason jump out of check and remain out of check until the marker was lifted from the ground and again properly adjusted in check instead of returning to check when the planter was brought back to line, which is its normal mode of operation. I have discovered that this difficulty is due to the torsional strain put upon the long marker-shaft, the blades of the marker-wheels of which at each end of the shaft are at all times in the ground, such torsional or twisting strain being created whenever the planter was suddenly and

violently swerved out of line, for notwithstanding the flexible connection between the planter and the marker-shaft there is of necessity some lateral strain put upon the draft-bars of the marker, which tends to cause the marker to follow the path of the planter, and of course if this lateral strain is continuous for an undue length of time, such as when in driving around a hay-stack or obstruction in a field the driver carelessly leaves the markers on the ground, a twisting strain will be placed on the shaft, because one of the marker-wheels must necessarily outravel the other, so that when the planter and markers are again brought to the line of planting they will run along properly until one or the other of the wheels strikes a part of the ground, offering a resistance which the torsion of the shaft is sufficient to overcome, when the marker-wheel will be instantly partially rotated backward or forward a number of inches. If this effect takes place upon the outside wheel—that is, the one making the new marks in the direction of the planting—the deflection will not appear until a return across the field; but on account of one of the blades of one of the markers always traveling across the field in the footsteps of its predecessor, where a soft and open hole has already been prepared for its reception, the freeing and slipping generally takes place in the marker-wheel—that is, during the retracing—and which instantly throws this wheel out of check either a few inches forward or backward of the holes which the blades thereof should strike. If it were practically possible to make the marker-shaft so rigid that it would withstand all torsional strain, this difficulty would be overcome, because the flexible connection would then be compelled to always give way sufficiently; but the great weight of a shaft that would be capable of overcoming this difficulty renders the use thereof practically impossible.

My invention has for one object the overcoming of this difficulty by having the marker-wheels to a limited extent rotatable in either direction independently of each other, though yieldingly centered, so that they will automatically and normally assume their proper relative positions when not under strain.

Another object is to have the marker-wheels and their shaft so connected that while the wheels are capable of a limited independent rotation in either direction they will maintain a constant and uniform operation of the seed-dropping mechanism of the planter by either joint or independent action and without torsional strain upon the shaft.

These and such other objects as may hereinafter appear are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a corn-planter, showing a marker applied thereto embodying my invention. Fig. 2 is a view similar to Fig. 1, but showing the planter deflected from the line of planting. Fig. 3 is a detail sectional view on the line 3 3 of Fig. 1 looking in the direction indicated by the arrows. Fig. 4 is a vertical section on the line 4 4 of Fig. 3. Fig. 5 is a detail perspective view of the shaft-spider. Fig. 6 is a view similar to Fig. 3, but showing the wheel partly turned upon the shaft. Fig. 7 is a vertical section of a modification, taken on the line 7 7 of Fig. 8. Fig. 8 is a section taken on the line 8 8 of Fig. 7, and Fig 9 is a section taken on the line 9 9 of Fig. 7.

Similar letters of reference indicate the same parts in the several figures of the drawings.

As before stated, the particular construction and mode of operation of the corn-planter and the manner in which its seed-dropping mechanism is operated from the marker are immaterial to my present invention, and it is likewise immaterial whether the marker-shaft is mounted upon the frame of the planter or is trailed behind the planter; but for convenience of illustration I have shown my invention as applied to a planter made in accordance with the before-mentioned Jarmin patent and corresponding therewith in all essential particulars, both as to construction and mode of operation, except in so far as the same is modified for the application of my invention thereto.

Referring now by letter to the accompanying drawings, A indicates the wheel or back frame; B, the front or runner frame pivotally connected to the back frame; C, the ground-wheels upon which the back frame is mounted, and D the seedboxes containing the seed-dropping mechanism operated in the same manner as disclosed in the said patent by the rod E from the bell-crank lever F, which is rocked at regular intervals by the star-wheel G, rigidly mounted upon the marker-shaft H. This shaft is journaled in suitable bearings upon the arms of a T-shaped draft-bar I, the forward end of which is connected by equalizing-springs J at opposite sides thereof with the back frame of the planter. The said draft-bar has also pivotally connected therewith, near the rear end thereof, a bar K, which is flexibly connected at its forward end

with the tongue or planter-frame. Upon the ends of the marker-shaft H are mounted the marker-wheels, having spade marker-blades adapted to directly engage the ground, the alternate blades L being preferably broader than the intermediate blades and serving the purpose of check-row markers in the usual way. All of these features are common to the aforesaid Letters Patent, cooperating in the same way as the corresponding features in said patent and to the same end, allowing for a turning of the planter from the true line of planting, as shown in Fig. 2, without deflecting the marker from the line of planting. In Fig. 1 the planter and marker are shown in their normal relative positions when the driving is true to the line of planting, while Fig. 2 shows the planter turned to one side of the line of planting as a result of careless driving or a sudden fright of the horses or possibly to avoid some obstruction in the field, the planter being capable of turning this way in either direction without immediately deflecting the marker. All these features are now so well understood in this art that it is not believed necessary to herein illustrate or describe them in greater detail.

The essential, novel, and important feature of this invention is the provision of means for yieldingly centering the two marker-wheels, so that while they will be normally held in proper relative positions with the marking-blades of the two wheels on the same radial lines from the axis of the marker-shaft yet either wheel is free to rotate a limited distance in either direction independently of the other, but will be automatically returned to its proper centered position when the normal conditions are restored. This result may be brought about in many different ways either by having a yielding centering connection between each wheel and the shaft or by having the wheels each rigidly mounted upon the shaft, while the yielding centering devices are interposed between sections of the shaft or in any other manner that will suggest itself to one skilled in the art to which my invention appertains.

The form in which my invention has been embodied and tested is shown in Figs. 1 to 6, inclusive. In this form the hubs M of the marker-wheels are rotatively mounted upon the marker-shafts H, while a spider N, having a plurality of arms O, three being shown in the drawings, is keyed or otherwise rigidly secured to the shaft, so as to rotate therewith. On each side of each arm of the spider the hub M is provided with a rigid perforated lug or ear P, and passing through a pair of said ears on each side of a spider-arm and freely through a perforation in the spider-arm is a curved bolt Q, which is formed on the arc of a circle struck from the axis of the shaft H. Confined between each of said arms and the lugs on opposite sides thereof is a coil-spring R, sleeved upon said bolt and normally

set under a heavy tension, so that the arms O will be normally, though yieldingly, held in mid-position between each pair of ears on the hub of the marker-wheel with which it co-operates, the springs R on opposite sides of the arms being intended to be of equal strength, so as to counterbalance one another. It will thus be seen that the marker-wheels drive the marker-shaft H through the intermediary of the springs R and the spider, the bolts Q serving, primarily, to retain the springs in position under all conditions. The tension of the springs is such that they are amply sufficient to rotate the marker-shaft and operate the seed-dropping mechanism without compressing them from the normal position thereof, (shown in Fig. 3,) although, of course, they would give way if undue friction or some obstruction to the operation of the seed-dropping mechanism were interposed. When, however, in turning the machine out of line, one of the marker-wheels is required to travel forward faster than the other or one is required to back up while the other goes forward in making a sharp turn, either one of the wheels by overcoming the tension of the resisting-spring may partially turn upon the shaft H without affecting the same and without sufficient torsional strain to twist the shaft at all. One of the changed positions of the wheel is illustrated in Fig. 6, showing one set of the resisting-springs at each arm compressed almost to the limit, and it is apparent that up to the limit the other wheel is the controlling-wheel and controls the operation and movement of the marker-shaft, but if the resistance is maintained long enough to effect the complete compression of the spring between the spider-arms and the ears on the marker-wheel hub then of course the parts would lock and the wheel shown in Fig. 6 would then become the controlling-wheel and force the turning of the marker-shaft as against the resistance of the springs on the other wheel, which, however, would be free to lag back. As soon, however, as the planter and marker-shaft are restored to their normal positions the springs would operate to automatically restore the marker-shaft and marker-wheels to their original normal positions and yieldingly maintain them in such positions until required to again give way upon a new emergency arising.

I have found by a practical test of a machine so constructed that the difficulty of getting out of check is entirely obviated either under the worst conditions or under unreasonably-prolonged crooked driving, and, indeed, so effective are these devices that even in the absence of such a flexible connection between the marker and the planter, as is shown in the drawings I can still secure almost perfect results, and the same is true where my invention is applied to a marker-shaft which is carried directly upon the frame of the machine, for the marker-wheels being

free to rotate backward and forward independently of each other obviate all tendency or necessity for the blades of the wheels to drag through the earth when the planter turns, as has heretofore been necessary, and for which reason this class of planters has been unsuccessful when tried in the field.

In Figs. 7, 8, and 9 I have shown my invention embodied in a slightly-different form from that previously described in that I have placed the yielding centering devices, in the marker-shaft and divided that shaft into sections, as plainly shown in Figs. 8 and 9. This division may occur at any point on the shaft, but preferably near the center thereof, and the opposing ends are preferably headed and one provided in its end with a socket and the other with a projection fitting into said socket, so as to assist in maintaining the alignment of the two sections of the shaft, though this will of course be properly provided for in the bearings of the shaft. On one section of the shaft is mounted cylindric casing *a*, open at the end opposing the other section of the shaft and rigidly secured to the shaft by a bolt *b*, passing through the hub thereof or in any other suitable manner. In its interior the casing is provided with a plurality of radially and inwardly extending lugs *c*, with which alternate a corresponding series of lugs *d*, projecting into the casing from a disk *e*, rigidly mounted upon the other section of the shaft, the outer face of the disk *e* being engaged by a keeping-ring *f*, secured to the open end of the casing, so as to prevent longitudinal separation of the shaft-sections, and consequently of the disk, from the casing. Between each lug on the casing and the adjacent pair of lugs on the disk is confined under heavy tension a coil-spring *g*, the end of which may be seated in sockets provided in the opposing faces of all of said lugs. Manifestly the operation of this connection is substantially identical with that of the construction before described, the same independence and freedom of rotation of the marker-wheels in either direction being provided and torsional strain upon the shaft being avoided.

Obviously other embodiments of my invention may be adopted, and changes in the construction and arrangement of the parts herein shown and described may be made without departing from the spirit of my invention, and all such changes are contemplated by the claims herein.

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

1. In an automatic corn-planter, the combination with the planter and its seed-dropping mechanism, of a marker comprising a shaft and marker-wheels capable of a limited rotation in either direction independent of each other, substantially as described.

2. In an automatic corn-planter, the combination with the planter and its seed-drop-

ping mechanism, of a marker comprising a shaft, marker-wheels and means for yieldingly centering said marker-wheels with relation to each other, substantially as described.

5 3. In an automatic corn-planter, the combination with the planter and the seed-dropping mechanism thereof, of a trailing marker flexibly connected with a planter and operatively connected with the seed-dropping
10 mechanism, said marker comprising marker-wheels capable of a limited rotation in either direction independent of each other, substantially as described.

15 4. In an automatic corn-planter, the combination with the planter and its seed-dropping mechanism, of a trailing marker flexibly connected with the planter, said marker comprising a shaft operatively connected with said seed-dropping mechanism, marker-
20 wheels on said shaft and means for yieldingly

centering said wheels with relation to each other, substantially as described.

5. In an automatic corn-planter, the combination with the planter and its seed-dropping mechanism, of a marker comprising a
25 shaft operatively connected with the seed-dropping mechanism, marker-wheels loosely mounted upon the ends of said shaft, spiders rigidly mounted upon said shaft adjacent to the marker-wheels, projections on the marker-
30 wheel hubs, curved rods passing through a pair of said projections and an arm of the spider, and coil-springs sleeved upon said rods and confined between said projections and the arms of the spider, substantially as
35 described.

CHAUNCEY I. BURT.

Witnesses:

A. B. FRENIER,

E. L. BAKER.