

No. 709,294.

Patented Sept. 16, 1902.

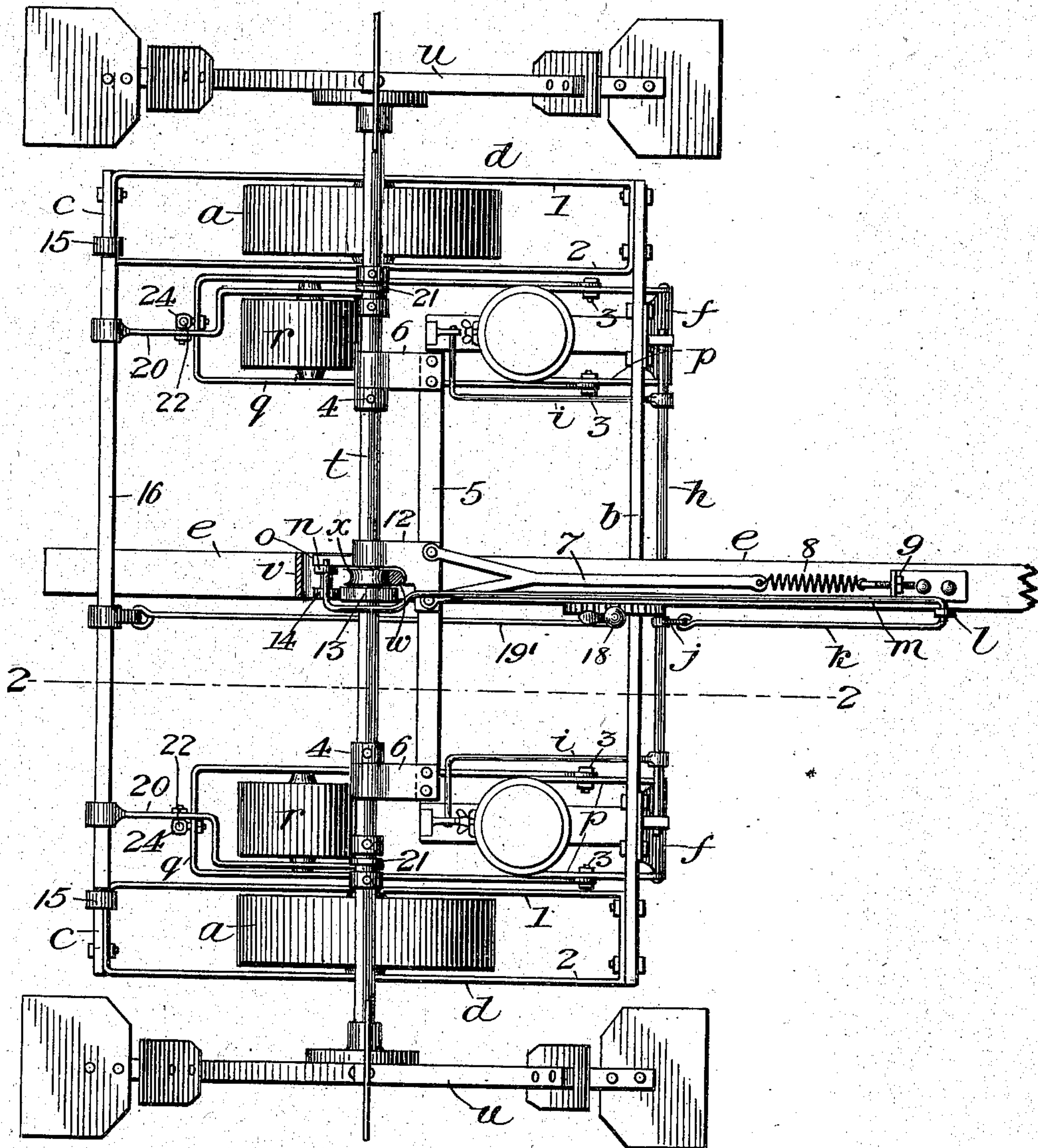
J. BARCLAY.
CORN PLANTER.

(Application filed June 7, 1900. Renewed June 25, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses:
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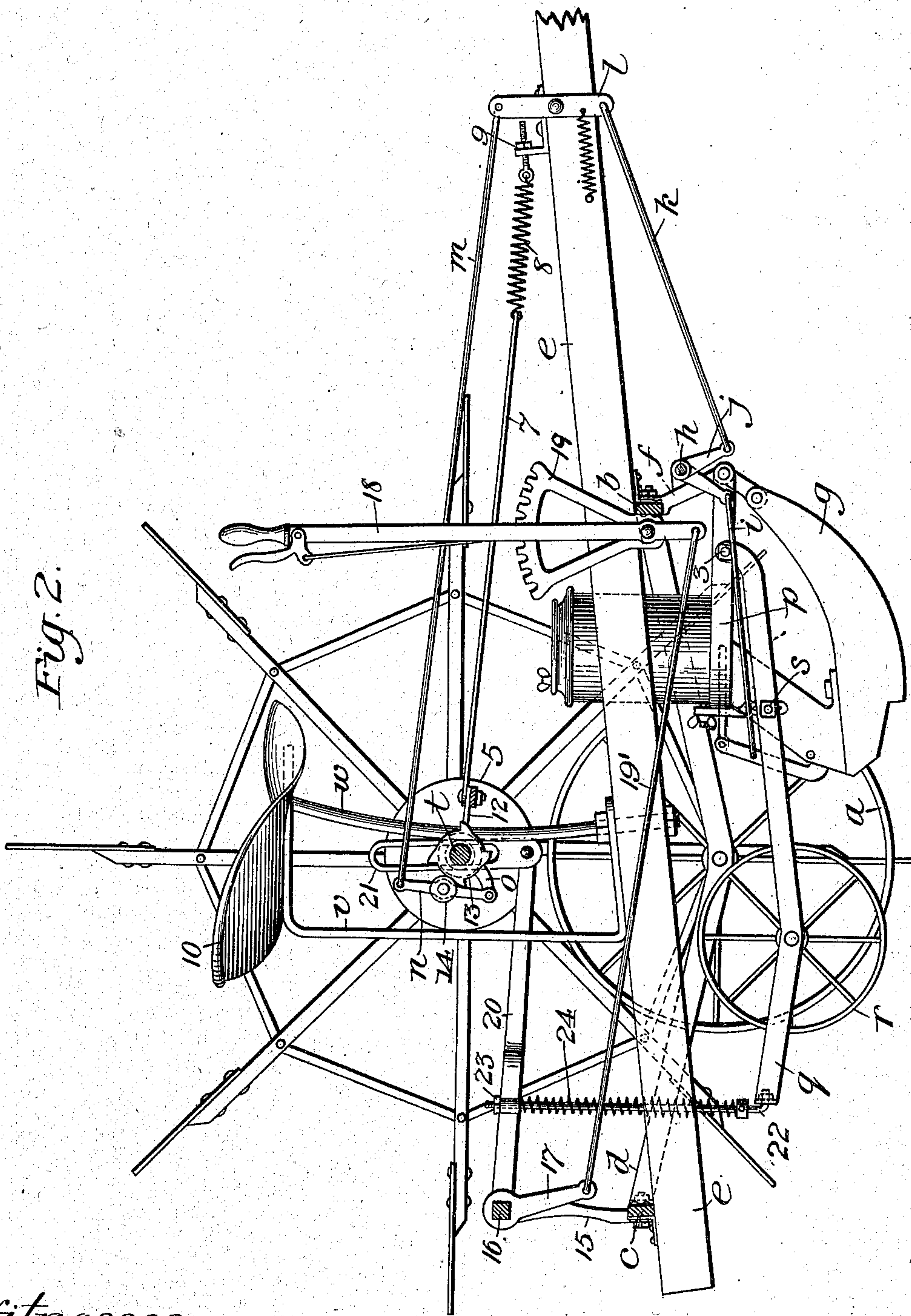
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

JAMES BARCLAY, OF MOLINE, ILLINOIS, ASSIGNOR TO THE DEERE AND
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CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 709,294, dated September 16, 1902.

Application filed June 7, 1900. Renewed June 25, 1902. Serial No. 113,145. (No model.)

To all whom it may concern:

Be it known that I, JAMES BARCLAY, a citizen of Canada, residing at Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Corn-Planters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
10 pertains to make and use the same.

The invention relates to check-row planters, and more especially to that type of planter which is intended to work without wires and which has come to be known as the "wire-
15 less" check-row marker. As heretofore constructed the marker attachment of these machines has usually been arranged to trail in rear of the planter-frame and had a draft connection with parts of said frame variously ap-
20 proximating the point having the least side-wise movement when the planter is driven out of line. These trailing markers are, however, subject to the objection that the forward motion of the planter-frame when de-
25 flected at an angle to the shaft of the marker soon causes the spade-wheels to get out of check, this difficulty being apparently due to the fact that the spade-wheels are rigidly at-
30 tached to the marker-shaft, and one of the wheels must describe a shorter arc than the other whenever the shaft swings out of its proper angle to the line of draft, thus caus-
ing the wheel traveling on the shorter arc to have a backward tendency, while the one on
35 the other end of the shaft has a tendency to overreach the marks. In the present inven-
tion I have overcome this difficulty by locat-
ing the shaft of the marker over and in prac-
40 tically the vertical plane of the axis of the planter-supporting wheels and connecting the marker pivotally to the planter-frame at sub-
stantially the central point between these
wheels, thus reducing the tendency of the
crooked driving of the planter to cause the
45 spade-wheels to work in the manner above
described, and in order to still further reduce
this tendency I provide a pivotal connection
of such character that while it permits the
free rise and fall of the marker independently
50 of the planter-frame and also permits the planter to oscillate independently of the marker

it converts whatever sidewise deflection of the planter-frame there is that is due to crooked driving into an endwise movement only of the marker-shaft without any tendency to swing
55 the shaft so as to cause the spade-wheels to seek to travel in arcs of different radius. I thereby get rid of the objectionable tendency of one of the spade-wheels to back and the other to overstep the marks and convert it
60 into an endwise sliding movement of the shaft, which, it will be understood, does not throw the spades out of check, but permits them to register properly with a slight movement lat-
65 erally in the line of the marks.

In the accompanying drawings, forming part of this specification, I have illustrated the invention in one of many forms in which I have contemplated embodying it. I do not
70 desire or intend, however, to be limited to this construction, except as to the generic fea-
tures intended to be illustrated.

Referring to the drawings, Figure 1 is a plan view, and Fig. 2 a fore-and-aft section
75 on the line 2 2 of Fig. 1.

In the views, *a a* denote the supporting-wheels of the planter. The frame of the planter consists of the front sill *b*, the rear sill *c*, and end sills *d d*, each of which is prefer-
80 ably composed of bars 1 and 2, in which are journaled wheelbarrow-like the supporting-wheels *a a*.

The tongue of the planter is denoted by *e*. It is bolted to the front and rear sills in any
suitable manner, being preferably arranged
85 to pass above the front sill and below the rear sill in order to give its forward end the proper elevation. Depending from the front sill *b* of the planter-frame are brackets *f f*, to which
90 are pivoted the runners or furrow-openers *g g*, carrying the cans for the seed-corn and the valve mechanism for dropping the same. The brackets *f f* also carry the shaft *h*, which ex-
tends across the front of the machine and car-
95 ries near its opposite ends the rods *i i*, by means of which the valves are operated. The shaft *h* has secured to it about centrally of its length a crank *j*, by means of which it is
operated from the shaft of the spade marker-
100 wheels through the intermediacy of the rod *k*, pivoted to the lower end of a spring-actu-
ated lever *l*, which is pivoted to the tongue

and oscillated by a rod *m*, connected to its upper end and extending thence to a tappet-carrying arm *n*, which is pivoted at its lower end to a bracket *o* on the frame of the marker.

5 Pivotaly connected at 3 3 to the platforms *p* *p*, which are rigid with the runners, are arms *q* *q*, which extend rearwardly and in which are journaled the covering and gage wheels *r* *r*, the gage of these wheels being adjustable

10 by means of the bolt and slot connections *s* *s* between the arms *q* *q* and some part rigid with the shoes.

Except in the particulars of the frame construction and the manner of mounting the

15 planter-supporting wheels the parts thus far described form no part of my invention, as the arrangement of runners and gage-wheels, together with the manner of supporting the corn-cans and the devices for operating the

20 dropping mechanism, may be substituted by corresponding parts for producing the same results without affecting the operation of the marker, to which the invention particularly relates.

25 The marker comprises the shaft *t*, having rigidly secured at its opposite ends the spade-wheels *u* *u*. Collars 4 4 are secured to this shaft at points preferably equidistant of its ends, and a transverse bar 5 lies parallel with

30 the shaft a short distance in front thereof and is connected by clips 6 6 at its ends, which are sleeved at their opposite ends upon the marker-shaft outside the collars 4 4. Projecting forwardly from the transverse bar 5

35 is a draft rod or bar 7, which extends forwardly above the tongue and is adjustably connected at its front end by means of a spring 8, having appropriate adjusting means

40 is located above the planter-supporting wheels *a* *a* and preferably in the vertical plane of the axis of these wheels. In this connection it is to be noted that the supporting-wheels herein shown are somewhat lower than

45 is usual in this type of planters. I do not intend, however, to limit the use of my marker to machines having any particular height or type of supporting-wheels.

The driver's seat 10 is supported, preferably,

50 ably, upon the tongue by means of the standard *v*, rising to the proper height and bent at its upper end, so as to locate its weight practically over the center of the machine and immediately above the marker-shaft. Just

55 forward of the standard *v* there is secured to the tongue a vertical guide rod or bar *w*, which is preferably curved, as shown in Fig. 2, for a purpose which will presently appear and is connected at its upper end to the

60 standard. At about the center of its length the marker-shaft *t* is additionally connected to the transverse bar 5 by a clip 12, which is similar in construction to the end clips 6 6 and which is sleeved upon the shaft in the

65 same way. The clip 12 extends in front of the rod *w*, and on the shaft *t* immediately in rear of the rod is a friction-roller *x*, the rod

being thus embraced between the clip in front and the roller behind.

The marker, it will be understood, is supported by the spade-wheels and travels with the planter as the latter is drawn along. It is therefore free to rise and fall independently of the planter-frame and being connected to the planter-frame by the rod 7 and

75 the spring 8, before referred to, describes a short arc with respect to the frame as it goes up and down, and the guide-rod *w* is curved upon this arc for the purpose of permitting this freedom of movement. Rigidly secured

80 to the marker-shaft immediately adjacent to the rod *w* and the roller *x* is a tappet-wheel 13, having tappets corresponding in number and position with those spades on the marker-wheel which are intended to indicate points

85 where the dropping occurs. This tappet-wheel is in operative relation with the roller 14, carried by the tappet-arm *n*, before described, and by this means the revolution of the marker-shaft is made to operate the seed-

90 dropping devices through the intermediacy of the rod and levers hereinbefore described. It will be seen from this description that the rod *w* is confined between the clip 12 on one side and the tappet-wheel 13 on the other side

95 and that the marker-shaft to which the collars 4 4 and the tappet-wheel 13 are secured is thereby prevented from moving endwise independently of the planter-frame to which the rod *w* is secured. At the same time the

100 marker-shaft and the planter-frame are allowed to freely swing with respect to each other around the rod as a center, so that the planter may oscillate horizontally in crooked driving without imparting to the marker this

105 oscillating movement.

It will be noted that the rod *w* passes freely up through the clip 12 and between it and the roller. The rod thus serves as a guide for the movements of the marker and when

110 considered in connection with the parts above described is the means for preventing the marker-shaft from moving bodily endwise without the planter. It is not intended that the draft of the marker should come on the

115 guide-rod; but I prefer to adjust the tension of the spring 8 on the draft-bar 7 so as to carry the marker with a yielding draft that is limited only by the amount of play for the rod *w* between the clip 12 in front and the

120 antifriction-roller *x* in rear.

In the use of these machines it is necessary, of course, to provide devices for lifting the spade marker-wheels out of the ground at the end of the row, and it is also usual to provide

125 lifting devices for the runners. The present invention is not limited, however, to the use of any particular device for lifting either the runners or the spade-wheels, but I have illustrated in the drawings a convenient arrangement for this purpose, as follows:

15 15 denote standards rising from the rear bar *c* of the planter-frame near its opposite ends. In the upper ends of these standards

there is journaled a shaft 16, having a crank-arm 17 at a point midway of its length. On the front bar *b* of the planter-frame at a point within convenient reach of the driver is pivoted a hand-lever 18, provided with suitable latch mechanism for engaging a rack-segment 19, and the lower end of this lever is connected by means of a rod 19' with the arm 17 on the shaft 16. Projecting forwardly from the shaft 16 at points preferably near the standards 15 15 are arms 20 20, and to the forward ends of these arms are pivotally connected links 21 21. These links are provided with elongated slots and are hung upon the shaft *t* of the marker between collars fixed thereon, so as to prevent the links from moving laterally. These links are of course held in such position by means of the locking devices of the lifting-lever that the marker-shaft is free to rise and fall in the slots, but when it is desired to lift the spade-wheels the arms 20 20 and the links 21 21 are thrown upwardly until the marker-shaft is struck by the bottom of the slot, when the shaft and the wheels of the marker are lifted as desired.

In the present invention I have provided for the lifting of the runners and gage-wheels by the same devices which lift the marker-wheels, as follows: The rear ends of the arms 22 22, in which the gage-wheels are journaled, are connected by rods 22 22 to the arms 20 20 on the shaft 16, the connection between the rods and the arms 20 20 being made by passing the rods up loosely through eyes in the arms and providing them at their upper ends with nuts 23 23, so as to permit the gage-wheels and runners to move up and down independently of said arms, but so as to lift the wheels and runners whenever the arms 20 20 are elevated for the purpose of lifting the marker-wheels. In order to hold the runners and gage-wheels with an elastic pressure upon the ground, springs 24 24 are carried by the rods 22 22, these springs reacting between the arms 20 20 and the gage-wheel arms. It is not necessary, however, that the devices for lifting the wheels and runners shall be connected to the lifting devices for the marker-shaft, since separate devices for lifting the two parts may be provided, and each may have its own lifting-lever conveniently located at any point on the planter-frame. Neither is it necessary, as before indicated, so far as the present invention is concerned, that any particular device for lifting the marker or the runners and gage-wheels should be employed, since many devices for this purpose are already known and used.

Such being the construction of the present exemplification of my invention the operation will be sufficiently understood from the above description without further explanation, except, perhaps, as to the manner in which the lateral deflections of the planter-frame, due to crooked driving, are converted into endwise movements only of the marker-

shaft without turning the shaft upon its pivotal connections therewith. In this respect the best results are obtained by mounting the rod *w*, which forms the pivotal connection between the marker and planter, at the exact center of the planter-frame, for at this point there is, theoretically, no motion. It is not essential, however, that the pivotal connection be made at this point, though the nearer this location for the pivot is approximated the less lateral movement there will be to the planter-frame when driven out of line. As the planter is drawn along and the tongue swerves to one side or the other the connection between the draft-rod of the marker and the tongue tends to swing the marker-wheels and shaft around in the same direction. This tendency is, however, resisted by the hold which the spade-wheels have upon the ground, and owing to the elastic connection between the draft-bar 7 and the tongue the planter is allowed to have a certain amount of lateral movement without affecting the position of the marker-shaft. When the lateral deflections of the marker-frame become excessive, and particularly when the driver fails to get back promptly to the proper line of draft, the tendency to swing the marker-shaft around on its pivot overcomes the resistance of the marker-wheels in the ground, and if these wheels were connected to a trailing frame or to any sort of a pivoted frame which would be materially either in front or rear of the vertical plane of the supporting-wheels of the planter the marker-wheels and shaft would move laterally with respect to the planter-frame; but by locating the shaft in substantially the same vertical plane as the axis of the planter-wheels and arranging the pivotal connection between the shaft and the planter-frame the lateral deflections of the planter have little or no tendency to impart corresponding oscillations to the marker-shaft, but do impart to the shaft an endwise movement instead, and this endwise movement, as will readily be understood, has no tendency to throw the wheels out of check, but merely produces a slight elongation in the marks made by the spades in the ground.

Having thus described the invention and its operation, I desire to be understood as not limiting my claims to all the above-described features when combined together or to the particular constructions of the several devices described, since some of these features are susceptible of use without the others, and since, also, the particular constructions may be modified without departing from the spirit or scope of my invention. For example, the feature of connecting the marker to the planter, so as to prevent the latter from swinging the marker around on its pivot, may be employed without the spring connection between the marker and the planter. Also the fore-and-aft arrangement of the spring may be employed in a machine where the connection between the planter and the marker is at any

other point than the center, as well as in a machine where the marker-shaft is located in front or rear of the vertical plane of the planter-wheels. Also any other arrangement and construction of spring or springs may be employed in connection with the central pivoting of the marker to the planter-frame.

What I claim, and desire to secure by Letters Patent, is—

1. In a corn-planter, the combination with the planter-frame, of a check-row marker connected to the planter so as to rise and fall freely independently thereof, said marker being also pivotally connected with the planter so as to permit the latter to oscillate horizontally independently of the marker, and means for preventing the marker from swinging bodily laterally with respect to the planter.

2. In a corn-planter, the combination with the planter-frame, of a check-row marker connected to the planter so as to rise and fall freely independently thereof, said marker comprising a shaft and spade-wheels, and being pivotally connected with the planter so as to permit the latter to oscillate horizontally independently of the marker, and means for imparting an endwise movement only to the marker-shaft corresponding to the side-wise deflection of the planter.

3. In a corn-planter, the combination with the planter-frame, of a check-row marker connected to the planter so as to rise and fall freely independently thereof, said marker comprising a shaft and spade-wheels, and being pivotally connected with the planter so as to permit the latter to oscillate horizontally independently of the marker, and means for converting the sidewise movement of the planter due to crooked driving into an endwise movement only of the marker-shaft without swinging the latter shaft.

4. In a corn-planter, the combination with the planter-frame, of a check-row marker connected to the planter so as to rise and fall freely independently thereof, said marker comprising a shaft and spade-wheels, the shaft of the marker being located over the planter-supporting wheels and in substantially the vertical plane of said wheels' axis, and the marker being pivotally connected with the planter, so as to permit the latter to oscillate horizontally independently of the marker.

5. In a corn-planter, the combination with the planter-frame, of a check-row marker connected to the planter so as to rise and fall freely independently thereof, said marker comprising a shaft and spade-wheels, the shaft of the marker being located over the planter-supporting wheels and in substantially the vertical plane of the said wheels' axis, and the marker being pivotally connected with the planter at substantially the central point between the planter-wheels so as to permit the planter to oscillate horizontally independently of the marker.

6. In a corn-planter, the combination with the planter-frame, of a check-row marker con-

nected to the planter so as to rise and fall freely independently thereof, said marker being also pivotally connected with the planter so as to permit the latter to oscillate horizontally independently of the marker, and an elastic spring connection between said marker and planter.

7. In a corn-planter, the combination with the planter-frame, of a check-row marker connected to the planter so as to rise and fall freely independently thereof, said marker being also pivotally connected with the planter so as to permit the latter to oscillate horizontally independently of the marker, a bar extending forwardly from the marker in the line of the planter-tongue, and a fore-and-aft spring reacting between said bar and tongue.

8. In a corn-planter, the combination with the planter-frame, of a check-row marker connected to the planter so as to rise and fall freely independently thereof, said marker being also pivotally connected with the planter so as to permit the latter to oscillate horizontally independently of the marker, and an elastic draft connection between the marker and the planter.

9. In a corn-planter, the combination with the planter-frame, of a check-row marker connected to the planter so as to rise and fall freely independently thereof, said marker being also pivotally connected with the planter so as to permit the latter to oscillate horizontally independently of the marker, a bar extending forwardly from the center of the marker in the line of the planter-tongue, a spring connected at its rear end to the forward end of the bar and at its forward end to the planter-tongue, and means for regulating the tension of the spring.

10. In a corn-planter, the combination with the planter-frame, of a check-row marker connected to the planter so as to rise and fall freely independently thereof, said marker comprising a shaft and spade-wheels, the shaft of the marker being located over the planter-supporting wheels and in substantially the vertical plane of the axis of said wheels, and the marker being pivotally connected with the planter at substantially the central point between the planter-wheels, and an elastic draft connection between said marker and planter at a point forward of and in line with the pivotal connection between the two.

11. In a corn-planter, the combination of the planter-frame, a post rising from the frame, a check-row marker comprising a shaft and spade-wheels, said shaft being pivotally connected with the post so as to oscillate thereon and be held thereby against lateral movement independently of the planter.

12. In a corn-planter, the combination of the planter-frame, a post rising centrally from the frame, a check-row marker comprising a shaft and spade-wheels, a transverse bar in front of the shaft and connected thereto by clips sleeved on the shaft, a draft-rod extending forward from the transverse bar, and a

spring connecting the front end of the draft-rod with the planter-tongue in line with the rod.

13. In a corn-planter, the combination of 5 the planter-frame, a post rising centrally from the frame, a check-row marker comprising a shaft and spade-wheels, said shaft being pivotally connected with the post so as to oscillate thereon, and be held thereby against lateral movement independently of the planter, 10 a tappet-wheel on the marker-shaft in proximity to the post, and connections from said tappet-wheel to the seed-dropping devices of the planter, whereby the marker-shaft is permitted to rise and fall, and the planter-frame 15 to oscillate independently thereof, without disconnecting the tappet-shaft from the seed-dropping connections.

14. In a corn-planter, the combination of 20 the planter-frame, a post rising centrally from the frame, a check-row marker comprising a shaft and spade-wheels, and a transverse bar in front of the shaft and connected thereto by clips sleeved on the shaft, said post being 25 embraced between the central clip in front and a friction-roller on the shaft behind.

15. In a corn-planter, the combination with the planter-frame having a tongue rigid therewith, and supporting-wheels each journaled at opposite ends of the frame in a pair of arms 30 rigidly connected to the front transverse bar of the frame.

16. In a corn-planter, the combination of a single frame consisting of front and rear transverse bars, and a tongue rigidly connect- 35 ed with said frame, a pair of parallel bars connecting the front and rear sills of the frame at opposite ends, and supporting-wheels journaled in said connecting-bars.

17. In a corn-planter, the combination with 40 the planter-frame, of a check-row marker connected to the planter so as to rise and fall independently thereof, said marker being also pivoted to the planter so as to allow the latter to oscillate horizontally independently of 45 the marker.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES BARCLAY.

Witnesses:

WILSON P. HUNT,
GEORGE W. CRAMPTON.