

No. 640,205.

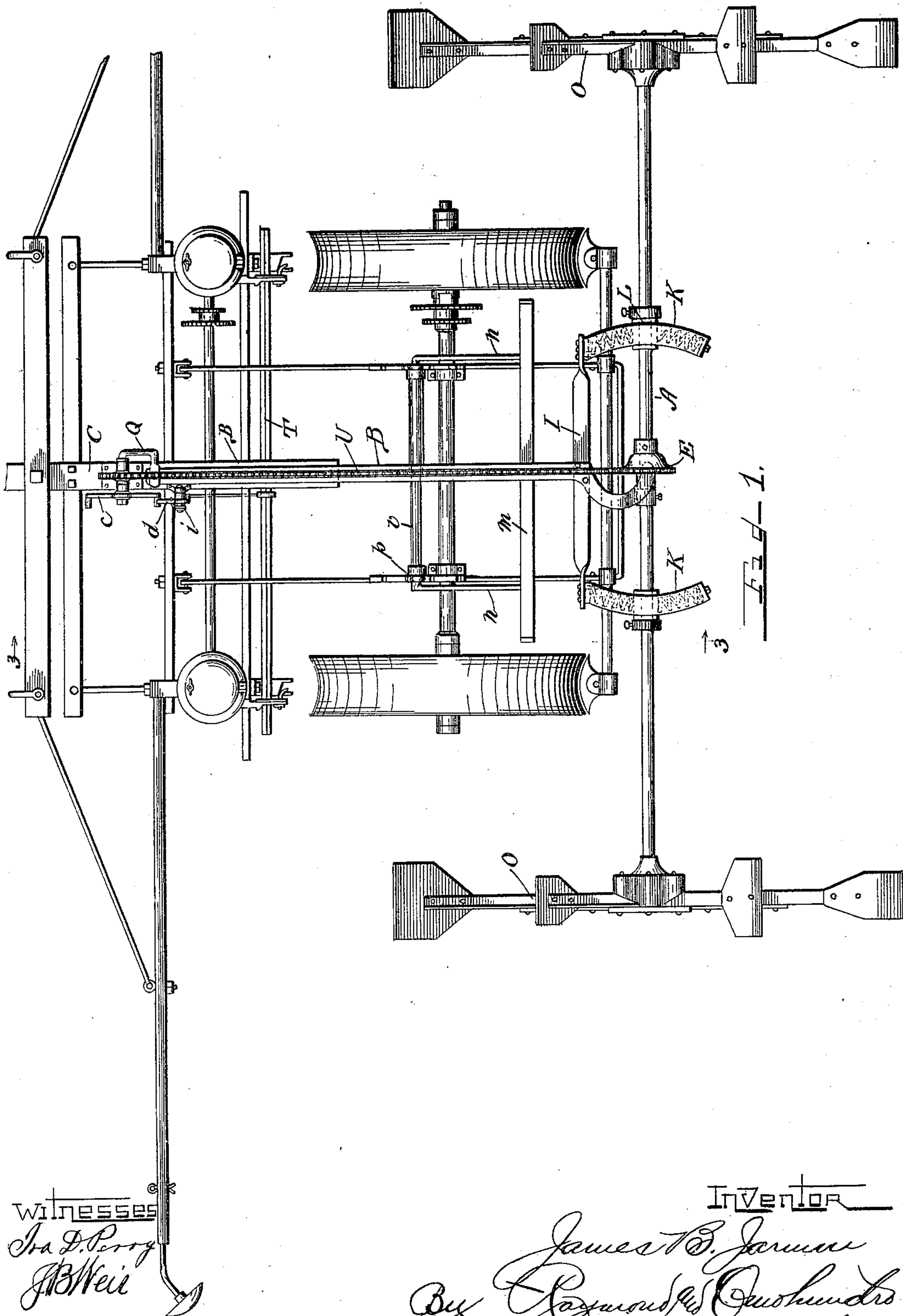
Patented Jan. 2, 1900.

J. B. JARMIN.
AUTOMATIC CORN PLANTER.

(Application filed Oct. 27, 1899.)

4 Sheets—Sheet 1.

(No Model.)



Witnesses

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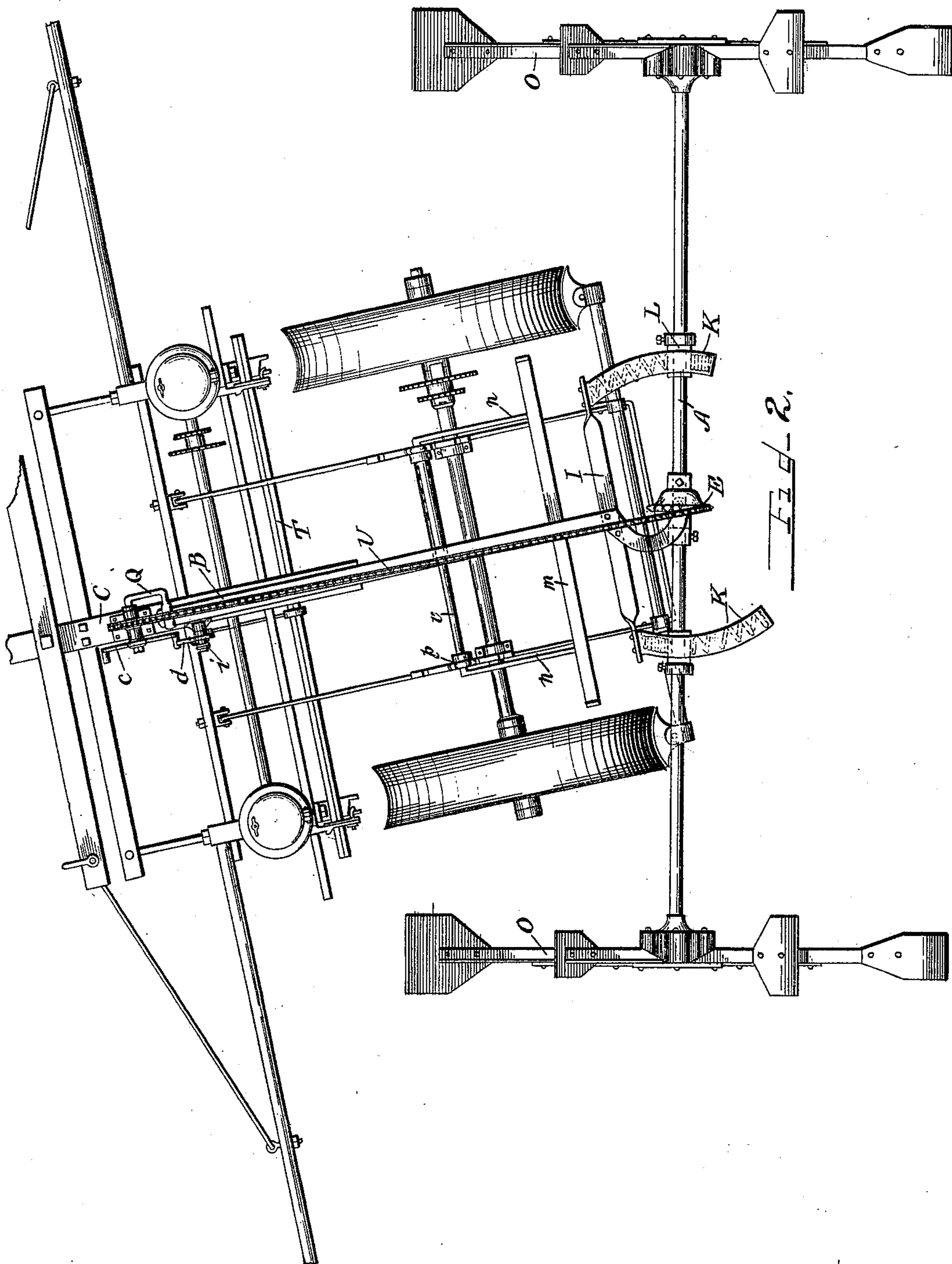
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4 Sheets—Sheet 2.



WITNESSES

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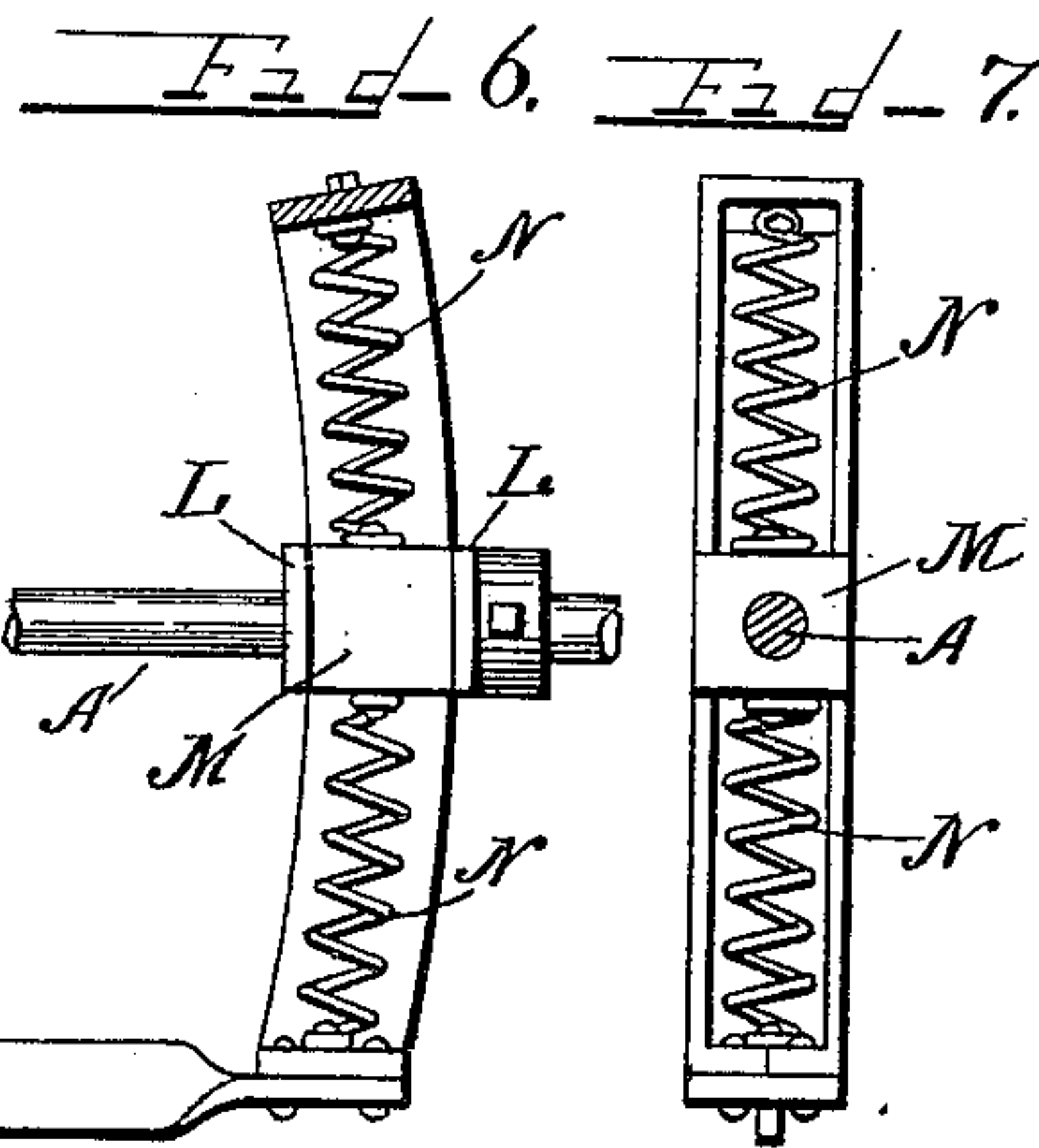
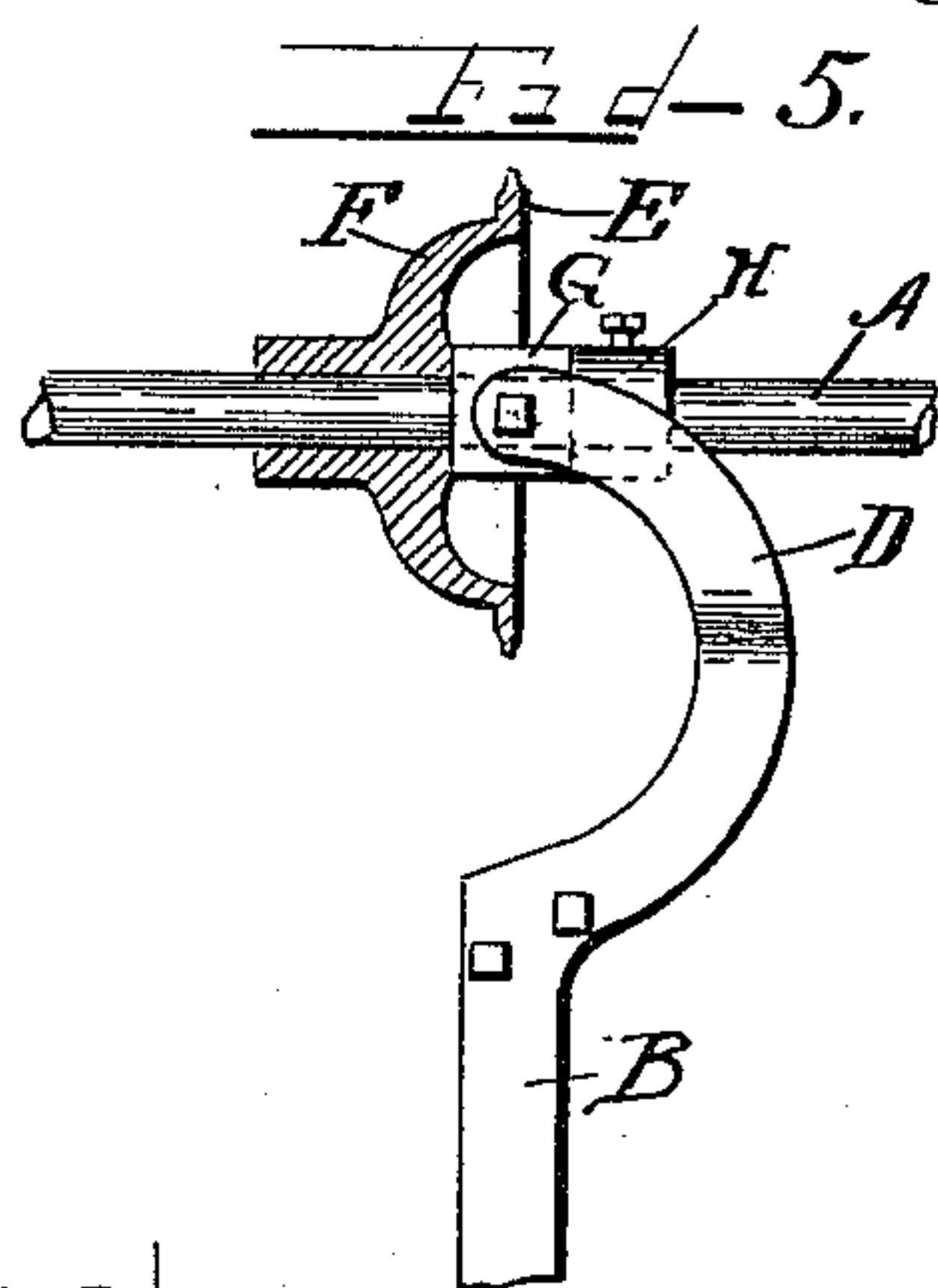
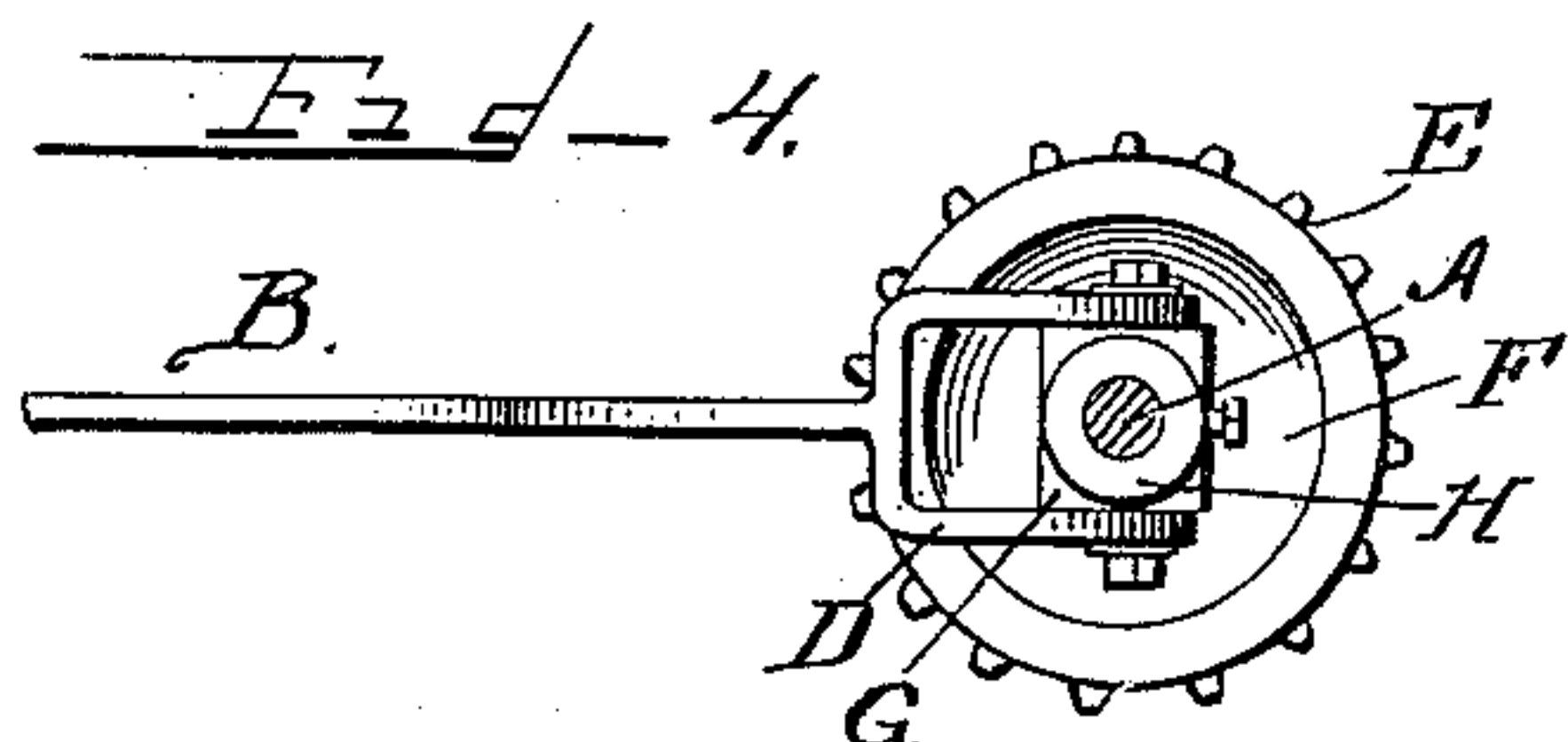
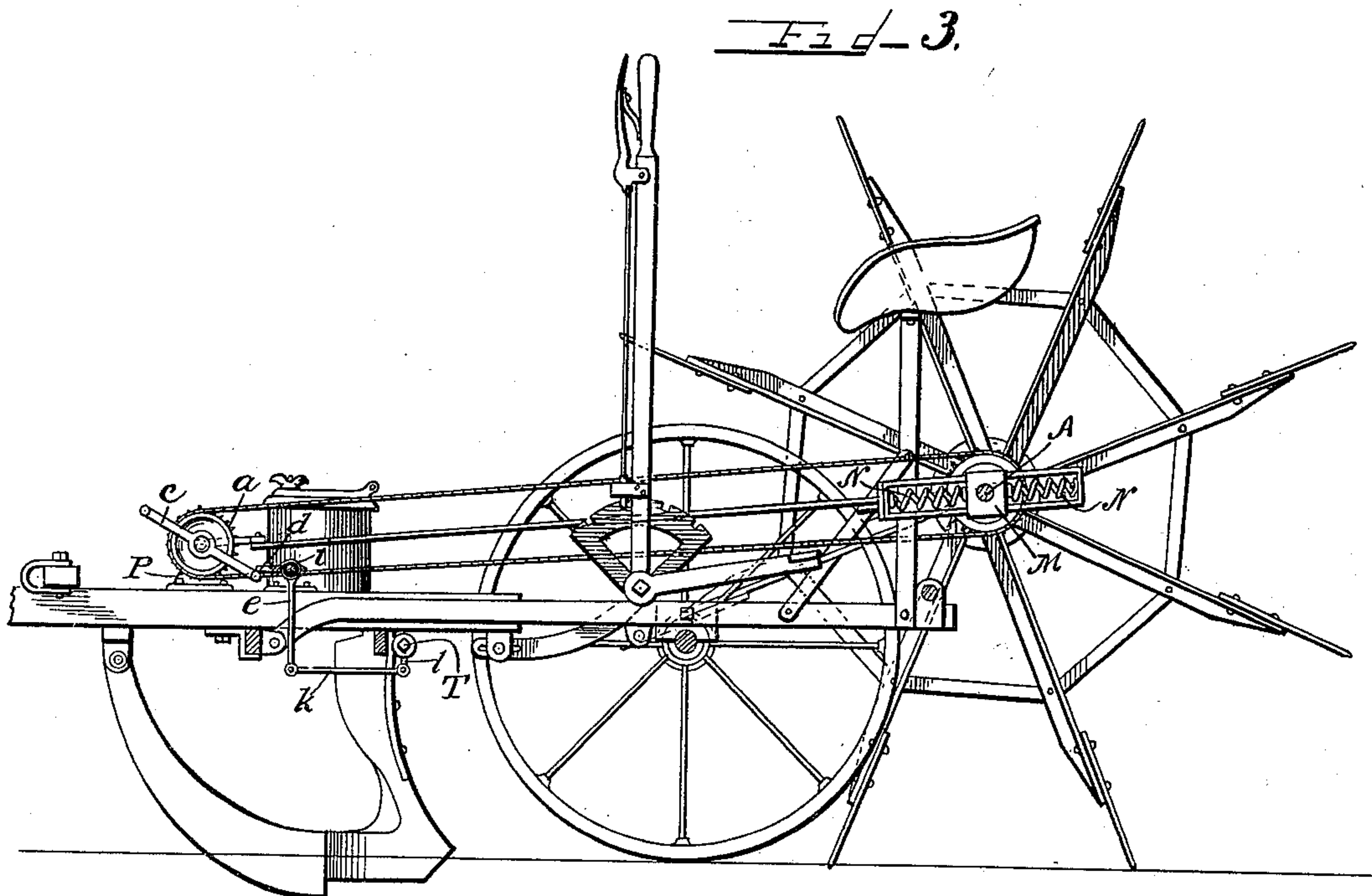
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(No Model.)

(Application filed Oct. 27, 1899.)

4 Sheets—Sheet 3.



Witnesses

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No. 640,205.

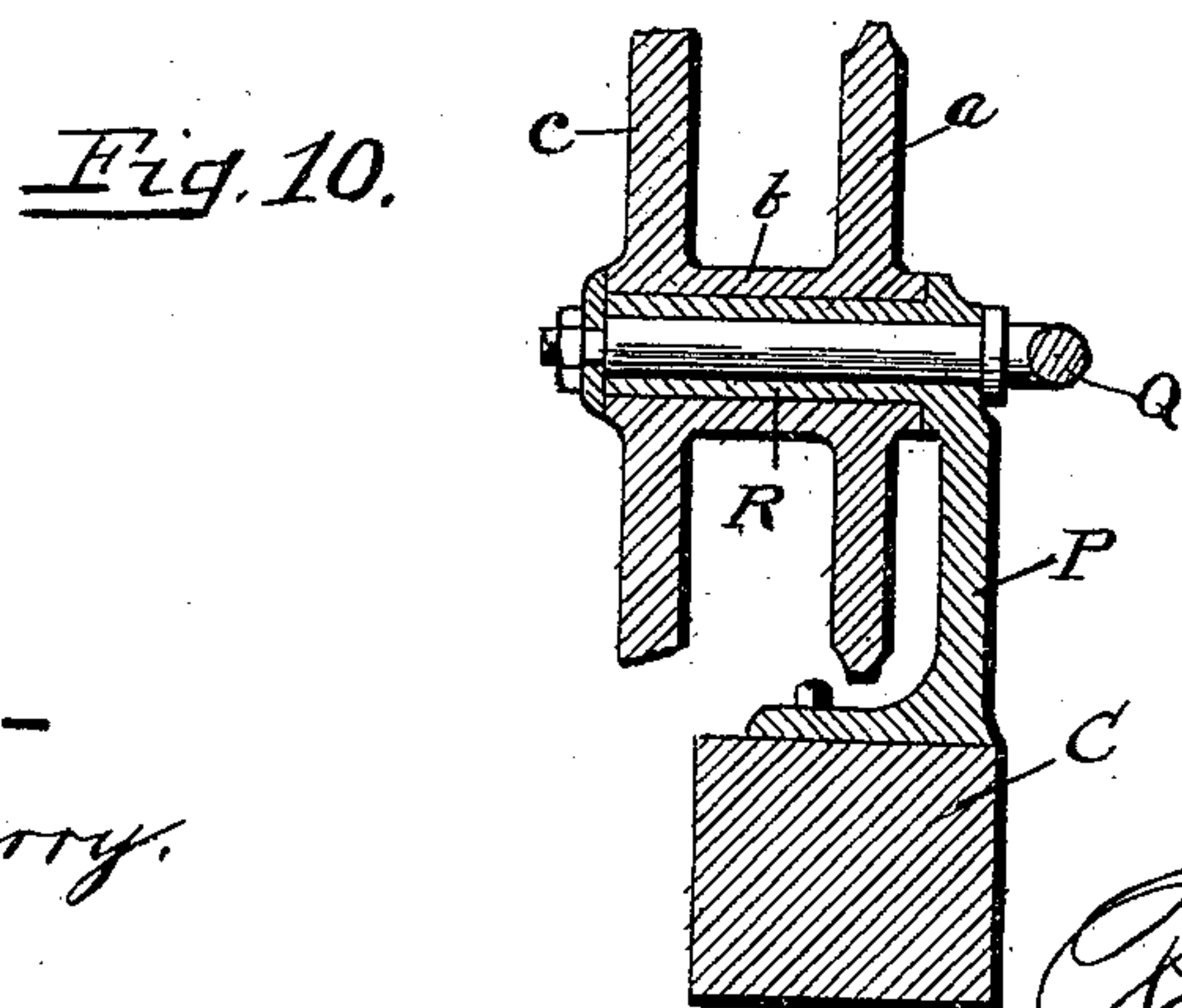
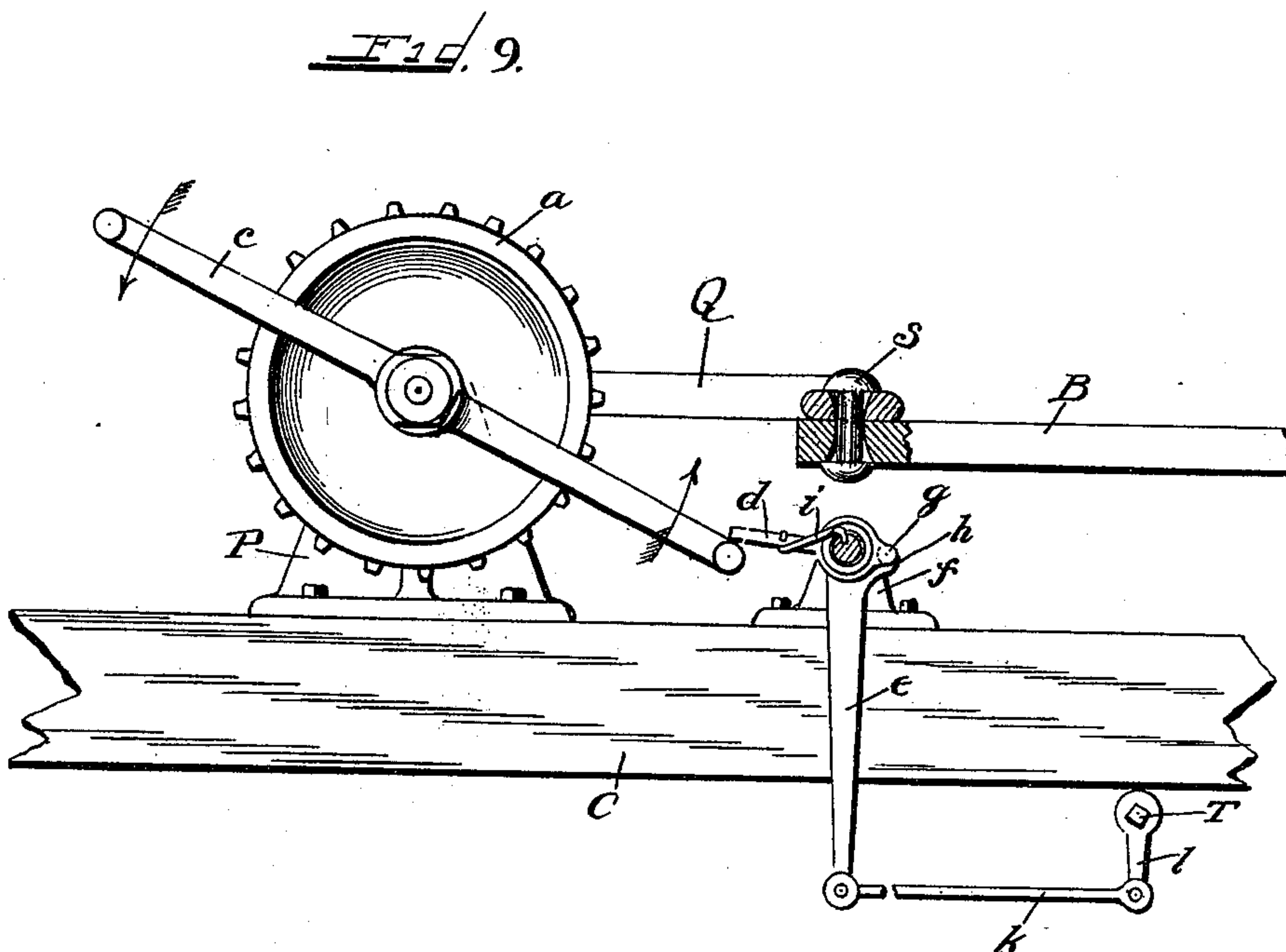
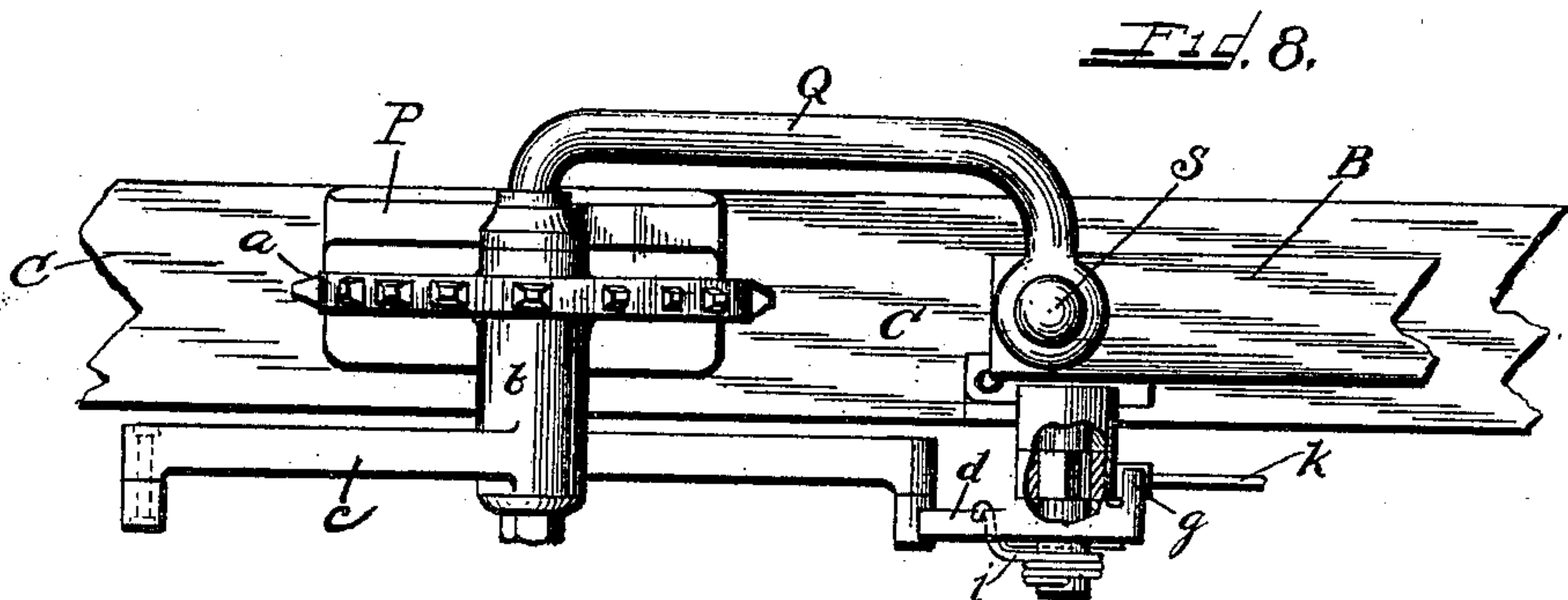
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(Application filed Oct. 27, 1899.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses -

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UNITED STATES PATENT OFFICE.

JAMES B. JARMIN, OF OSCEOLA, NEBRASKA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE IMPLEMENT MANUFACTURING COMPANY, OF DAVENPORT, IOWA.

AUTOMATIC CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 640,205, dated January 2, 1900.

Application filed October 27, 1899. Serial No. 734,944. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. JARMIN, a citizen of the United States, residing at Osceola, in the county of Polk and State of Nebraska, have invented certain new and useful Improvements in Automatic Corn-Planters, of which the following is a specification.

This invention relates to improvements in that class of automatic corn-planters exemplified by Letters Patent No. 630,891, granted me August 15, 1899, and in a general way the principle of operation and the main features of construction are the same, the difference residing in the novel manner in which the marker attachment is connected with the planter, and the seed-dropping mechanism is operated from the marker-shaft.

It is still my object, broadly, to have the marker attachment so connected with the planter that the planter may turn laterally out of line in either direction without deflecting the marker.

With this object in view my present invention consists in a novel, simple, and effective connection of the character described between the marker and the planter which not only affords the maximum flexibility between the marker and planter, allowing the planter to float as the character of the soil may require and the planter to accommodate itself to the inequalities in the soil, as well as crookedness in driving, without affecting the marker, but which enables the certain and accurate operation of the seed-dropping mechanism from the marker-shaft by simple and direct mechanism not liable to binding or breakage and which provides an equipment readily adapted for application to various kinds of planters.

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

Figure 1 represents a plan view of a planter embodying my invention, showing the marker and planter in the normal line of draft. Fig. 2 is a view similar to Fig. 1, but showing the planter turned laterally from the planting-line. Fig. 3 is a vertical section on the line 3-3 of Fig. 1 looking in the direction indicated by the arrows. Figs. 4, 5, 6, and 7 are en-

larged details of the connection between the marker-shaft and its coupling attachments; and Figs. 8, 9, and 10 are enlarged detail views of the coupling between the marker attachment and planter and the driving mechanism for the seed-dropping attachment.

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

The frame of the planter both forward and back, the runners, the seed boxes, the seed-dropping mechanism, the spade marker-wheels, the marker-shaft, and the rock-shaft for operating the seed-dropping mechanism are all common to planters of this general type, may be of any suitable or desired construction, and need not be herein referred to in detail, except in so far as is necessary to a proper understanding of the novel features of my invention.

Referring now by letter to the accompanying drawings, the marker-shaft A is connected by a single draft-bar B with the planter at any desired point, preferably to the tongue C of the planter, by a flexible or universal coupling of some kind, a novel and effective coupling for this purpose being illustrated in the drawings and will be described in detail farther on. At its rear end the draft-bar is preferably bifurcated, as shown more clearly at D in Figs. 4 and 5, and the end is also preferably curved laterally, so that its pivotal point of attachment to the marker-shaft may come directly under the sprocket-wheel E, keyed or otherwise rigidly secured upon said shaft by means of an ordinary bell-shaped web F, the end of the draft-bar being pivotally secured to a collar G, which is loosely mounted upon the marker-shaft between the hub of the sprocket-wheel and a collar H, fixedly mounted upon said shaft. Just forward of the bend in the draft-bar there is secured to said bar a cross-bar I, extending a suitable distance to each side thereof, where at each end it has secured thereto a curved and generally-U-shaped box K, projecting rearwardly beyond the marker-shaft A a distance substantially equal to its length forward of said shaft, and each box is arranged to slide between curved shoulders L upon opposite sides of a bearing M, loosely mounted

upon the marker-shaft. Between each end of each box and the bearing M is confined a coil-spring N, there being of course two springs to each box, and as these springs are inserted in place normally under tension they tend to maintain the bearings at the center of length of the boxes. Now, as it will be seen by an inspection of Fig. 1 that the bearing-boxes are struck on an arc from the pivot connection between the draft-bar B and the marker-shaft, while they are rigidly secured to said bar and must move therewith, it will be obvious that whenever the planter swings out of line to a position oblique to the marker-shaft, carrying with it the forward end of the draft-bar, one of the coupling-boxes will be drawn forward and the other will be forced back, thus compressing the springs in the respective boxes on opposite sides of the marker-shaft, and the tension of these springs will therefore be exerted to restore the planter and marker-shaft to their normal right-angled position and yet will be sufficient to cause the marker-shaft to turn with the planter. In other words, they afford a yielding and flexible connection between the draft-bar and the marker-shaft, which while tending to maintain the two in their normal relative positions at right angles to each other are always prompt to yield to pressure put upon the draft-bar in either direction to change such relative positions. The independent vertical movements of the ends of the marker-shaft, which are supported from the ground through the intermediary of the spade marker-wheels O, may be fully provided for by allowing slight play in the pivot connection between the draft-bar and the marker-shaft, which play need be scarcely more than that which would ordinarily be allowed in a pivot connection because of the small movement which takes place at this point.

As before stated, the forward end of the draft-bar B is connected by a swivel or flexible joint of any suitable kind with the planter at any desired point. By preference I have shown the connection in the drawings which I have used satisfactorily and which is attached to the tongue C of the planter just ahead of the rear end of the forward frame, a bracket P being mounted upon the tongue and having a substantially U-shaped coupling Q loosely journaled therein, one branch of said coupling passing through a hub R on the bracket at right angles to the tongue, as clearly illustrated in Figs. 8 and 10. The other branch of the U-shaped coupling is carried forward and either flattened or bifurcated at a point on a line with the center of the tongue, where it is pivotally connected, as at S, with the forward end of the draft-bar B, a slight play between the pivot and the members coupled thereby being allowed to prevent binding or undue friction. The U-shaped coupling affords a swivel joint or connection for the marker to the planter, which, with the play allowed, is, to a certain extent, of sufficient

flexibility to afford substantially a universal coupling, for such coupling allows of the independent and irregular rise and fall of the spade marker-wheels, due to the unevenness of the ground, while the branch of the coupling Q, working in the bracket, serves as a pivot for the bodily vertical movement of the marker in raising and lowering the same, the lateral turning of the planter with relation to the marker being provided for by the pivot connection S between the coupling and the draw-bar. It will thus be seen that while the marker attachment is flexibly connected with the planter, so as to allow all of the necessary movements thereof, as well as of the planter, without deflecting the marker and to the same extent as in my before-mentioned patented machine, the connection is exceedingly simple and direct. The draft-bar serves the direct purpose of communicating the draft from the tongue to the marker, while the flexible connection between the draft-bar and the marker-shaft operates to secure the necessary movements of the marker and yet assist in maintaining the marker and planter in their normal relative positions.

So far as relates to the broad idea of my invention any means for operating the seed-dropping mechanism from the marker-shaft may be employed, and the seed-dropping mechanism may be of any ordinary or desired construction or arrangement, as it forms no part of my present invention, and is therefore not shown in detail. I have, however, shown a novel and operating means for the dropping mechanism, which operates upon the usual rock-shaft T of the seed-dropping mechanism. To this end I train a sprocket-chain U around the sprocket-wheel E upon the marker-shaft at the center of length thereof and around another sprocket-wheel *a*, formed on a sleeve *b*, loosely journaled upon the hub R on the bracket P, as more clearly shown in Figs. 8, 9, and 10. Upon the sleeve *b* is also formed or rigidly mounted a tappet *c*, preferably having two arms which are arranged to strike the spring-actuated arm *d* on a lever *e*, suitably journaled in a bracket *f* on the tongue of the planter. In operation the tappet moves in the direction indicated by the arrows in Fig. 9, and the arm *d* and the lever *e* constitute a bell-crank lever, the arm *d* being provided with a stud *g*, which engages a shoulder or projection *h* on the lever *e* and is normally held in contact therewith by the spring *i*. Thus when the arm *d* is struck by the tappet moving in the proper direction the lever *e* will be vibrated or rocked upon its pivot, and being connected at its opposite end by a rod *k* with a crank-arm *l* upon the rock-shaft T of the seed-dropping mechanism each operation thereof will cause said shaft to rock, and thus operate the seed-dropping mechanism, said shaft being each time restored to its normal position by a spring in the usual manner, and which is so well understood as to not require illustration.

The purpose of having the arm *d* pivotally connected with the lever *e* is to allow said arm to be depressed whenever the machine is backed or in turning or when the marker-shaft is being rotated backward to adjust the marker-wheel at the commencement of planting, for at this time the tappets move in the opposite direction from that shown by the arrows, and such flexible pivot connection allows the tappet to pass without affecting the rock-shaft and seed-dropping mechanism.

The means for raising the marker attachment shown in the drawings are the same as those illustrated in my prior patent and operate in the same way, consisting of the cross-bar *m*, secured to the ends of the arms *n*, proceeding from the rock-shaft *o*, which latter is rocked by the usual form of lock-lever *p*.

It will be readily seen that this marker attachment may be applied to any style or construction of corn-planter and practically without any change therein, as the attachment in reality constitutes simply additions to the ordinary planter from which it will be only necessary to leave out the usual check-rower head and the connections for operating the seed-dropping mechanism therefrom.

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

1. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment operatively connected with the seed-dropping mechanism and comprising a pair of spade marker-wheels, a shaft therefor, a draft-bar flexibly connected at one end with the planter and pivotally and yieldingly connected at its opposite end with the marker-shaft, substantially as described.

2. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels, a shaft therefor, a draft-bar flexibly connected at one end with the planter and pivotally and yieldingly connected at its other end to the marker-shaft and an operative connection between said marker and the seed-dropping mechanism of the planter at the longitudinal center of the planter and marker, substantially as described.

3. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a draft-bar flexibly connected at its ends, respectively, with the marker and planter, substantially as described.

4. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a shaft therefor, a draft-bar flexibly connected at its ends, respectively, to the marker-shaft

and the planter and yielding connections between said draft-bar and the marker-shaft at opposite sides of the flexible connection therebetween, substantially as described.

5. The combination with a corn-planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a shaft therefor, a draft-bar and a flexible connection between the ends of said bar and the planter and marker-shaft, respectively, spring-boxes secured to said draft-bar and encompassing the marker-shaft at either side of the flexible connection thereof with said bar, guide-bearings on the marker-shaft and springs confined between said bearings and the ends, respectively, of the spring-boxes, substantially as described.

6. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a shaft therefor, a draft-bar flexibly and yieldingly connected at one end with the marker-shaft and connected at its opposite end with the planter by a U-shaped coupling affording pivots at right angles to each other, substantially as described.

7. The combination with a planter and the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker, of a rock-shaft connected with, so as to operate, the seed-dropping mechanism, a crank-arm on said shaft, a tappet adapted to operate said crank-arm and a sprocket-wheel and chain connection between said tappet and the marker-shaft, substantially as described.

8. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker, of a rock-shaft connected with, so as to operate, the seed-dropping mechanism, a crank-arm on said shaft, a lever pivoted to the planter and connected with said crank-arm, a tappet for vibrating said lever and a sprocket-wheel and chain connection between said tappet and the marker, substantially as described.

9. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said marker and planter, comprising a U-shaped coupling affording pivots at right angles to each other, a tappet mounted on an axis common to the horizontal pivot of said coupling, a sprocket-wheel and chain connection between the hub of said tappet and the marker-shaft and a connection between said tappet and the rock-shaft of the dropping mechanism for operating the same, substantially as described.

10. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between

said marker and planter, comprising a U-shaped coupling affording pivots at right angles to each other, a tappet mounted on an axis common to the horizontal pivot of said coupling, a sprocket-wheel and chain connection between the hub of said tappet and the marker-shaft, a locking-lever pivoted to the machine and adapted to be rocked by the tappet and a rod and crank-arm connection between said lever and the rock-shaft of the seed-dropping mechanism, substantially as described.

11. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker comprising a coupling-bar pivotally, but yieldingly, connected at one end to the marker-shaft and at its opposite end flexibly connected with the planter by a U-shaped coupling affording pivots at right angles to each other, a rock-shaft connected with, so as to operate, the seed-dropping mechanism of the planter, a tappet for rocking said shaft and a sprocket-wheel and chain connection between said tappet and marker, substantially as described.

12. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker comprising a coupling-bar pivotally, but yieldingly, connected at one end to the marker-shaft and its opposite end flexibly connected with the planter

by a U-shaped coupling affording pivots at right angles to each other, a rock-shaft connected with, so as to operate, the seed-dropping mechanism of the planter, a tappet, a lever pivoted to the planter and adapted to be rocked by the tappet and a rod and crank-arm connection between said lever and the rock-shaft of the seed-dropping mechanism; substantially as described.

13. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker comprising a coupling-bar pivotally, but yieldingly, connected at one end to the marker-shaft and its opposite end flexibly connected with the planter by a U-shaped coupling affording pivots at right angles to each other, a rock-shaft connected with, so as to operate, the seed-dropping mechanism of the planter, a tappet mounted on an axis common to the horizontal pivot of said coupling, a sprocket-wheel and chain connection between the hub of said tappet and the marker-shaft, a lever pivoted to the machine and adapted to be rocked by the tappet, a rod and crank-arm connection between said lever and the shaft of the seed-dropping mechanism, substantially as described.

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Witnesses:

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