

(No Model.)

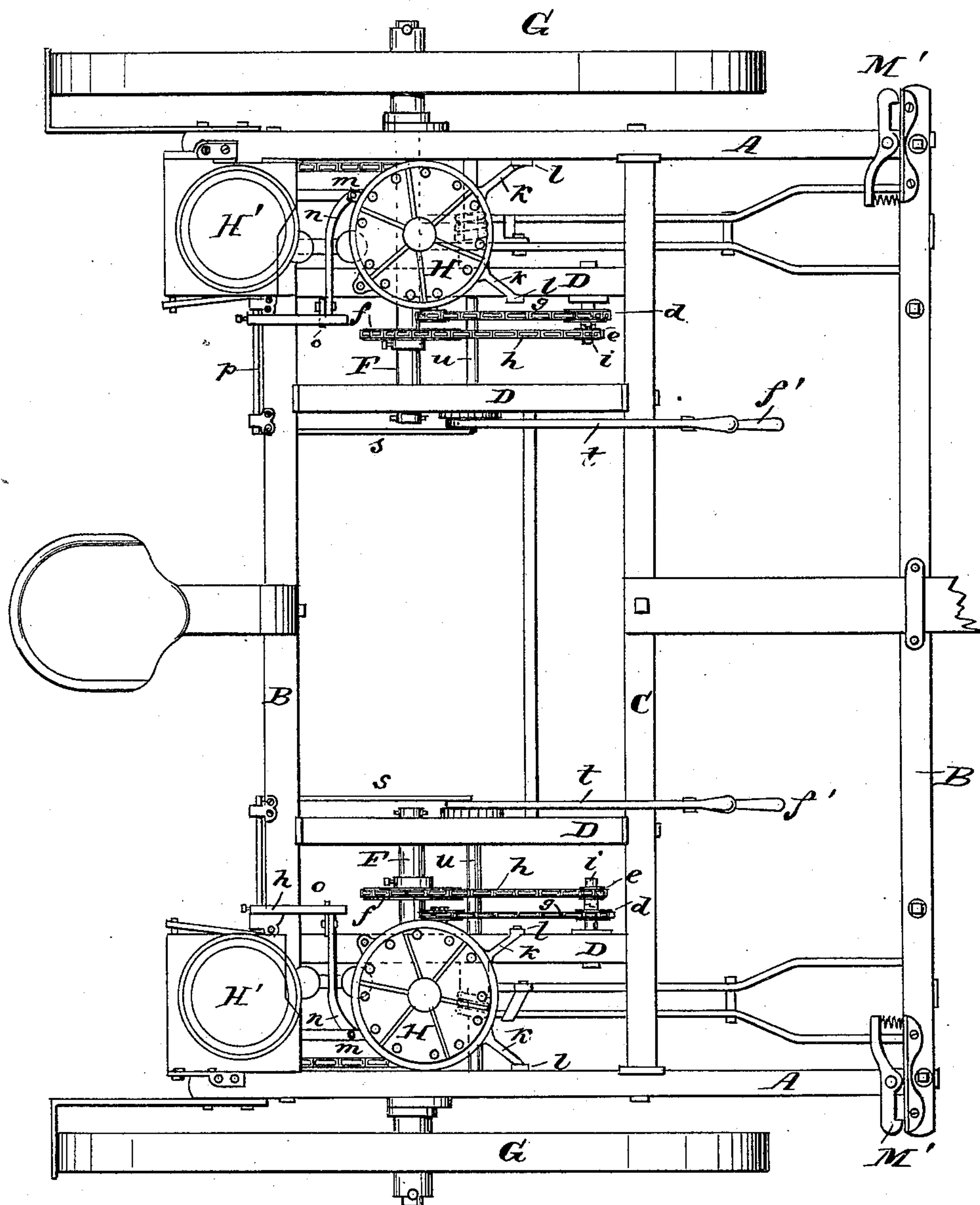
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D. BENNETT & M. FARLANDER.
CORN DRILL.

No. 422,368.

Patented Mar. 4, 1890.

Fig. 1.



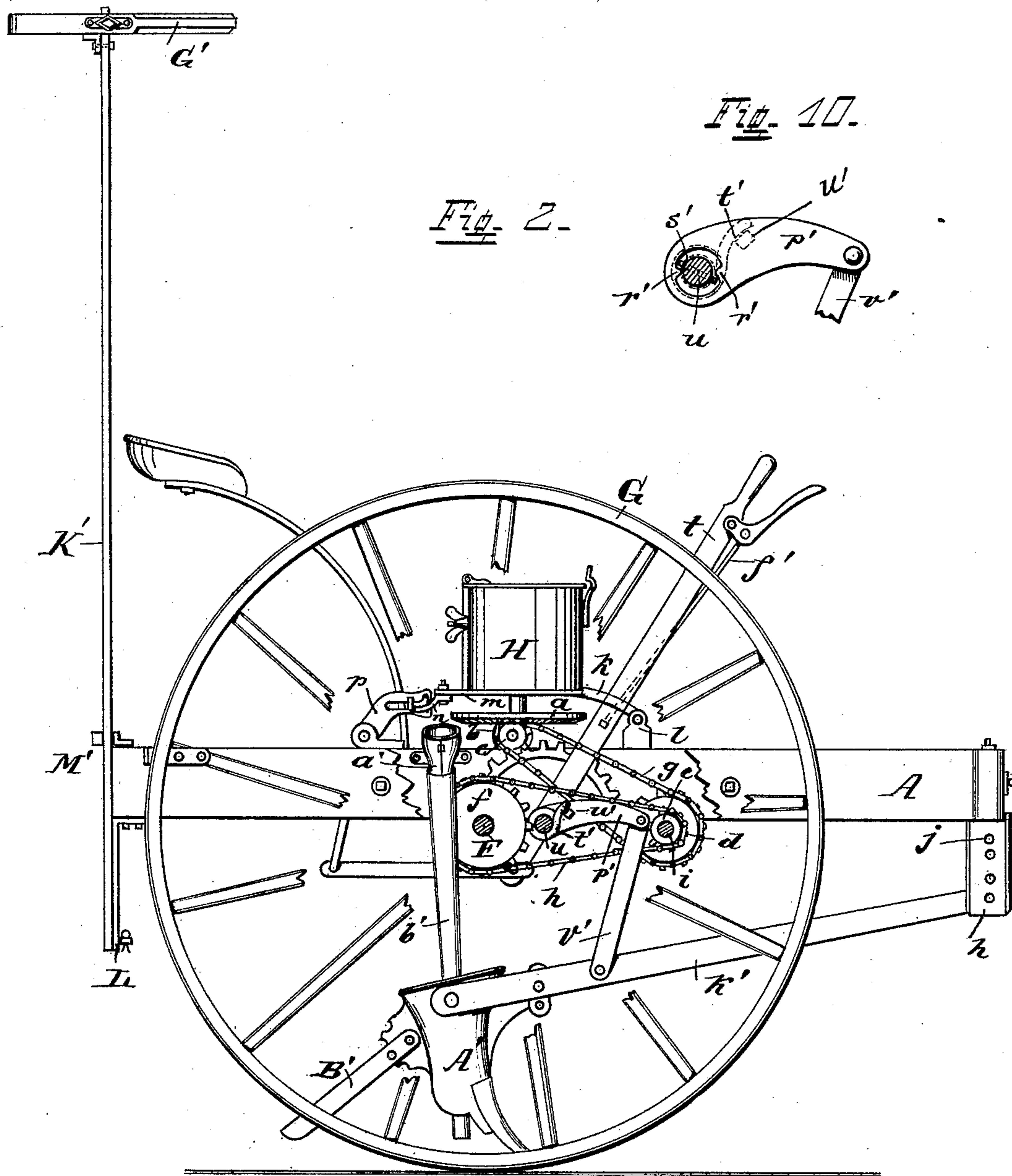
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CORN DRILL.

Patented Mar. 4, 1890.



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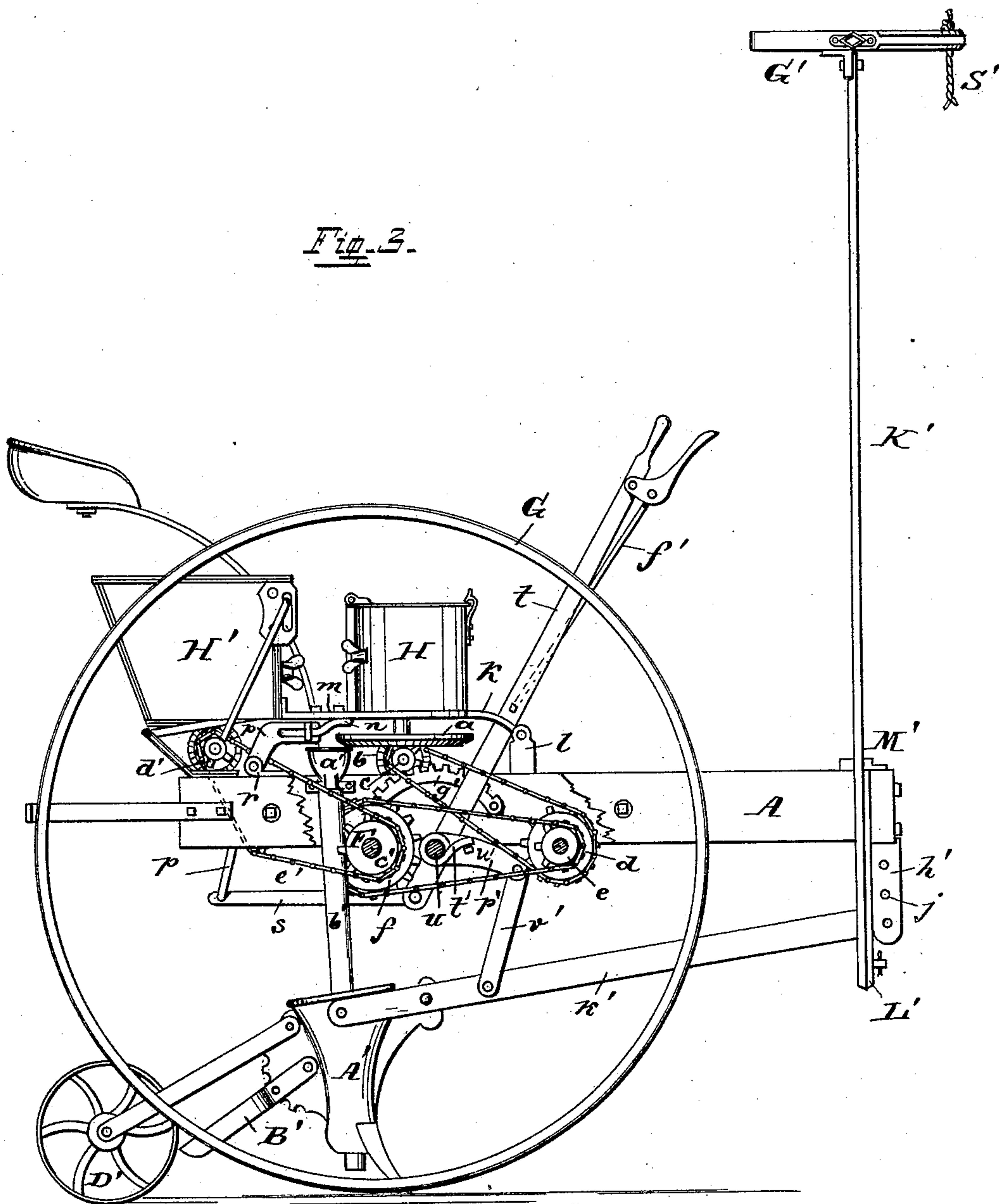
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Fig. 3.



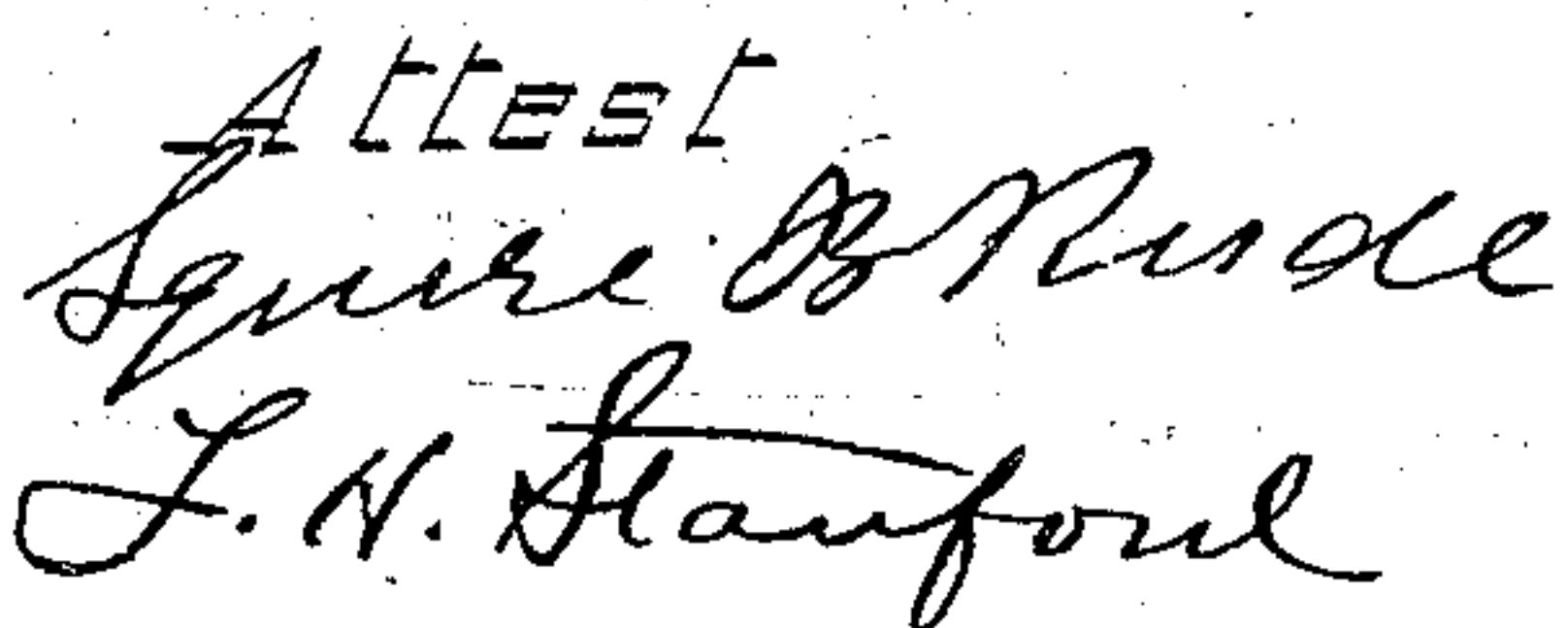
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CORN DRILL.

Patented Mar. 4, 1890.



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UNITED STATES PATENT OFFICE.

DARIUS BENNETT AND MICHAEL FARLANDER, OF LIBERTY, INDIANA,
ASSIGNORS TO THE RUDE BROTHERS MANUFACTURING COMPANY,
OF SAME PLACE.

CORN-DRILL.

SPECIFICATION forming part of Letters Patent No. 422,368, dated March 4, 1890.

Application filed July 29, 1889. Serial No. 319,106. (No model.)

To all whom it may concern:

Be it known that we, DARIUS BENNETT and MICHAEL FARLANDER, citizens of the United States, residing at Liberty, in Union county and State of Indiana, have invented certain new and useful Improvements in Corn-Drills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a top plan view of the machine. Fig. 2 is a side elevation of the machine, partly in section. Fig. 3 is a similar side elevation of the machine, partly in section, showing fertilizer and attachment. Fig. 4 is a front view of one of the row-markers, showing its attachment to the machine-frame and the method of attaching the drag-bar to the front rail of the frame. Fig. 5 is a side view of one of the markers. Fig. 6 is a side elevation of one of the drag-bars with hoe attachment. Fig. 7 is a similar view of one of the drag-bars with cutter and coverer attachments. Fig. 8 is a front view of one form of coverer. Fig. 9 is a front view of a small wheel-coverer. Fig. 10 is an enlarged view of the arm to which the drag-bar is attached, showing how the arm is attached to the shaft by which it is operated.

Similar letters of reference indicate like parts in all the figures.

The first part of our improvements relates to the method of attaching the drag-bars to the front rail of the frame, so that the distance between the furrows and the angle at which the drills or cutters enter the ground may be regulated within certain limits at the pleasure of the operator; and it consists in coupling the forked ends of the drag-bar between the arms of a clevis-shaped bracket underneath the front rail by means of a bolt or pin passing through the bracket-arms and the ends of the drag-bar, the bracket being provided with a series of holes vertically arranged, so that the coupling-pin, and with it the drag-bar, may be raised or lowered; and, furthermore, the internal distance between the arms of the bracket being greater than the width of the forked drag-bar, each drag-bar may be adjusted horizontally within the limit of the

bracket-arms along the coupling-pin, and held wherever desired by collar and set-screw.

The second part of our improvements relates to the method of attaching the shares, cutters, and coverers to the machine, so that they may be raised or lowered at the will of the operator, and thus be made to enter or leave the ground, as desired, and at the same time their vertical movement while in use may be automatically controlled by the action of a spring, so that although adjusted to run at a certain depth, still, should any obstruction be met with, the shares or cutters can give upward against the downward pressure of the spring until the obstruction is passed; and this improvement consists in connecting the drag-bar carrying the plows or cutters with an arm fitted on a shaft operated by a hand-lever, this arm being actuated by a coiled spring, one end of which is attached to the operating-shaft and the other pressing upon a lug on the arm, and the arm being arranged to turn unrestrictedly on the shaft upward against the action of the spring when the hand-lever is pushed forward, but when the hand-lever is brought back pins on the shaft acting against lugs within the bearing of the arm raise the arm and the hoe out of the ground.

The third part of our invention relates to the method of stopping the feeding mechanism, at the same time and with the same movement that the hoes are raised from the ground; and it consists in connecting with the same lever that raises the hoe a lever which detaches the gearing operating the dropping mechanism.

The fourth part of our invention relates to row-markers; and it consists in arranging one marker at each side of the machine to be used alternately.

The frame-work of the machine is made up of sides A A, front and rear rails B B, and cross-pieces C and D D. Within this frame-work are journaled the main axles F and F, which are supported by the carrying-wheels of the machine G G. Above the frame at each side are the two corn-hoppers H H, arranged as usual. These hoppers are provided with rotary feeders, which receive mo-

tion from the gear-wheels *ab*, which in turn receive their motion from the sprocket-wheels *c*, *d*, *e*, and *f*, motion being communicated by the sprocket-chains *g* and *h*, the sprocket-wheels *f* being on the main axles and wheels *d* and *c* on the stub-shafts *i*. The corn is fed by the rotary feeders into the funnels *a'* and down through the seed-tubes *b'* into the furrow in the usual way. The corn-hoppers *HH* are supported in front by legs *k k* (pivoted to the frame at *l l*) and in the rear by the bars *m*, to which are securely bolted the arms *n*, extending inward horizontally. Fingers *o*, attached to these arms, engage with the slotted L-shaped levers *p*, which are fulcrumed or hinged on the frame of the machine at *r*. Connecting-rods *s* connect these L-shaped levers with the hand-levers *t*, which are fulcrumed on the shafts *u*, journaled in the frame-work of the machine. Upon drawing the levers *t* back the slotted end of the L-shaped lever is raised, which tilts the corn-hopper forward, the arm *n* being raised and the hopper swinging on the pivots *l*. This motion of the hopper disconnects the gear-wheel *a* from its pinion *b* and the rotary feeder at once comes to a rest. The levers *t* are provided with latches *f'*, which catch in the semicircular toothed sectors *g'*, and thus hold the levers in any desired position.

Whenever it is desired, fertilizer-hoppers *H'* can be adjusted on the machine in the usual way, as shown in Figs. 1 and 3, the feeding mechanism of which is operated by the sprocket-wheels *c'* and *d'*, connected by sprocket-chain *e'*. These fertilizer-hoppers are connected with the corn-hoppers by a continuation of the support *m*, upon which they rest, so that the same movement that disconnects and brings to a stop the corn-feeders also stops the feeding of the fertilizer by raising both hoppers together. Underneath the front rail *B* of the frame, extending directly downward, are securely bolted the clevis-shaped brackets *h'*. The drag-bars *K'* are coupled within the arms of these brackets by means of coupling pins or bolts *l'*, and a series of holes *j'* being arranged in the bracket-arms, these coupling-bolts can be raised or lowered, as desired, and the angle at which the cutters or plows enter the ground can be thus varied to suit the requirements of the soil. Collars *m'* are fitted on the coupling-bolts between the forked ends of the drag-bars held by the set-screws *n'*. The distance between the bracket-arms *h'* being greater than that between the forked ends of the drag-bars, the drag-bars can be adjusted horizontally, and thus the width between the furrows changed within certain limits, as desired.

Upon the shafts *u*, operated by the hand-levers *t*, are fitted loosely the slightly-curved arms *p'*, partly cut away where the shafts pass through them to leave two lugs *r' r'* at opposite sides, which form bearing-surfaces for the arms on the shafts. Pins *s'* pass

through or project out from the shaft within the curved arms above and below these lugs, so arranged that the curved arms can turn unrestrictedly upward; but when the shafts or arms are turned in the other direction, the pins and lugs coming in contact, both arms and shafts must turn together. A coiled spring *t'*, one end being made fast to the shaft *u*, is wound around this shaft, and the other end presses against and bears down upon a lug *u'* on the curved arm. The forward ends of these arms are pivoted to the rear portion of the drag-bars by the connecting rods or bars *v'*.

The operation of this last-described device is as follows: When the hand-levers *t* are drawn back by the operator, the pins *s'* come in contact with the lugs *r' r'*, the arm *p'* is raised, and with it the drag-bar, and the hoe plows or cutters are raised from the ground, and at the same time the spring *t'*, being in a measure untwisted, ceases to operate against the lug *u'*. Upon the levers *t* being pushed forward, the spring *t'* is twisted, and its free end is thus brought to bear strongly against the lug *u'*, and thus the drill plows or cutters are driven into the ground to a depth suited to the character of the soil, while, should any obstruction be met with, the plows or cutters can rise up against the action of the springs.

Various attachments can be used for cutting the furrow and covering the corn, as shown in Figs. 6, 7, 8, and 9. In Fig. 6 is shown a hoe or plow *A'*, with a forked coverer *B'*, pivoted at the rear of the plow, so that it may be adjusted at any angle by means of a pin catching in notches in the plate *E'*, while in Fig. 7 the plowshare is discarded and in its place we have the cutter *C'*, followed by the forked coverer *B'* and wheel-coverer *D'*. End views of these coverers are shown in Figs. 8 and 9. At each side of the machine and pivoted to the frame, either in front, as shown in Figs. 1 and 3, or at the rear, as shown in Fig. 2, are the row-markers. These markers consist of a slab of wood or other material *G'*, its forward end pointed and fixed at the end of a pole or bar *K'*. These bars or poles *K'* are pivoted to fixed brackets or arms *L'* at the corners of the frame-work, either in front or rear, and are of sufficient length to allow the marker to indicate the center of the next two furrows. Ropes are attached to the pointed ends of the markers, which are fastened to the collars of the draft-horses, and thus the markers are kept in position while in use. Hitherto it has been the custom to use only one marker pivoted to the center portion of the frame and to swing this marker from one side of the machine to the other, as required; but the rope holding the marker in such cases has to be unfastened from one side of the horse and fastened on the other every time the marker is swung from side to side, and thereby causes much annoyance and extra work, as the driver has to get down from his seat to perform the labor at the end

of each row; but with our improvement with a marker on each side all this annoyance and trouble is done away, and the driver never has to leave his seat. When the markers are
 5 not in use, they are held in a vertical position by the spring-catches M', the marker-rod K' fitting within the grooved portion of the catch M', and while in that position the ropes S' can be fastened to the collars of the
 10 draft-horses. Then when going up the field one marker is swung down. On the return-trip this marker is drawn up and the other swung down by the driver without leaving his seat.

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

1. In a corn-drill, the combination, with a shaft journaled in the frame and operated by
 20 a hand-lever, of an arm on said shaft fitted to revolve downward with said shaft and adapted to revolve upward independently thereof, and a spring wound on said shaft, one end fast thereto and the other bearing
 25 down on said arm, substantially in the manner and for the purpose described.

2. In a corn-drill, the combination, with the frame, of a shaft journaled therein and operated by a hand-lever, an arm fitted loosely
 30 on said shaft, with its central portion surrounding the shaft cut away to form two opposite lugs, pins on said shaft bearing against said lugs on one side, and a spiral spring, one end fast to said shaft and the other bearing
 35 down on said arm to keep said lugs and pins in contact, substantially in the manner and for the purpose described.

3. In a corn-drill, the combination, with a drag-bar and plow coupled to the frame in front, so as to swing vertically, of a shaft
 40 journaled in the frame above said drag-bar, and a spring-arm on said shaft connected with said drag-bar, said spring-arm rotating independently of said shaft in one direction and in conjunction therewith in the other di-
 45 rection, substantially as shown and described.

4. In a corn-drill, the combination of hand-lever *t*, shaft *u*, pin *s'*, spring *t'*, arm *p'*, with lugs *r' r'*, connecting-rod *v'*, and drag-bar *k'*, arranged substantially as and for the purpose
 50 specified.

5. In a corn-drill, the combination, with the front rail of the frame, of a drag-bar carrying the plow, double-armed bracket underneath
 55 said frame, provided with one or more sets of holes, a coupling-bolt passing through the forked ends of the drag-bar and through opposite holes in the bracket, and a collar and set-screw on said bolt, so that said drag-bar
 60 may be adjusted horizontally, substantially as shown and described.

6. In a corn-drill, the combination of mechanism for controlling the action of the rotary feeders with shaft *u*, spring-arm *p'*, drag-bar
 65 *k'*, and link connecting said drag-bar and spring-arm, so that both feeders and plows may be lowered and raised simultaneously, substantially as shown and described.

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MICHAEL FARLANDER.

Witnesses:

SQUIRE B. RUDE,
 F. H. STANFORD.