

(No Model.)

2 Sheets—Sheet 1.

F. M. DOUGAN.

COMBINED CULTIVATOR, PLANTER, AND HARROW.

No. 356,104.

Patented Jan. 18, 1887.

Fig. 1.

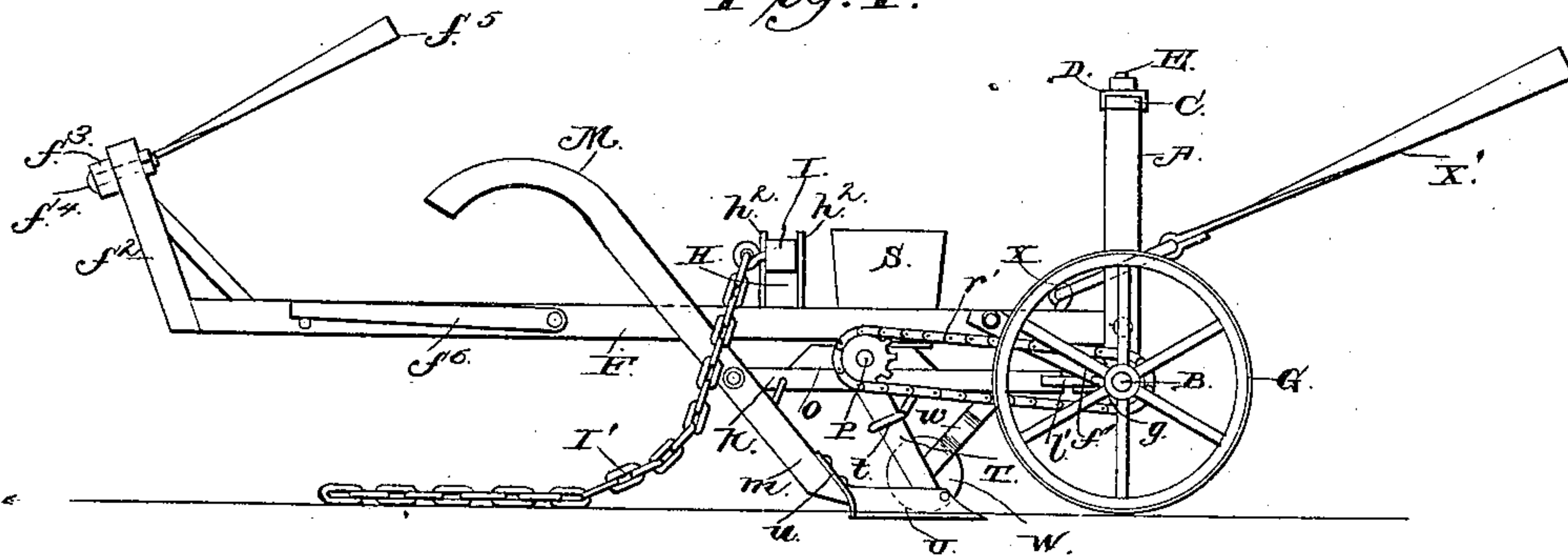
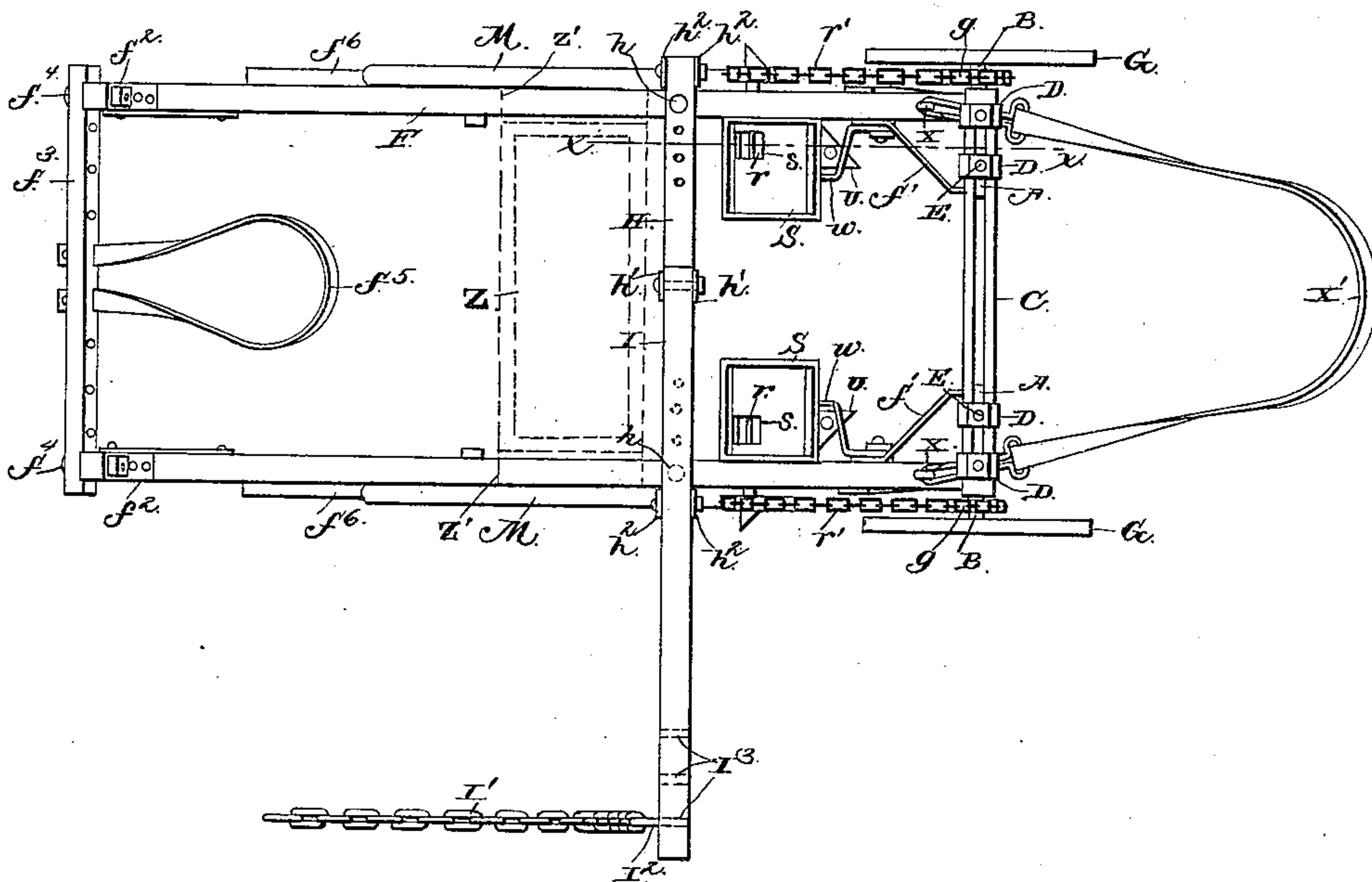


Fig. 2.



Witnesses
M. E. Fowler
J. W. Garner

Inventor
F. M. Dougan
By his Attorneys
C. A. Snowden

(No Model.)

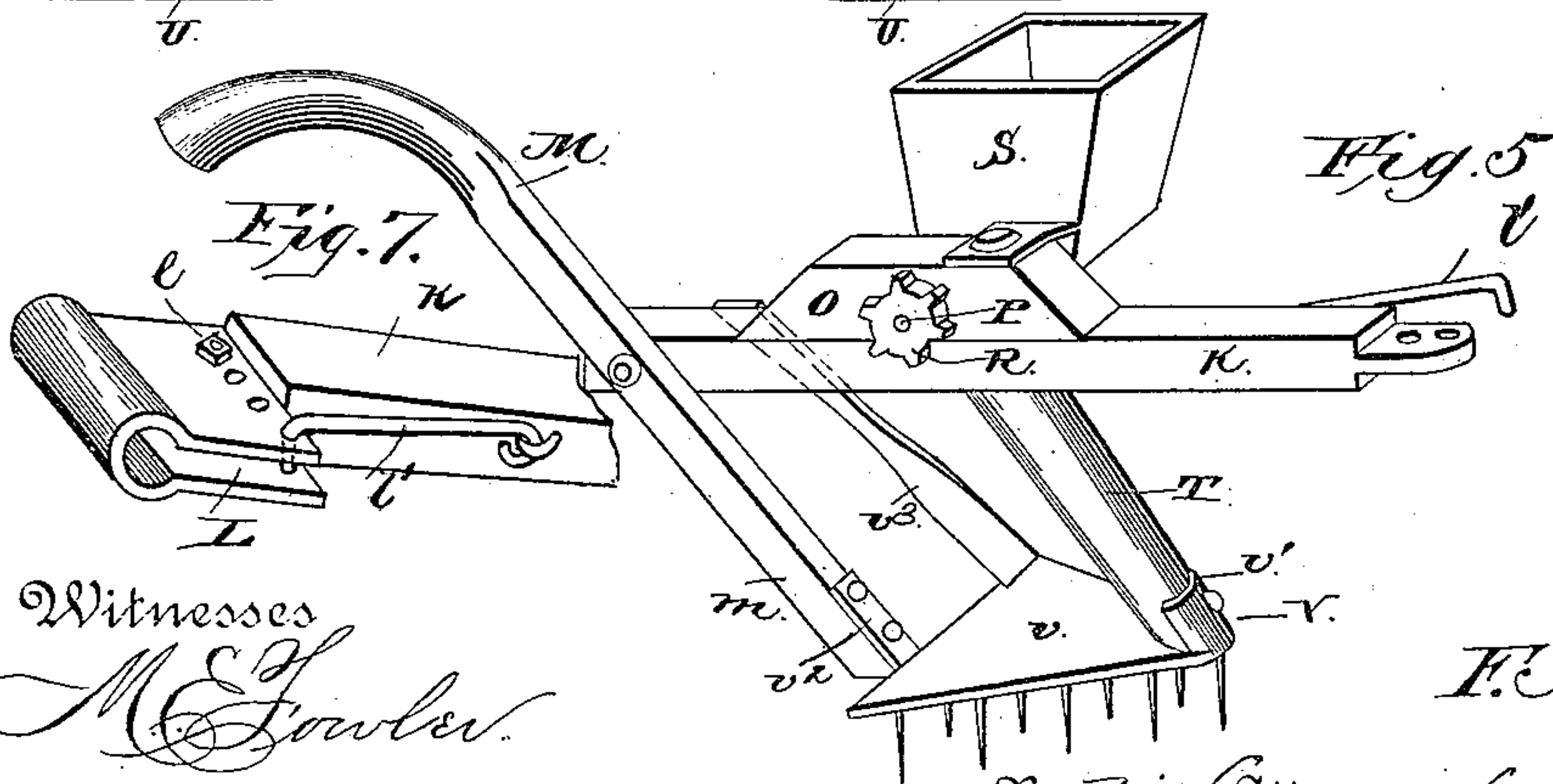
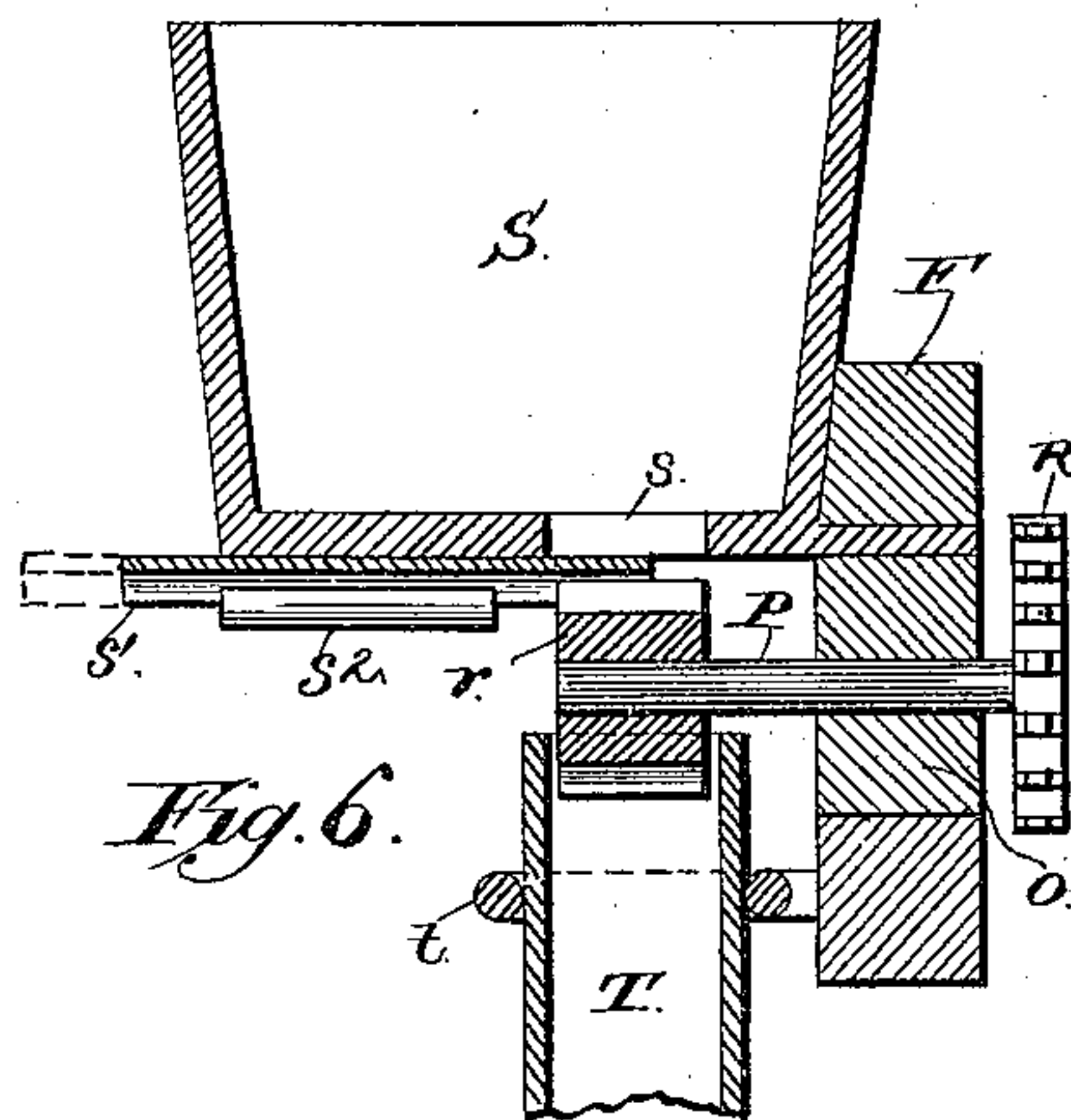
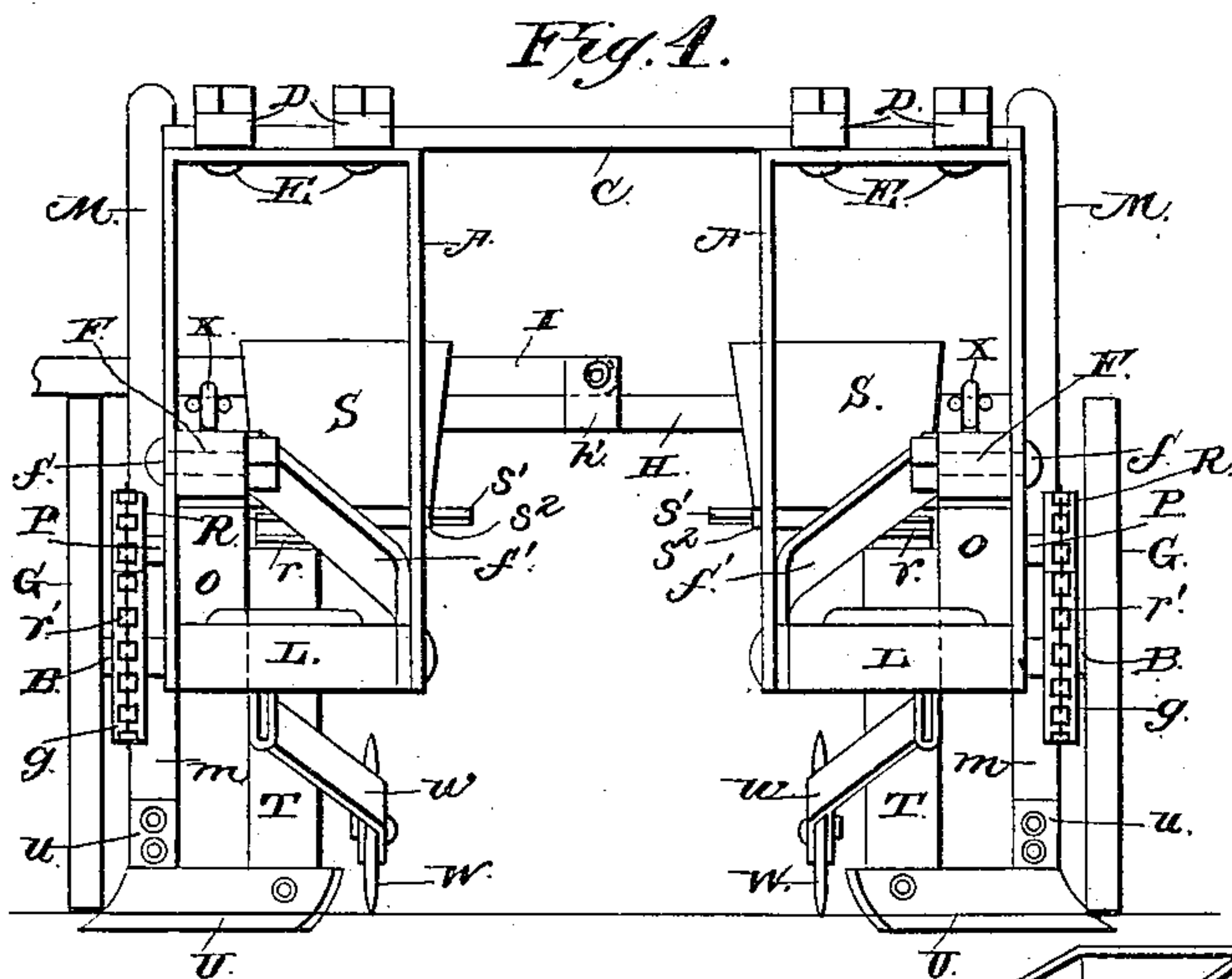
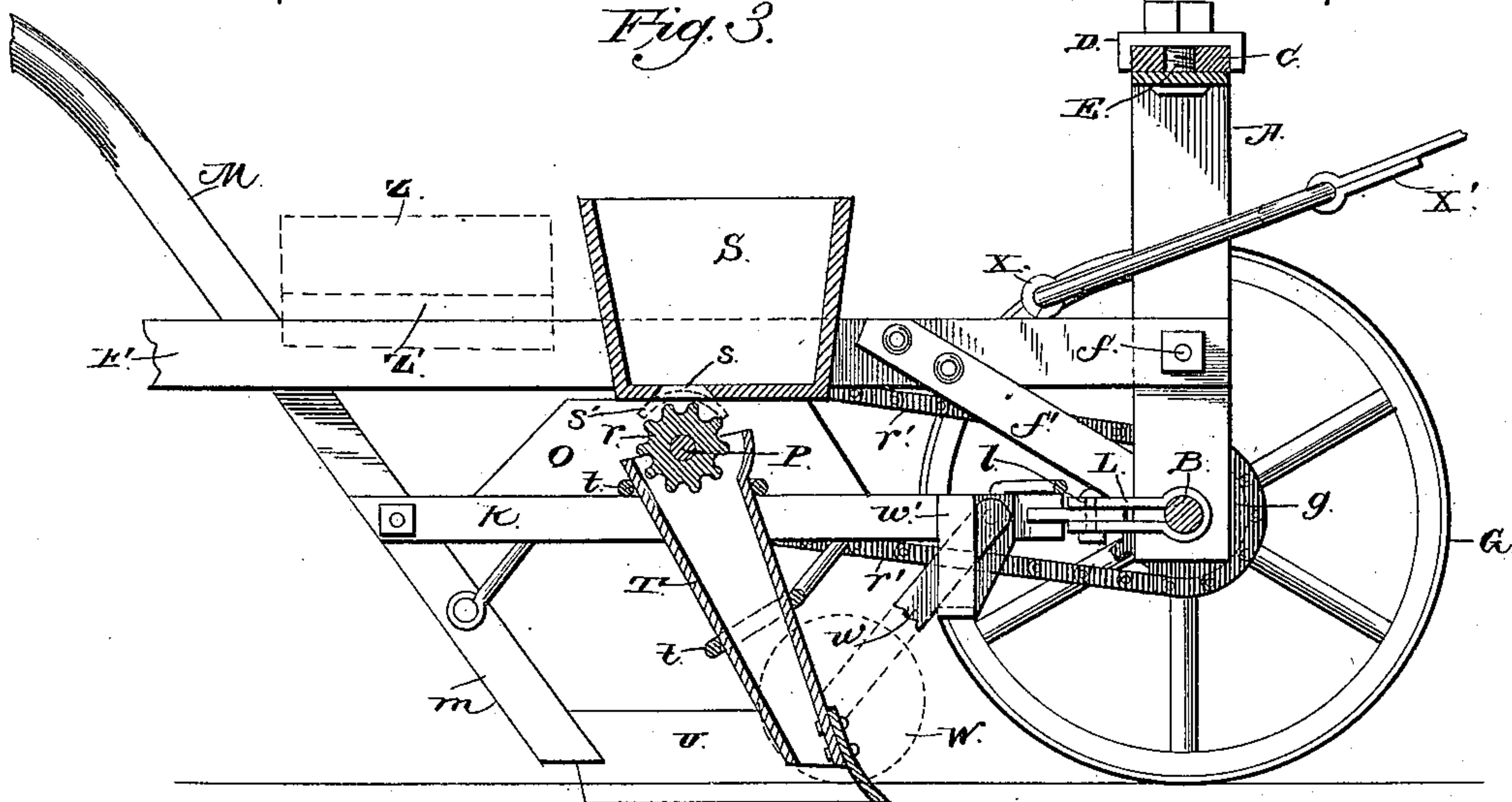
2 Sheets—Sheet 2.

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Witnesses
M. S. Fowler
J. W. Garner

Inventor
F. M. Dougan

By his Attorneys

C. A. Swindle

UNITED STATES PATENT OFFICE.

FRANCIS M. DOUGAN, OF SENECA, KANSAS.

COMBINED CULTIVATOR, PLANTER, AND HARROW.

SPECIFICATION forming part of Letters Patent No. 356,104, dated January 18, 1887.

Application filed May 6, 1886. Serial No. 201,350. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS M. DOUGAN, a citizen of the United States, residing at Seneca, in the county of Nemaha and State of Kansas, have invented a new and useful Improvement in Combined Cultivators, Planters, and Harrows, of which the following is a specification.

My invention relates to an improvement in combined cultivators, planters, and harrows; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical longitudinal sectional view taken on the line $x x$ of Fig. 2. Fig. 4 is a front elevation. Fig. 5 is a detail perspective view of one of the harrows and the seed-tube and plow-handle to which it is attached. Fig. 6 is a detail sectional view. Fig. 7 is a detailed perspective view of one of the clips with a plow-beam attached thereto.

A represents a pair of vertical frames or standards, in the lower ends of which are secured axles B, which are provided with outwardly-projecting spindles. The upper ends of the frames A are attached to a slotted transverse bar, C, by means of clamping-plates D and screws E, which extend from the horizontal upper portions of the frames A, through the slot in the bar C, and through the plates D, the upper ends of the said screws being provided with clamping-nuts adapted to press on the upper sides of the clamping-plates. By this construction it will be readily understood that the frames A are laterally adjustable on the bar C, and may be moved toward or from each other on the said bar.

F represents a pair of beams, which have their front ends attached to the frames A by means of bolts f , the said beams being braced to the said frames by means of suitable brace-bars f' . On the spindles which project from the outer side of the frames A are journaled supporting-wheels G, which are provided with sprocket-wheels g . From the rear ends of the beams F extend arms f^2 , the upper ends of which are connected by a transverse bar, f^3 . The said bar, and also the arms f^2 , are provided with a series of openings, which enable

the bar to be attached to the arms at any desired vertical adjustment and the arms to be attached to the bar at any desired lateral adjustment by means of bolts f^4 . To the transverse bar is attached a strap, f^5 , forming a loop which extends from the front side of the bar.

f^6 represents supporting-standards, which are pivoted to the beams F, as shown, the free ends of the said standards being supported on projecting pins which extend from the outer sides of the beams F, near the rear ends thereof. The said beams F are also connected together near their centers by a transverse bar, H, which is provided near each end with a series of openings, thereby enabling the said bar to be attached to the said beams at any desired lateral adjustment of the latter by means of bolts h . From the upper side of the bar H, at the center thereof, project pivotal ears h' , between which is pivoted the inner end of a marker-beam, I. From the outer ends of the said bar project vertical ears h^2 , adapted to receive the marker-beam when the latter is extended from either side of the machine. To the outer end of the marker is attached a drag-chain, I' , which is adjustable in or out upon the marker by means of an eyebolt, I^2 , which is adapted to be inserted in either of a series of openings, I^3 , which are made in the outer end of the marker-bar.

K represents a pair of plow-beams, the front ends of which are pivoted to clips L, that are attached to the axles B. The clips are provided at their rear edges with a series of openings, l , to receive the pivotal bolt of the plow-beam, and thus enable the latter to be attached to the clips at any desired lateral adjustment. In order to prevent the plow-beams from swinging laterally, and thus cause them to run steadily, I provide the said beams with hooks l' , adapted to engage the openings l of the clips. To the rear end of each of the plow-beams is attached a handle, M, having a lower extension, forming a standard, m . Blocks O are attached to the upper sides of the beam, and in the said blocks are journaled shafts P, to one end of which is attached a sprocket-wheel, R, and to the inner end of which is attached a rotating feed-cylinder, r . Endless sprocket-chains r' connect the sprocket-wheels g and r .

S represents seed-hoppers that are secured on the upper sides of the blocks and extend laterally therefrom, the said hoppers being provided with openings *s*, which communicate with the seed-cylinders. Slides *s'* are fitted in suitable guideways, *s*², and are adapted to partly close the discharge-openings of the seed-hoppers, in order to control the quantity of seeds that are fed therefrom by the seed-cylinder.

T represents seed-spouts, one of which is attached to each of the plow-beams, the upper ends of the said spouts being located below the seed-cylinders, and thereby adapted to catch the seeds as they are discharged from the hoppers and conduct the same to the ground. These seed-spouts are secured in an inclined position to the plow-beams by means of braces *t*.

U represents cultivating-shovels, consisting each of a plate of metal slightly concave on its face, the ends of the said plate being beveled, as shown. One end of the plate is bolted to the lower end of the seed-spout, and the other end of the plate is provided with an upwardly-extending tongue or strap, *u*, which is bolted to the lower extension of the plow-handle. The cultivator is thus securely fastened to the plow-beam, as will be readily understood.

V represents harrow attachments, which are adapted to be used in lieu of the cultivating-shovels. The said harrow attachments are composed each of a triangular plate, *v*, provided at its front ends with an upturned strap, *v'*, which is adapted to be attached to the toe of the seed-spout. From the rear side of the plate *v*, at one corner thereof, projects a vertical strap, *v*², which is adapted to be attached to the lower end of the extension of the plow-handle, and from the opposite corner of the rear side of the said plate extends a rearwardly-inclined brace-bar, *v*³, the upper end of which is adapted to be attached to the plow-beam by means of the same bolt which secures the handle thereto.

W represents a revolving colter, which is attached to the lower end of an arm *w*, the upper end of which is attached to a depending hanger, *w'*, which is bolted to the front end of the plow-beam. One of these colters is provided for each of the plow-beams, and it will be seen that the said colters run alongside the inner ends of the cultivating-shovels, and are thus adapted to cut through and clear away trash in advance of the lower end of the seed-tubes. To the front ends of the beams *F* are attached eyebolts *X*, which serve for the attachment of the ends of a looped strap, *X'*.

Z represents a box, which is provided at its ends with projecting flanges *Z'*, which enable the box to be supported between the beams *F*.

The operation of my invention is as follows: When it is desired to plant seeds, the cultivator attachment is released from the lower end of the seed-tubes, and suitable furrow-openers are attached thereto. The seeds to be planted are placed in the hoppers, and the beams *X* are adjusted laterally to correspond with the

required space between the rows. The drag-chain is also adjusted on the marker-beam, so as to extend a distance from the outer side of the machine corresponding to the width or space between the rows, and the operator stands between the rear ends of the beams *F*, and passes the strap *f*⁵ over one shoulder and over his chest and under one arm. His hands are thus left free to grasp the plow-handles, and he is thus enabled to impel the machine forward. As the machine progresses the rotation of the supporting-wheels *B* is communicated to the seed-cylinder through the connecting mechanism heretofore described, and the seeds are fed from the hoppers to the spouts, and fall therefrom into the furrows prepared by the furrow-openers.

The operation of the machine is the same when it is desired to cultivate growing plants, with the exception that the hoppers, the marker-bars, the sprocket-chains, and the hooks *l*² are removed, and that the cultivating-shovels, hereinbefore described, are attached to the lower end of the seed-spouts and to the plow-handles, instead of the furrow-opener. When the harrow attachments are secured to the seed-spouts and plow-handles, the machine is adapted for stirring the soil alongside the row of plants and destroying the weeds. By placing the box *Z* on the beams *F* a ready means is provided for transporting fertilizer or seeds to any part of the field or garden, thus adapting the machine to be used as a wheelbarrow.

The operation of the marker will be readily understood. The chain drags on the ground alongside the rows as the machine advances, thus enabling the machine to be run parallel with and at a proper distance from the rows on its return trip. By providing the loop-strap attached to the front of the machine, another man may assist in drawing the machine and working it in stiff clay soil.

The function of the pivoted standards which are attached to the beams *F* is to enable the said beams to be supported in a horizontal position when the operator releases his hold thereof, by turning the standards to a vertical position.

Having thus described my invention, I claim—

1. The combination of the laterally-adjustable frames *A*, carrying the independent supporting and driving wheels, the beams *F*, attached to the said frames, and the traveling plow-beams having their front ends attached to the spindles of the driving and supporting wheels, and the handles *M*, attached to the rear ends of the plow-beams and bearing against the beams *F*, substantially as described.

2. The combination, in a cultivator, of the frames *A*, carrying the axles, the supporting-wheels journaled on the axles, the beams *F*, attached to the frames *A*, the clips pivoted to the axles, and the plow-beams attached to the clips and laterally adjustable thereon, substantially as described.

3. The combination, in a planter, of the laterally-adjustable beams F, the supporting-wheels, the bar H, connecting the beams, the marker-beam pivoted to the bar H, and thereby adapted to swing to either side of the machine, and the drag-chain attached to the said marker-beam and adjustable thereon to correspond with the adjustment of the beams F, substantially as described.

4. The combination of the frames having the clips L, provided with the series of openings l , with the plow-beams attached at their front ends to the clips and adjustable laterally thereon, and having the hooks or rods l' , adapted to engage the openings l , and thereby prevent vibratory lateral motion of the plow-beams, substantially as described.

5. The combination of the frames A, carrying the independent driving and supporting wheels, the beams F, attached to the said frames, the arms f^2 , attached to the rear ends of the said beams, the transverse bar f^3 , connecting the said arms, and the supporting-standards f^6 , pivoted to the beams F, substantially as described.

6. In a planter, the combination of the pivoted plow-beams carrying the planting mechanism and having the seed-tubes, the handles

attached to the plow-beams and having the lower extensions, and the cultivator shovels or plates having one end attached to the lower end of the seed-tube and the other attached to the lower end of the extension of the plow-handle, substantially as described.

7. The combination of the frames A, carrying the independent driving and supporting wheels, the beams F, attached to the said frames, the clips attached to the axles of the wheels, the plow-beams having their front ends attached to the said clips and carrying the planting mechanism geared to the driving-wheels, the seed-tubes depending from the plow-beams, the handles M, attached to the rear ends of the plow-beams and bearing against the beams F, and provided with the lower depending extensions, and the plows or shovels attached to the lower ends of the seed-tubes and to the lower ends of the handles M, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

FRANCIS M. DOUGAN.

Witnesses:

A. WELLS,
FRANK WELLS.