

(No Model.)

3 Sheets—Sheet 1.

S. FREEMAN.
COTTON CHOPPER.

No. 384,516.

Patented June 12, 1888.

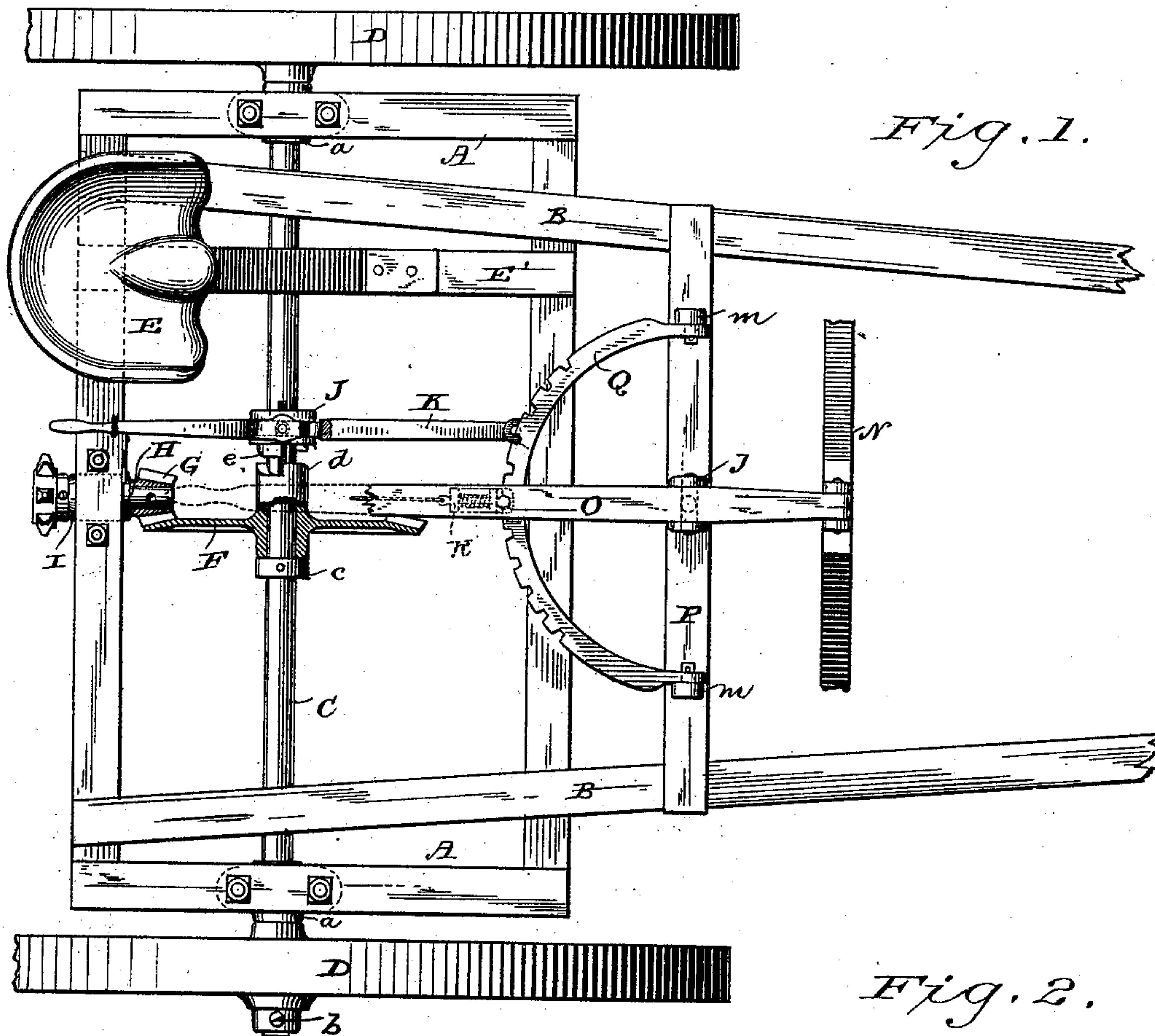


Fig. 1.

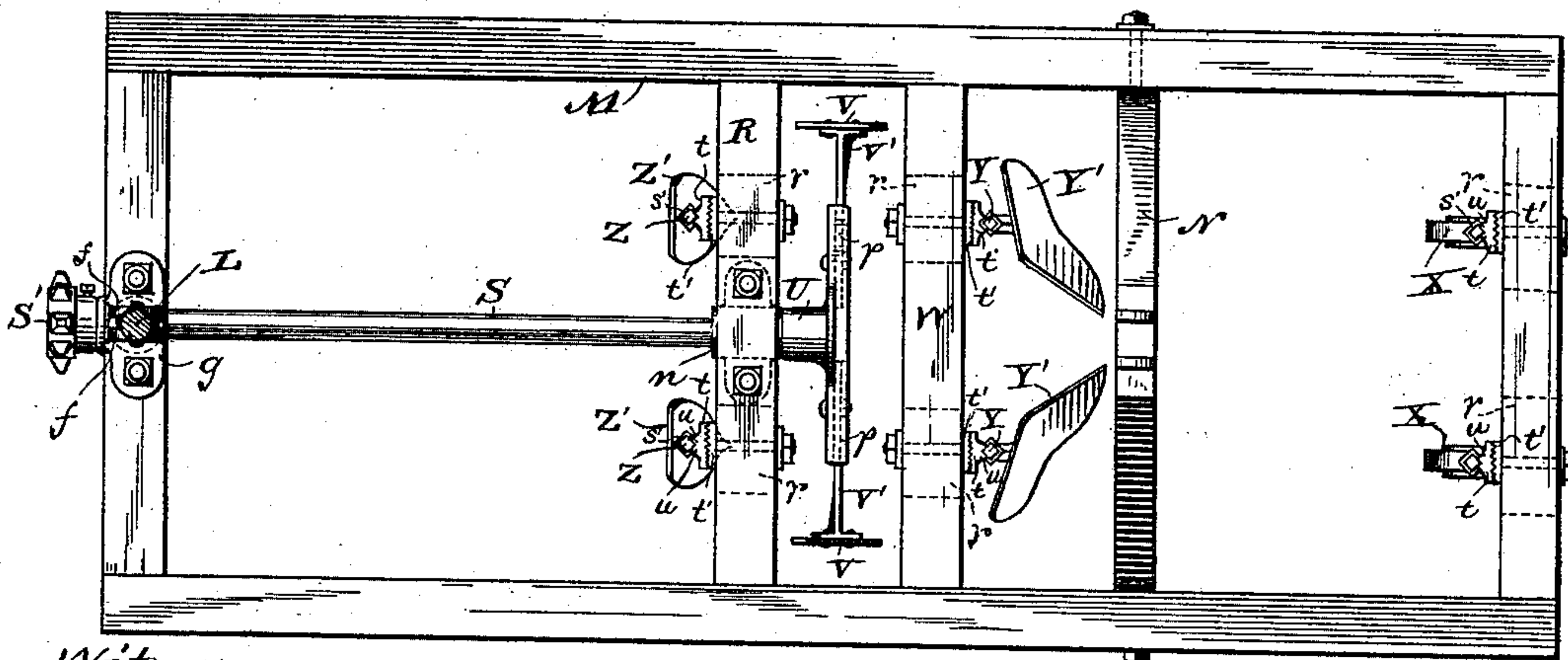


Fig. 2.

Witnesses.

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Fig. 3.

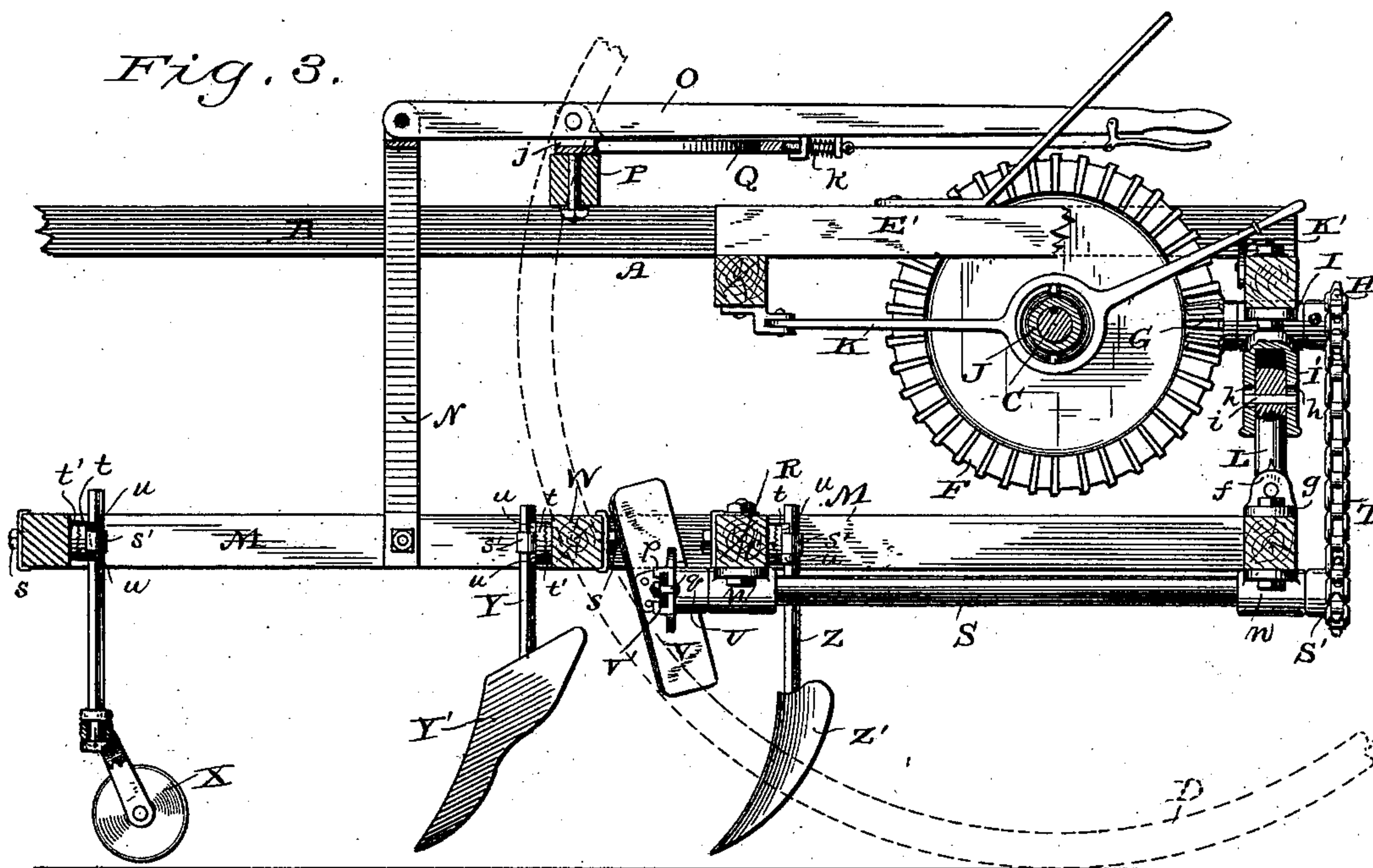
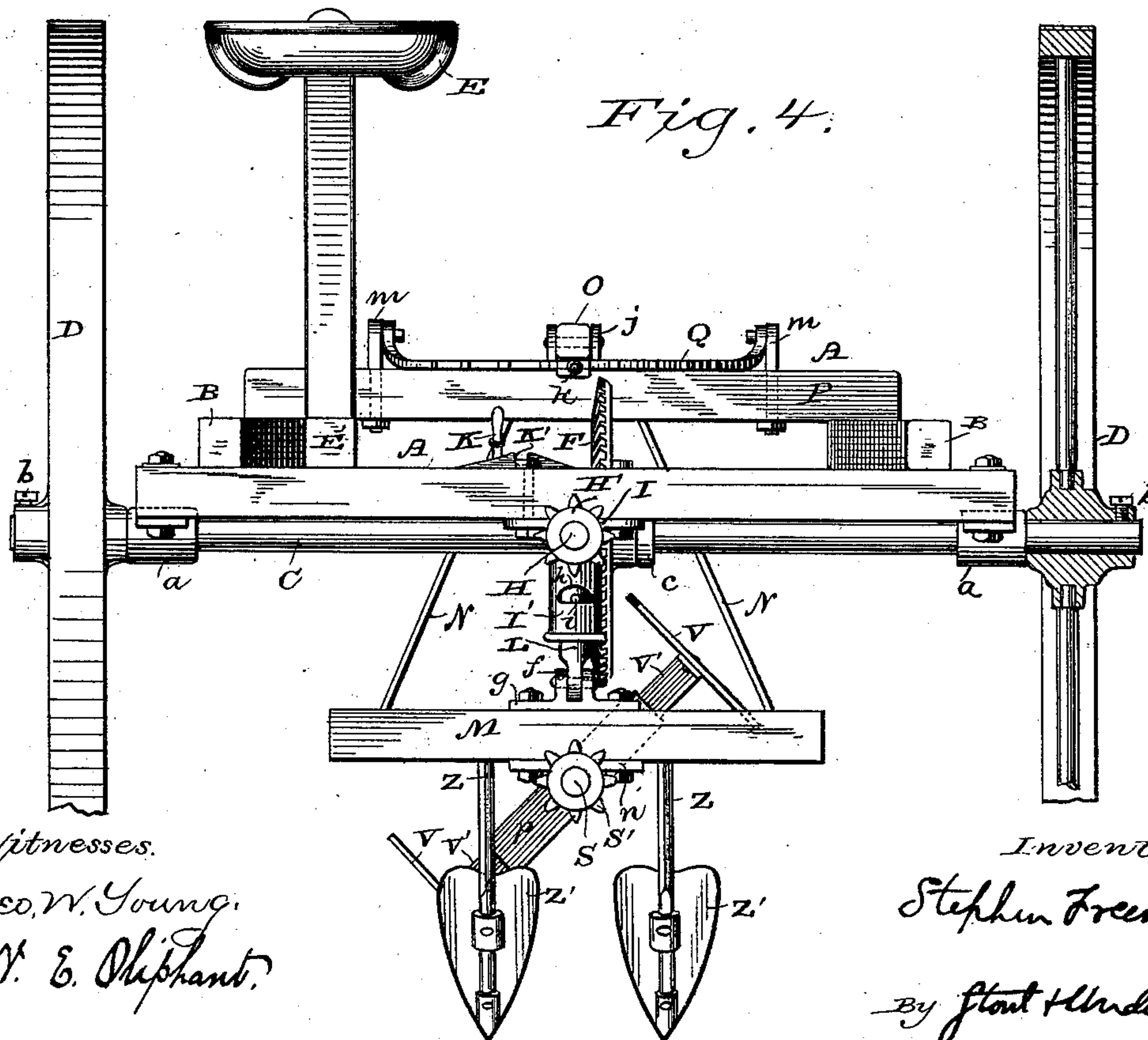


Fig. 4.



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Fig. 5.

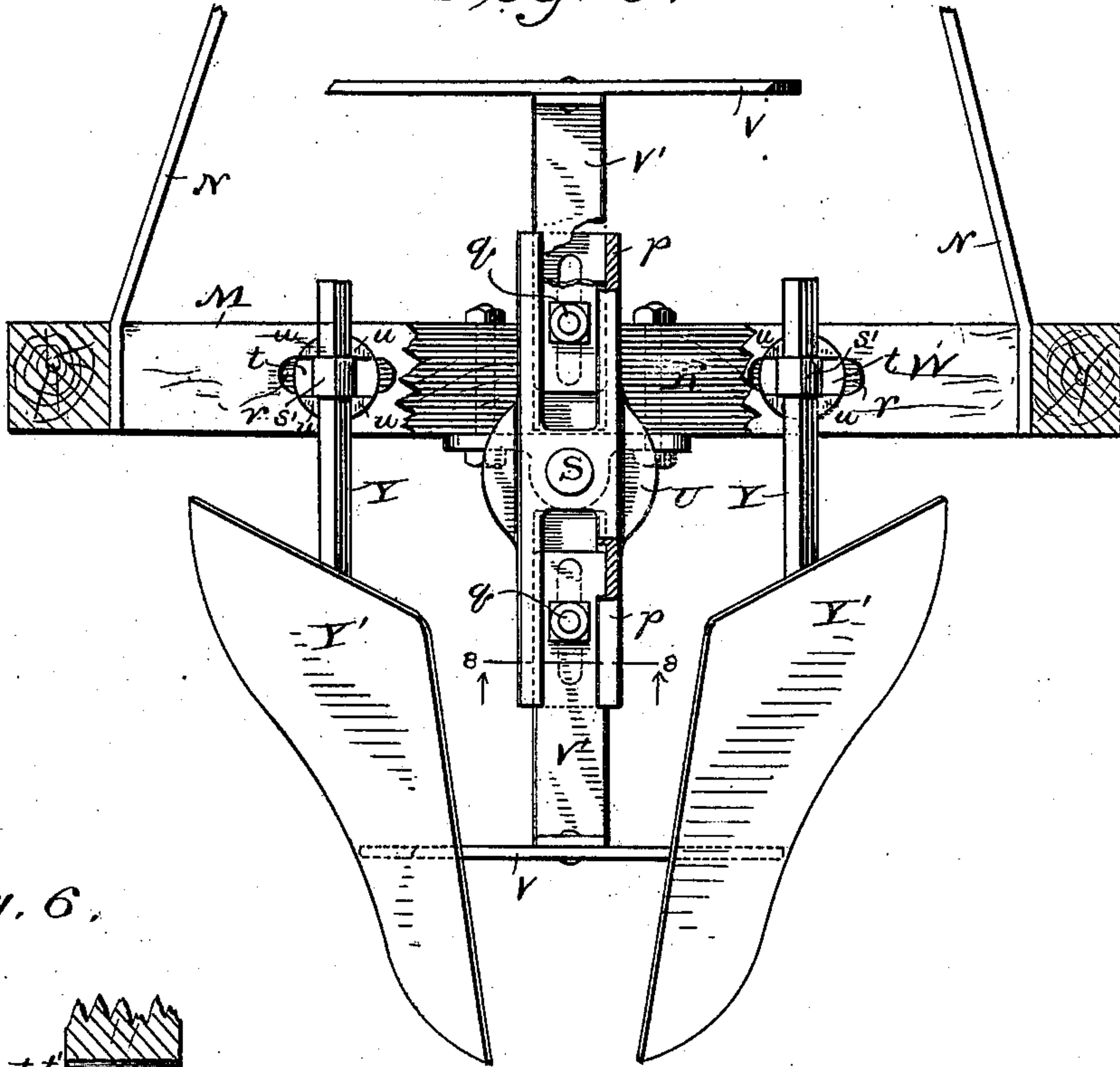


Fig. 6.

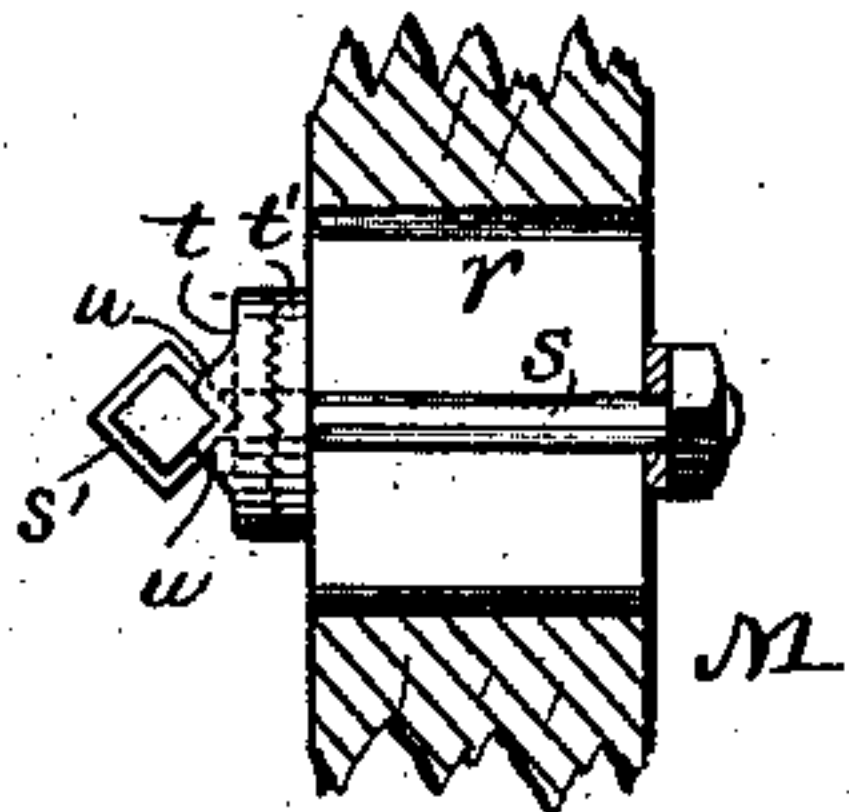


Fig. 7.

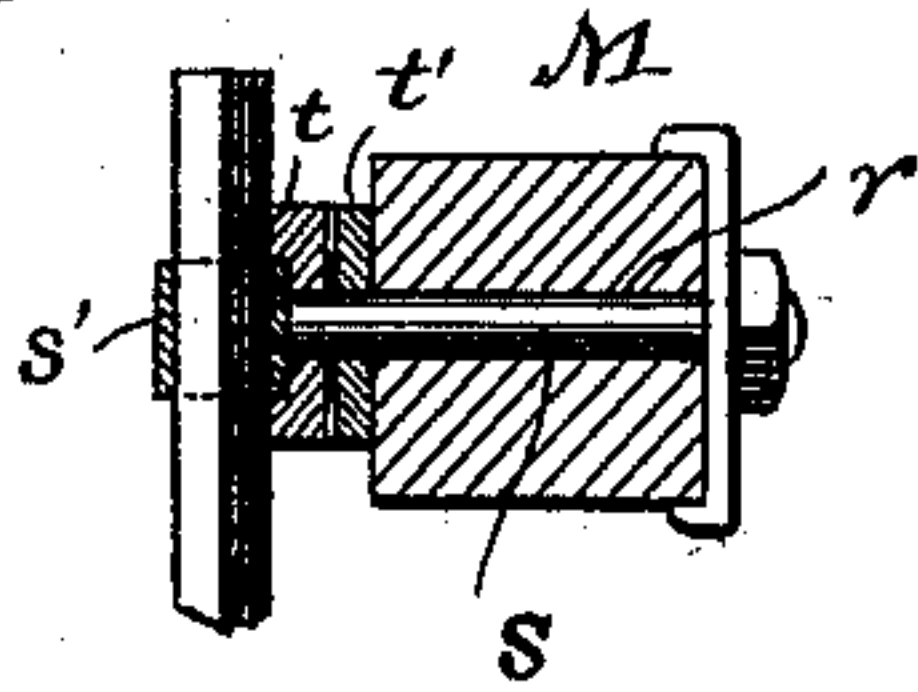


Fig. 8.

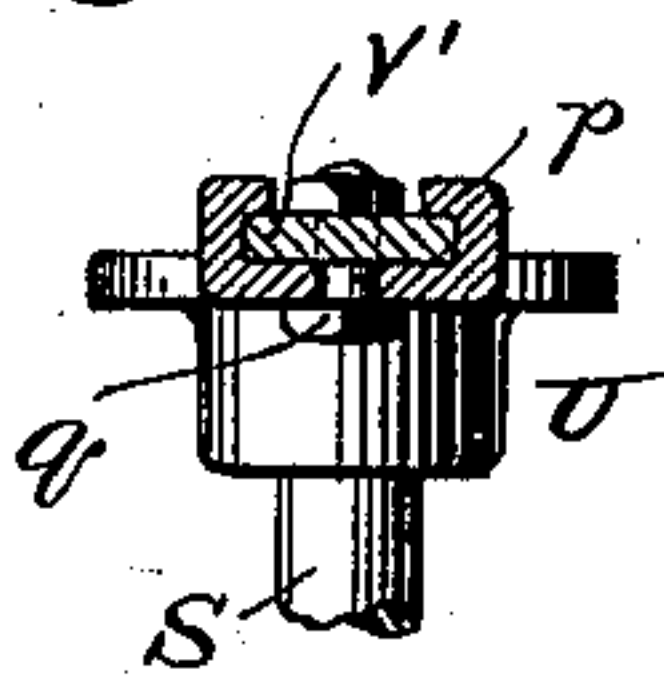
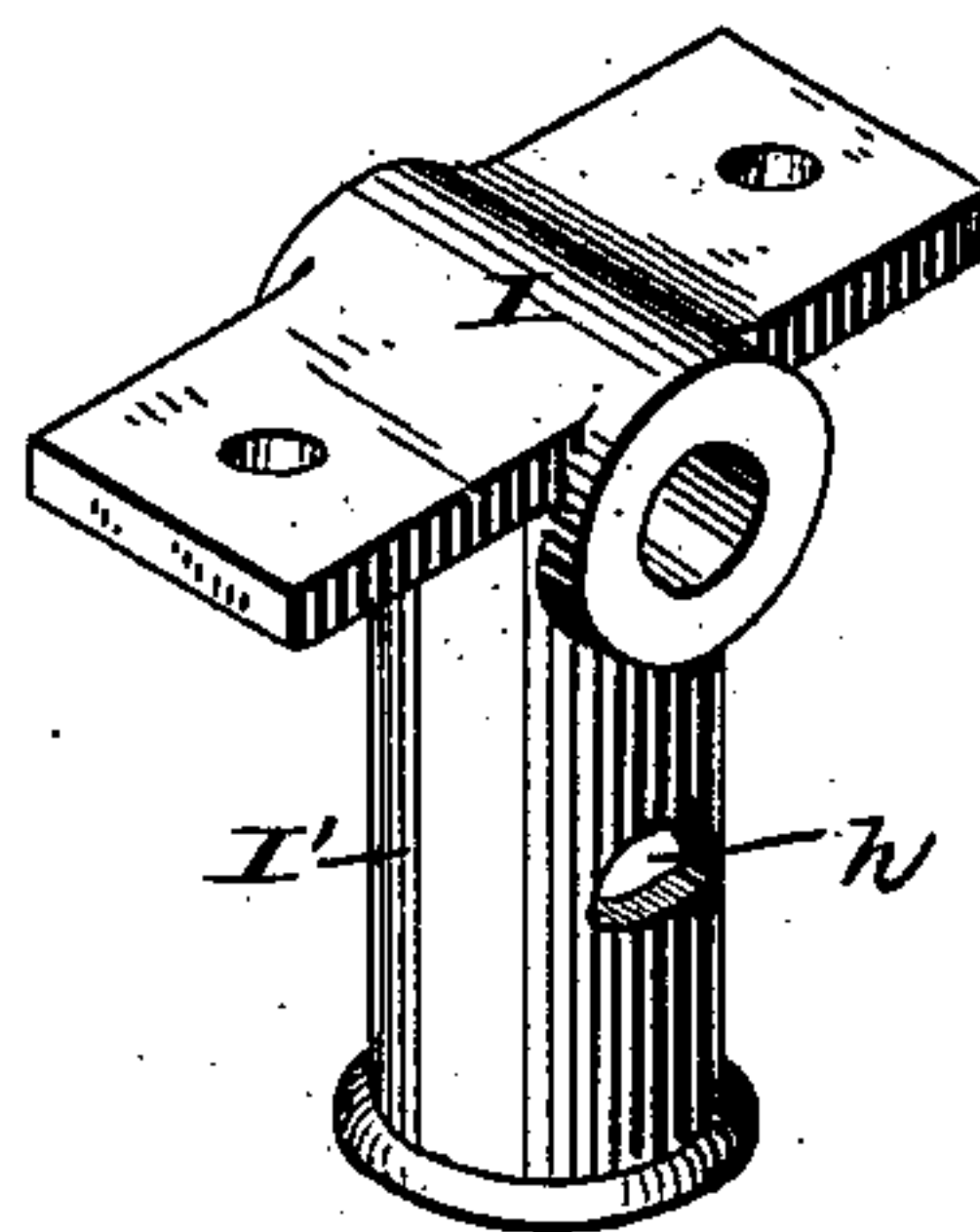


Fig. 9.



Witnesses

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UNITED STATES PATENT OFFICE.

STEPHEN FREEMAN, OF RACINE, WISCONSIN.

COTTON-CHOPPER.

SPECIFICATION forming part of Letters Patent No. 384,516, dated June 12, 1888.

Application filed October 13, 1887. Serial No. 252,198. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN FREEMAN, of Racine, in the county of Racine, and in the State of Wisconsin, have invented certain new and useful Improvements in Cotton-Choppers; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to cotton-choppers; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings, and subsequently claimed.

In the drawings, Figure 1 represents a plan view of a carriage that forms part of a machine constructed according to my invention; Fig. 2, a similar view of a frame that is suspended beneath the carriage; Fig. 3, a vertical longitudinal section of the machine; Fig. 4, a rear elevation of the same; Fig. 5, a vertical transverse view taken through the front portion of the frame; Figs. 6 and 7, detail views of an adjustable clamp; Fig. 8, a section on line 8 8, Fig. 5; and Fig. 9, a perspective view of a casting that forms part of said machine.

Referring by letter to the drawings, A represents a frame, and suitably secured to the end timbers of this frame are two bars, B B, that constitute a tongue. Bolted or otherwise secured to the side timbers of the frame A are bearings *a* for a main or drive shaft, C, and rigidly connected to this shaft by set-screws *b* or other suitable means are wheels D. The frame, tongue, shaft, and wheels, together with a spring-seat, E, suitably connected to a timber, E', of said frame, constitute a carriage that forms part of my machine.

Loose on the main shaft C is a bevel gear-wheel, F, that meshes with a bevel-pinion, G, fast on a shaft, H, that has its bearing I bolted or otherwise secured to the rear end timber of the frame A, this gear-wheel being held in position with relation to the pinion by means of a collar, *c*, rigidly connected to said main shaft. The hub of the gear-wheel F is provided with clutch-teeth *d*, designed to engage similar teeth, *e*, on a collar, J, that is feathered to the main shaft C and fitted to a lever, K, the latter being pivotally connected to the front end timber of the carriage-frame A, and arranged to come within easy reach of the operator, who rides upon the seat E, in order that the clutch-

collar can be readily shifted to bring it in or out of engagement with the gear-wheel hub to communicate or cut off the motion imparted by the revolution of said main shaft. In order to hold the sliding clutch-collar J in engagement with the hub of the gear-wheel F, the rear end timber of the carriage-frame A is provided with a stop-plate, K', for the lever K.

As best illustrated by Fig. 9, the bearing I for the pinion-shaft H is preferably made in one piece with a vertically-depending thimble, I', that engages a stem, L, pivoted at its lower end to the ears *f* of a casting, *g*, bolted or otherwise secured to the rear end timber of a rectangular frame, M, said thimble being provided with triangular or arc-shaped openings *h*, that in turn engage a pin, *i*, passed through the stem, whereby the latter is permitted to have both a vertical and partial rotary movement, for the purpose to be hereinafter described.

The forward portion of the frame M is suspended by means of a bifurcated hanger, N, pivotally connected to a lever, O, that is fulcrumed in a casting, *j*, swiveled to a transverse timber, P, supported on the tongue-bars B B, said lever being arranged to come within easy reach of the operator. Arranged on the lever O is a spring-catch, *k*, that engages a segmental rack, Q, the latter having its ends loose on pintles *m*, driven into the timber P, and by means of this construction and the swivel-connection I' L at the rear said frame may be adjusted to stand at an angle either right or left of the line of draft and be tilted up or down at the will of the operator.

Secured to the rear end timber and an intermediate transverse timber, R, of the frame M are bearings *n*, for a longitudinal shaft, S, that has fast thereon a sprocket-wheel, S', for engagement with a drive-chain, T, the latter being also engaged by a similar wheel, H', detachably connected to the pinion-shaft H, and when said frame is tilted or moved to the right or left the swivel-connection I' L, above referred to, will prevent kinking of the chain.

To the forward end of the shaft S is secured a boss, U, that has radiating therefrom two diametrically opposed and slotted guides, *p p*, for the adjustable arms V' of knives V, said arms being given a twist, as best illustrated in

Fig. 2, to set the knives so that their cut will be at an angle more or less acute to the line of draft, and each of these arms is retained in its adjusted position by means of a set-bolt, *q*, that engages the slot in the adjacent guide.

In front of the knives *V*, and parallel to the timber *R* of the frame *M*, is another timber, *W*. The timbers *R* *W* and the front end timber of the frame *M* are severally provided with slots *r*, and through each of these slots is passed a set-bolt, *s*, that has arranged thereon two disks, *t* *t'*, the opposing faces of which are provided with interlocking corrugations. Each outer disk, *t*, is provided with shoulders *u* *u*, that come against the socket-head *s'* of the set-bolts *s* to prevent the latter from turning when the nut thereon is screwed up, said shoulders being centrally provided with V-shaped recesses, for the purpose to be hereinafter described.

Engaged by the socket-heads of the bolts that pass through the slots in the front end timber of the frame *M* are the vertical shanks of casters *X*, said shanks being engaged by the V-shaped recesses of the shoulders *u* *u*, belonging to the outer disks, *t*, on said bolts.

By the peculiar construction of the clamps composed of the socket-bolts and disks thereon, I provide for both a pivotal and vertical adjustment of the casters, and at the same time the slots in the front end timber of the frame *M* permit me to laterally adjust said casters, all of these adjustments being independent and positive, while at the same time said frame will automatically rise and fall at its front end to adapt itself to the uneven surface of the ground, this operation being due to the peculiar arrangement of the adjusting-lever and its rack.

Engaged by the socket-heads of the bolts passed through the slots in the timber *W* of the frame *M* are the standards *Y* of plows *Y'*, said standards being also engaged by the V-shaped recesses in the shoulders *u* *u* on the adjacent disks. In a like manner to that described for the casters *X*, the plows *Y'* can be given an independent and positive pivotal, vertical, or lateral adjustment, and any two or all of these adjustments of either said casters or plows can be made at one time.

Engaged by the socket-heads of the bolts passed through the slots in the timber *R* of the frame *M* are the standards *Z* of cultivator-teeth *Z'*, said standards being also engaged by the V-shaped recesses in the shoulders on the adjacent disks, and in a like manner to that above described for the casters *X* and plows *Y'*, the cultivator-teeth can be given an independent and positive vertical pivotal or lateral adjustment, any two or all of these adjustments being made at one time, if found desirable.

The plows *Y'* loosen the soil, the knives *Y* chop out the plants at regular intervals, and the cultivator-teeth *Z'* throw the earth up against the remaining plants, these several operations being successively carried on at

the same time by a single machine, thus effecting a saving in the labor and expense attendant upon the cultivation of cotton.

In the machine above described the knife-shaft is given a steady positive motion, and the mechanism for rotating this shaft can be readily thrown in and out of gear, while at the same time the various adjustments specified in connection with the casters, plows, and cultivator-teeth enable me to arrange these parts to accord with peculiarities of the surface and any width or depth of cotton-rows, it being immaterial whether these rows are straight or curved.

Another advantage of my machine lies in the fact that the sprocket-wheel *H'* on the pinion-shaft *H* may be substituted by another such wheel having a greater or less number of teeth, the drive-chain being correspondingly lengthened or shortened, and by this means I can regulate the cut of the knives to vary the distance between the standing plants.

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

1. In a cotton-chopper, the combination of a carriage, a frame suspended beneath the carriage, a chopping mechanism carried on the frame, and casters and plows secured to said frame by laterally-adjustable couplings that permit a pivotal and vertical adjustment of said casters and plows, substantially as set forth.

2. In a cotton-chopper, the combination of a carriage, a frame suspended beneath the carriage to have a positive horizontal movement and an automatic vertical movement, a chopping mechanism carried by the frame, and casters secured to said frame to have a pivotal, vertical, and lateral adjustment, substantially as set forth.

3. In a cotton-chopper, the combination of a carriage, a sprocket-wheel and pinion carried by a shaft that has its bearing on the carriage, a gear-wheel loose on the carriage-axle and in mesh with the pinion, a clutch feathered on said axle for engagement with the hub of the gear-wheel, a frame suspended beneath said carriage, a knife-shaft having its bearings on the frame and provided with a sprocket-wheel, and a drive-chain arranged on said sprocket-wheels, substantially as set forth.

4. In a cotton-chopper, the combination of a suitable carriage, a vertically-depending thimble secured to the carriage and having suitable transverse openings, a stem arranged in the thimble, and a pin passed through this stem and the openings in said thimble, a frame pivotally connected at its rear to said stem and suspended at its front by a suitable hanger depending from said carriage, and a chopping apparatus carried by said frame, substantially as set forth.

5. In a cotton-chopper, the combination of a carriage, a bearing secured to the carriage, a vertically-depending thimble integral with the bearing and provided with suitable transverse

openings, a stem arranged in the thimble and a pin passed through this stem and the openings in said thimble, a frame pivotally connected at its rear to said stem and suspended
5 at its front by a suitable hanger depending from the carriage, a shaft arranged in said bearing, a knife-shaft having its bearings on the frame, and suitable means for imparting motion to said shafts, substantially as set forth.

10 6. In a cotton-chopper, the combination of a carriage, a rectangular frame carrying the chopping mechanism and swiveled at its rear to the rear of the carriage, a lever swiveled to said carriage, a hanger connecting the lever
15 and forward portion of the frame, a pivoted segmental rack, and a spring-catch arranged on the lever to engage the rack, substantially as set forth.

20 7. In a cotton-chopper, the combination of a carriage, a frame suspended beneath the carriage to have a positive horizontal adjustment and an automatic vertical movement, a rotary chopper having its bearings on the frame, and casters, plows, and cultivator-teeth secured to

said frame by laterally-adjustable couplings 25 that permit a pivotal and vertical adjustment, substantially as set forth.

8. In a cotton-chopper, the combination of a carriage and its axle, a frame suspended beneath the carriage to have a positive horizontal 30 adjustment and an automatic vertical movement, a chopper-shaft having its bearing on the frame, casters, plows, and cultivator-teeth secured to said frame by laterally-adjustable couplings that permit a pivotal and vertical 35 adjustment, a sprocket-wheel upon the chopper-shaft, a sprocket-wheel and shaft upon said carriage driven from the axle, and a drive-chain arranged on said sprocket-wheels, substantially as set forth. 40

In testimony that I claim the foregoing I have hereunto set my hand, at Racine, in the county of Racine and State of Wisconsin, in the presence of two witnesses.

STEPHEN FREEMAN.

Witnesses:

CHARLES H. LEE,
HARVEY CONVERSE.