

(No Model.)

E. M. HEYLMAN.

CHECK ROWER.

No. 353,452.

Patented Nov. 30, 1886.

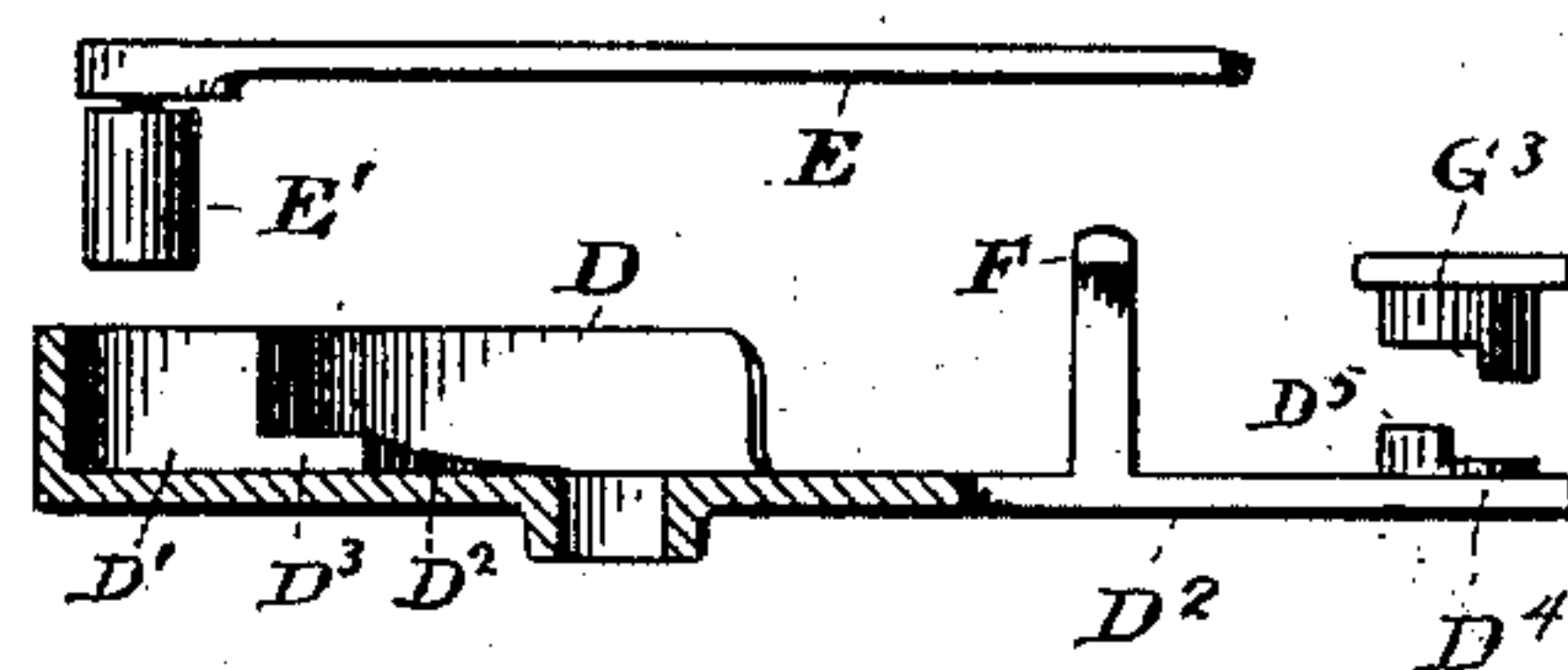
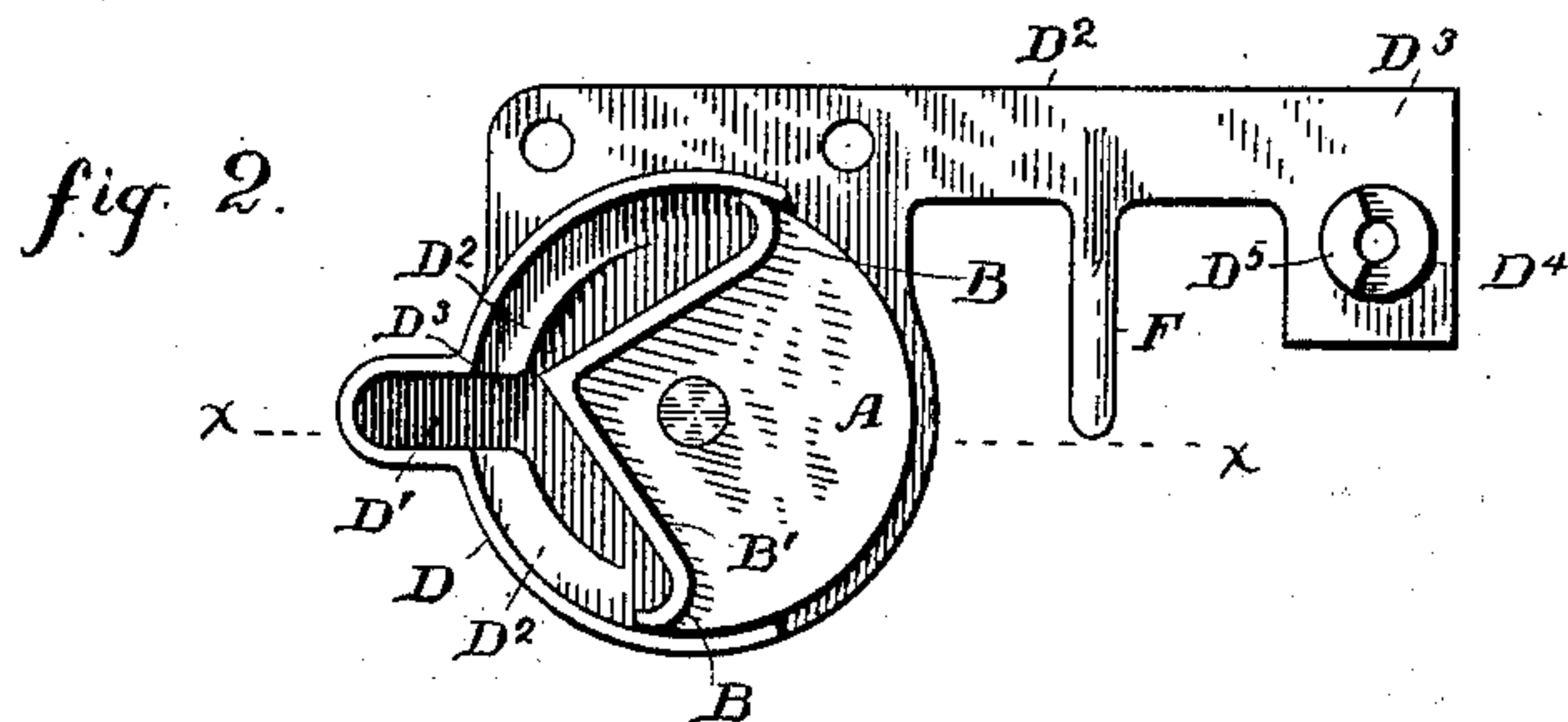
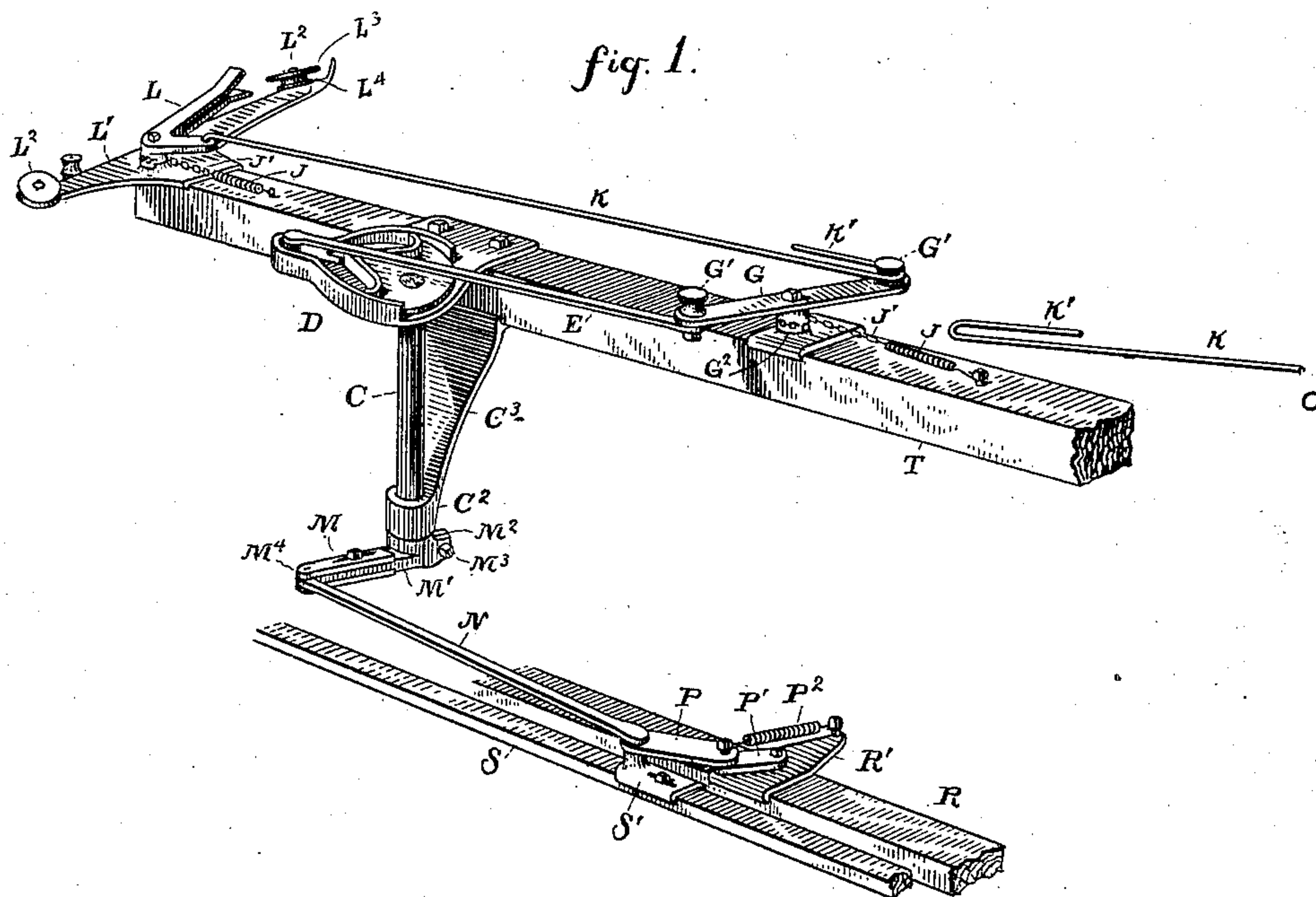


fig. 3.

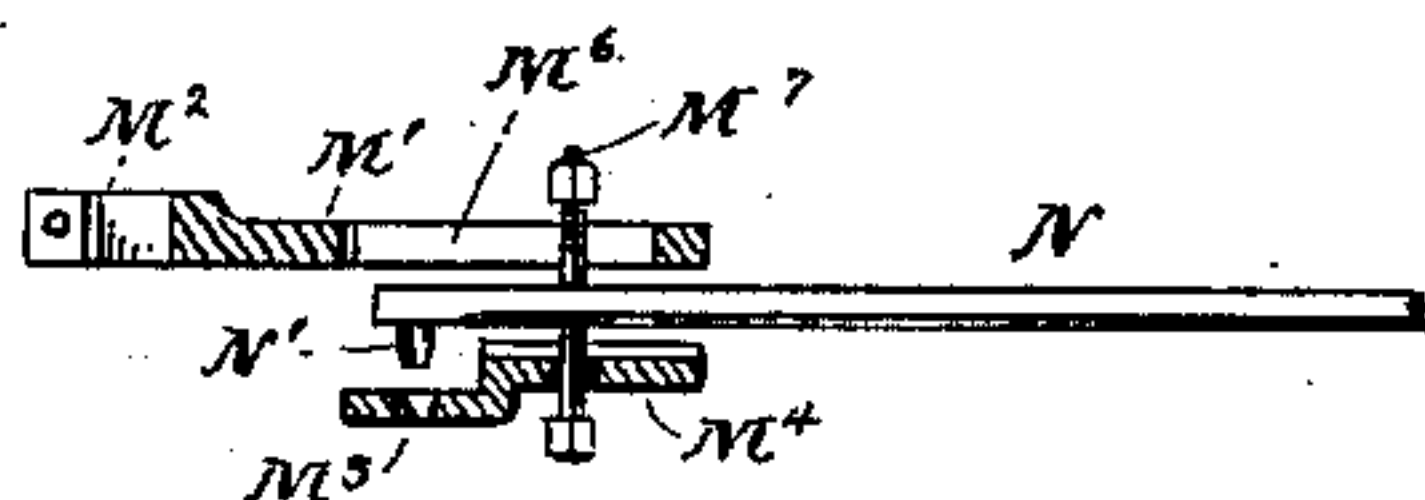


fig. 4.

Witnesses,

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# UNITED STATES PATENT OFFICE.

EDWARD M. HEYLMAN, OF PEORIA, ILLINOIS.

## CHECK-ROWER.

SPECIFICATION forming part of Letters Patent No. 353,452, dated November 30, 1886.

Application filed March 29, 1886. Serial No. 196,916. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD M. HEYLMAN, of Peoria, in the county of Peoria, State of Illinois, have invented an Improved Check-Rower; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention is in the line of check-rowers in which horizontally-swinging bifurcated levers pivoted to the extremities of a transverse beam fixed over the seed-boxes of a corn-planter communicate, when oscillated, an intermittent reciprocation to the feed-slide of the planter; and my invention pertains, mainly, to the construction of a new center movement to be actuated by the bifurcated levers.

In the accompanying drawings, Figure 1 is a perspective view of my center movement, together with one bifurcated lever and connections and a portion of the transverse beam and feed-slide; Fig. 2, a plan view of main body of the center movement, and Fig. 3 a sectional view of same at *xx* in Fig. 2; Fig. 4, a sectional view of modified crank-arm.

T represents the transverse beam, which is usually fixed to and over the seed-boxes of the corn-planter.

S represents the feed-slide, whose reciprocation actuates the seed-disks of these seed-boxes.

R is one of the cross-beams of the planter.

L is one of the bifurcated levers pivoted to the cross-head L' at one end of the transverse beam T. The lever G, centrally pivoted to the transverse beam T, is connected at its ends with the bifurcated levers L by means of the rods K, and said levers are adapted to oscillate the lever G, each independently of and not affecting the other, by the elongated hooks K', sliding loosely on the buttons G', formed on or cast as a part of the lever G. The points of said hooks K' can be connected to the body of each rod, if desired, forming a longitudinal slot for the play of the buttons G'; but I prefer the simpler hook form, as well over this as over the other arrangements for the same purpose—as, for instance, passing the rods K through holes in said buttons and having heads at the ends thereof.

The center movement consists of the V-cam A, having vertical shaft C, provided with the crank-arm M, connected with the feed-slide S.

Said V-cam is mounted in the case D, having the central passage, D', and inclines D<sup>2</sup> terminating abruptly at said passage, and the side walls of said case are concentric with the shaft C. The V-faces of the V-cam A terminate in the hooks B, although said hooks are not absolutely necessary, the object thereof being mainly the prevention of friction between the V-cam and case and the cam-operating finger hereinafter described.

Pivoted to the end of the lever G is the rod E, provided at its free end with a finger, E', usually given a friction-roller, designed for actuating the V-cam A.

From the crank-arm M, projecting from the lower end of the oscillating shaft C, extends the connecting-rod N to the adjusting-block S', secured to the feed-slide S, and pivoted to said block and to a fixed frame-beam, R, is the toggle-joint P, having the tension-spring P<sup>2</sup>, connected to the said joint and to some fixed point, as the offset-plate R'. This toggle-joint is so arranged that the three pivotal points thereof and the fixed point of attachment of the tension-spring form a curve convex toward the feed-slide S; hence when the feed-slide is moved the bar P of the toggle-joint pushes the bar P' against the tension of the spring P<sup>2</sup> about its pivotal point until past lining with said spring, when the latter by its tension forces the toggle-joint and the feed-slide into the opposite position. The force of the spring is sufficient to hold the feed-slide from any movement, except such given thereto by the check-rower mechanism, and therefore forms an effective lock for the feed-slide.

In the operation of my check-rower the oscillation of the bifurcated lever L at either end of the transverse beam T similarly moves the lever G. The finger E', advancing toward the V-cam A by the rod E, connected to said lever G, rolls along one of the V-faces B' until it meets the hook B, when the same is compelled to move with it to the end of its stroke. This part turn of the V-cam oscillates the shaft C and its crank-arm M, thereby giving one desired movement to the feed-slide S. The bifurcated lever L and lever G are then returned to their original positions by means of hereinafter-described springs, and the finger E' slides up on the incline D<sup>2</sup> to the abrupt termination



thereof, where said finger drops into the central passage, D'. By the part turn of the V-cam the V-point thereof is in line with the abrupt termination of the incline over which  
 5 said finger has just passed; hence at the next stroke of the bifurcated lever said finger E' is guided to the opposite face of the V-cam A, and is made to give thereto an opposite part turn to that previously described and the feed-  
 10 slide an opposite stroke.

The only object in having the inclines D<sup>2</sup> is to prevent the finger E' from by any means getting to the wrong side of the V-point of the cam, and the same could be dispensed with  
 15 without greatly impairing the working of the check-rower. Only when working upon rough and extremely uneven ground could there be danger of the finger E' engaging with the wrong face of the V-cam A when the inclines D<sup>2</sup> were  
 20 not employed.

The details of my invention which have not previously been described are as follows: To return the bifurcated lever L to its original position after its displacement by the knots of  
 25 the check-wire, I form the same with a cylindrical hub about which I wrap a cord or chain attached to the spiral spring J, suitably anchored. Previously to this arrangement it has been customary to connect the spring J to an  
 30 arm of the lever L; but by attaching the spring to a flexible connection enwrapping a cylindrical hub of the lever the tension on said spring is decreased without diminishing the effect there-  
 35 of on the lever. In the same way I form the lever G with a hub, G<sup>2</sup>, about which passes the chain J', connected to the spring J, anchored to the transverse beam T. Since the lever G is connected with the bifurcated lever by the rod K,  
 40 the bifurcated levers are usually not provided with said spring J, that on the lever G serving for both.

As shown in Fig. 2 and 3, the hub of the lever G and the bearing D<sup>4</sup> therefor are made with radial stop-shoulders G<sup>3</sup> D<sup>5</sup>, to keep said  
 45 lever from oscillations too far, or a greater distance than required. The lever L and the cross-heads L' are also furnished with similar stop-shoulders.

As shown in Fig. 1, the forward sheave L<sup>2</sup> is inclined downward outwardly, and the rear sheave L<sup>2</sup> is inclined downward inwardly, so that as the wire is in place in these sheaves it shall not slip therefrom. To further decrease such liability, I increase the diameters of the  
 50 upper flanges of said sheaves relative to the diameters of the lower flanges—that is, the flange L<sup>3</sup> is larger than the flange L<sup>4</sup> of each sheave.

As shown in Figs. 2 and 3, the case D and the bearing-plate D<sup>3</sup> of the lever G are rigidly connected by casting them integrally with the joining-web D<sup>2</sup>. The offset-finger F, cast with  
 60 said web D<sup>2</sup>, is designed to project over the rod E and keep the finger E' from jumping out  
 65 from the case D.

In the drawings, the central passage, D', is shown prolonged beyond the circular face of

the case D. I often, however, dispense with this extension, having such face unbroken. This requires the stroke of the rod E to be  
 70 shortened somewhat, but does not affect the workings thereof materially.

The lower end of the shaft C is supported in the bearing-bracket C<sup>2</sup>, bolted to the under side of the transverse beam T, and the crank-  
 75 arm M is secured to the end of said shaft by having the split socket M<sup>2</sup> compressed by the set-screw M<sup>3</sup>. The said crank-arm is lengthened or shortened to adjust the stroke of the feed-slide by forming said arm in the three  
 80 parts consisting of the arm M' proper, projecting rigidly from the socket M<sup>2</sup>, and the slotted sleeves M<sup>4</sup>, secured to said arm M' by a bolt passing through said slots, and having the rod N pivotally held at their outer ends.  
 85 To cheapen this crank-arm, I usually cast the sleeves M<sup>4</sup> with a vertical pin-hole at the end of each, and form the rod N with opposite lugs or pintles adapted to enter said pin-holes.

In Fig. 4 is shown a modified construction  
 90 of my crank-arm M. In place of the two sleeves above mentioned, I have a single sleeve, M<sup>4</sup>, having the pin-hole M<sup>5</sup> in an offset portion thereof, and provide the arm M' with the slot M<sup>6</sup>. The rod or pitman N, having a single  
 95 lug or pintle, N', entering said pin-hole, and the bolt M', clamping together the sleeve M<sup>4</sup> and the arm M', the pitman N is held with the required facility for changing its stroke.

I am aware that prior to my invention a rotating vertical shaft has been employed for  
 100 operating the feed-slide of a corn-planter; but I am not cognizant of the previous arranging of a vertical rocking or oscillating shaft having a crank-arm and pitman connection to the  
 105 feed-slide. This device for transmitting the oscillations of a center movement to the feed-slide is a very important invention, as it is an extremely cheap, simple, and durable means for doing the work desired.  
 110

If the finger F be made elastic and adapted to impress the rod E slightly, the said cam and case can be located in a vertical plane. In this position, however, the mechanism for enabling the cam to actuate the feed-slide would  
 115 have to be somewhat more complicated than the present, and on that account the position shown is preferable.

By having my lock connected directly to the feed-slide S whatever loss of motion there is  
 120 in the check-rower mechanism is not permitted to affect the slide, since in the last part of the stroke thereof the spring P<sup>2</sup> of the lock throws said feed-slide to its place, even ahead of the movement of the check-rower.  
 125

I am aware that prior to my invention check-rowers have been constructed in which a centrally-pivoted lever has been employed, with the connecting-rods from the bifurcated levers attached to its ends; hence I do not claim the  
 130 same, except in combination with such rods connected therewith in the manner shown.

What I claim as my invention, and for which I desire Letters Patent, is as follows, to wit:



1. In a check-rower, the combination, with the feed-slide, of the vertical oscillating shaft, the crank-arm projecting from said shaft, and the connecting-rod joining said crank-arm to said feed-slide, substantially as and for the purpose specified.

2. In a check-rower, the combination, with the feed-slide, of the vertical oscillating shaft, the crank-arm projecting from said shaft, a sleeve adjustably secured to said crank-arm, and the pitman connecting said sleeve and feed-slide, for the purpose set forth.

3. In a check-rower, the combination of the case D, the V-cam A, the shaft C, the crank-arm M, and the rod N, as and for the purpose specified.

4. In a lock for a reciprocating bar, the toggle-joint pivoted to said bar and a fixed point and having a tension-spring connected thereto and to another fixed point, substantially as and for the purpose specified.

5. The combination, with the feed-slide of a corn-planter, of the toggle-joint, the fixed offset-plate, and the tension-spring connecting said toggle-joint and offset-plate, as and for the purpose set forth.

6. The combination, with the bifurcated levers of a check-rower, of the centrally-pivoted lever G, rods connected to said levers and with said lever G, the rod E, having finger E', and pivoted to said lever G, the V-cam A, oscillated by the reciprocation of said finger, substantially as described, and means for actuating the feed-slide by said oscillations.

7. The combination, in a check-rower, of the bifurcated levers, the centrally-pivoted lever G, rods pivoted to said bifurcated levers and loosely connected to said lever G, the rod E,

connected to said lever G and having finger E', the V-cam A, the case D for said V-cam, the vertical shaft C, on which said V-cam is mounted, the crank-arm M, and the connecting-rod N, joining said crank-arm to the feed-slide of a corn-planter, substantially as set forth.

8. In a check-rower, the combination, with the V-cam, of the case D, plate D<sup>3</sup>, web D<sup>2</sup>, joining said case and plate, the finger F, projecting from said web, the stepped bearing D<sup>4</sup>, formed on the plate D<sup>3</sup>, and the lever G, having stepped hub G<sup>3</sup>, as and for the purposes set forth.

9. In a check-rower, the combination, with an oscillating lever having a cylindrical hub, of a tension-spring suitably anchored, and a flexible connection wrapped about said hub and joined to said spring, for the purpose set forth.

10. In a check-rower, the combination, with a bearing having stop-shoulders D<sup>5</sup>, of the oscillating lever having its hub provided with corresponding stop-shoulders, G<sup>3</sup>, as and for the purpose set forth.

11. In a check-rower, the combination, with the shaft, of the arm M', having split socket M<sup>2</sup> and a clamping-bolt, and the slot M<sup>6</sup> in said arm, the sleeve M<sup>4</sup>, having pin-hole M<sup>5</sup>, the rod N, having lug N', and a clamping-bolt, for the purpose specified.

In testimony that I claim the foregoing invention I have hereunto set my hand this 26th day of March, in the year 1886.

EDWARD M. HEYLMAN.

Witnesses:

H. W. WELLS,  
A. B. UPHAM.