

(No Model.)

2 Sheets—Sheet 1.

L. D. BENNER.

CHECK ROWER.

No. 388,013.

Patented Aug. 21, 1888.

FIG. 1.

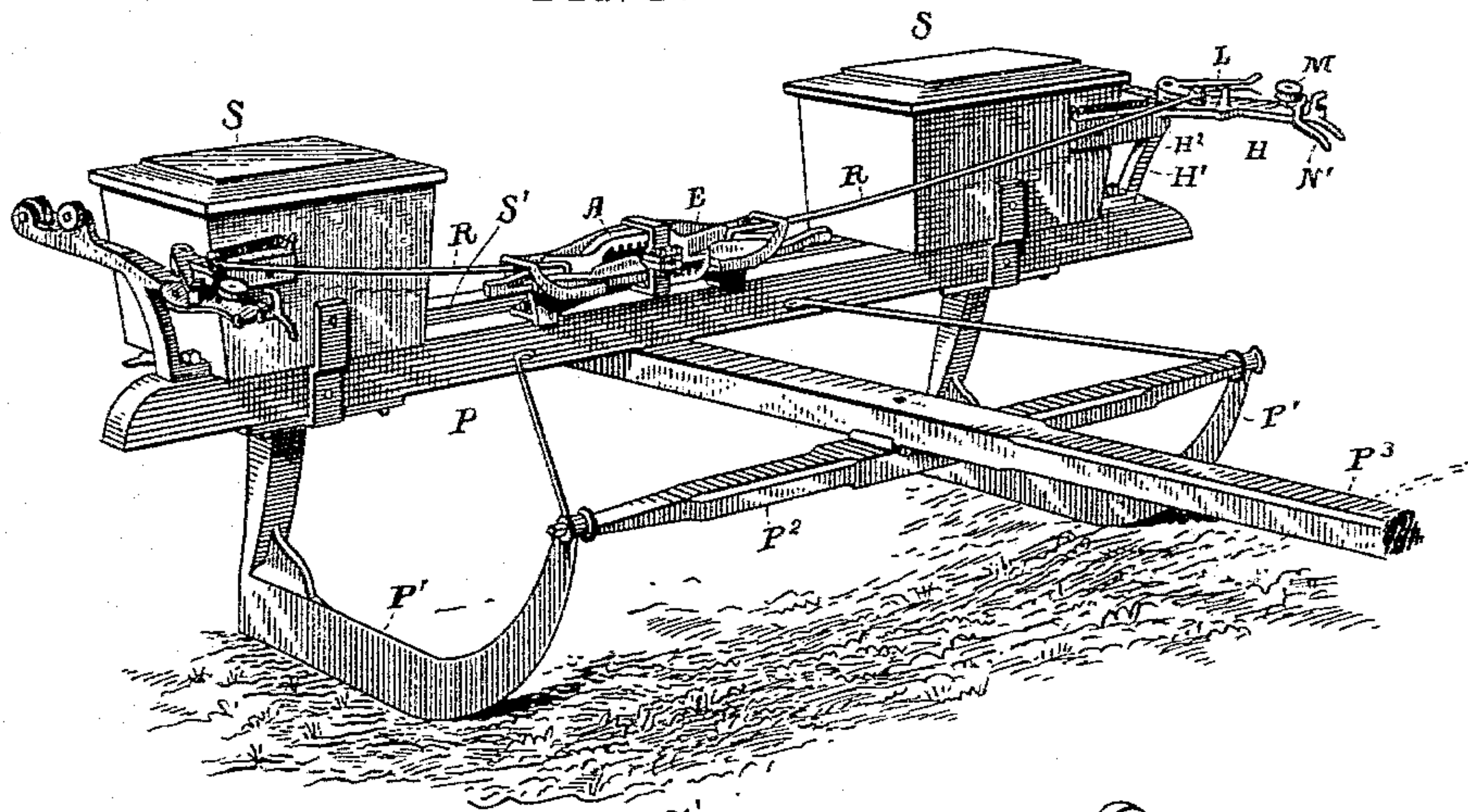


FIG. 5.

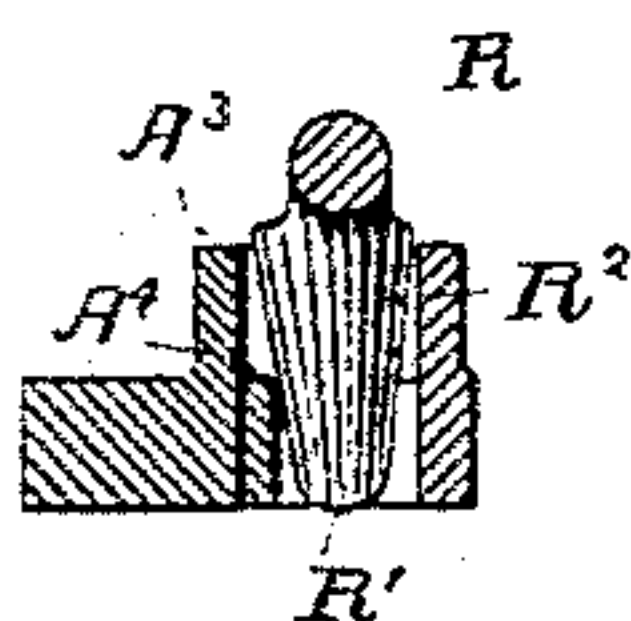


FIG. 2.

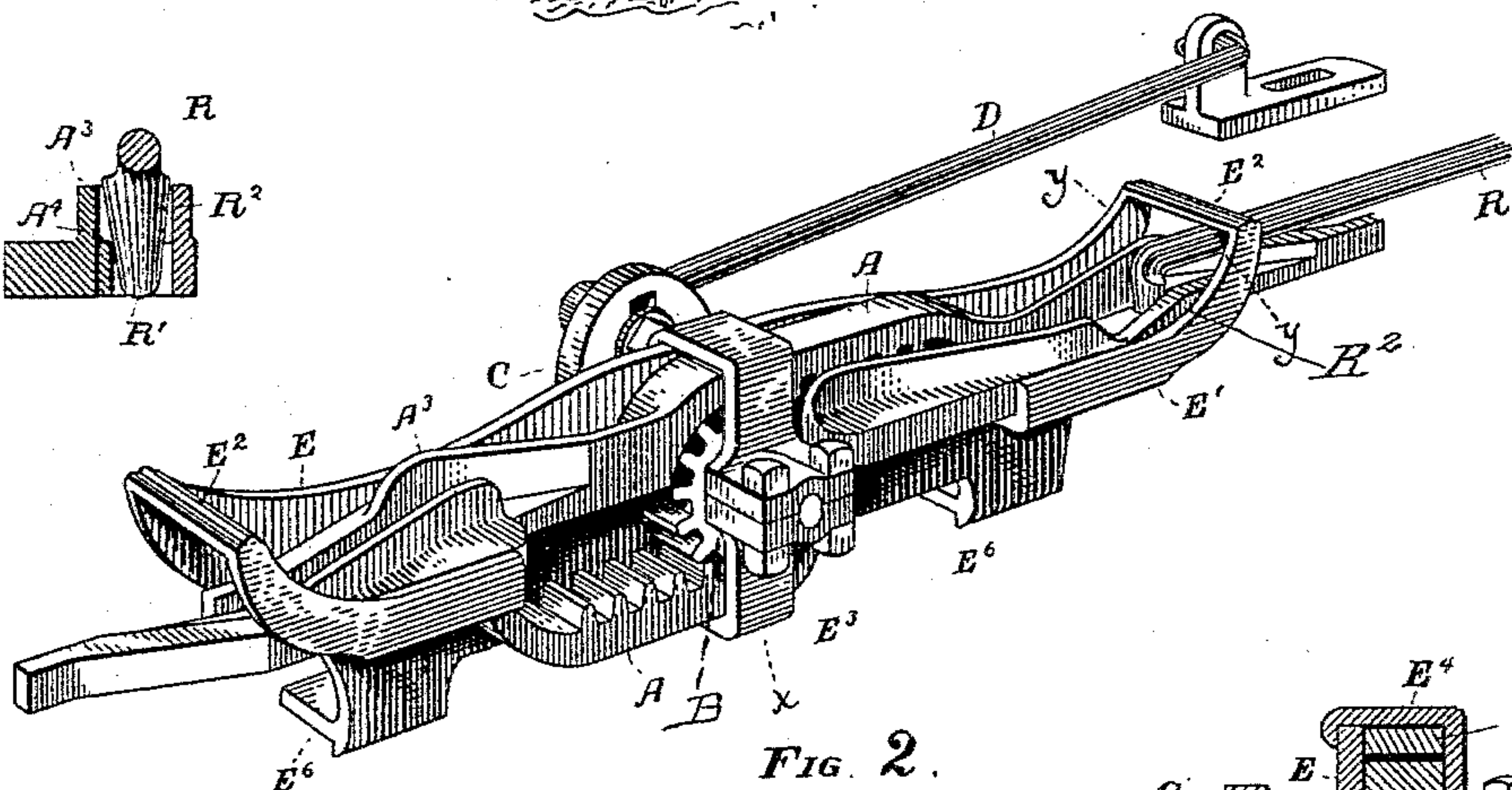


FIG. 4.

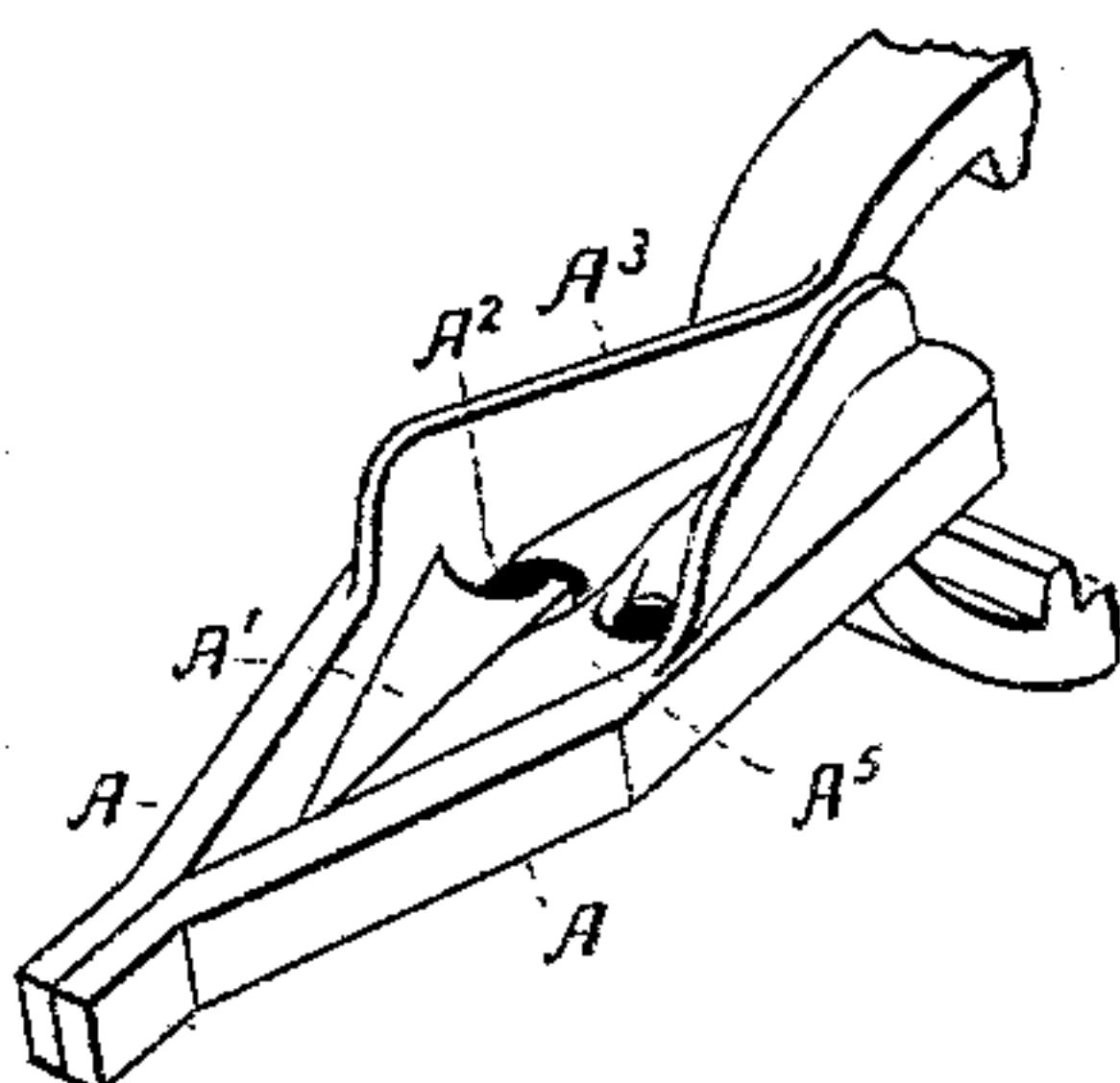
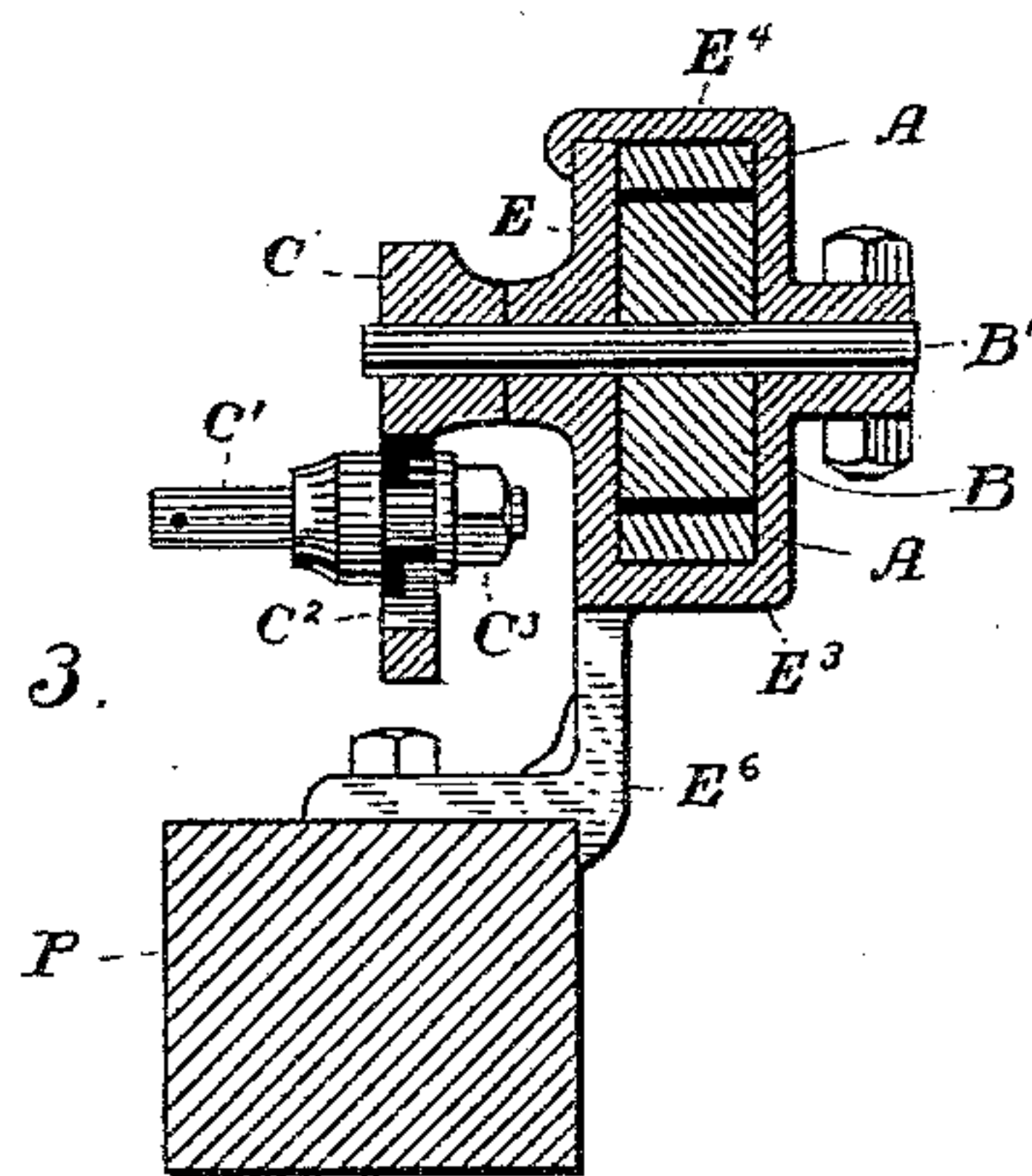


FIG. 3.



Witnesses,

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A. Keithley.

Inventor,

Lorenzo D. Benner,

A. B. Upham,
His Attorney.

(No Model.)

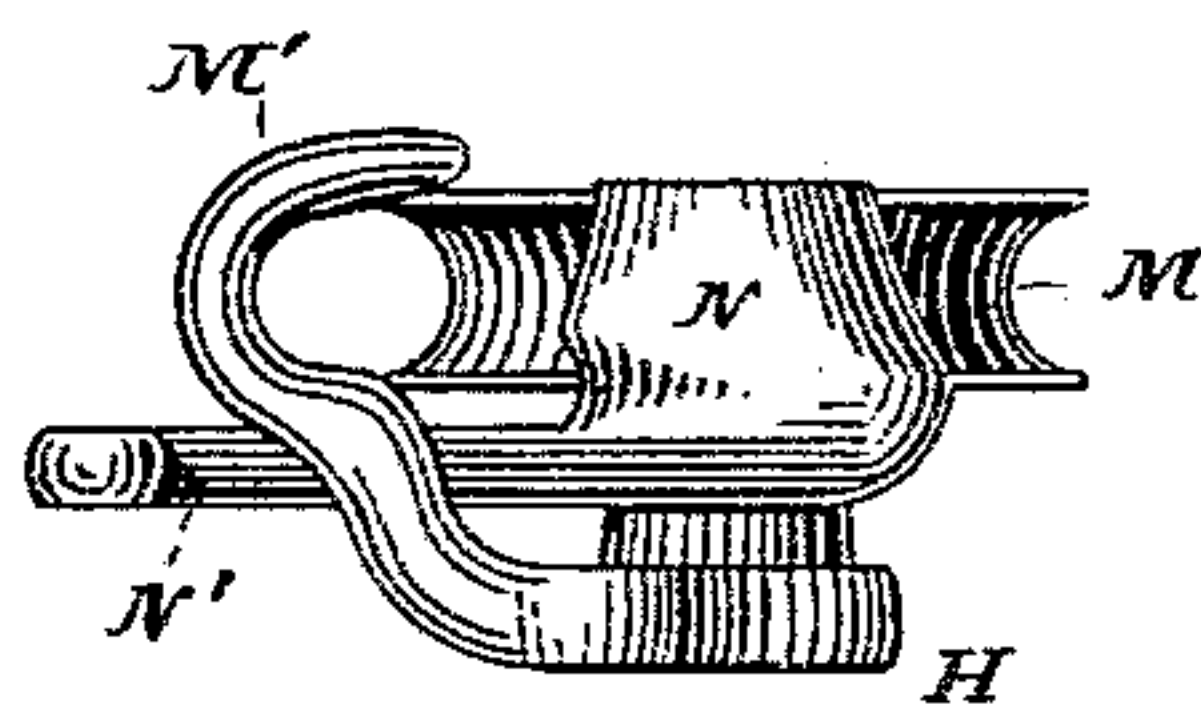
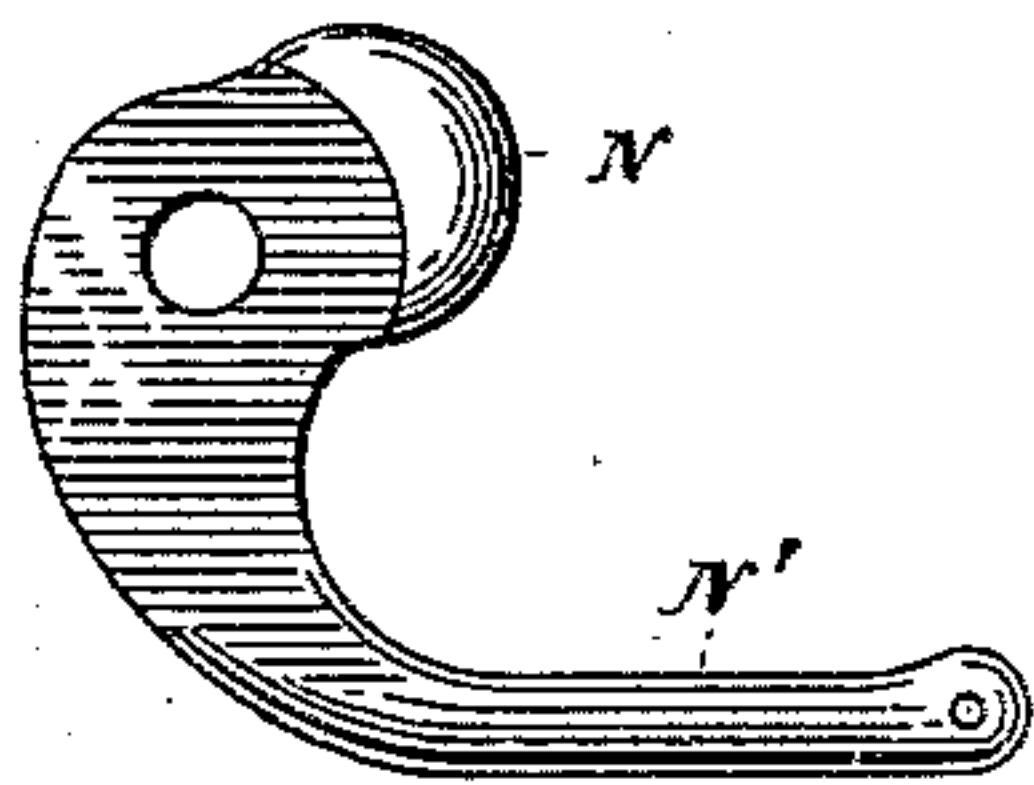
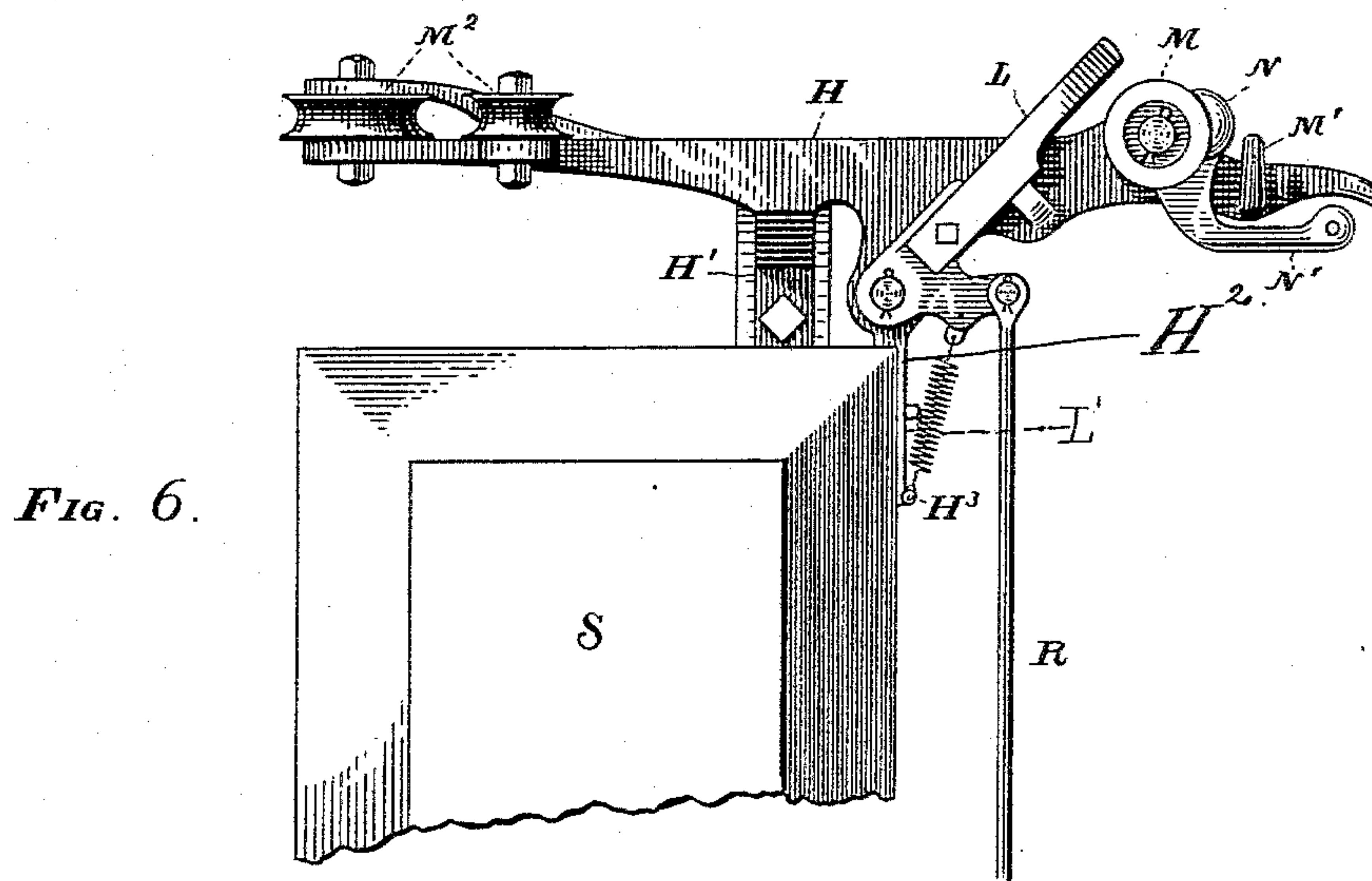
2 Sheets—Sheet 2.

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Inventor,

Lorenzo D. Benner,

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His Attorney

UNITED STATES PATENT OFFICE.

LORENZO D. BENNER, OF PEORIA, ILLINOIS.

CHECK-ROWER.

SPECIFICATION forming part of Letters Patent No. 388,013, dated August 21, 1888.

Application filed July 19, 1886. Serial No. 208,383. (No model.)

To all whom it may concern:

Be it known that I, LORENZO D. BENNER, of Peoria, in the county of Peoria, State of Illinois, have invented an Improved Check-
5 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 for corn-planters in which horizontally-
10 swinging bifurcated levers are adapted to engage, through the intervention of hooked rods, with a feed-slide-actuating center-movement, consisting of a pinion, a pitman passing therefrom to the feed-slide, and rack-bars inter-
15 meshing with said pinion.

The particular features of my invention pertain to improvements in the center-movement and in the heads to which the bifurcated levers are pivoted.

20 In check-rowers of the above-mentioned kind it has been customary to mount the same upon a transverse beam secured to the seed-boxes. This beam I dispense with and thereby simplify the machine, mounting the center-
25 movement of the check-rower upon the frame of the corn-planter, and securing the heads to the seed-boxes and to the frame.

My improvements in the center-movement consist, essentially, in the adaptation thereof
30 to enable the pinion and its shaft to be horizontal and the pitman therefrom to communicate directly with the feed-slide; secondly, to an improved means for causing the hooks of the rods connected to the bifurcated levers to
35 refrain from lodging upon the lateral edges of the engaging-holes in the rack-bars; third, to means for adjusting the stroke of the pitman, and, lastly, the arrangement of the center-movement frame to better enable its mounting
40 upon the planter-frame beams.

In improving the heads, to which are pivoted the bifurcated levers actuated by the knotted check-wire, I have adapted the same to be secured to the seed-boxes and frame sup-
45 porting them and have devised a new check-wire doffing device for disengaging said wire from the bifurcated levers and the supporting-sheaves.

50 In the drawings connected with this specification, Figure 1 is a perspective view of the seeding portion of a corn-planter provided with my improved check-rower. Fig. 2 is a

perspective view, on a larger scale, of the center-movement. Fig. 3 is a transverse section at X X in Fig. 2. Fig. 4 is a detail perspective
55 view of an end of the rack-bars at half-stroke. Fig. 5 is a transverse section at Y Y in Fig. 2 of the rack-bars and a hooked rod therein. Fig. 6 is a plan view of one of the heads of the check-rower. Fig. 7 is a view of the check-
60 wire doffing device, looking from the right-hand end of the head. Fig. 8 is a plan view of the doffer.

Referring to the drawings, the well-known parts of the planter consist of the frame-beams
65 P P², the runners P', secured to said beams, the seed-boxes S, mounted on the former of said beams, and the feed-slide S'.

The check-rower consists of the center-movement, in which A A are the rack-bars; B, the
70 pinion intermeshing therewith; D, the pitman connecting said pinion to the feed-slide S'.

H H are the heads, L the bifurcated levers, and R the hooked rods joining the said levers
75 and the center-movement.

My means for enabling the hooks of the rods R to engage alternately with the rack-bars A are substantially the same as that shown in previous patents to myself—viz., Nos. 321,077 and 321,943—and consist of the angular paths
80 A', having engaging holes or depressions A². Either hook R', being pushed toward the pinion B, passes from the hole A² of the rack-bar in which it is over to the hole or depression A² of the other rack-bar and engages there-
85 with, so that when retracted it pulls said rack-bar with it, and so gives the desired opposite reciprocation to the rack-bars and the semi-turn to the pinion B. Since gravity serves to impress the hooks R' into the holes
90 A² to have the pinion B and its shaft horizontal, the entire rack-bars, as shown in the patents aforesaid, cannot be turned the required
95 amount; hence I construct the rack-bars as shown in Fig. 2, having the rack portions thereof superimposed one above the other, but having the ends of the rack-bars located in the same horizontal plane.

To support the rack-bars and the pinion in the desired position, the frame-plate E is
100 formed with the horizontal shelves E' projecting from it, the edges of which shelves are provided with upwardly-extending rims prolonged to meet the bridges E². The rack-bars

A are further kept in place by means of the strap, the lower part, E^3 , of which is cast integral with the plate E, and the upper part, E^4 , of which is secured to said lower part by means of screws or bolts, and is held to the plate E by having a hook edge engaging with the upper edge of said plate, as in Fig. 3. The united portion of said strap is adapted to be a bearing for the shaft B' of the pinion B, the opposite end of said shaft having bearing in the plate E, and being provided with the radially slotted disk C. In said slot C^2 is adjustably fastened the pitman-pin C' by means of a nut, C^3 . This radial adjustability of said pin enables the stroke given to the feed-slide to be varied to suit different makes of planters. Instead of the completed strap, more or less of the parts E^3 E^4 can be dispensed with, sufficient thereof being retained to engage with the edges of the rack-bars A, and so keep the latter from angular deflection. In this case the part E^4 of the strap would be cast integral with the plate E. From the lower edge of the plate E project the elbows E^6 , by means of which to firmly bolt the plate to the frame-beam P.

In further improving my center-movement I form the vertical rims A^3 along the inner half of the edges of the angular paths A' , so that the hooks R' shall be thereby prevented from springing from said paths. This is partially accomplished by the bridges E^2 aforesaid; but it remains for said rims to effectually keep said hooks in the paths.

There are two ways in which the hook R' can lodge upon the low side wall of a hole, A^2 , although the same is quite unlikely; but I wish to make my check-rower perfect by guarding against such possibility. The first of said ways is when the rack-bars A are at their extreme of stroke. Should, now, the hook rest upon the wall A^4 , Fig. 5, said hook would, by thus failing to enter the hole A^2 , not engage with the rack-bar, and when retracted would omit to move the rack-bars, and so cause the planter to miss dropping the corn at that point. To overcome this difficulty, I form on the hook R' the lateral projections R^2 , which, coming in contact with the wall A^3 at the side of said low wall A^4 , force the point of the hook away from said low wall and into the hole A^2 . Said lateral projections R^2 , I prefer to make tapering downward, as shown in Fig. 5.

The second way in which the hook R' might lodge upon the side walls, instead of entering the holes A^2 , is when the two rack-bars should happen to be left at half-stroke, as shown in Fig. 4. In this case the hook might slide along upon the two adjacent low walls A^3 , and thereby keep the same from entering either hole A^2 and cause the check-rower to miss a stroke or two. To prevent such failure, I depress said walls, gently rounding one thereof and forming a vertical shoulder, A^5 , in the other. Hence, should the rack-bars A be left at a half-stroke and the hook R' slide back upon the walls A^4 ,

said hook would engage with said shoulder A^5 and move the rack-bars to their extremity of stroke.

Fig. 4 shows but one end of the rack-bars; but the other extremity thereof is formed in the same way.

To enable the heads H to be secured to the planter, I usually form the same with the arms H' H^2 , the arm H' of each head being bolted to the outer extremity of the beam P and the arm H^2 to the seed-box S.

The bifurcated lever L is retracted after its movement by the check-wire by means of the spring L' , connected to the short arm of the lever and to a lug, H^3 , on the arm H^2 of the head. The check-wire is guided to and from the lever L by means of the sheaves M M^2 and the lug M' . To disengage the wire from these sheaves and lug, I provide the finger N, pivoted concentric with the sheave M and projecting up beside the same. By swinging said finger strongly against the wire the latter is forced from the groove in the sheave M, and being thus out slides up and over said sheave and so away from the head. To make the upward sliding of the wire more sure, the face of the finger can be curved or tapered somewhat, as indicated in Fig. 7. In the drawings I have represented the finger N as pivoted between the sheave M and the head H upon the bearing-pin thereof, but I do not restrict myself thereto, as the same can be pivoted below the head and the finger made to extend therefrom with the required bend to the desired place; or the finger can be adapted to be swung in a vertical plane beside the sheave to force the wire out from the groove thereof, the essence of my invention being a movable finger adapted to force the check-wire out from the sheave's groove and thence up over and away from the same.

To operate the fingers shown in the drawings, an arm, N' , projects rigidly from the same and at such an angle as permits the swing thereof by means of a cord connected thereto and extending toward the driver's seat.

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 pinion having horizontal axis, of the rack-bars having the rack portions thereof located above and below the pinion, but their hook-engaging ends located side by side and in the same horizontal plane, and the hooked rods R, which engage with and move said bars, substantially as described.

2. In a check-rower, the combination, with the rack-bars and the intermeshing pinion, of the radially-slotted disk connected to said pinion, the pin adjustably held in said slot, and the pitman joining said pin directly to the planter feed-slide, substantially as described.

3. In a check-rower, the combination of the rack-bars and the rack-bar support consisting of the plate adapted to be secured to one of the frame-beams formed with the shelves E' , upon which rest the rack-bars, and the encircling

strap portion having the detachable part E⁴, substantially as described.

4. In a check-rower, the combination of the rack-bars, the pinion mounted on a shaft, B',
5 turned by the racks, the support E for the rack-bars, having an upturned plate in which one end of the shaft is supported, the shelves E', upon which the bars slide and are supported, and the divided separable strap E³ E⁴, between
10 which the other end of the shaft has a bearing, substantially as described.

5. In a check-rower, the combination, with the reciprocating bars having the angular paths therein, of the rod R, having the hook R',
15 provided with the lateral projections R², as and for the purpose set forth.

6. In a check-rower, the combination, with the hooked rod, of the reciprocating bars having the paths A' and the holes A² therein, the
20 contiguous walls A¹ of which are depressed,

one with a rounded surface and the other with the shoulder A⁵, for the purpose described.

7. The combination, with the check-rower head having the sheave M, of a doffing-finger connected to the head and adapted when forced
25 bly moved to force the check-row wire out from the groove of said sheave, for the purpose specified.

8. The combination, with the check-rower head having the sheave M, of the doffing-finger
30 N, pivoted concentric with said sheave and projecting up by the periphery of the sheave and provided with the handle N'.

In testimony that I claim the foregoing invention I have hereunto set my hand and seal
35 this 10th day of July, in the year 1886.

LORENZO D. BENNER. [L. S.]

Witnesses:

GUSTAV A. KLEENE,
P. F. HARMON.