

W. F. COCHRANE.
Mowing-Machines.

No. 157,794.

Patented Dec. 15, 1874.

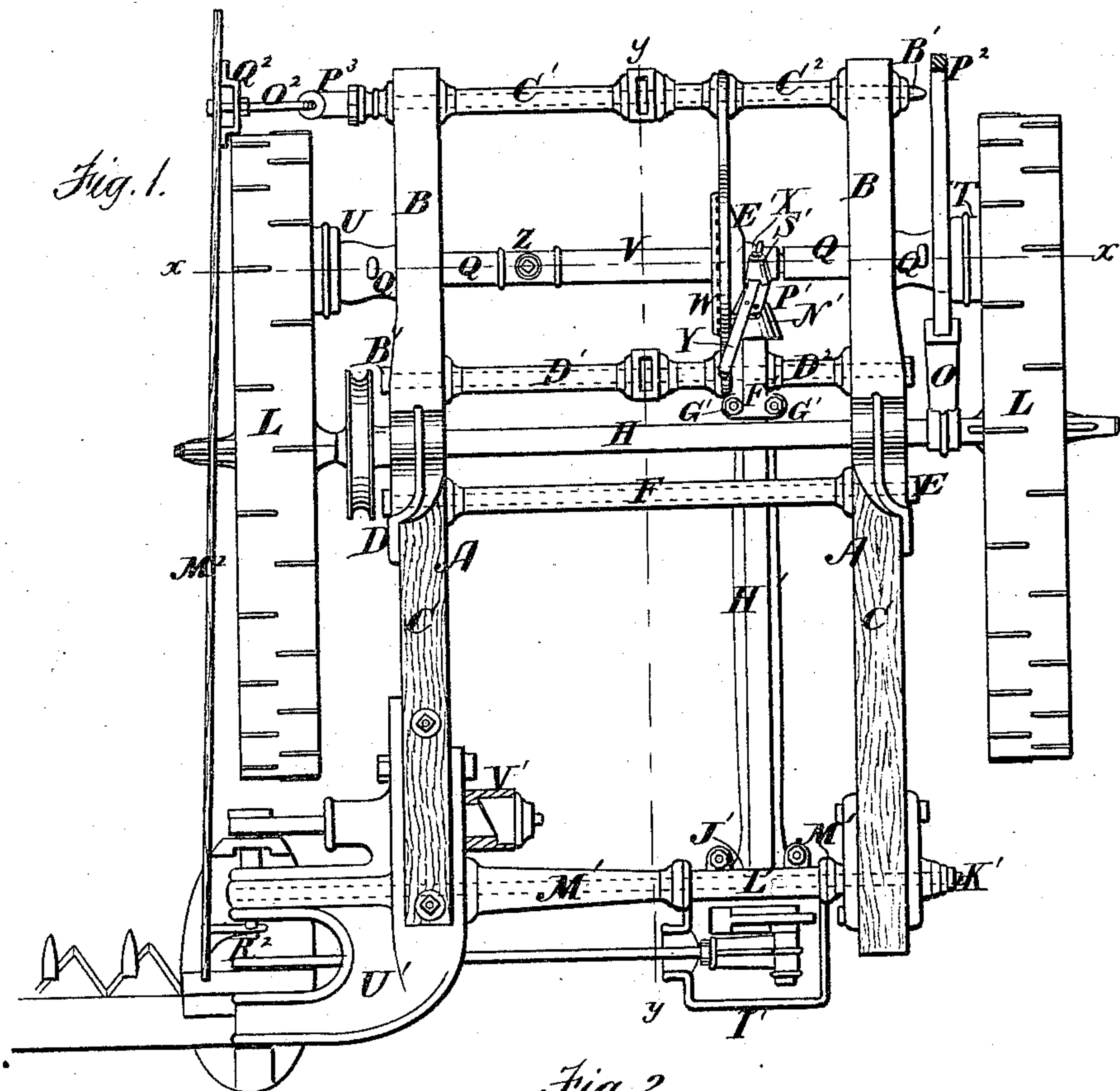


Fig. 2.

Fig. 5.

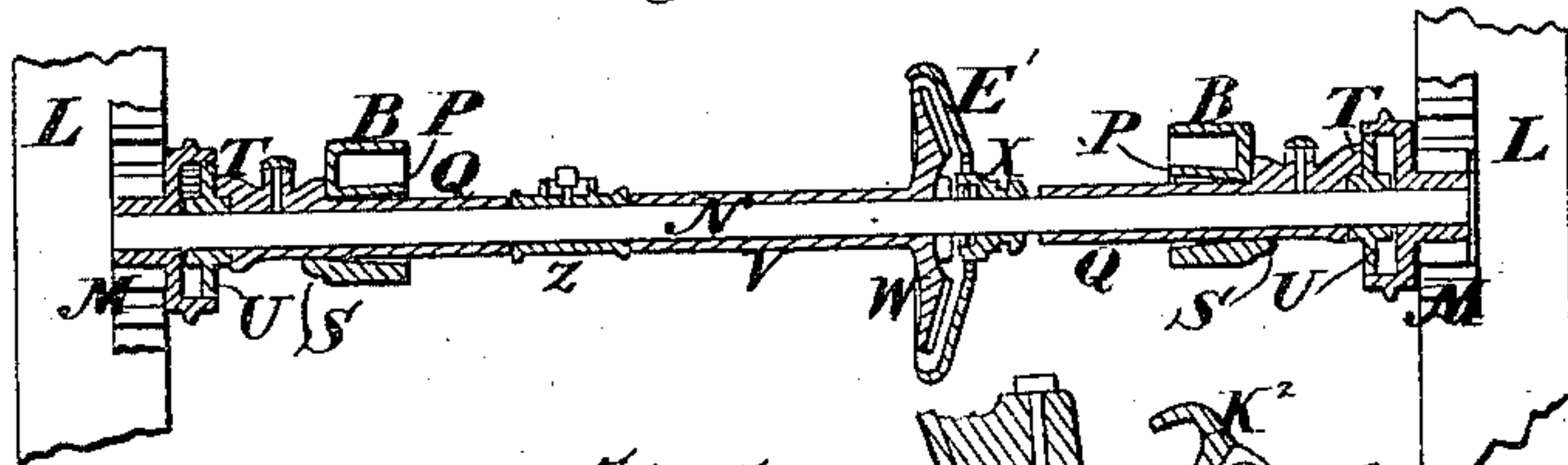
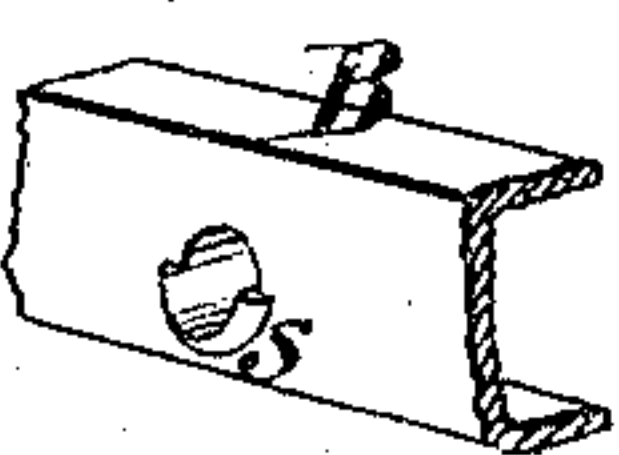


Fig. 3.

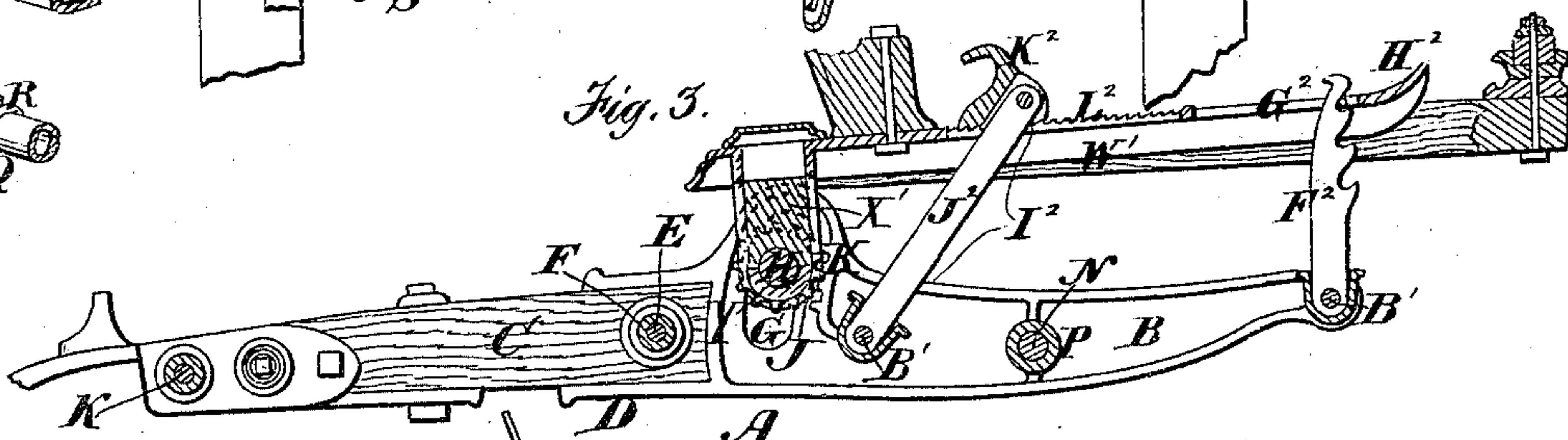


Fig. 4.

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Fig. 6.

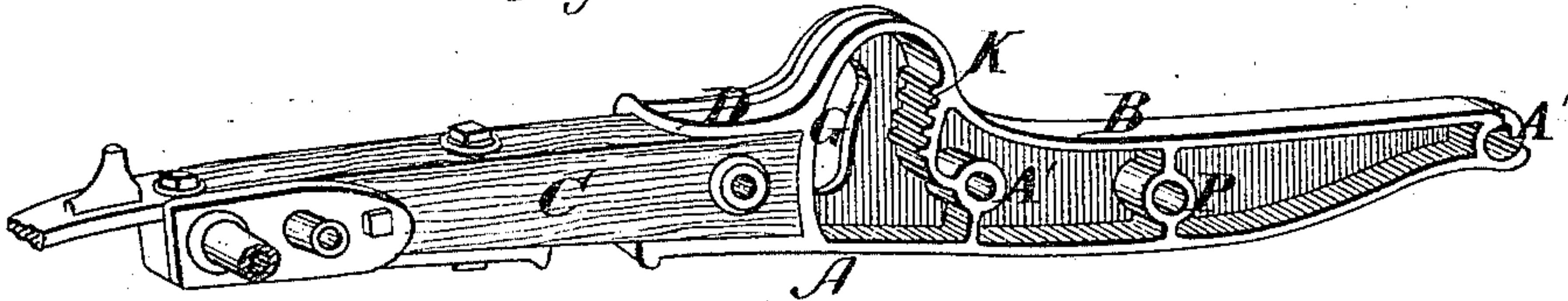


Fig. 7.

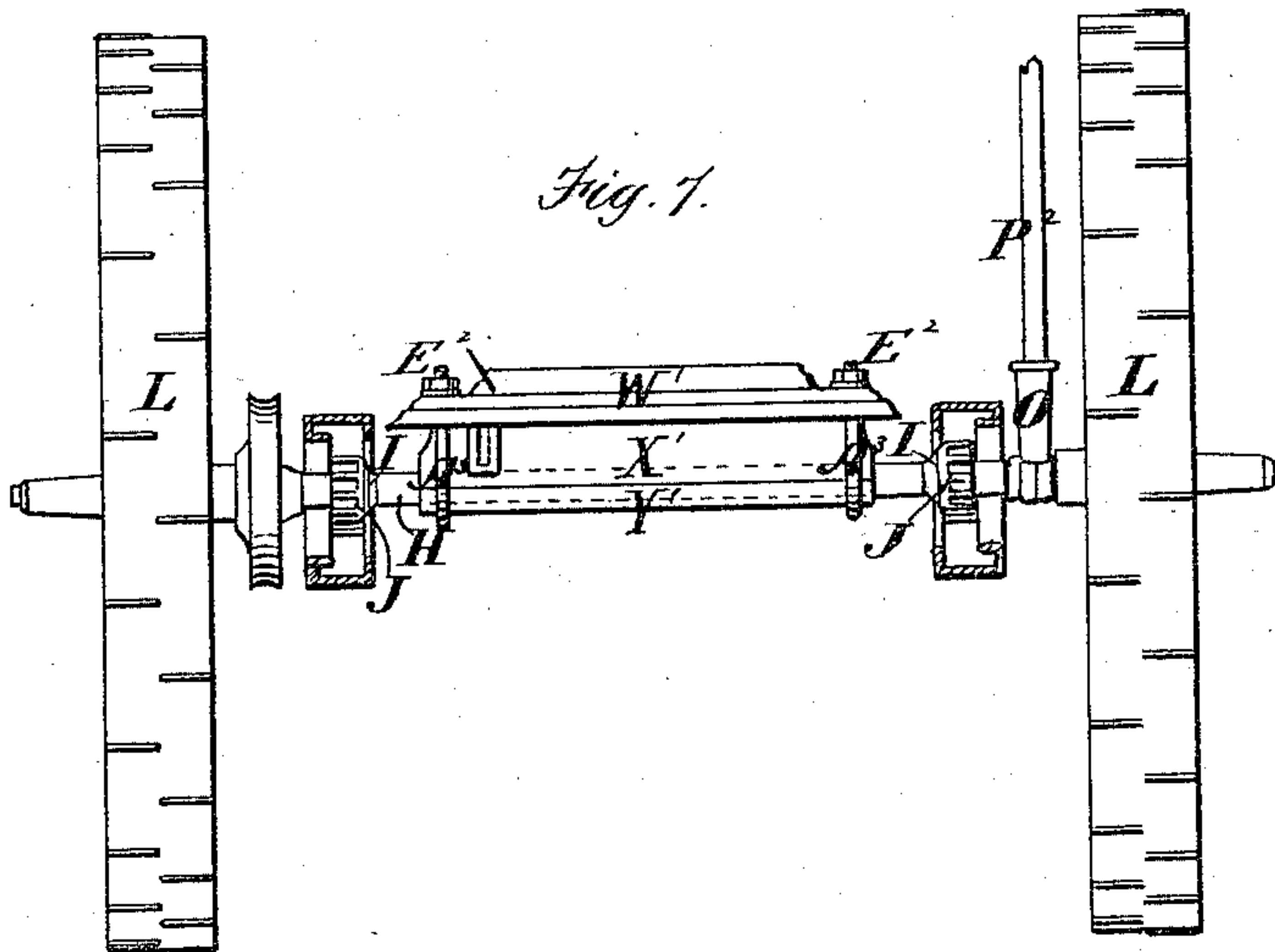
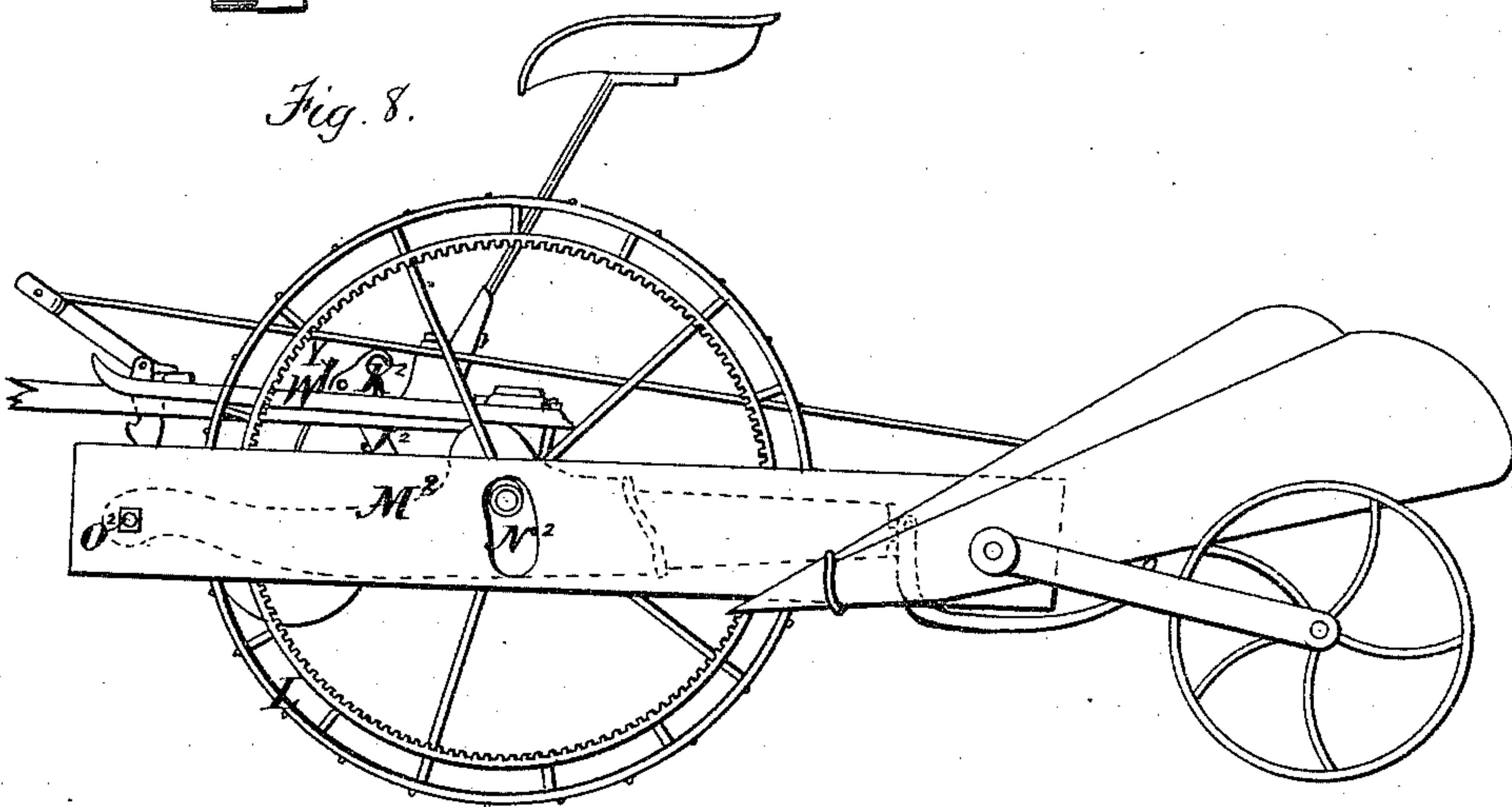


Fig. 8.



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WILLIAM F. COCHRANE, OF LA FAYETTE, INDIANA.

IMPROVEMENT IN MOWING-MACHINES.

Specification forming part of Letters Patent No. **157,794**, dated December 15, 1874; application filed December 15, 1873.

CASE C.

To all whom it may concern:

Be it known that I, WILLIAM F. COCHRANE, of LaFayette, in the county of Tippecanoe and State of Indiana, have invented a new and Improved Frame for Harvesting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1, Sheet 1, is a plan view of the main frame. Fig. 2, Sheet 1, is a transverse section taken in the plane of the line *x x*, Fig. 1. Fig. 3, Sheet 1, is a longitudinal section of the frame, parts being shown in elevation. Fig. 4, Sheet 1, is a view of the guards for the driving gear and pinion, and their connections. Fig. 5, Sheet 1, shows detached views of the rocking pipe-box, and one of the side pieces of the frame. Fig. 6, Sheet 2, is a perspective view of one of the side pieces of the frame. Fig. 7, Sheet 2, is a rear elevation of the main axle and driving-wheels, showing the method of connecting the foot-board to the former, together with the pinions for raising and lowering the frame; and Fig. 8, Sheet 2, is an inner side elevation of the machine, showing the position of the grain-board.

Similar letters of reference in the accompanying drawings denote the same parts.

My invention has for its object to improve the construction of harvesting-machine frames, for the purpose of making them more compact and substantial; to simplify and facilitate the setting up or putting together of the machine, and to so distribute the weight about the main axle and between the driving-wheels as to render the adjustment and movements of the frame light and easy.

To these ends the invention consists, first, in constructing the side pieces of the frame in two parts, one of wood and the other of metal, the latter being cast with sockets to receive the former in continuation of their length, and with vertical segmental slots, through which the axle of the machine extends, and by which the side pieces are allowed a vertical movement independently of the axle to adjust the position of the frame. It also consists in providing the frame with conical sockets, into

which the pipe or journal boxes of the counter-shaft can be readily inserted to facilitate the setting up or fitting the parts of the frame together. It also consists in the construction of the pipe-boxes, and their connection with the side pieces, to prevent them from rotating in the conical sockets. It also consists in constructing the pipe-boxes with overhanging outer ends, to form sand-washers for the joints between such ends and the pawl-plates of the driving-pinions. It also consists in the method of connecting the sides of the frame by through-bolts and tubular columns thereon, and in locking the two parts of each side piece together. It also consists in the method of securing the sides of the main frame together at their rear ends, and of connecting the pitman-shaft pipe-box to the frame.

In two applications for Letters Patent, filed simultaneously herewith, to wit, applications A and B, I have shown the general features of the harvester-frame; but in neither case have I claimed the construction of such frame, nor do I intend to, as it forms the subject of the present application. The general form of the main frame is rectangular, and is constructed in the following manner:

A A are the side pieces, each composed of two parts, B C, the former of metal and the latter of wood. The part B is cast in the form of a shell, open upon its inner face, and with a longitudinal socket, D, at its rear end to receive the end of the timber C. The two timbers are secured within the sockets by the through-bolt E, which, in connection with the flanged column F, mounted thereon between such timbers, assists in holding the two side pieces of the frame together. The parts B are expanded vertically near the sockets D, and have segmental slots G formed in them of the proper width to receive the main axle H of the machine, the side pieces being passed over the ends of the axle and abutted against collars I keyed thereto. These collars serve to hold the side pieces against lateral displacement when the frame is bolted together, and they are each cast with a pinion, J, projecting within the segmental slots G of the side pieces, to engage with curved racks K cast upon the short arc of such slots. L L are the main

driving and supporting wheels, mounted upon opposite ends of the axle outside the frame, so as to revolve independently of each other, and M M are the driving-pinions on the counter-shaft N, meshing into the internal gear-rims of the driving-wheels in the usual manner. O is the socket of a hand-lever, P², keyed to the axle between the frame and outer driving wheel, as shown. By operating this lever the axle is rocked or rotated to raise and lower the frame thereon through the medium of the segmental racks and pinions. P are conical sockets, cast upon the side pieces B of the frame to receive the pipe-boxes Q, forming the journal-bearings of the counter-shaft. These pipe-boxes are each cast with a gib, R, bearing laterally against the outside of the frame-piece B, and vertically upon the ends of a semi-annular gib, S, cast upon such frame-piece. The two gibs prevent the pipe-box from turning in the socket, and form a divided flange or rim, as shown. The pipe-boxes are also made each with a flange, T, upon its outer end, to project over the joint between it and the pawl-plate U of the driving-pinions, and form a sort of sand-washer for excluding the dirt from such joint. The sockets P are made somewhat conical to receive the pipe-boxes, so that, in putting the machine together, it is only necessary to insert the boxes in the sockets, without special fitting or manipulation, when the counter-shaft will readily align itself. The conical sockets greatly facilitate the setting up of the machine. W is the beveled gear-wheel, fitted upon the counter-shaft so that the latter shall turn freely within it when uncoupled, and it is cast with a long tubular hub, V, on one side and a half-clutch on the other. X is the sliding clutch, operated by a shipping-lever, Y, to couple and uncouple the counter-shaft and gear-wheel. The outer end of the tubular hub bears against a collar, Z, on the counter-shaft to hold the gear-wheel engaged with the beveled pinion on the pitman-shaft, and the collar is made adjustable by a set-screw to regulate the depth of gear. The side pieces B are further cast upon their proximate faces with two sockets, A¹, one at the front end and the other at the base of the segmental racks, with which they are connected. The sockets A¹ serve for the support of the through-bolts B' B', by which the side pieces are fastened together, and also as abutments for the tubular columns C¹ C² and D¹ D² upon the bolts. The several through-bolts are set up by nuts upon one or both ends of each, outside the frame, for the purpose of clamping the latter together. E¹ is the guard for the face of the gear-wheel, formed with an opening in the center for the passage of the sliding clutch, and fitted at each end upon the bolts B' B', which pass through them. The front end of the guard is clamped between the tubular columns C¹ C², and its rear end between the tubular column D¹ and a half-box, F¹, fitted upon the through-bolt between the columns D¹ D², said half-box being bolted to

the upper end of the pitman-shaft pipe-box H¹. The lower end of the pipe-box H¹ is cast with a crank-shield, I¹, projecting under and to the rear of the eye or tie bolt K¹, which passes from one of the pivots of the bracket U' through the outer side piece of the frame, as shown by dotted lines in Fig. 1.

The front side of the shield or the point of its juncture with the pitman-box is raised above the remaining portion to form the transverse half-box J¹, fitting the under side of the eyebolt. A half upper box, L¹, bolted to the lower half-box, holds the pitman-shaft box upon the through-bolt K¹, while the columns M¹ upon the through-bolt clamp the pipe-box between them against lateral displacement. U' is the bracket for supporting the hinged cutter and finger bars from the rear end of the frame, and V' is the lifting-cam for raising and lowering the outer ends of said bars. The method of holding the rear end of the frame together for the support of the bracket, and the construction of the supporting-bracket and lifting-cams, I do not claim in this case, as they form the subject of my application B. N¹ is a shield, bolted to the face of the guard E¹, as shown, for protecting the beveled pinion O¹ upon the pitman-shaft, and P¹ is a lateral plate cast upon the side of the shield E¹ for locking the clutch-lever Y in place. The lever is pivoted at the lower end of the plate, and is provided with holes near its upper end to receive the locking-pin of such lever, as shown. S' is a conical socket placed upon the pivot of the clutch-lever, and recessed or notched at its base for the necessary throw of the lever. A spiral spring, T', surrounds the pivot within the socket, and presses the lever against the plate, when the clutch is thrown in or out of gear for the purpose of holding the lever and clutch against lateral displacement, or displacement by the jar of the machine. W' is the foot-board or tongue-bracket, cast in the general form shown, with a transverse half-box, X', along its rear under surface to fit upon the main axle of the machine. Y' is a second half-box, fitting under said axle, and secured to the half-box X' by means of the stirrups A³ embracing the half-boxes, and passing up through the foot-board to receive the holding-nuts E². This construction allows the foot-board to project forward from the axle, while the latter is free to rotate or rock within the box. The foot-board carries the driver's seat and draft-pole, and is cast with an opening near one side, through which the clutch-lever Y projects within reach of the driver. F² is a notched detent, pivoted to the front through-bolt of the frame, so as to extend upward through a slot, G², in the foot-board, where it engages with a cross-pin, H², for the purpose of holding the main frame down at the forward end, so that the cutting mechanism shall be raised to the proper position when the machine is set up as a grain-harvester. The detent is not employed when the machine is operated as a mower. I² is

the traction-latch, composed of a bar, J^2 , pivoted at its lower end to one of the through-bolts of the frame between the main axle and driving-gear, and extending upward through a longitudinal slot in the foot-board, where it is pivoted to a clutch-block, K^2 , adapted to engage with teeth L^2 , surrounding the slot in the foot-board. The traction-latch supports the main frame at a point between the gear-center and main axle, and, by rocking the latter, through the operation of the hand-lever P^2 , the frame is raised and lowered, so that the traction-latch shall be adjusted forward and back in the rack L^2 , for the purpose of raising and lowering the cutting apparatus, and regulating its position with respect to the ground, as well as to restore the weight from the cutter-bar to the main frame between the driving-wheels. The traction-latch and its functions, as well as the adjustable detent, I do not claim herein, as I have made them the subject of my application A.

M^2 is a guard-board or shield to keep the grain out of the inner driving-wheel, and extends from the inner shoe of the cutter-bar to the front of the main frame. It passes outside the driving-wheel, and is provided with a segmental slot, N^2 , through which the hub of such wheel projects. This slot corresponds with the segmental slots in the frame, so that when the frame is raised and lowered the guard shall move with it. A right-angular bolt, O^2 , passes through the front end of the guard, and fits within a socket, P^3 , secured to the side of the frame, or formed upon the head of the front through-bolt, for the purpose of holding the forward end of the guard in place. A bracket, Q^2 , bolted to the inner face of the guard for the passage of the bolt O^2 , holds the guard from tipping laterally, and affords a bearing for it to turn upon when the frame is raised and lowered. The rear end of the guard is pivoted to the inner shoe of the finger-bar, so that it shall be held in an upright position, being provided with a bracket, R^2 , the arm of which fits upon one of the pivots connecting the finger-bar to the bracket of the frame.

Having thus described my invention, what I claim as new is—

1. The metal parts of the side pieces, cast with longitudinal sockets at their rear ends to receive the wooden parts, substantially as described.

2. The main frame of the harvester, the side pieces of which are composed of the wooden parts C, fitting the sockets in the ends of the parts B, such side pieces being secured together and braced the requisite distance apart by the through-bolts and columns thereon, the central bolt and column also serving to lock the metal and wooden parts together, substantially as described.

3. The combination of the pipe-boxes Q of the counter-shaft with the conical sockets P, cast in the side pieces of the frame, for the purpose of facilitating the setting up of the machine, substantially as described.

4. The pipe-boxes for the counter-shaft, cast with the gib R, and inserted in the conical sockets P, so that the gib shall bear upon a similar gib, S, cast upon the side piece of the main frame, for the purpose of preventing such boxes from rotating in the sockets, substantially as described.

5. The pipe-boxes of the counter-shaft cast with a gib, R, to engage with a projection on the frame, to prevent the said boxes from turning, and with a projecting flange, T, to form a sand-washer for the pawl-plate of the driving-pinion, substantially as described.

6. The guard for the face of the gear-wheel W, clamped in place at its forward end between the tubular columns C^1 C^2 of the front through-bolt B' , and at its rear end between the tubular columns D^1 and half-boxes F^1 on the second through-bolt, substantially as described.

7. The pitman-shaft pipe-box, cast at its front end with ears, and at its back end with the shield I^1 , and transverse half-box J^1 in front of and above the shield, so that the pipe-box shall be supported in position by the bolts K^1 B' , substantially as described.

WM. F. COCHRANE.

Witnesses:

MELVILLE CHURCH,
N. K. ELLSWORTH.