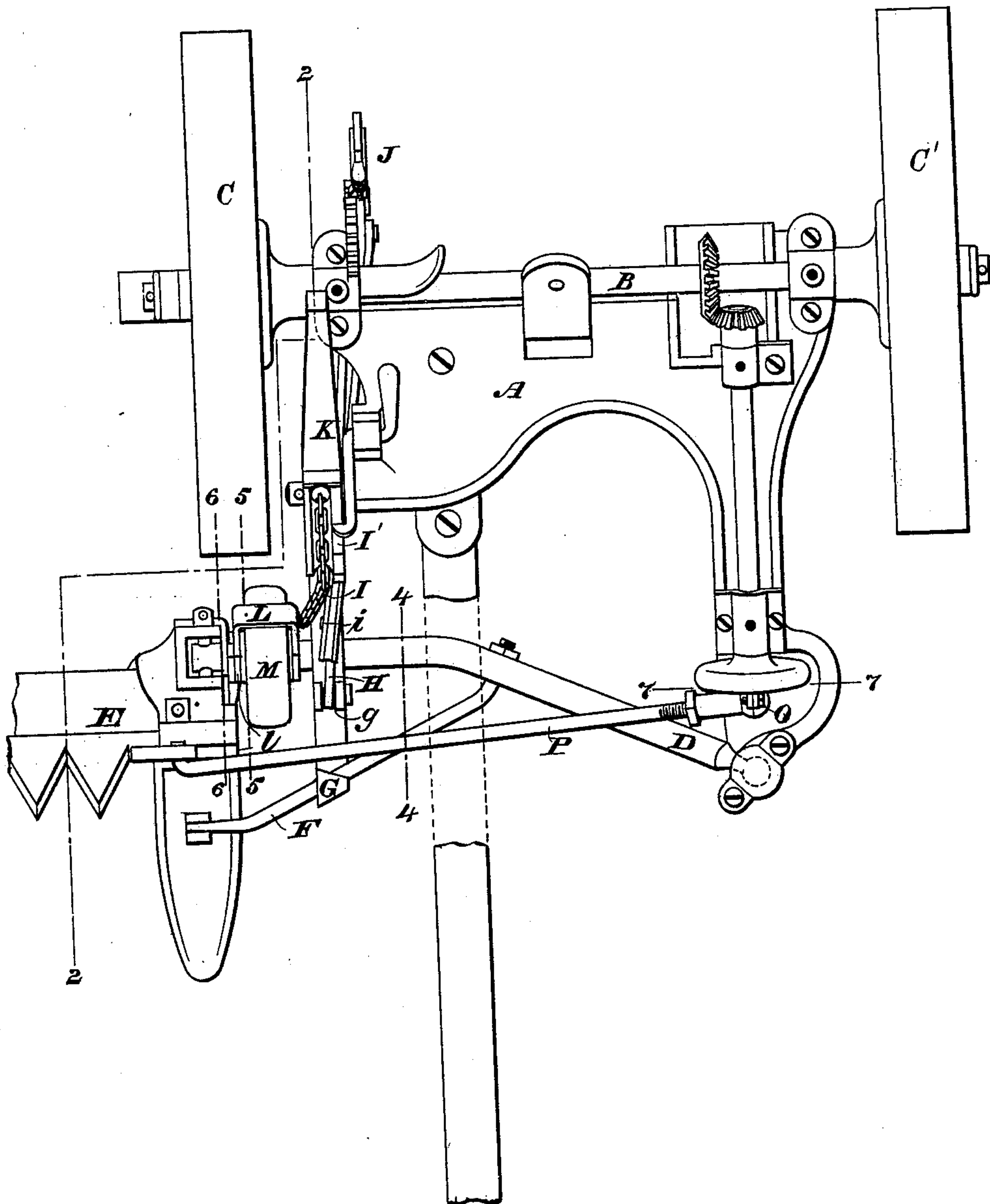


F. BRAMER.
Mower.

No. 220,796.

Patented Oct. 21, 1879.

Fig. 1.



WITNESSES

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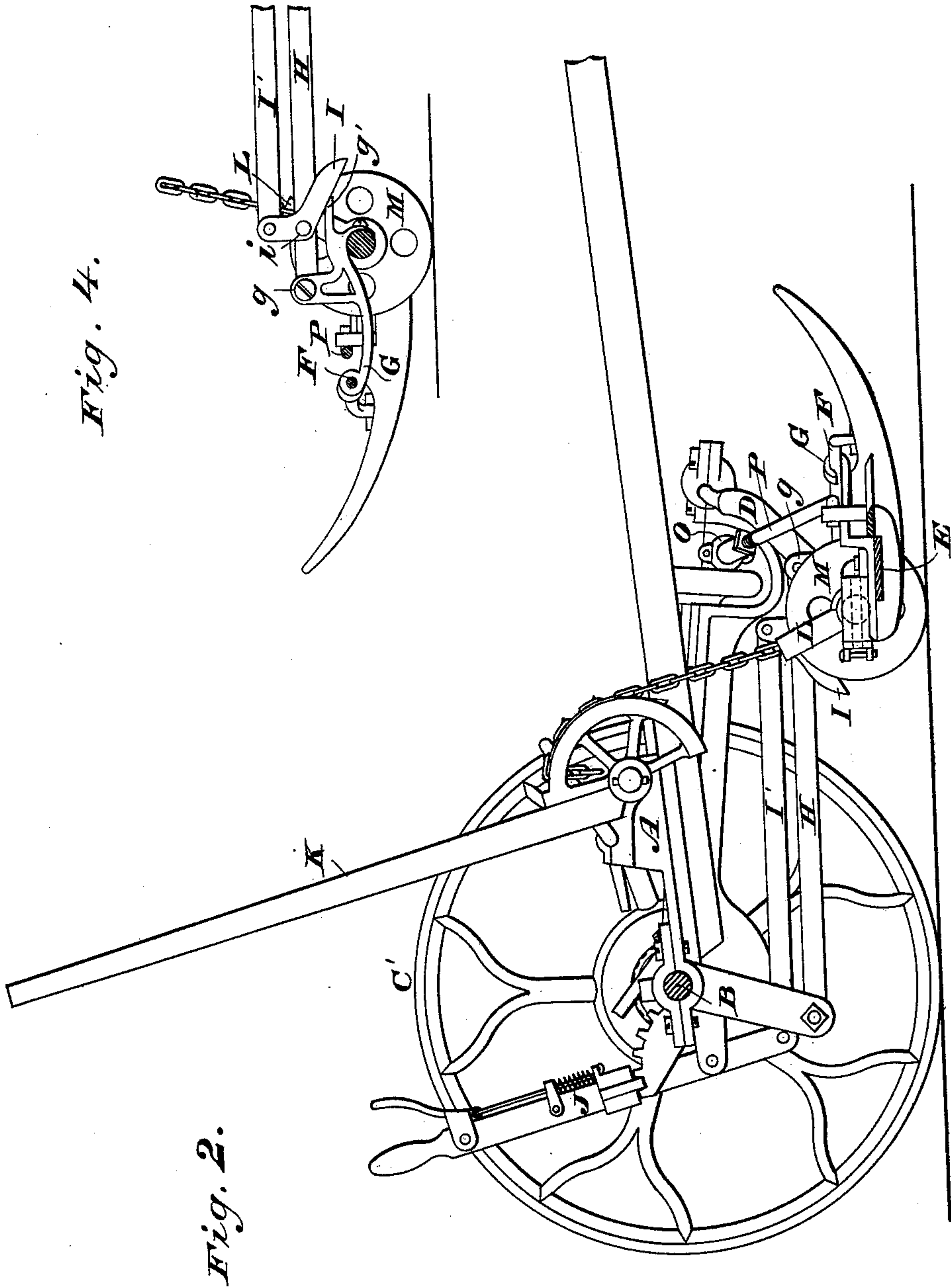
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Fig. 5.

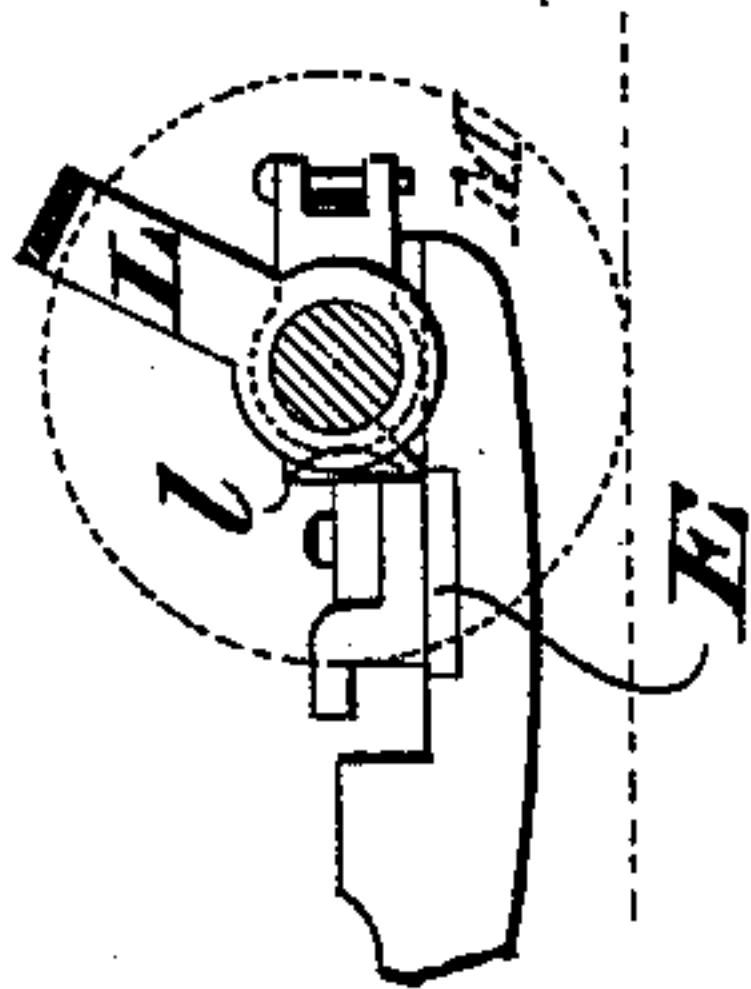


Fig. 6.

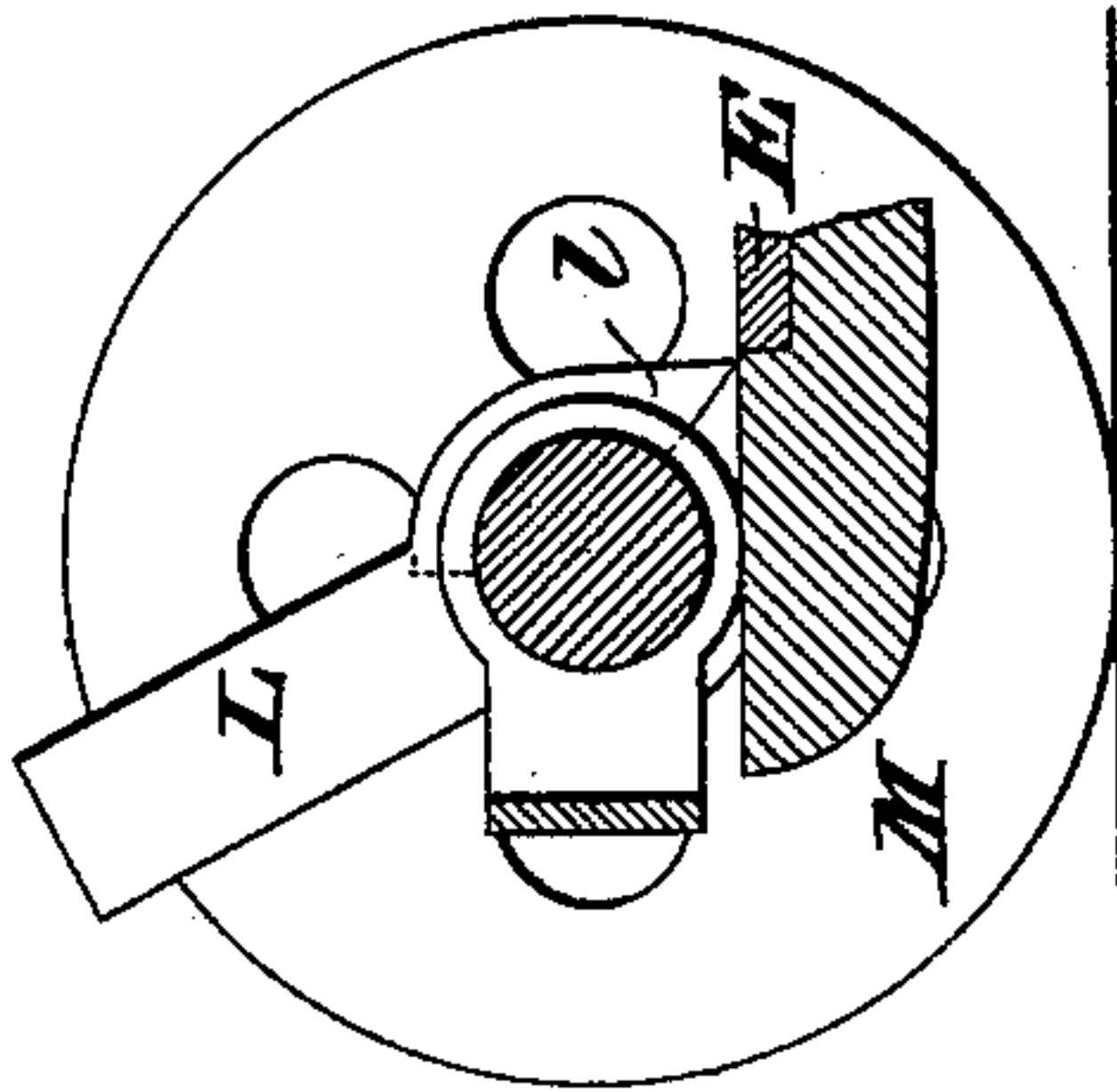


Fig. 3.

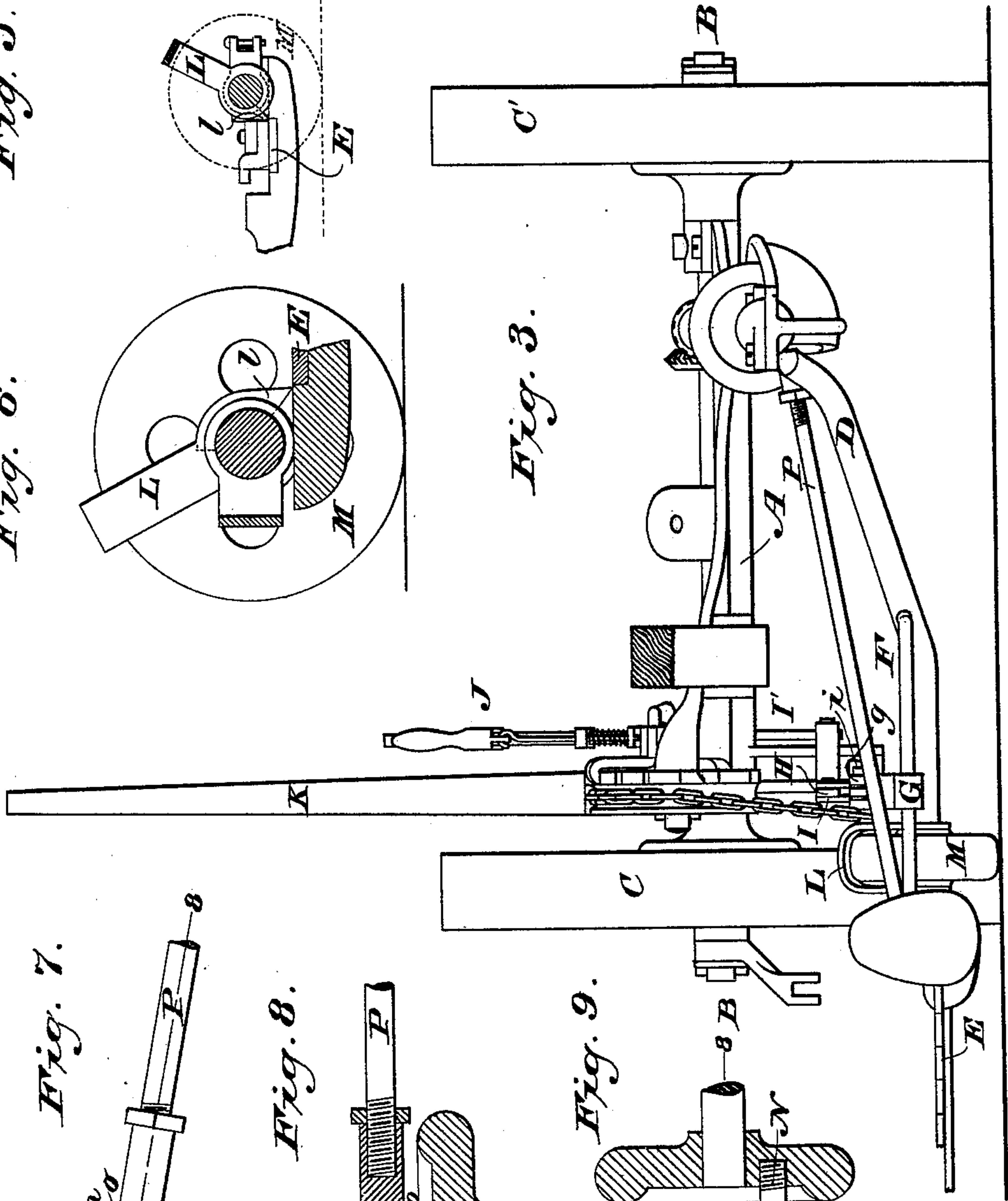


Fig. 7.

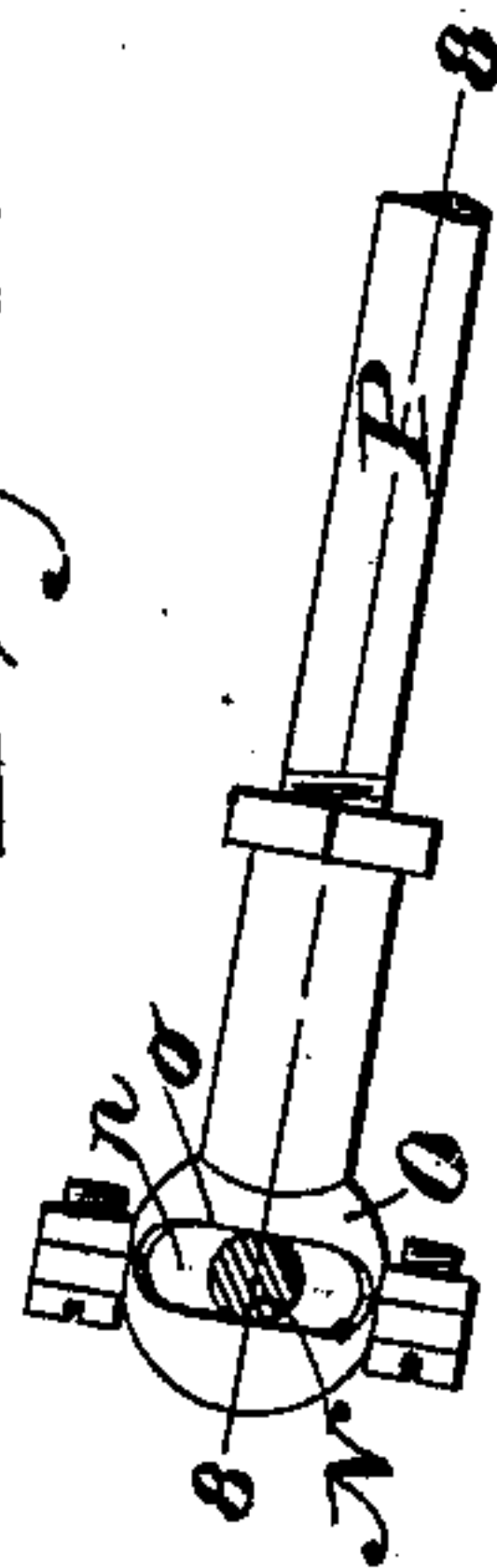


Fig. 8.

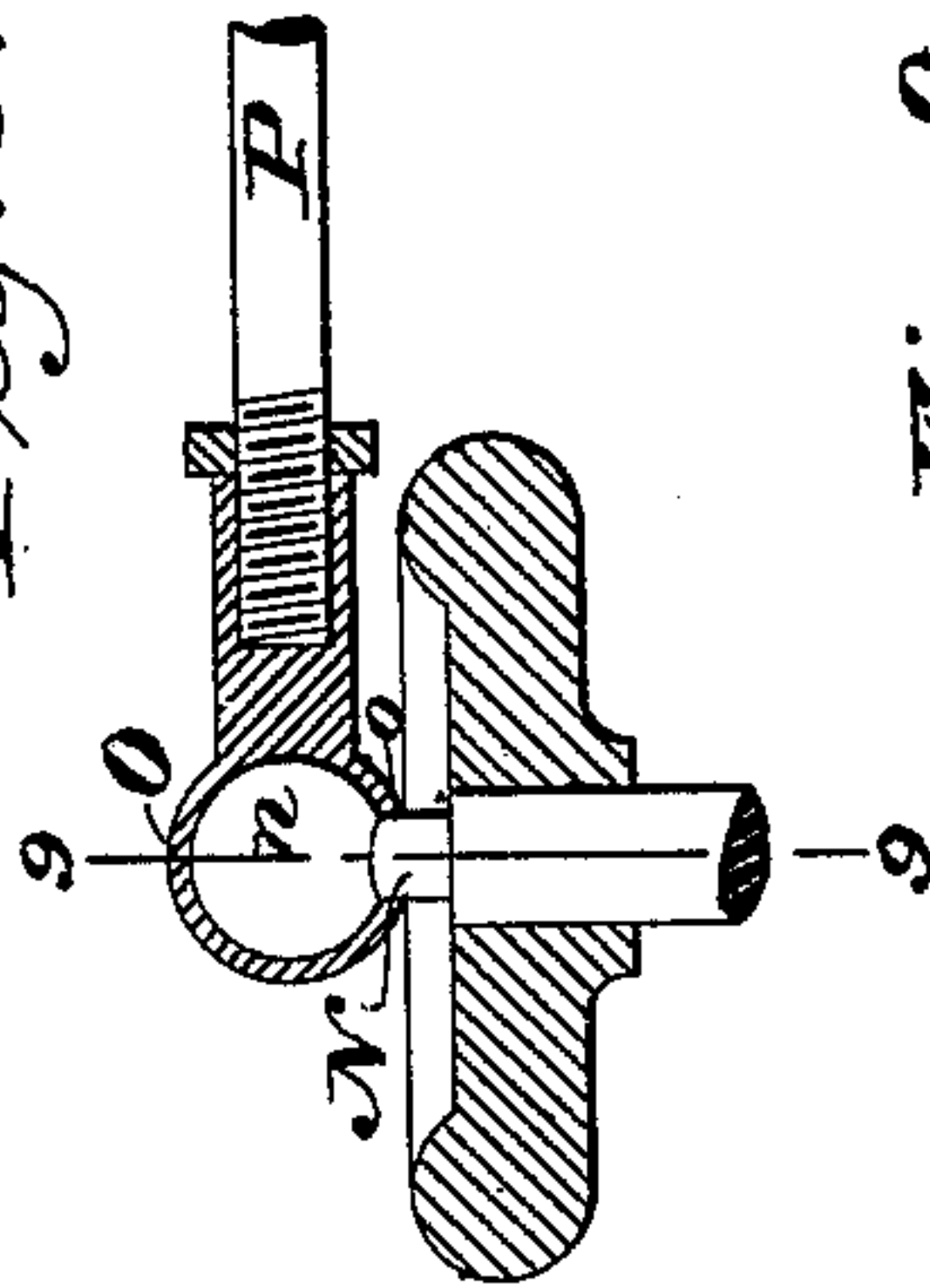
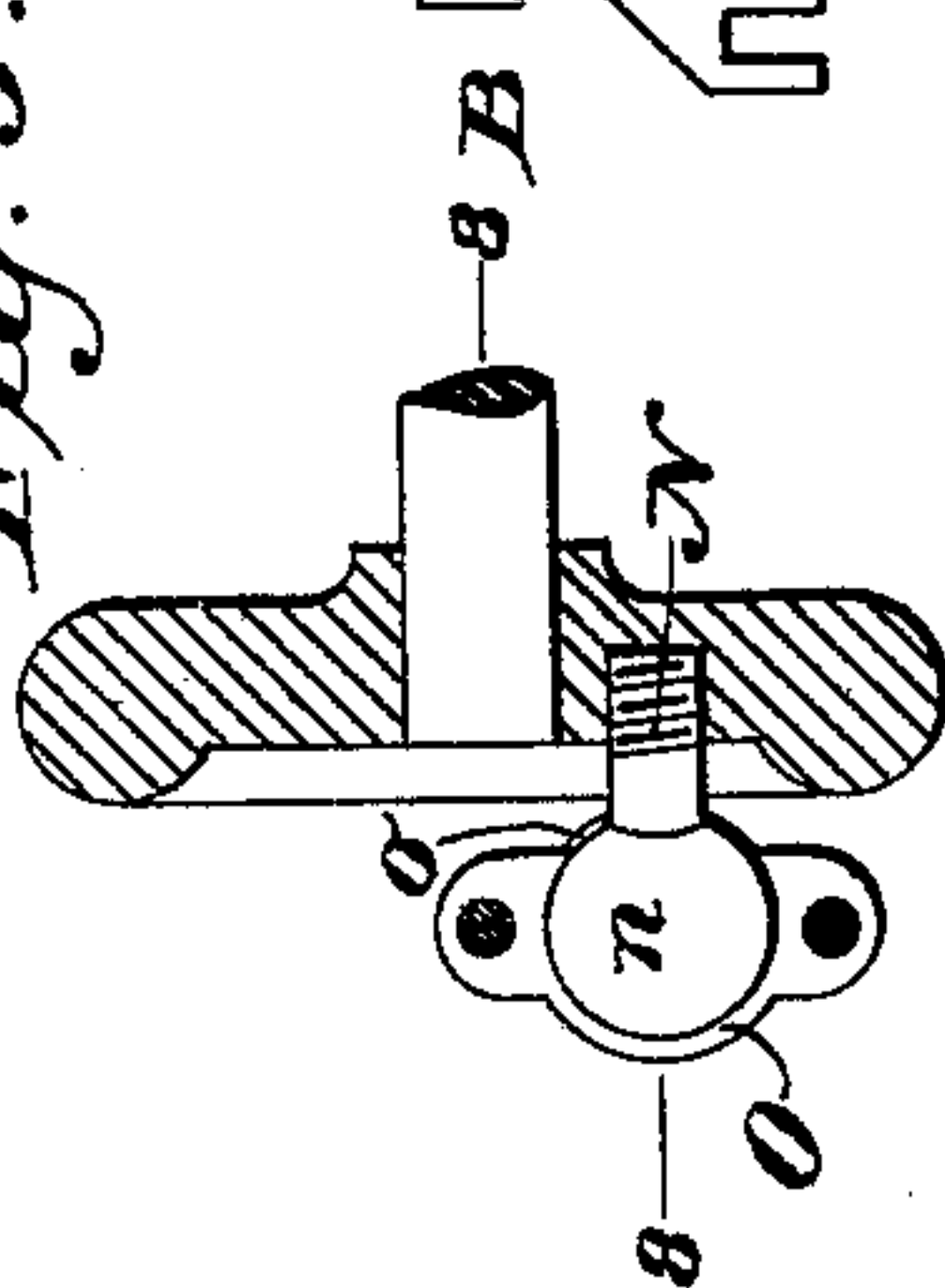


Fig. 9.



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UNITED STATES PATENT OFFICE.

FRANK BRAMER, OF LITTLE FALLS, NEW YORK.

IMPROVEMENT IN MOWERS.

Specification forming part of Letters Patent No. **220,796**, dated October 21, 1879; application filed June 17, 1879.

To all whom it may concern:

Be it known that I, FRANK BRAMER, of Little Falls, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Mowing-Machines, of which the following is a specification.

My invention belongs more especially to the class of two-wheeled front-cut hinge-bar mowing-machines having rocking and folding finger-beams, and constitutes an improvement upon the machines shown in reissued Letters Patent of the United States granted to me February 27, 1877, as Nos. 7,539 and 7,540, the same being reissues of original Letters Patent respectively dated December 19, 1865, and November 10, 1874.

The objects of my invention are to improve the construction and organization of the rocking hinged coupling-arm, the leading wheel or roller, and the devices for tilting or rocking the finger-beam upon its longitudinal axis, with their appurtenant parts.

The subject-matter claimed will hereinafter specifically be designated.

In the accompanying drawings, which show my improvements as embodied in the best way now known to me, Figure 1 is a plan or top view of so much of a mowing-machine as is necessary to illustrate the subject-matter herein claimed; Fig. 2, a side elevation thereof, as seen from the divider side of the machine, the view being a partially-sectional one on the line 2 2 of Fig. 1; Fig. 3, a view, in elevation, of the machine as seen from the front, with the tongue in section; Fig. 4, a view, in elevation, of portions of the flexible connections, partly in section, on the line 4 4 of Fig. 1; Fig. 5, a sectional view on the line 5 5 of Fig. 1, looking toward the shoe, and Fig. 6 a similar view on the line 6 6 of Fig. 1, looking toward the leading wheel, and showing the locking-toe of the plate to which the lifting-chain is connected, which compels the finger-bar to rise horizontally; Fig. 7, a detail-sectional view on the line 7 7 of Fig. 1, showing the ball-and-socket-joint connection between the upper end of the pitman and crank-shaft; Fig. 8, a section therethrough on the line 8 8 of Figs. 7 and 9; and Fig. 9, a sectional view in a plane at right angles to that of Fig. 8, on the line 9 9 of said figure.

It is deemed unnecessary to describe herein in detail all the parts requisite to a complete mower, as that is not essential to an understanding of my present invention, and such parts, moreover, as are not herein specifically set forth being fully described and their mode of operation given in my Letters Patent hereinbefore referred to.

The main frame A is preferably constructed of metal, cast in a single piece, with suitable boxes for the main axle B, upon which are mounted the two main driving and supporting wheels C C', provided with suitable back-ing-ratchets.

A coupling-arm, D, is hinged or jointed at its upper end, preferably by a ball-and-socket connection, to the outer front corner of the main frame, or to an extension thereof, so that said arm may rock vertically and swivel or turn axially freely.

The jointed connection between the main frame extension and the coupling-arm is in front of and directly in line with the crank-shaft, so that there is a common center, about which the cutting apparatus rocks and the pitman-driving crank revolves, thus entirely preventing cramping or binding of the cutters by the movements of the coupling-arm and finger-beam, as will presently fully be understood.

The lower end of the coupling-arm is hinged to the inner shoe at its heel or in rear of the finger-beam E, which is secured to the shoe in the usual way, while a brace-rod, F, secured to the coupling-arm and extending in front thereof, is pin-jointed to the toe of the shoe or in front of the finger-beam, as usual.

A bracing cross-bar, G, connects the coupling-arm and brace rod between their points of junction and of connection with the shoe, whereby additional strength is given to the rocking and swiveling or axially-turning connections between the cutting apparatus and main frame of the machine.

The coupling-arm, as shown, is made of a round bar, bent downward and backward from its connection with the main frame for, say half, or somewhat more than half, its length, and thence extending horizontally and straight, or nearly so, to its connection with the shoe. By abruptly bending the coupling-arm down-

ward at or near its upper end, ample room is provided for the pitman, which extends to the cutters over the coupling-arm, its diagonal brace F, and the cross-bar brace G, while provision is made for mounting a roller, hereinafter to be described, on the coupling-arm at the inner side of the heel of the shoe, and in rear of and wholly out of the way of the pitman.

A thrust-bar, H, is pivoted in rear to the main frame, or a suitable down-hanger thereof, while its front end is pivoted between suitable lugs *g* on the cross-bar G. The rear end of this cross-bar extends back of the coupling-arm, and terminates in or is provided with a wedge or incline, *g'*, which is acted upon by a cam or wiper, I, rocking on a pivot, *i*, on the thrust-bar, and connected by means of a link, I', with a hand-lever, J, pivoted upon the main frame within convenient reach of the driver, and provided with the usual spring-latch and detent, whereby the coupling-arm may be rocked or rolled on its longitudinal axis by the attendant, while in his seat on the machine, to tip the cutters and hold the guards at any desired elevation, while their points are left free to rise above that point.

A lifting-lever, K, pivoted to the inner front corner of the main frame, and provided with the usual holding-stop or detent, is connected, by its lifting-chain preferably, with an inverted U-shaped connection or plate, L, the arms of which are pivoted or turn upon the coupling-arm near its point of connection with the heel of the shoe, the arm of said plate next the shoe being provided with a locking-toe, *l*, which comes in contact with said shoe, whereby, when the cutting apparatus is lifted, the heel of the shoe abuts against the locking-toe, and causes the finger-bar to lift horizontally without flexing its joint, as it would otherwise do, while at the same time leaving it free to rock and roll or be tilted by the tilting apparatus, as above described.

A leading wheel or roller, M, is mounted upon the coupling-arm near the heel of the shoe, being preferably mounted thereon between the arms of the U-shaped plate above mentioned, when such plate is employed as the means of connecting the lifting-chain with the coupling-arm. This organization and location of the leading wheel or roller with the coupling-arm and shoe possesses advantages over arranging said wheel at the toe of the shoe, or in rear thereof, by connections independent of the coupling-arm or the rocking and turning connections between the main frame and the shoe and its finger-beam.

The cutters are driven by suitable gearing and a crank and universally-jointed pitman in a well-known way, except that I prefer the universal joint between the pitman and crank-shaft to consist of a ball, *n*, on the crank-pin N, which fits the sectional socket-casing O of the pitman P, the said socket-casing being provided with a transverse slot, *o*, (clearly shown in Fig. 7,) whereby the pitman is al-

lowed to rock freely vertically as well as turn axially, (this axial movement being permitted by the slot in the socket-casing,) in order to conform to the rocking and turning movements of the coupling-arm and cutting apparatus.

The advantages and operation of a mower organized as hereinbefore described will be obvious without further elaboration.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, of the main frame, the rocking coupling-arm hinged to the heel of the shoe, the brace-rod (extending from said arm) hinged to the toe of the shoe, the cross-bar connecting the coupling-arm and brace-rod, and the thrust-bar pivoted to the main frame and to said bracing cross-bar.

2. The combination, substantially as hereinbefore set forth, of the rocking coupling-arm, the brace-rod, the shoe to which said arm and rod are hinged, the cross-bar connecting the arm and rod, and the tilting apparatus acting on said cross-bar to tip the cutters.

3. The combination, substantially as hereinbefore set forth, of the vertically-rocking and axially-turning bent coupling-arm, the shoe, at or near the heel of which the coupling-arm is hinged, the diagonal brace-rod hinged to the shoe in advance of the cutters, and the roller mounted on the coupling-arm near its jointed connection with the shoe.

4. The combination, substantially as hereinbefore set forth, of the shoe, the coupling-arm, and brace-rod hinged thereto, the leading-wheel, the thrust-bar pivoted to a cross-bar connecting the coupling-arm and brace-rod, and the tilting apparatus.

5. The combination, substantially as hereinbefore set forth, of the lifting-lever, its chain, the leading-wheel, the bent plate to which the lifting-chain is connected turning on the coupling-arm, surrounding the leading-wheel, and provided with a locking-toe, against which the shoe abuts, whereby the finger-beam is lifted horizontally by the lifting apparatus without flexing its joint.

6. The combination, substantially as hereinbefore set forth, of the main frame, the rearwardly and downwardly bent coupling-arm jointed to the outer front corner extension of the frame in line with the crank-shaft and in advance thereof, the shoe, the front and rear jointed connections between the shoe and the coupling-arm and its brace-rod, the pitman extending above the coupling-arm, and the cutting apparatus, for the purpose described.

7. The combination of the crank-pin provided with the ball, and the pitman having the transversely-slotted socket-casing to give both the rocking and axially-turning movements to the pitman by its jointed connection with the crank-shaft, as set forth.

8. The combination, substantially as hereinbefore set forth, of the main frame having the corner extension, the crank-shaft, the pit-

man, the ball-and-socket joint connecting the crank-shaft and pitman, and giving to the latter the capacity of both rocking vertically and turning axially, the vertically-rocking and axially-turning coupling-arm jointed to the main-frame extension in advance of the pitman and in line with the crank-shaft, and extending downwardly and rearwardly beneath the pitman, the cutters, and the shoe having

jointed connections with the coupling-arm in front and in rear of the cutters.

In testimony whereof I have hereunto subscribed my name.

FRANK BRAMER.

Witnesses:

WILLIAM H. DALE,
THOMAS NESDALL.