

(No Model.)

2 Sheets—Sheet 1.

J. T. HAWKINS.

INKING APPARATUS FOR PRINTING MACHINES.

No. 326,215.

Patented Sept. 15, 1885.

Fig. 1.

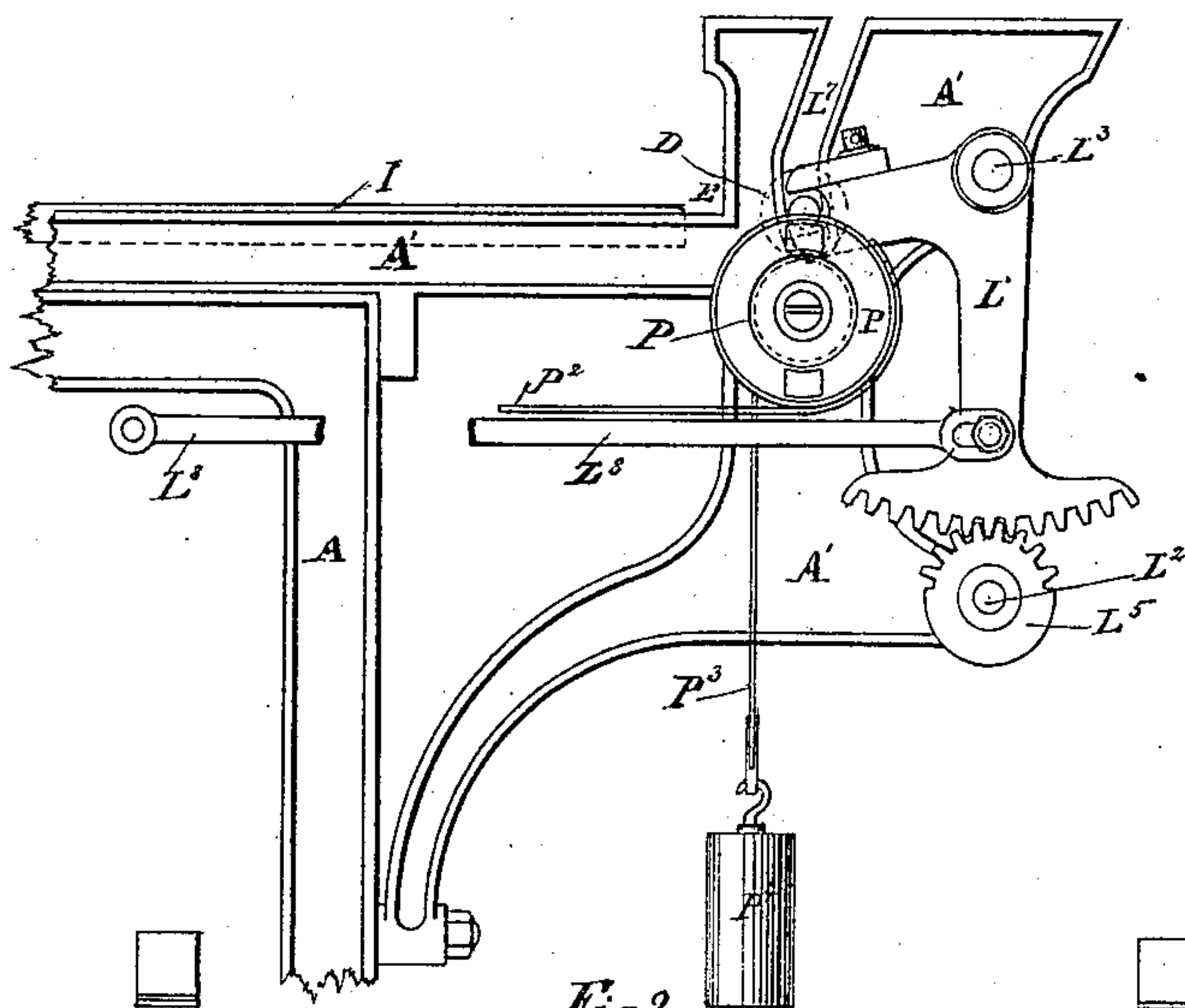


Fig. 2.

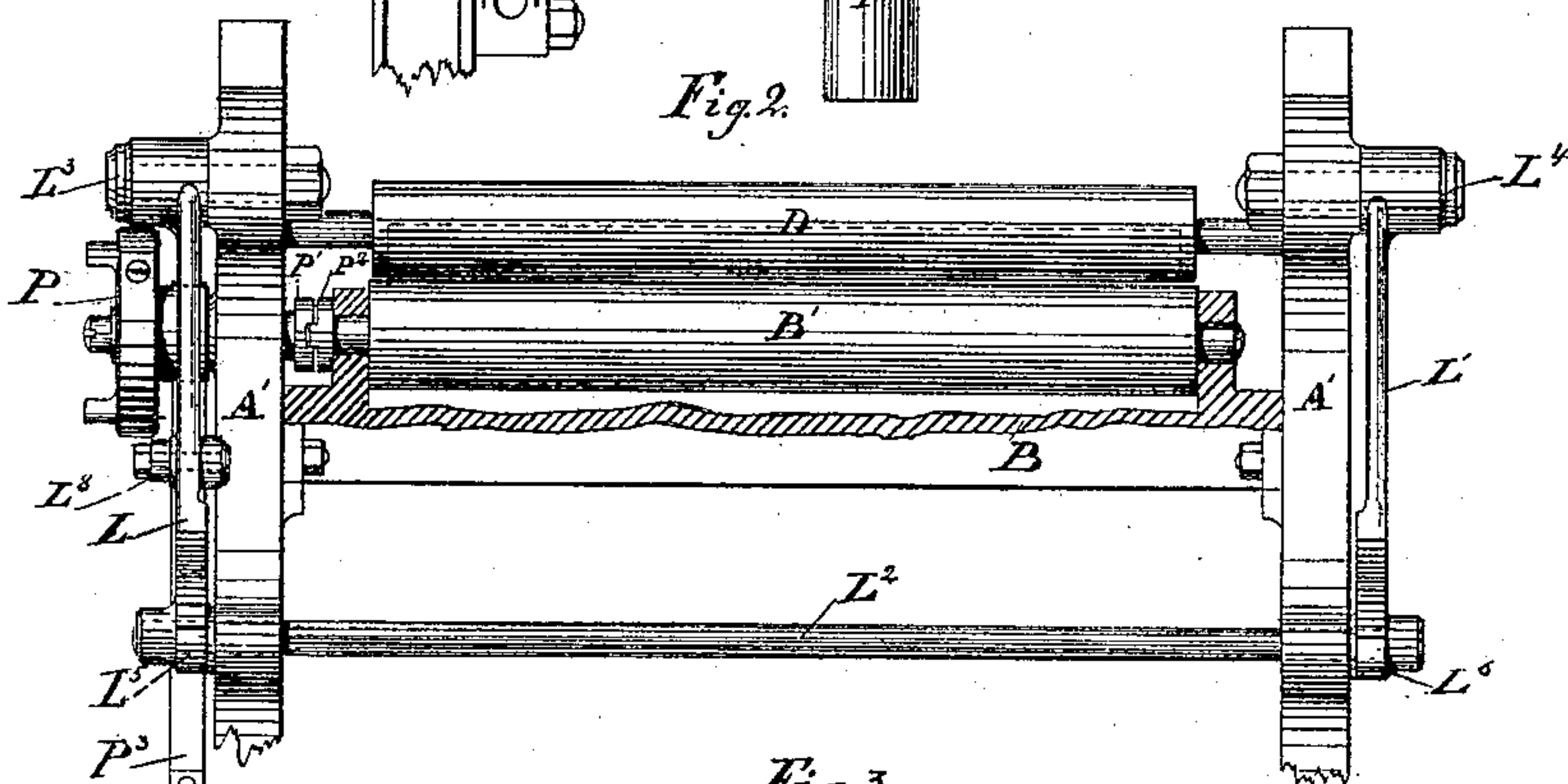
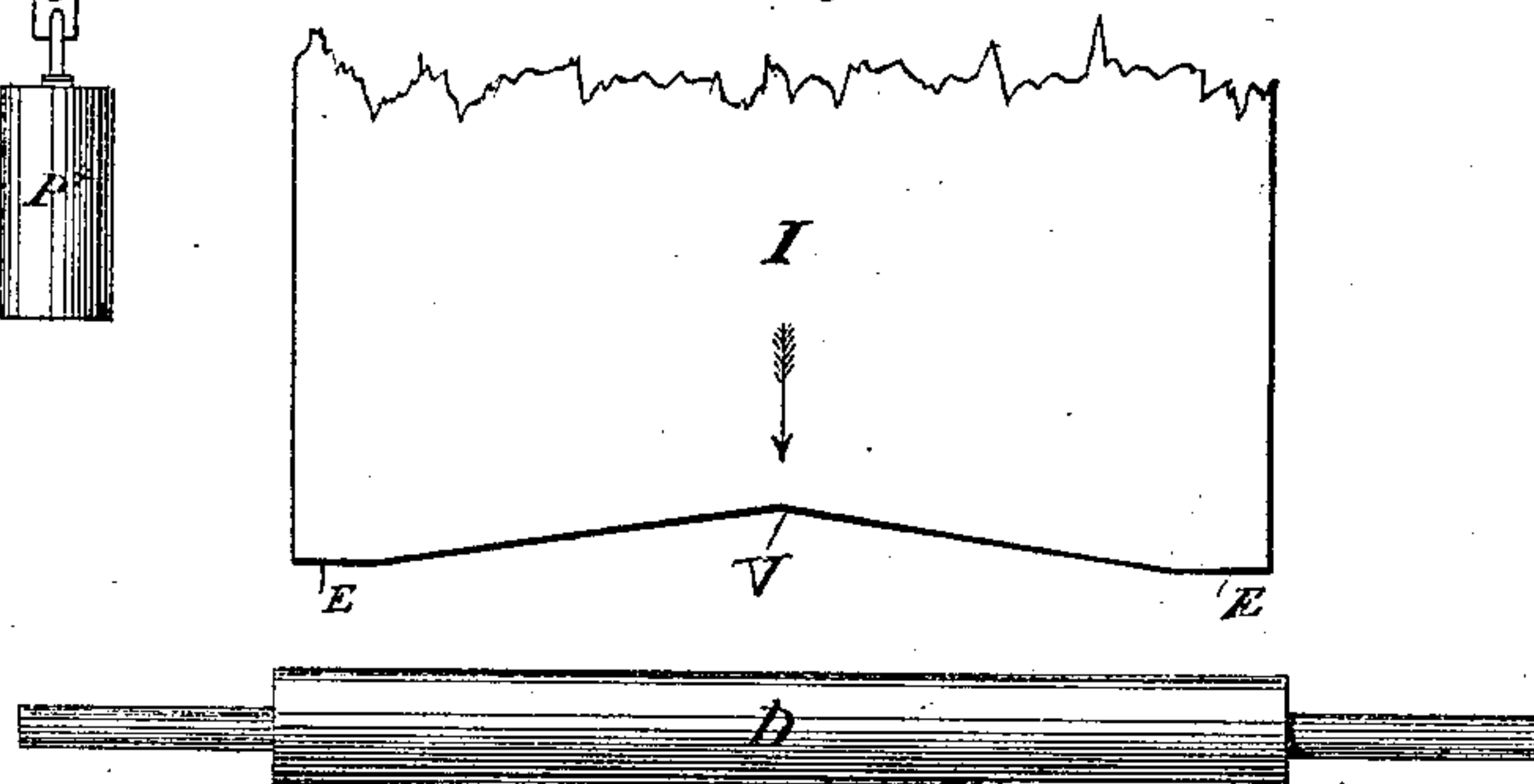


Fig. 3.



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INVENTOR

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(No Model.)

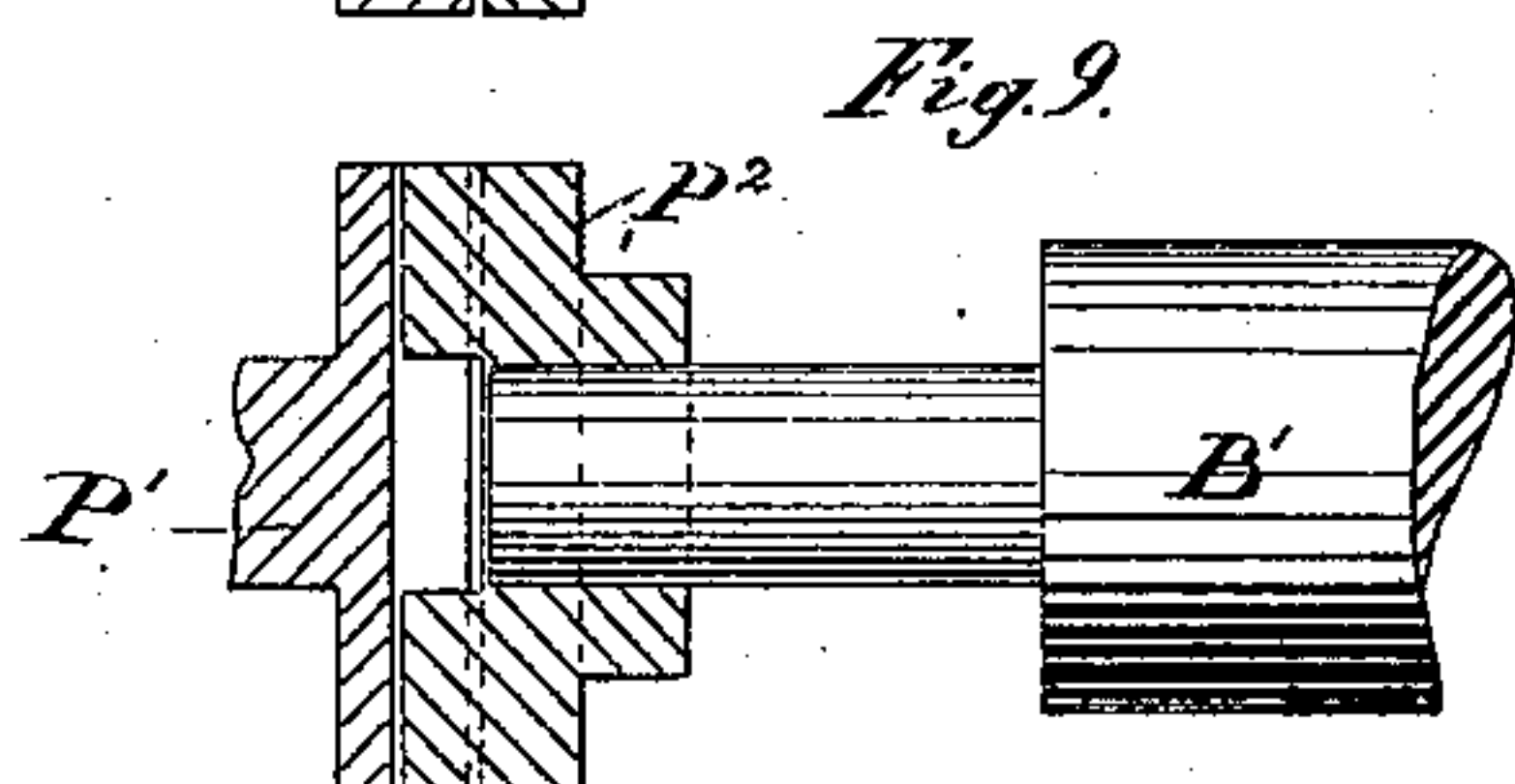
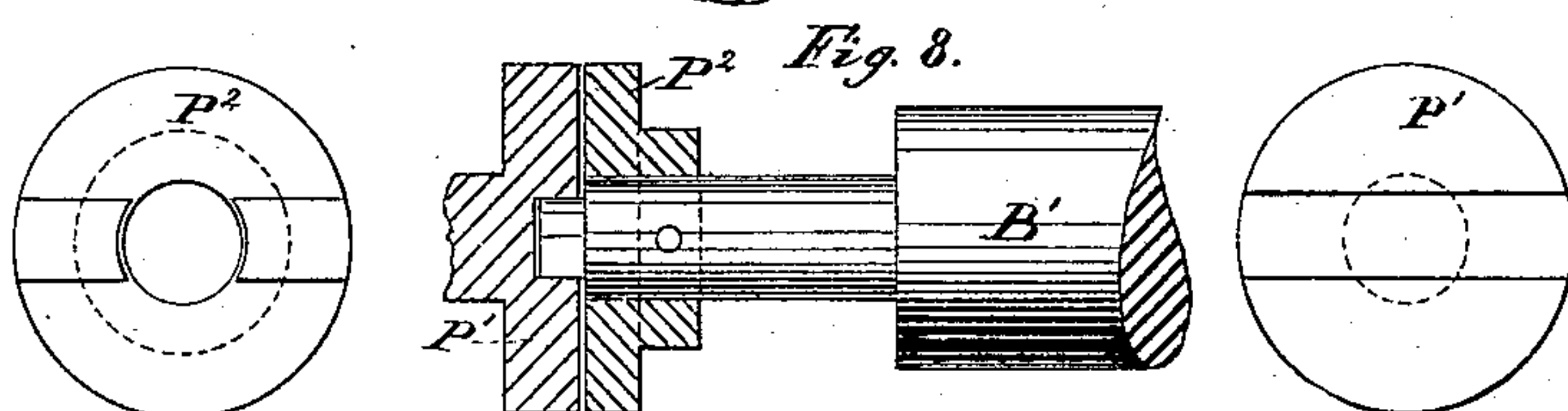
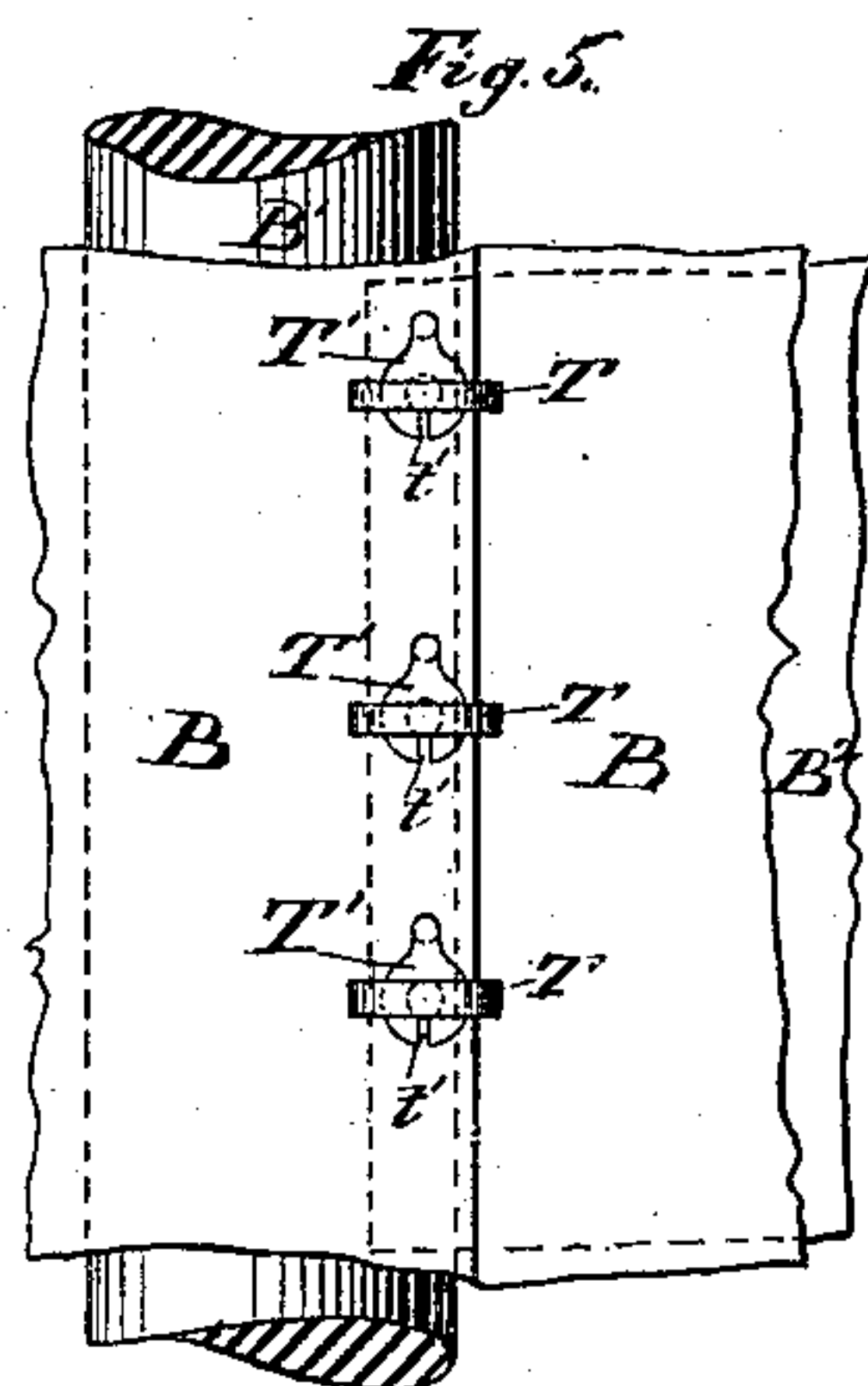
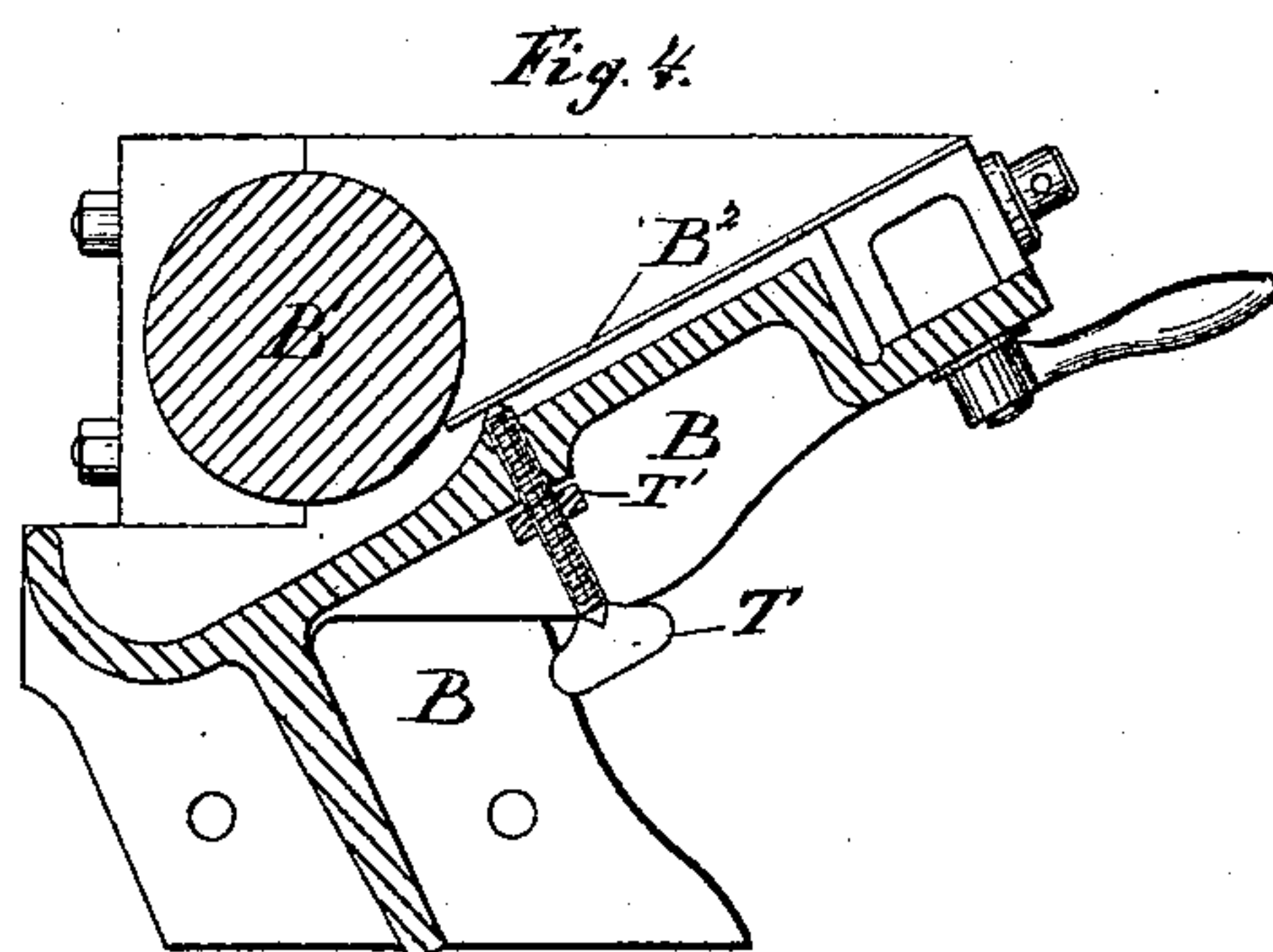
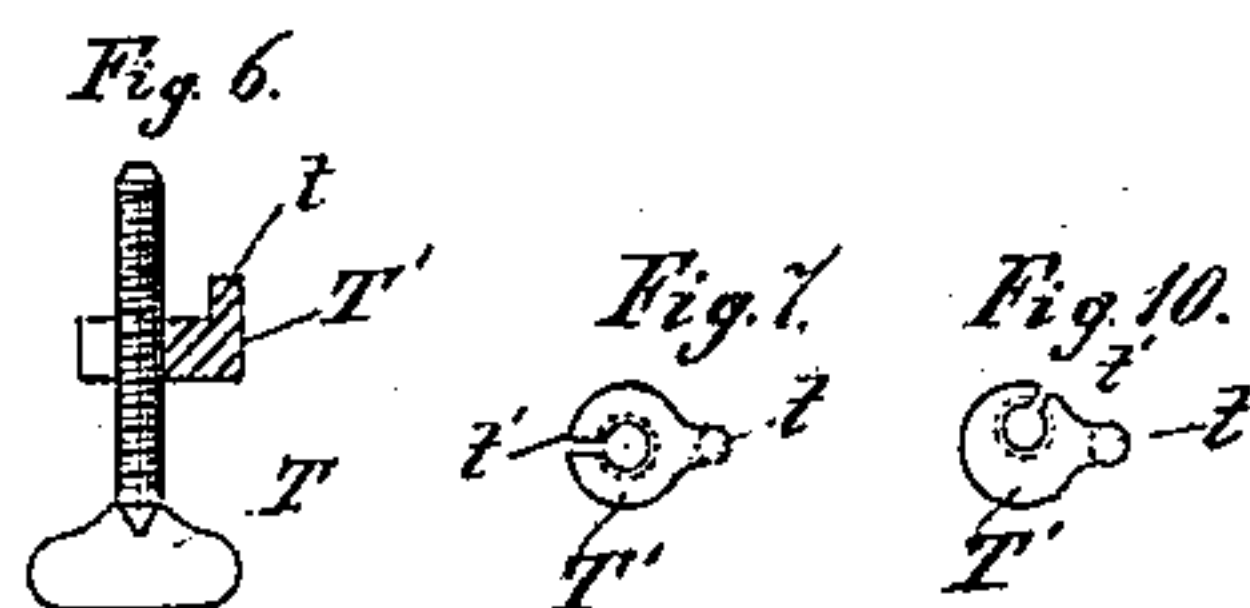
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JOHN T. HAWKINS, OF TAUNTON, MASSACHUSETTS.

INKING APPARATUS FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 326,215, dated September 15, 1885.

Application filed December 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. HAWKINS, of Taunton, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Inking Apparatus for Printing-Machines, which invention or improvement is fully set forth and illustrated in the following specification and accompanying drawings.

10 This invention consists, first, in an improved method of operating the ductor or transfer roller; second, in the form of the ink-plate for that variety of printing-press in which the ink-plate runs over the ink-fountain; third, 15 in providing an easy means of changing the ink-fountains of a press when it is required to change from one color to another, thus saving the waste and labor incidental to cleaning out a fountain for such change of color.

20 Where the fountains of printing-presses are placed below the ink-plate, and the ductor or transfer roller is arranged to alternately lie upon said plate and upon a fountain-roller by its own weight, the ductor or transfer roller 25 in being lifted from the fountain-roller to the level of the ink-plate will generally have a ridge of ink left at the line where it parts contact with the fountain-roller, and this ridge will be deposited upon the extreme free edge 30 of the ink-plate instead of being laid upon it at a point far enough from said edge to be thereafter properly distributed by the angle distributing-rollers. At high speeds, also, with heavy bodies of ink, and a correspond- 35 ingly heavy ridge of ink left on the bottom of the ductor or transfer roller when parting from the fountain-roller, the advancing edge of the ink-plate when striking this ridge of ink will tend to throw it off and besmear surrounding objects. The fountain-blade adjust- 40 ing-screws of an ink-fountain as generally made (and no matter how nicely fitted) will, from constant wear, become loose in their screw-threaded holes, and thus be liable to 45 unscrew and run back from the vibration of the machinery and disturb the adjustment of the ink-film upon the fountain-roller. To obviate these said defects is partly the object of this invention.

50 In the accompanying drawings, Figure 1 is a side elevation, and Fig. 2 an end elevation

with a part of the fountain-bowl cut away, of those parts of the inking apparatus of a printing-press (in which the ink-fountain is situated below the level of the ink-plate) necessary to 55 illustrate the invention. Fig. 3 is a top view of a portion of an ink-plate and its ductor or transfer roller. Fig. 4 is a transverse section through the center of the ink-fountain. Fig. 5 is a part of said fountain viewed from the 60 under side. Fig. 6 is an elevation of a fountain-blade adjusting-screw with its nut attached, partly in section. Fig. 7 is a view in plan of the nut seen in Fig. 6. Fig. 8 shows in several views the arrangement of a coupling 65 upon the fountain-roller shaft, permitting of the removal of the fountain bodily from the press without disturbing any of the driving mechanism. Fig. 9 is a view of said coupling at ninety degrees of its revolution 70 from Fig. 8. Fig. 10 is a modification of the nut shown in Figs. 6 and 7, hereinafter explained.

In the said figures, A indicates a portion of the main frame of a printing-press to which is 75 attached suitable brackets, A', for carrying the fountain and its operative mechanism; B, a fountain-bowl; B², the fountain-blade, (removed in Fig. 2.)

L L' indicate two bell-crank levers, formed 80 at their lower extremities into toothed sectors and vibrating, respectively, on studs L³ L⁴ in the brackets A'.

L² indicates a shaft journaled in the brackets A, carrying on its ends the toothed sectors 85 L⁵ L⁶.

The ductor or transfer-roller D is journaled loosely in the horizontal arms of the bell-crank levers L L', and rises and falls within slots L⁷ in the brackets A'. The bell-crank lever L is 90 actuated by a connecting-rod, L⁸, pivoted thereto at one end, and connected at its other end to any suitable moving part of the mechanism, to cause the bell-crank lever L to oscillate upon the stud L³ at the proper times. 95

P indicates a pulley upon a short shaft, forming a continuation of one-half of a coupling, P', journaled in one of the brackets A', for actuating the fountain-roller by means of the belt 100 p², suitably connected to any properly-moving part of the machinery. The pulley P contains within it a ratchet, (not shown,) and is given

a return motion by the belt P^3 , wound upon its hub, and the weight P^4 . The ink-plate I, attached to the reciprocating type-bed of the press, passes in its excursions over the fountain-roller B' and under the ductor or transfer roller D, the latter being lifted to the level of the ink-plate I at the proper time by the mechanism above described.

P^2 indicates half of a coupling secured to the shaft of the ink-roller B' . This coupling, as shown in Figs. 8 and 9, is so slotted that when its slot is brought in line with the direction in which the fountain must move in order to be removed, said fountain may be so removed or replaced without obstruction of any kind.

T T indicate a series of thumb-screws for adjusting the contact of the fountain-blade B^2 with the roller B' .

T' indicates a nut upon each thumb-screw T. Each nut T' has upon one side a small right-angled projection, t , pointing toward the point of its respective thumb-screw T. The nuts T' have slots t' cut through their respective sides opposite their projections t . The thumb-screws T are fitted to run loosely in their screw-threaded holes in the fountain-bowl B, while the nuts T' are either tapped out with a smaller tap before slotting, or are slightly closed up with a hammer after slotting, so as to run tightly on the threads of the thumb-screws T, and, being split, as described, are sufficiently elastic to give a constant frictional resistance to the turning of the thumb-screws within them.

Adjoining the tapped holes for the thumb-screws T in the fountain-bowl B are drilled, at a proper distance, small holes for the reception of the projections t of the nuts T' , so that when the screws T are rotated the nuts T' do not rotate with them. If it be desired that the screws T should rotate easier when being screwed up against the fountain-blade B^2 than when being unscrewed, to make it more sure that the screws T shall not rotate outward by the jar of the machinery, and yet run inward easy enough to be operated by the thumb and finger, the nut T' may be made, as shown in Fig. 10, as for a left-hand screw, in which the hole tapped in the nut is placed therein eccentrically, and the slot cut through the thinnest part of the metal. The effect of this is that, in turning the screw T within the nut T' in a direction from the thicker to the thinner metal (or, as shown, from left to right at the top of Fig. 10,) the metal of the nut tends to close upon the thread of the screw automatically and cause the screw to turn harder, while the reverse operation tends to relieve the pressure of the nut T' upon the screw T. Of course for a right-hand screw the position of the slot will be correspondingly changed. The free edge of the ink-plate I is given a V shape, as shown at V, Fig. 3, so that as it advances under the ductor or transfer roller

D its extremities only come in contact with the ridge of ink left on the under side of said roller, and said edge commencing then to rotate the ductor or transfer roller D by contact with it, the remaining part of the said ridge of ink is carried up and deposited upon the ink-plate I at a distance from its free end equal to the circumference of the ductor or transfer roller D, instead of being deposited at the rounded edge E of said ink-plate when left as a straight line, as has heretofore been the practice.

The object of operating the ductor or transfer roller through and by means of the two bell-crank levers $L L'$, the sectors $L^5 L^6$, and shaft L^2 is to avoid carrying a shaft across the machine on the line of the studs $L^3 L^4$, which might be done. A shaft in this position, however, would interfere with free access to the fountain for all operations upon and within it.

I do not herein claim any of the parts illustrated in Figs. 6, 7, and 10, but prefer to use them as illustrated in said figures and Figs. 4 and 5, for the purposes set forth. Said parts are, however, reserved for the subject of an application for other Letters Patent, which have since issued, bearing date the 26th day of May, 1885, and numbered 318,618.

I do not claim the location of the ink-fountain below the ink-plate, as this is commonly done in presses in which the delivery-board covers the fountain at too low a level to permit of its being placed above the ink-plate; nor do I claim, *per se*, a slotted coupling of the form shown at $P' P^2$; but

As of my invention, I claim—

1. In an inking-apparatus of a printing-press, a ductor or transfer roller, as D, operated by means of two sector bell-crank levers, as $L L'$, engaging two other sectors, as $L^5 L^6$, secured to a shaft, as L^2 , so that the ductor or transfer roller may be raised and lowered perfectly level in all positions, substantially as and for the purposes set forth.

2. In an inking-apparatus of a printing-press in which the ink-fountain is placed beneath the ink-plate, an ink-plate having its free edge of a V form, as at V, Fig. 3, substantially as and for the purposes set forth.

3. In an inking apparatus of a printing-press, a slotted coupling, as $P' P^2$, connecting the shaft of the inking-roller to a permanent actuating mechanism, so that, when the slot of the coupling is brought in line with the direction in which the fountain must move to be taken out of the machine, said fountain may be so removed or replaced without obstruction from said coupling, substantially as and for the purposes set forth.

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Witnesses:

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