No. 677,389. Patented July 2, 1901.

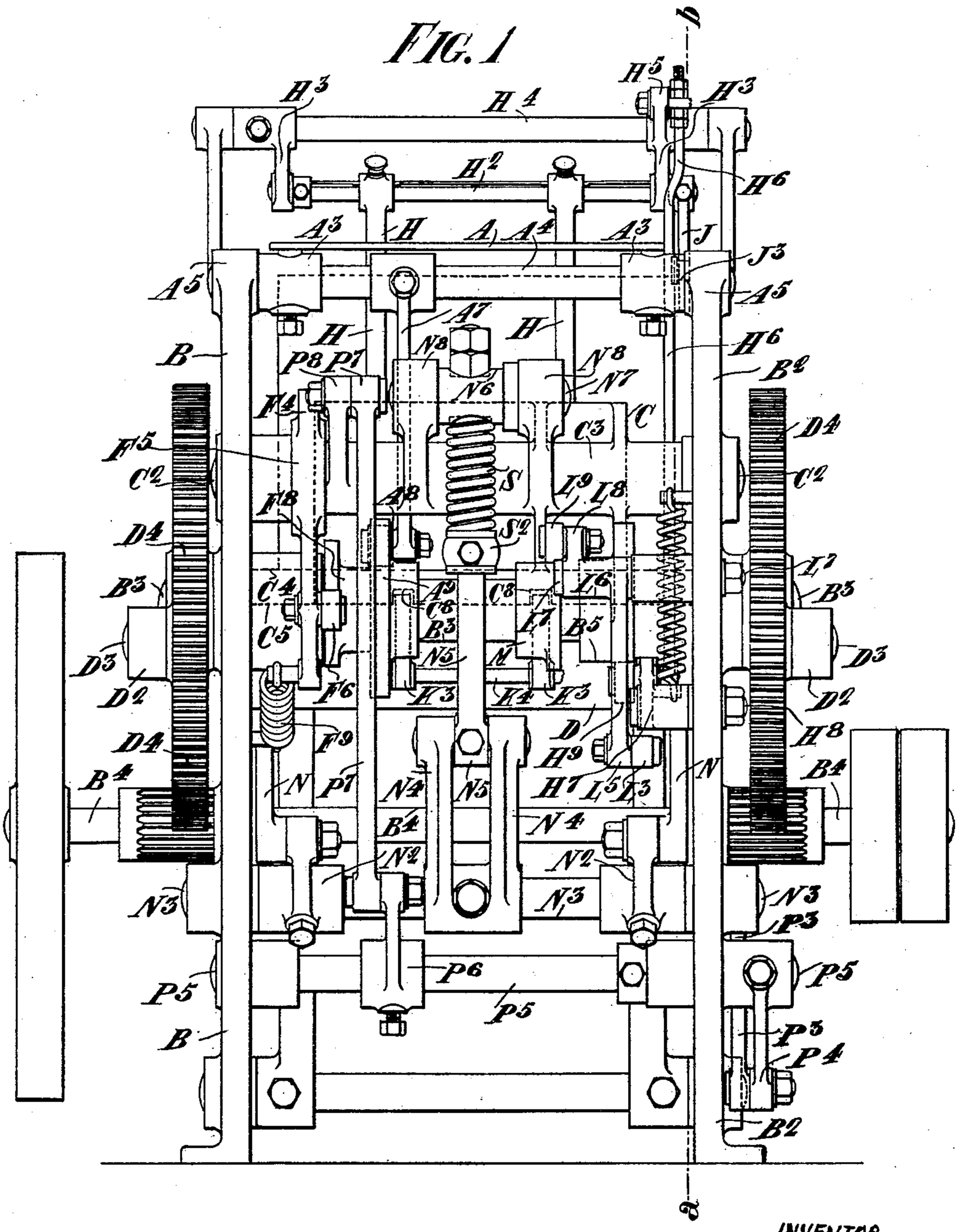
F. WAITE.

PLATEN PRINTING PRESS.

(Application filed Jan. 5, 1899.)

(No Model.) 4 Sheets—Sheet 1.

FIG. 1



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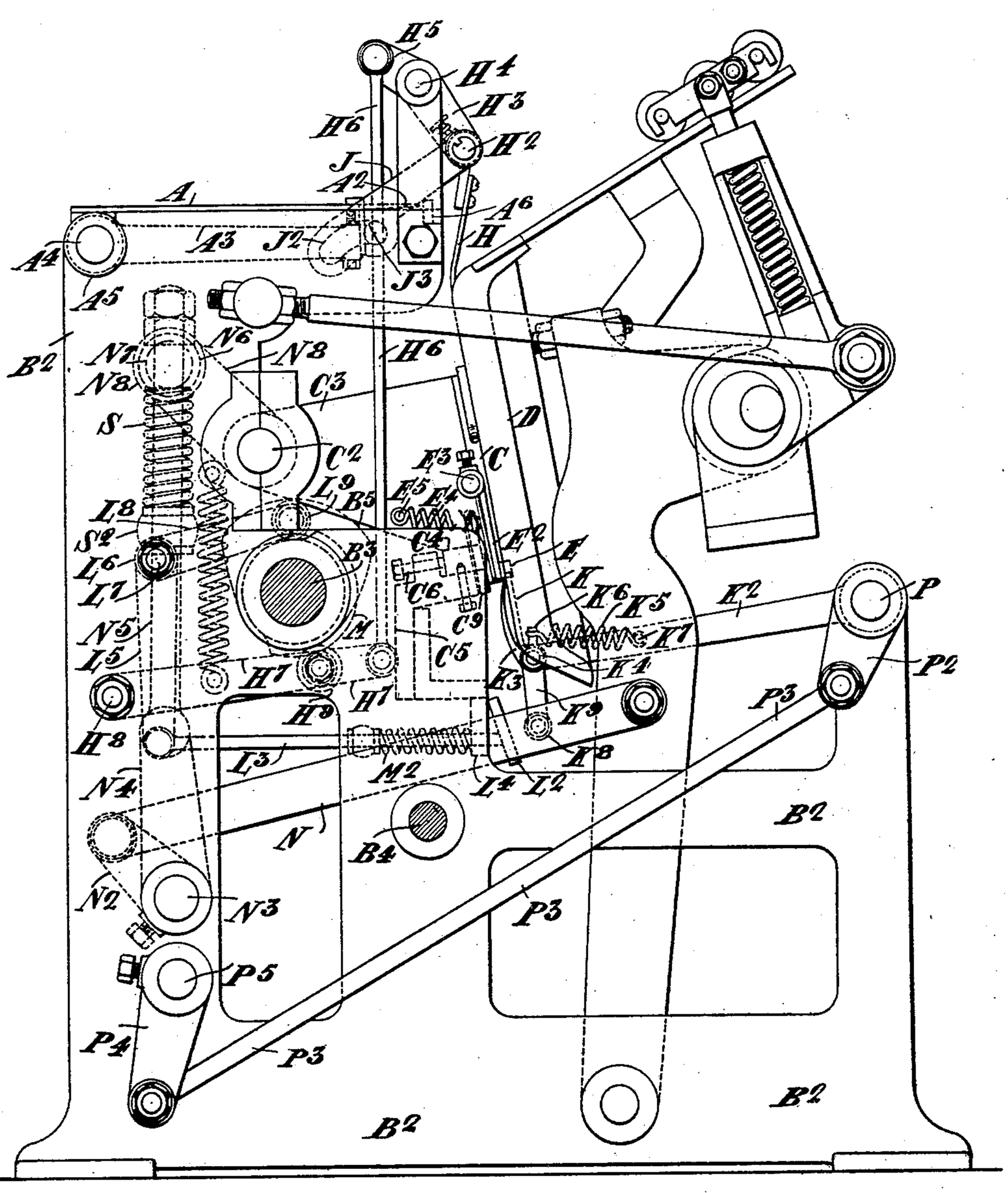
(No Model.) 4 Sheets—Sheet 2.

FIG. 2



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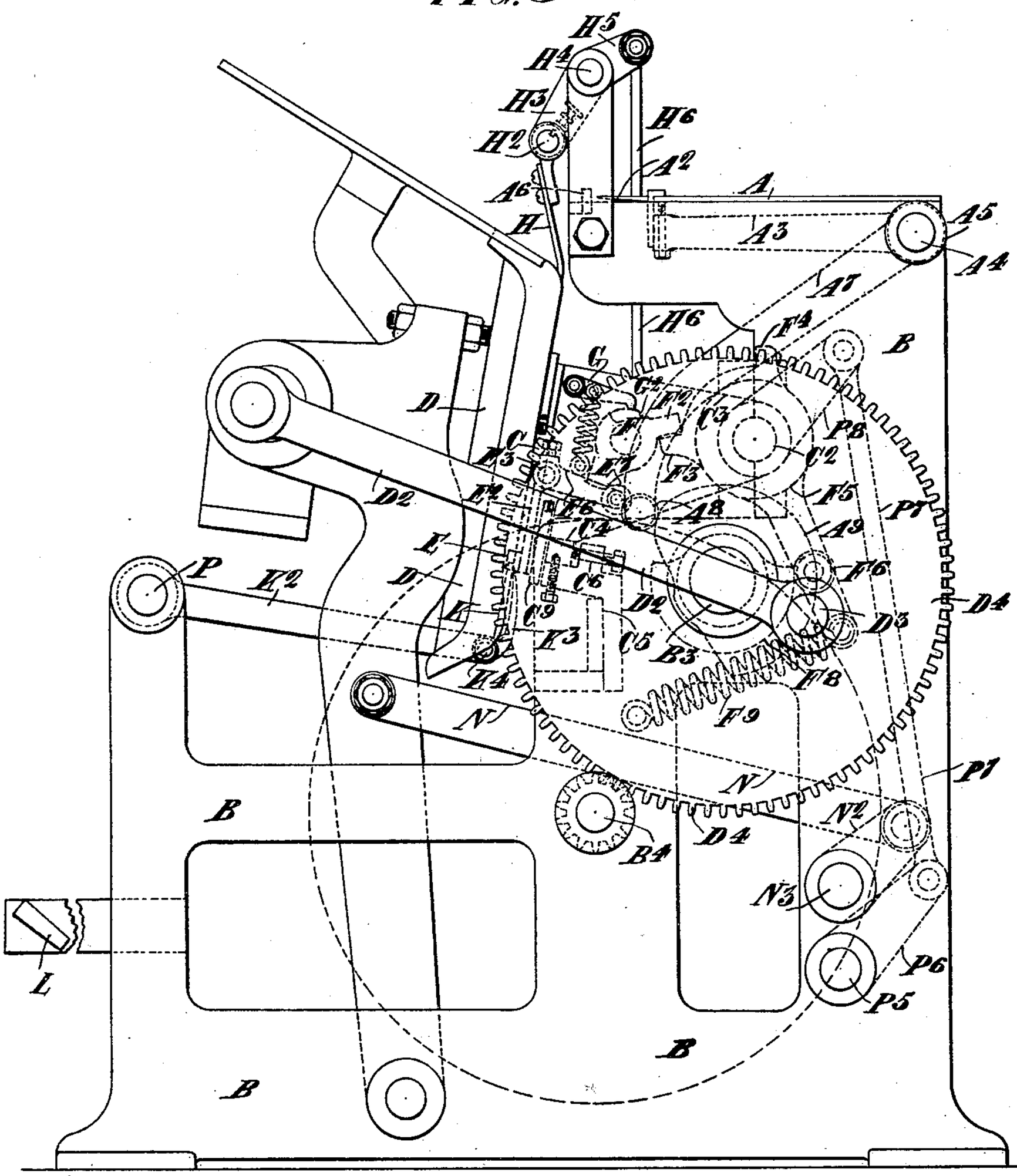
(No Model.) 4 Sheets—Sheet 3.

FIG. 3



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(No Model.) 4 Sheets—Sheet 4.

FIG. 5

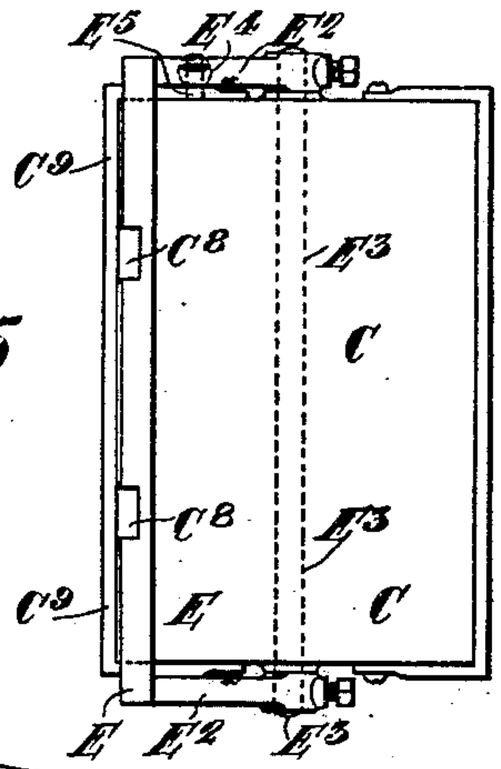
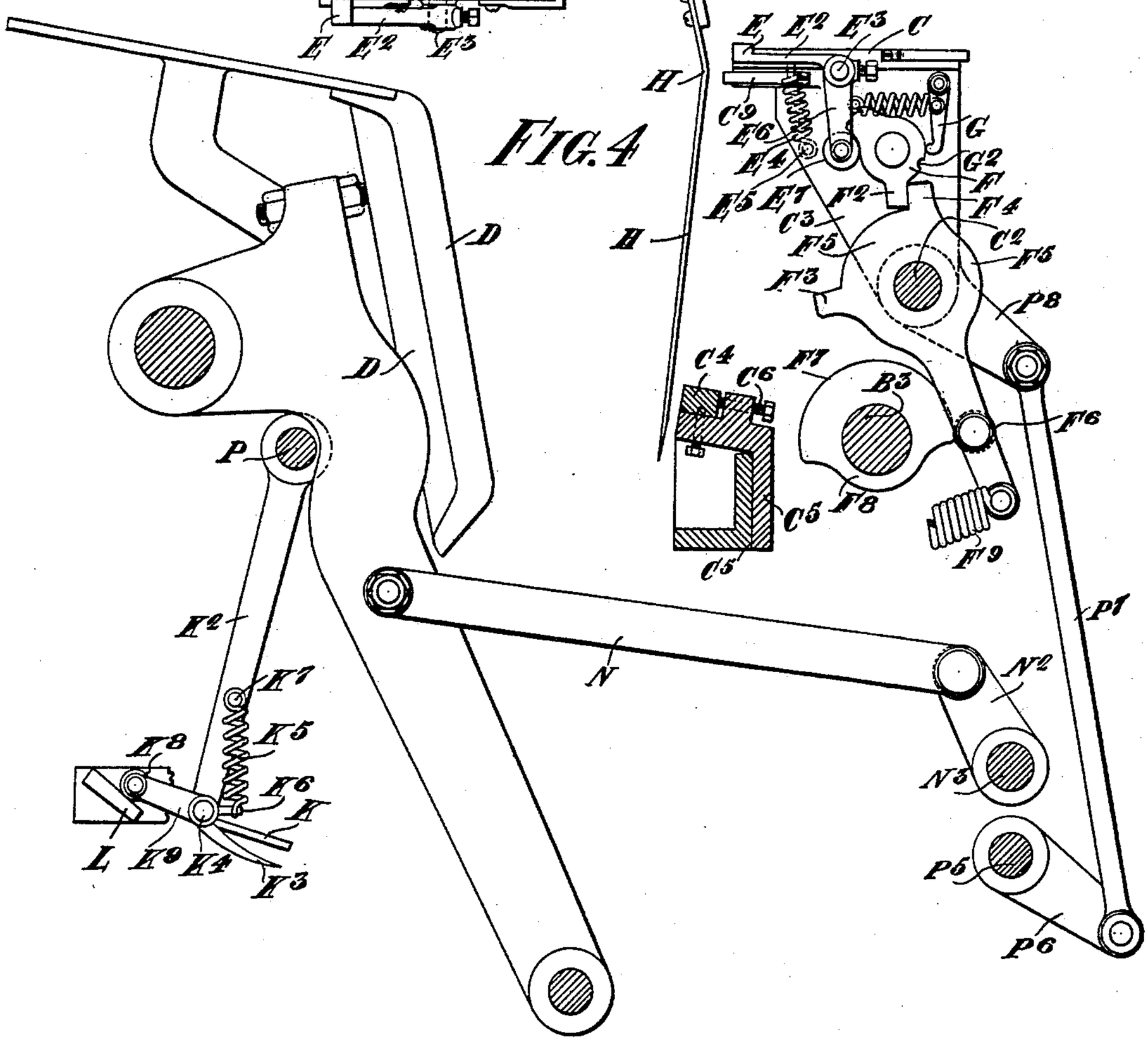


FIG. 4



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UNITED STATES PATENT OFFICE.

FRED WAITE, OF OTLEY, ENGLAND.

PLATEN PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 677,389, dated July 2, 1901.

Application filed January 5, 1899. Serial No. 701,280. (No model.)

To all whom it may concern:

Be it known that I, FRED WAITE, a subject of the Queen of England, residing at Falcon Works, Otley, England, have invented certain new and useful Improvements in Platen Printing-Presses, of which the following is a specification.

This invention relates to improvements in platen printing-presses; and its object is to provide a press of simple construction which can be quickly driven without danger to the person feeding.

In the accompanying sheets of drawings, Figure 1 is a front elevation of my improved press. Figs. 2 and 3 are elevations of the two sides. Fig. 4 is a sectional view on the broken line *a b*, Fig. 1; and Fig. 5 is a plan view of the platen.

The feed-table A consists of a thin polished plate with its inner edge A^2 beveled off on the under side to reduce it to practically a knife-edge. This table is mounted upon the arms A^3 A^3, fixed to the rocking shaft A^4, mounted in bearings A^5, formed in the side frames B and B^2. The front feed guide or gage A^6 is fixed a little way in front of the edge A^2 of the table, so that the paper projects a little beyond such edge. After the position of the paper has been located by the gage the inner edge of the table is lowered sufficiently to bring the paper below the gage into position for the grippers on the platen to lay hold of its projecting edge. The shaft A^4 is rocked for this purpose by its arm A^7, rigidly fixed to it and having an antifriction-roller A^8 at its free end bearing upon the cam A^9, fixed upon the cam-shaft B^3. The feed-table is preferably made detachable, so that it can be removed to expose the platen and facilitate "making ready."

The platen C swings on the rocking shaft C^2 from a more or less horizontal position (shown in Fig. 4) to the almost vertical position shown in the other figures. When in this position, the oscillating type-bed or form-carrier D, which may be of ordinary design, is brought toward the platen and gives the impression. The bed D is oscillated by the rods D^2 D^2, (not shown in Fig. 2,) connected to the cranks or eccentric studs D^3 in the wheels D^4 D^4, employed to drive the cam-shaft B^3 from the driving-shaft B^4. The rocking shaft C^2, carrying the platen, is a considerable distance away from the face of the platen, so that such platen moves bodily over through the arc of a circle of sufficient radius and length to permit of the front edge of the platen provided with a gripper E, which lays hold of the paper, traveling far enough to carry the paper clear of the feed-table to a position to receive the impression. Furthermore, the rocking shaft C^2 is not in a plane at right angles to the center of the platen, but is in a parallel plane considerably nearer the rear edge C^3 of the platen, and a rigid rest C^4 is provided, upon and against which the lower edge and back of the platen bear when it receives the impression. Besides facilitating passing the platen conveniently beneath the feed-table this form tends, in conjunction with the rest C^4, to give rigidity to the platen while it receives the impression. The rest C^4 is by preference adjustably fixed upon the cross-stay C^5 by the screws C^6.

The gripper E, having notches C^8 in its front edge, preferably extends completely across the front of the platen and has an arm E^2 at each end, connecting it to the rocking shaft E^3, mounted in bearings in the platen. A spring E^4, stretched between the stud E^5 on one side of the platen and one of the arms E^2, closes the grippers, and they are opened by the arm E^6 on the end of the rocking shaft E^3 at the other end of the platen. The arm E^6 is provided with an antifriction-roller E^7, which when the grippers require to be opened is engaged by a tappet F. This tappet is pivoted on the side of and moves with the platen, and it is provided with an arm F^2, which plays between and alternately engages two projections F^3 and F^4 upon the lever F^5, mounted upon the rocking shaft C^2. While the platen travels from beneath the feed-table into position to receive the impression the gripper E remains closed and retains the paper; but after the impression is made and the type-bed D has sufficiently receded the antifriction-roller F^6 upon the lever F^5 passes off the proud part F^7 of the cam F^8, and the lever, moving under the influence of its spring F^9, brings its projection F^3 against the tappet-arm F^2 and moves the tappet sufficiently to open the gripper. As the platen moves back to beneath the feed-table the tappet is held in po-

sition to hold the gripper E open by the spring-detent G, pivoted to the side of the platen, engaging the rounded notch G^2 in the tappet; but when the proud part F^7 of the cam F^8 engages the antifriction-roller F^6 the projection F^4 moves the tappet so as to disengage it from the roller E^7 and allow the gripper to close upon the edge of the paper projecting over the feed-table.

Pendent "frisket-fingers" H H, adjustably mounted upon the shaft H^2, are provided to bear upon the side margins of the paper and hold it in position against the platen. The shaft H^2 is mounted in arms H^3, carried on the rocking shaft H^4, which is rocked by its arm H^5, coupled by the rod H^6 to the lever H^7, mounted upon the stud H^8. The lever H^7 carries an antifriction-roller H^9, which engages a cam B^5 on the cam-shaft B^3. As the arms H^3 are moved to bring the frisket-fingers toward the platen the shaft H^2 is rocked in its bearings by its arm J, which has a curved slot J^2, engaging the fixed stud J^3. The object of this is to somewhat retard the movement of the frisket-fingers and enable their upper parts to move to a position sufficiently clear of the platen without undue movement of the lower ends.

The paper is delivered from the platen by the grippers K, carried between the arms K^2. The fixed jaws K are rigidly fixed to the arms K^2, and the movable jaws K^3 are fixed upon the rocking shaft K^4, mounted in bearings in the arms. The spring K^5, extended between the projection K^6 on the shaft K^4 and a stud K^7 on one of the arms, is provided to close the grippers. When the grippers K reach the platen, they are sufficiently open to receive the edge of the paper, and the points of the jaws pass into the notches C^8, formed in the platen and in the gripper E for that purpose, and close upon the edge of the paper, which at this period is held by the frisket-fingers H and the gripper E. When the platen moves away, the paper is retained by the jaws K and K^3. Then the arms K^2 are moved to the position shown in Fig. 4, and the antifriction-roller K^8 on the arm K^9, fixed on the shaft K^4, engages the fixed incline L, and thereby opening the grippers K^3 releases the paper, which falls below. The front make-ready clamp C^9 lies below the notches C^8 in the platen, so as not to obstruct the gripper-jaws K^3, which are opened to receive the paper by the piece L^2 on the movable rod L^3. The inner end of this rod is supported in a hole in the lug L^4 on the under side of C^5, and its other end is coupled to the arm L^5 of the bell-crank lever L^6, mounted on the stud L^7. The other arm L^8 carries an antifriction-roller L^9, which bears upon the cam M on the cam-shaft. The spring M^2 on the rod L^3 is provided to move the piece L^2 away from the arm K^9 when the cam M permits it to do so.

The oscillating motion of the type-bed D is utilized to actuate the platen by means of the rods N N, coupling the oscillating bed to arms N^2 N^2 on the rocking shaft N^3. The arms N^4 N^4 on the shaft N^3 are coupled by the rod N^5 to the cross-piece N^6, the round ends of which fit into the round holes N^7, formed in the arms N^8, projecting from the platen. The arms and connecting-rods are arranged in this way so that the platen is slowly stopped and started. The spring S is introduced between the collar S^2 on the rod N^5 and the cross-piece N^6 to enable the platen to be brought down upon the rest C^4 before the oscillation of the type-bed toward the platen is quite completed and to allow it to remain at rest by compressing the spring until the type has receded a sufficient distance from the sheet of paper.

The arms K^2 are fixed on the rocking shaft P, actuated by its arm P^2, coupled by the rod P^3 to the arm P^4 on the rocking shaft P^5, which latter shaft is actuated by its arm P^6, coupled by the rod P^7 to the arm P^8 on the platen.

In operation each sheet to be printed is placed on the feed-table A, with its front edge against the front gage A^6. The table is then lowered, and the platen C, then completing its upward movement, presents the gripper E over the projecting edge of the paper, and such gripper closes down and grips the paper against the front edge of the platen-face. The platen then moves to the position to receive the impression, and while passing to this position the frisket-fingers H are brought to bear upon the side edges of the paper and hold it evenly against the platen. The impression is now made by the type-bed D, and as the impression is made the delivery-grippers K pass into the notches C^8 in E and lay hold of the edge of the sheet. The gripper E opens as or immediately before the bed D recedes from the platen; but the frisket-fingers retain their hold of the sheet for a sufficient time to prevent it sticking to the type and then, slightly opening, leave the printed sheet perfectly free to be drawn away by the grippers K and dropped below. An important feature in the arrangement is that neither the grippers E nor the frisket-fingers H offer when open any obstruction to the withdrawal of the sheet at the front or gripper edge of the platen.

I claim—

1. In combination, the form, the traveling platen, the gripper on the front edge of said platen arranged when open to form no obstruction to the sheet being drawn away over the front edge of the platen and delivered at the rear of the machine, and the frisket-fingers pivotally arranged when open to form no obstruction to the removal of the sheet in the manner stated, substantially as described.

2. In combination with the printing-form and table, the traveling platen, a bell-crank lever pivoted at the end of said platen, a gripper-bar carried by said bell-crank and arranged to clamp the paper sheet against the edge of the platen, tappets pivoted to the

platen-frame adapted to operate said bell-crank levers, a rocking lever having lugs or projections arranged to operate said tappets, and means for rocking said lever, substantially as described.

3. In combination, the bed and platen with means for operating them, the rocking arms H^3, the rock-shaft journaled in said arms, the frisket-fingers carried by said rock-shaft and the arms carried by the rock-shaft and having a curved slot engaging a guiding projection on the frame, substantially as described.

4. In combination, the swinging platen, the bed D mounted on swinging arms with means for operating the same, a crank-shaft having a crank-arm linked to one of said swinging arms, a cross-piece carried by the platen and a rod yieldingly connecting said cross-piece with arms on said crank-shaft, the said arms being arranged so that they are passing the dead-center while the platen is momentarily at rest in the printing position with the object of obtaining an easy stop, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

FRED WAITE.

Witnesses:
DAVID NOWELL,
SAMUEL A. DRACUP.