

J. R. ROGERS.
 TYPOGRAPHICAL MACHINE.
 APPLICATION FILED JULY 25, 1911.

Patented Feb. 18, 1913.

3 SHEETS—SHEET 1.

1,053,440.

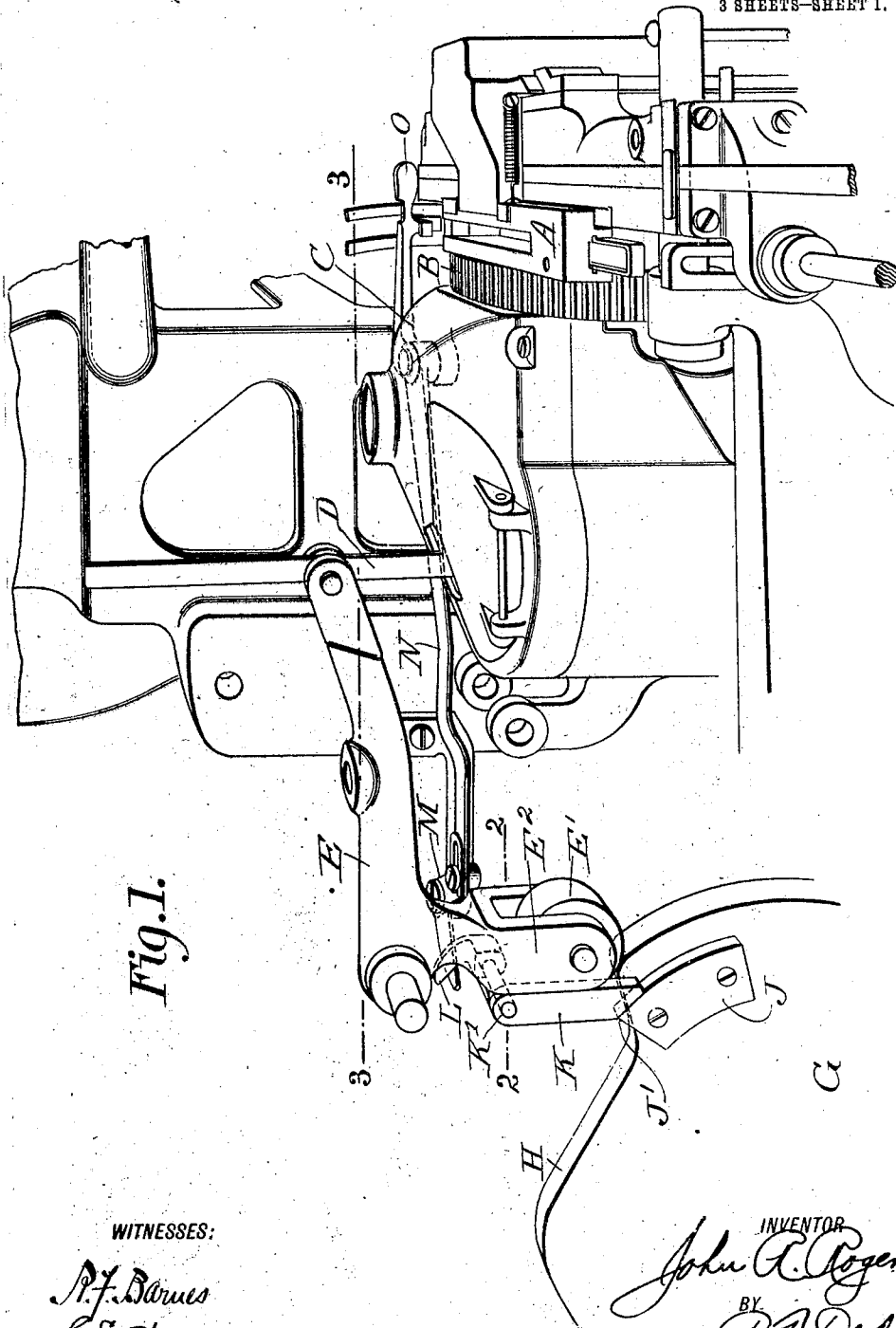


Fig. 1.

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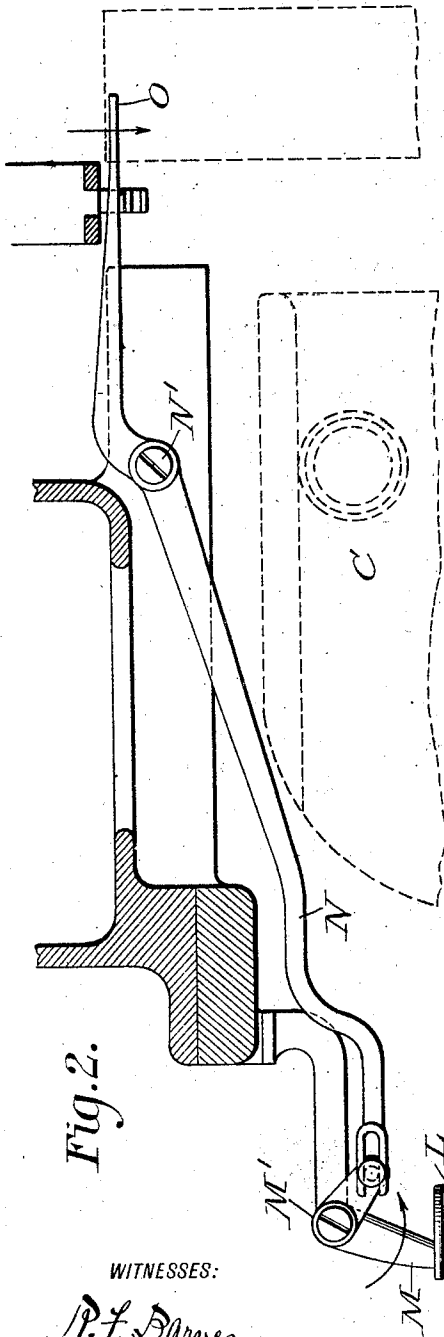


Fig. 2.

Fig. 4.

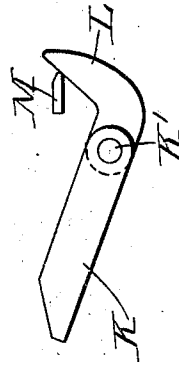
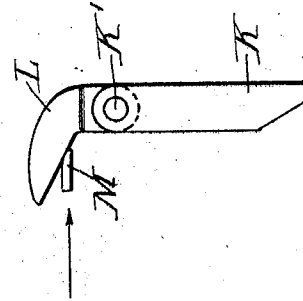
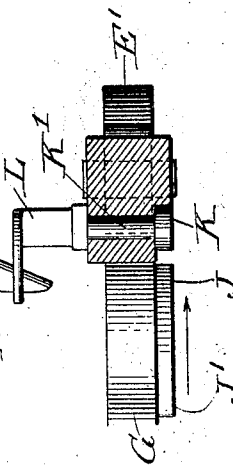


Fig. 3.



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3 SHEETS-SHEET 3.

Fig. 5.

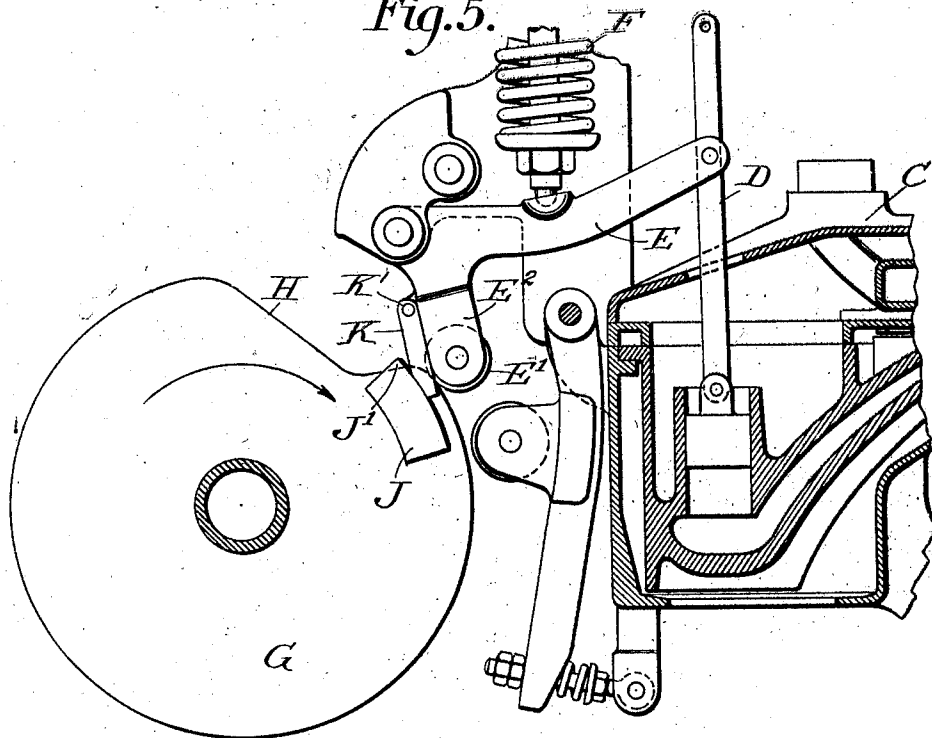
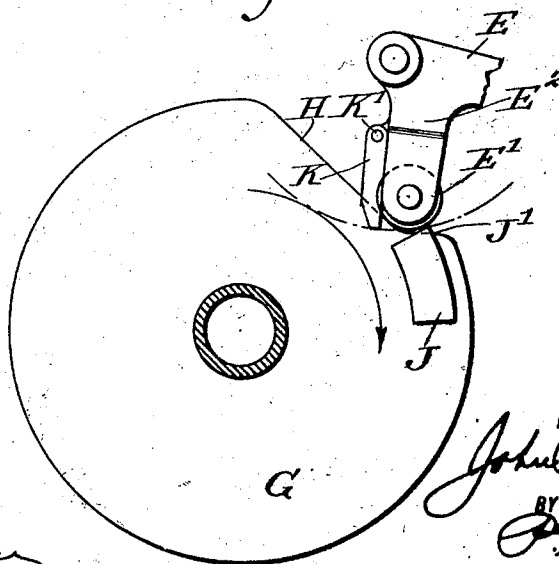


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN RAPHAEL ROGERS, OF BROOKLYN, NEW YORK, ASSIGNOR TO MERGENTHALER
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TYPOGRAPHICAL MACHINE.

1,053,440.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed July 25, 1911. Serial No. 640,469.

To all whom it may concern:

Be it known that I, JOHN RAPHAEL ROGERS, a citizen of the United States, and a resident of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Typographical Machines, of which the following is a specification.

My invention relates to typographical machines, and more particularly to that class thereof known to the public under the name "Linotype", as represented for instance in U. S. Letters Patent to O. Mergenthaler, No. 436,532. In this machine, the composed line of matrices is presented by the first elevator to a slotted mold wherein the slug or linotype is cast. When the line is brought into engagement with the mold so as to close one side thereof, the mouth of the pot containing the molten metal is moved against its opposite side, and the pump acts to inject the metal into the mold and against the line of intaglio characters in the matrices. In normal practice the pump is forced to its active or operative position by a powerful spring and is returned to its retracted or inoperative position by a cam which moves it in the opposite direction, the cam being formed with a depressed surface which permits the spring to act in the manner described. Ordinarily this depression is shaped with a more or less gradually descending surface, so as to permit the steady and uniform operation of the pump and injection of the type metal. Such a formation of the parts is found to be satisfactory and efficient in ordinary practice and particularly when the matrix characters are of the usual size and shape. When, however, matrices are employed which contain deeper cavities, or where, as in the case of overhanging characters, it is necessary that the molten metal turn a corner in the matrix, the force of the pump must be proportionately increased. In such circumstances, it has been found desirable that it be given a rapid and abrupt action as distinguished from the gradual and uniform operation previously mentioned. In order to equip the machine with parts which are capable of giving either action when desired, I preferably equip the cam, having the gradually descending or sloping surface, with additional means which may be thrown into action at will, so that the roller on the pump

lever may descend abruptly from these auxiliary means to the bottom of the depression instead of passing down more gently along the side thereof. I have found it desirable in the equipment of such a machine to provide connections whereby either arrangement may be placed in operative condition at will from the front of the machine and without the operator leaving his seat; and I thus dispense with the necessity of his leaving his place and going to the rear of the machine to make the required adjustment.

I have herein shown my invention in preferred form, but obviously many changes and variations may be made therein without departing from its spirit; and generally speaking, I desire it to be understood that I do not limit myself to any specific form or embodiment except in so far as such limitations are specified in the claims.

In the accompanying drawings: Figure 1 is a perspective view of certain portions of a linotype machine, indicating the relative positions of the first elevator, mold, and pot, as well as of the pump and its actuating mechanism; Fig. 2 is a plan view of the adjusting devices for the pump operating means, the frame being in section on the line 3-3 of Fig. 1, and the pump lever being in section on the line 2-2 of Fig. 1; Figs. 3 and 4 are detached detail views, illustrating different positions of some of the parts; Fig. 5 is a side view of the pump operating means, with the pot in vertical section; and Fig. 6 is a detached side view of the pump cam and the parts cooperating therewith.

Referring to the drawings, Fig. 1 shows the first elevator A, mold wheel B and pot C, in their casting relations. The pump rod D (see also Fig. 5) is connected to the arm E of the usual operating lever, which is normally pressed downward by the powerful spring F. The other arm E² of the lever is provided with the cam roller E¹ in engagement with the periphery of the cam G. The cam G is provided with the operating depression H, which, as will be seen from the drawings, is formed with sloping sides, so that in normal operation the roller E¹ will descend uniformly and gradually to the bottom of the depression H, thus permitting the spring F to operate the pump rod D so as to inject the molten metal in a regular and uniform manner. Also connected to the

cam G, at the side thereof, is the supplemental cam-piece J, which coöperates with the pivoted member K on the arm E², when it is desired to actuate the pump in a more violent or abrupt manner. The piece K is mounted in a recess formed in the arm E² and is connected to the rock-shaft K¹ suitably journaled therein, it being located in suitable proximity to the cam piece J on the cam G. When the piece K is adjusted to operative position, and because of the rotation of the cam G, it rides in contact with the cam piece J, as shown in Fig. 1, until it clears the projecting corner J¹ thereof, whereupon the roller E¹ drops abruptly to the bottom of the depression H. This action causes the rapid descent of the arm E and connected pump rod D, thus producing the more violent injection of the molten metal from the pot into the mold, and insuring its penetration to all parts of the mold and of the matrices in engagement therewith.

My present invention contemplates the employment of adjusting means whereby the piece K may be brought to operative or inoperative position at will, and to this end I attach an arm L to the opposite end of the rock-shaft K¹, which arm is acted upon by suitable connecting devices extending to the front of the machine. For this purpose, in my preferred form, I employ a lever M pivoted at M¹ to the framework, one arm of which engages the arm L, and the other arm of which is acted upon by a lever N pivoted at N¹ to the frame and extending to the front of the machine, where it is provided with a handle O in convenient proximity to the operator, so that it may be manipulated by him without leaving his place at the machine. When the handle O is in the position shown in Fig. 2, the piece K is in its operative position, as indicated in Figs. 1, 2, 5 and 6. The piece K then contacts with the cam piece J until it clears the projecting corner J¹ thereof, thus allowing the roller E¹ to drop abruptly to the bottom of the depression H. When the handle O is shifted in the direction of the arrow in Fig. 2, the lever M is moved in the direction of the arrows in Figs. 2 and 3, and acting on the arm L and rock-shaft K¹, the piece K is turned from the position shown in Fig. 3 to its inoperative position as shown in Fig. 4. When thus adjusted, the roller E¹ acts in the usual manner and descends easily along the gradually sloping side of the cam depression H. It will be seen that I have thus provided means whereby the character and force of the metal injection may be

varied at will and with the least possible inconvenience and loss of time.

Having thus described my invention, its construction and mode of operation, what I claim and desire to secure by Letters Patent of the United States is as follows:

1. In a typographical machine comprising casting mechanism, the combination of a pump and a plurality of actuating means therefor, with devices whereby the selected actuating means may be thrown into action at will.

2. In a typographical machine comprising casting mechanism, the combination of pump operating means including a plurality of sets of actuating parts, with means whereby any selected set of the said parts may be thrown into action at will.

3. In a typographical machine comprising casting mechanism, the combination of pump operating means including a cam provided with a plurality of actuating members, with means whereby any selected one of said members may be thrown into action at will.

4. In a typographical machine comprising casting mechanism, the combination of pump operating means, including an actuating lever and operating means being provided with a plurality of sets of co-acting elements, with means whereby any selected set of said co-acting elements may be thrown into action at will.

5. In a typographical machine comprising casting mechanism, the combination of pump operating means, including a lever and an actuating cam therefor, the said cam being provided with a plurality of cam faces, and the said lever being provided with a corresponding plurality of co-acting elements, with means whereby any selected one of said elements may be thrown into action at will.

6. In a typographical machine comprising casting mechanism, the combination of pump actuating means, including the lever E, cam roller E¹, and part K, and the cam G provided with the supplemental cam piece J, with means whereby either the roller E¹ or part K may be brought into operative relation respectively to the cam G or cam piece J at will.

In testimony whereof I hereunto set my hand this 24th day of July, 1911, in the presence of two attesting witnesses.

JOHN RAPHAEL ROGERS.

Witnesses:

WM. J. DOLAN,
L. C. MORRISON.