J. R. ROGERS.

SLUG CASTING MACHINE.

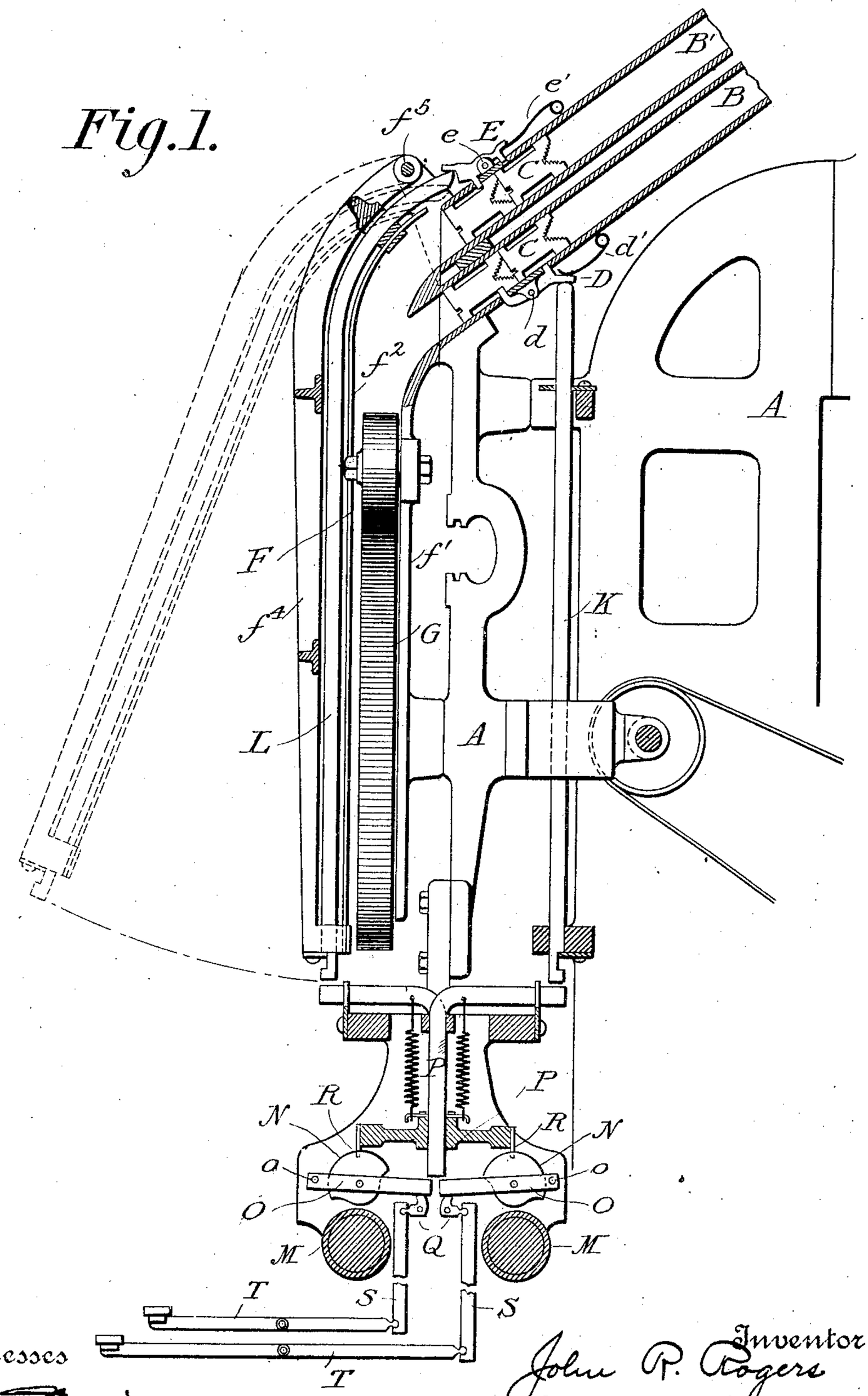
APPLICATION FILED OCT. 23, 1908.

924,939.

Patented June 15, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

L. E. Morrison

C. F. Schneider

Inventor.

John R. Rogers

By P. T. Dodge

Attorney

J. R. ROGERS.

SLUG CASTING MACHINE.

APPLICATION FILED OCT. 23, 1908.

924,939.

Patented June 15, 1909.

2 SHEETS—SHEET 2.

Fig. 2.

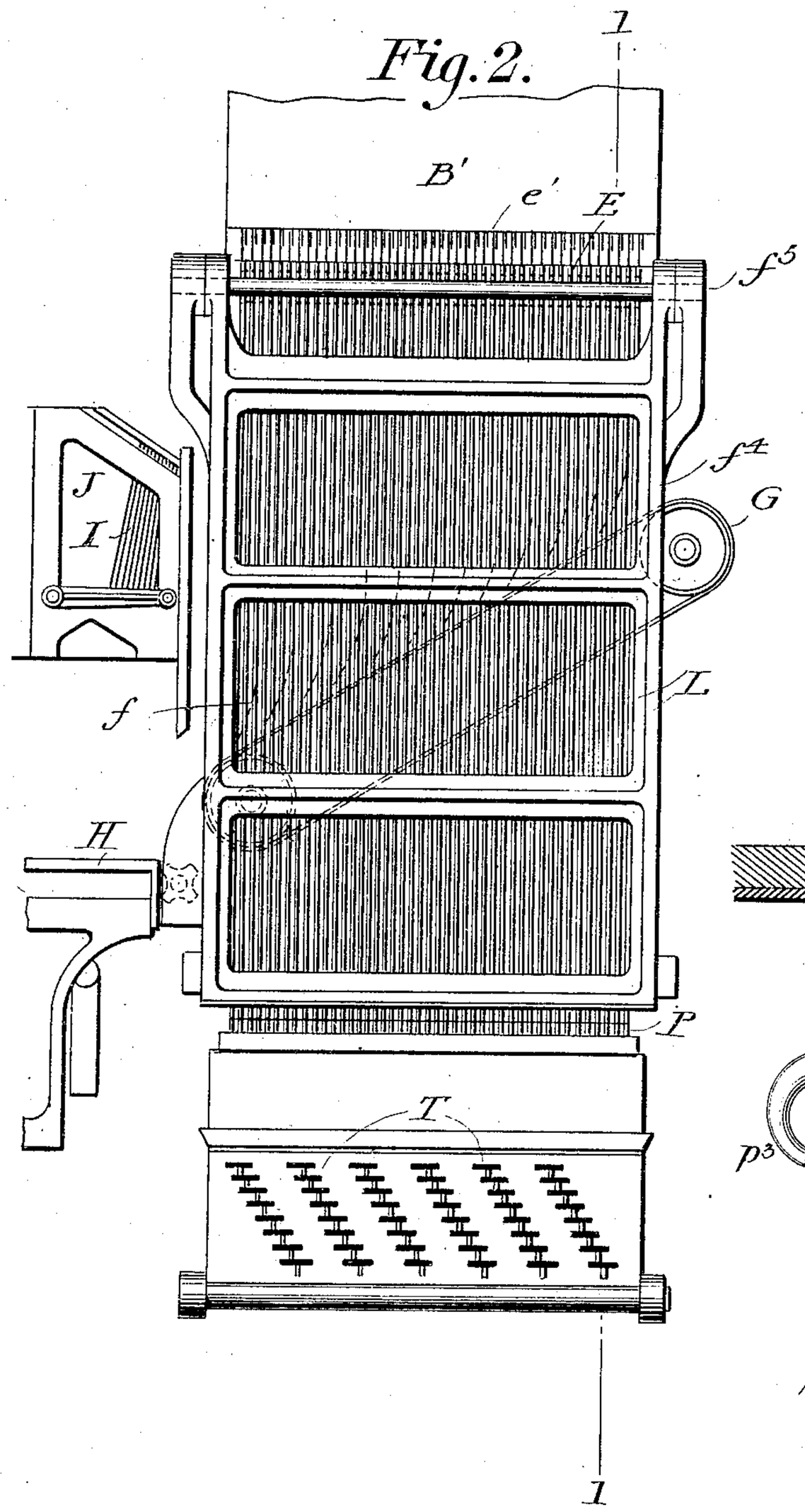
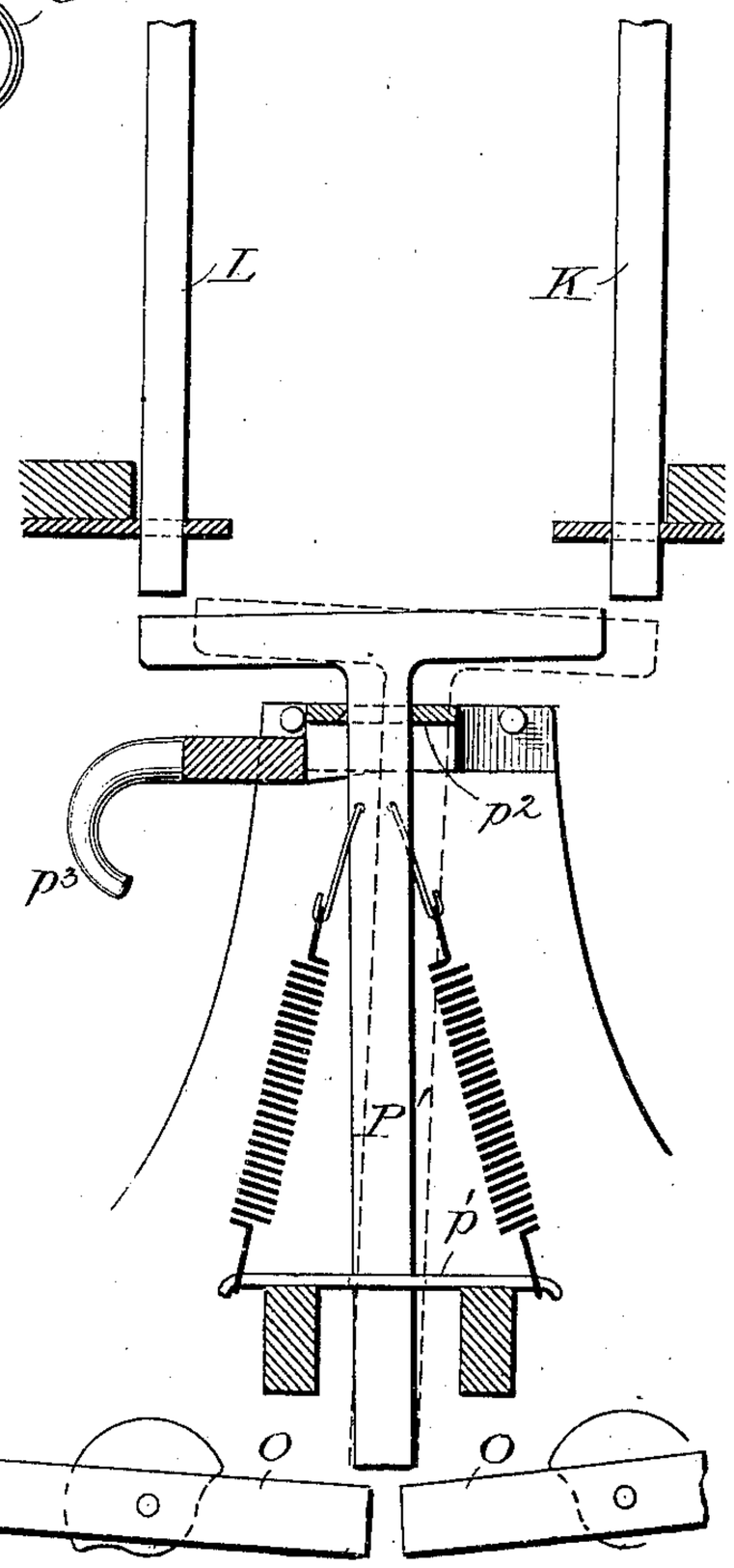


Fig. 3.



Witnesses

L. C. Harrison

C. F. Schneider.

Inventor

John R. Rogers

By P. F. Dodge

Attorney

UNITED STATES PATENT OFFICE.

JOHN R. ROGERS, OF BROOKLYN, NEW YORK, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

SLUG-CASTING MACHINE.

No. 924,939. Specification of Letters Patent. Patented June 15, 1909.

Application filed October 23, 1908. Serial No. 459,142.

To all whom it may concern:

Be it known that I, JOHN R. ROGERS, of the borough of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Slug-Casting Machines, of which the following is a specification.

My invention has reference to that class of machines in which circulating matrices are momentarily assembled in justified lines when employed to form type characters on the edge of printing bars or slugs cast in a slotted mold, the matrices being individually released from magazines in which they are stored for assemblage, and finally returned to the magazines by distributing mechanism after the casting action.

The object of the invention is to combine two magazines, each containing a set or variety of matrices, with a single assembling mechanism and a single series of finger-keys in such manner that matrices may be delivered from either magazine to the line at will.

To this end I combine with two magazines, one overlying the other, a channel-plate or receiver to which they both deliver the matrices, a single carrier-belt or equivalent means for directing all the matrices to the line, a finger-key mechanism, and reeds extending upward on opposite sides of the channel-plate or receiver to operate the escapements of the respective magazines.

My invention is susceptible of embodiment in various modified or alternative forms, but in the accompanying drawings, which are limited to the parts immediately associated with the invention, I have represented an arrangement which is recommended for use under ordinary conditions.

It is to be understood that with the exception of the parts herein described, the machine may be of any ordinary or approved construction.

Figure 1 is a vertical section from front to rear on the line 1—1 of Fig. 2, through the lower ends of the magazines, the assembling mechanism, the keyboard mechanism, and coöperating parts. Fig. 2 is a front elevation of the parts shown in the preceding figure. Fig. 3 is a vertical cross-section through the keyboard mechanism in a slightly modified form.

Referring to Figs. 1 and 2, A, A, represent portions of the main-frame which may be of any form and construction adapted to sustain the various operative parts.

B, B′, represent the two inclined magazines arranged one over the other, and each adapted to contain a font or series of matrices C. The matrices, which are delivered by a suitable distributing mechanism into the upper ends of the magazines, descend thereto by gravity and are released one at a time from their lower ends, those of the lower magazine being controlled by escapements D, and those of the upper magazine by escapements E.

F represents a vertical channel-plate or receiver secured to the front of the frame, and having its upper end expanded vertically to receive the matrices discharged from both magazines. The upper end of this channel-plate is divided by vertical partitions *f*, which prevent the matrices from overturning as they descend.

G is an inclined assembling belt upon which all of the matrices are received, and by which they are delivered successively into the upper end of the assembling elevator H, which will also receive the usual wedge spacers or justifiers I, one at a time, from their magazine J, as usual in linotype machines.

The escapements D of the lower magazine, one for each channel, consist each of a lever mounted on a central pivot *d*, and having upturned ends which are projected alternately into the magazine as the escapement is vibrated, so that one matrix at a time may be released. Each escapement is acted upon by a spring *d′*, attached to the magazine, which tends to hold the lower end of the escapement in the elevated position and normal position, shown in Fig. 1.

The escapements E of the upper magazine, are mounted on its upper side, and in their general form and action are similar to those of the lower magazine, each escapement being mounted on a central pivot *e*, and being acted upon by a spring *e′*, which holds the forward end of the escapement down within the magazine. The lower escapements D are actuated by vertical reeds or slides K guided in the main-frame and acting at their upper ends beneath the rear ends of the escapements. The upper escapements E are operated by a second series of vertical reeds L, which are guided in the hinged front of

the receiver or channel-plate F. This channel-plate consists principally of the stationary walls f' secured to the main-frame in rear of the assembling belt G, and of the vertical front plates f^2 and f^3 which are sustained in the frame f^4. This frame, forming with the plates the front of the receiver, is hinged at its upper end to the main-frame at f^5, so that it may be turned forward and upward as indicated in dotted lines in Fig. 1, carrying with it the reeds L, so as to uncover and expose the front of the matrix channels and the assembler belt G.

It is to be particularly noted that the mechanism for guiding and assembling the released matrices after they leave the magazines, is located between the two series of reeds, which guide the escapements of the respective magazines, and that the front reeds, which actuate the escapements of the upper magazines, are capable of being removed in series at will from their operative position so as to give access to the delivery ends of the magazines and the parts thereunder.

I believe it to be wholly new in the art to mount reeds which form a connection between the escapements, and a keyboard mechanism in front of the matrix paths and in such manner that they may be swung out of position at will to give access to the interior parts, and it is manifest that they may be modified in form and arrangement at will, provided their support is instantly movable to and from its operative position without disorganizing the remainder of the mechanism.

For the purpose of actuating the reeds, I propose to employ a series of finger-keys and any suitable connections thence to the reeds, but I recommend the employment of any one of the well-known mechanisms in which the finger-keys release power-driven parts to effect the movement of the reeds.

I have shown in the drawings a keyboard mechanism similar to that represented in U. S. Letters Patent to Dodge, No. 530,931.

M, M, represent horizontal constantly rotating rolls, and N, N, a series of vertical cams mounted in vertically movable yokes O, sustained at one end by pivots *o*. These yokes act respectively beneath the lower ends of vertical slides P mounted in the main-frame and laterally bent at their upper ends so that they may act beneath and lift the respective reeds K and L. The cam yokes O are held normally in elevated positions by pivoted dogs Q, the cams being thus held out of engagement with the rolls M, while they are prevented from turning by stationary stop-pins R. Each of these dogs is actuated by a vertical slide S connected to a finger-key lever T. Whenever one of these levers is actuated, the corresponding dog Q is caused to release the cam yoke which falls until its cam end contacts with the underlying roller, from which it receives a rotary motion.

The rotation of the cam has the effect of lifting the yoke above its original and normal position, causing it in turn to actuate the corresponding reed and escapement, thereby releasing a single matrix from the magazine. On release of the key, the dog Q resumes its first position and the yoke and cam are arrested in their normal position. The action of these parts is essentially the same as in the patent last referred to. Whenever a key is actuated, a matrix is released and descends from one magazine or the other, as the case may be, into the upper end of the channel-plate, downward therein on the belt G, and thence to the line in the assembler. From the assembler, the line will be transferred by ordinary or suitable mechanism to the casting mechanism, and thence to a distributing mechanism by which the matrices will be returned to the appropriate channels of the respective magazines.

The distributing mechanism may be of any suitable construction such, for example, as that shown in U. S. Letters Patent Nos. 741,294, 767,169, 792,472, 812,585, or 890,303.

The magazines B, B', may be mounted for removal from the machine jointly or independently in any of the various ways now known in the art. The escapements are preferably attached to each magazine as firm parts thereof, but this is not a necessary feature, and they may be mounted in independent supports to remain in the machine when the magazines are removed.

In the arrangement shown in Figs. 1 and 2, the number of finger-keys, yokes, and slides P will equal the number of channels in the two magazines; or in other words, there will be a finger-key and intermediate connections for each channel in the machine.

In some cases, for example, where the machine carries a complete font in each magazine, it would be advantageous to use a single key to deliver a character from the upper or from the lower magazine, as required, thus avoiding the duplication of keys. This is the preferred arrangement and is represented in one form in Fig. 3. In this figure K and L represent reeds of the respective series as heretofore described, and O, O, the cam yokes of the keyboard. Above each of these yokes I mount the vertical slide P' of T-form. These slides are mounted at their lower ends in stationary guides p', and at their upper ends in guides p^2 arranged to slide forward and backward in the frame and provided with an operating handle p^3. When this handle is drawn forward to the position shown in full lines, the slides will actuate the reeds L and the actuation of the

finger-keys will result in the delivery of matrices from the upper magazine only. When, on the contrary, the guide is moved rearward, the slides P′ will assume the position indicated in dotted lines and actuate the reeds K to release matrices from the lower magazine. Thus the shift from upper to lower case characters, or from characters of one font to those of another, may be effected by simply moving the handle p^3 forward and backward.

While I have described my improvements as embodied in a machine for casting continuous slugs or linotypes, it will be obvious to the skilled mechanic that they may be used without change in machines for producing logotypes or single types for matrices, machines for these purposes being well-known in the art.

The expression "finger-key mechanism" as employed in this specification, is used to indicate the finger keys and the connections thence to the reeds, whatever the form of these connections may be.

Having thus described my invention, I claim and desire to secure by Letters Patent,—

1. In a linotype machine, the combination of two magazines, escapements at the outer sides of the respective magazines to control the discharge of the matrices therefrom, a receiver or channel-plate into which both magazines discharge, and two series of escapement-operating reeds located on opposite sides of the receiver, and guides for said reeds.

2. In a linotype machine, two parallel magazines, escapements located on the outer side of the respective magazines, two series of actuating reeds connected with the respective series of escapements, and a matrix-receiving and guiding mechanism located between the two series of reeds and arranged to receive matrices from both magazines.

3. In a linotype machine, the combination of two inclined magazines, one overlying the other, an upright receiver or channel-plate having its upper end arranged to receive matrices from both magazines, two series of escapements located above and below the respective magazines, two series of escapement-actuating reeds located on opposite sides of the channel-plate, and finger-key mechanism connecting with both series of reeds.

4. In a linotype machine, the combination of a magazine, escapements to control the delivery of matrices therefrom, a receiver or channel-plate having its upper end in position to receive matrices from the magazine, and escapement-actuating reeds located in front of the channel-plate, said reeds and the front of the channel-plate being mounted to swing away from their operative position to give access to the channel-plate.

5. In a linotype machine and in combination, an inclined magazine B′, escapements thereover to control the delivery of matrices, an upright channel-plate adapted to receive the matrices from the magazine, said channel-plate having its front side hinged to swing upward from an operative position, and escapement-actuating reeds mounted in said hinged front.

6. In a linotype machine, the combination of two magazines, one overlying the other, a vertical channel-plate having its upper end arranged to receive matrices from both magazines, a carrier-belt to deliver the matrices laterally from the channel-plate, escapements above and below the respective magazines to control the delivery of matrices therefrom, reeds extending downward from the respective escapements on opposite sides of the channel-plate, and a finger-key mechanism arranged below the channel-plate and connecting with all the reeds, substantially as described.

7. In combination with a matrix receiver or channel-plate, reeds K and L located on opposite sides of the same, and a finger-key mechanism including the T-shaped slides P′ for actuating the reeds, and the movable guide for changing the position of the slides that they may operate the reeds of one set or the other.

8. In combination with the matrix receiver or channel-plate, the two series of escapement-actuating reeds K and L located on opposite sides of the same, and reed-actuating devices located beneath the channel-plate, said devices being shiftable for engagement with the reeds of one series or the other, as required.

In testimony whereof I hereunto set my hand this seventeenth day of October, 1908, in the presence of two attesting witnesses.

JOHN R. ROGERS.

Witnesses:
ROBERT G. CLARK,
LUCY E. SMITH.