

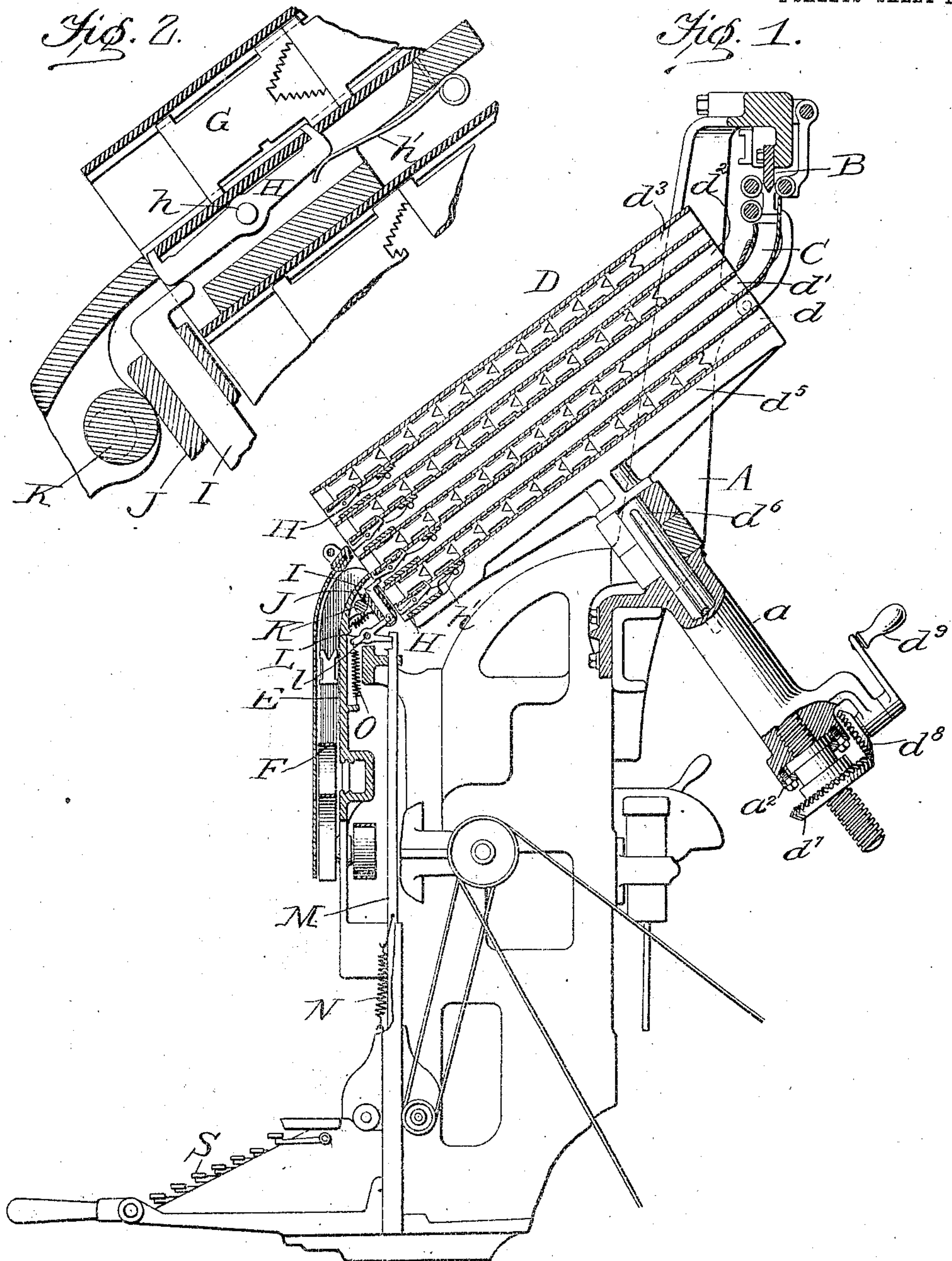
No. 859,618.

PATENTED JULY 9, 1907.

J. R. ROGERS.
LINO TYPE MACHINE.

APPLICATION FILED JAN. 19, 1906. RENEWED NOV. 8, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

W. B. Duncanson,
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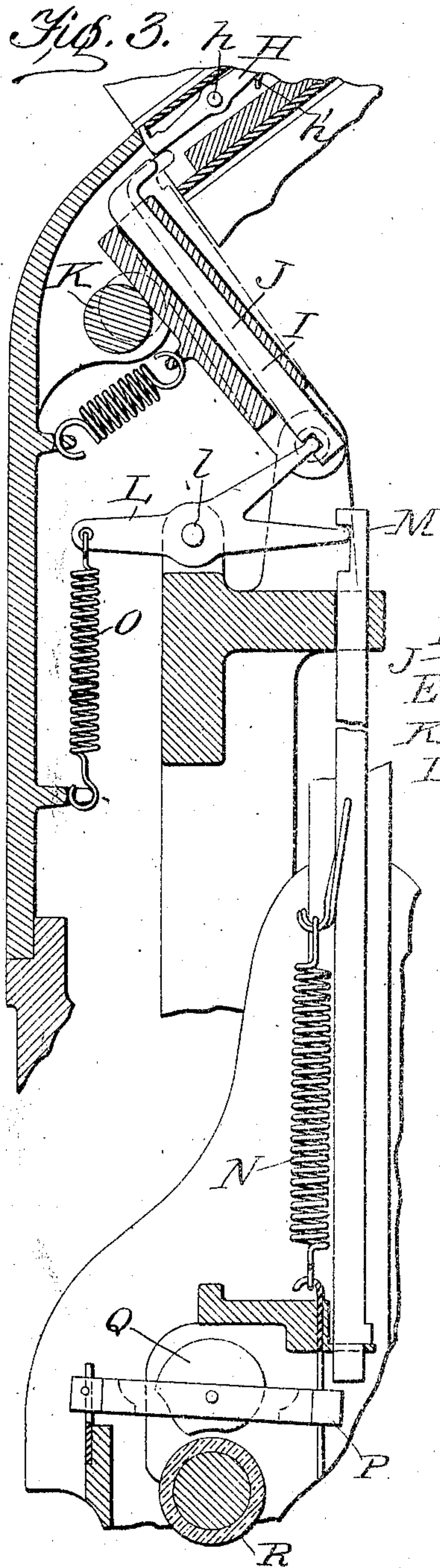
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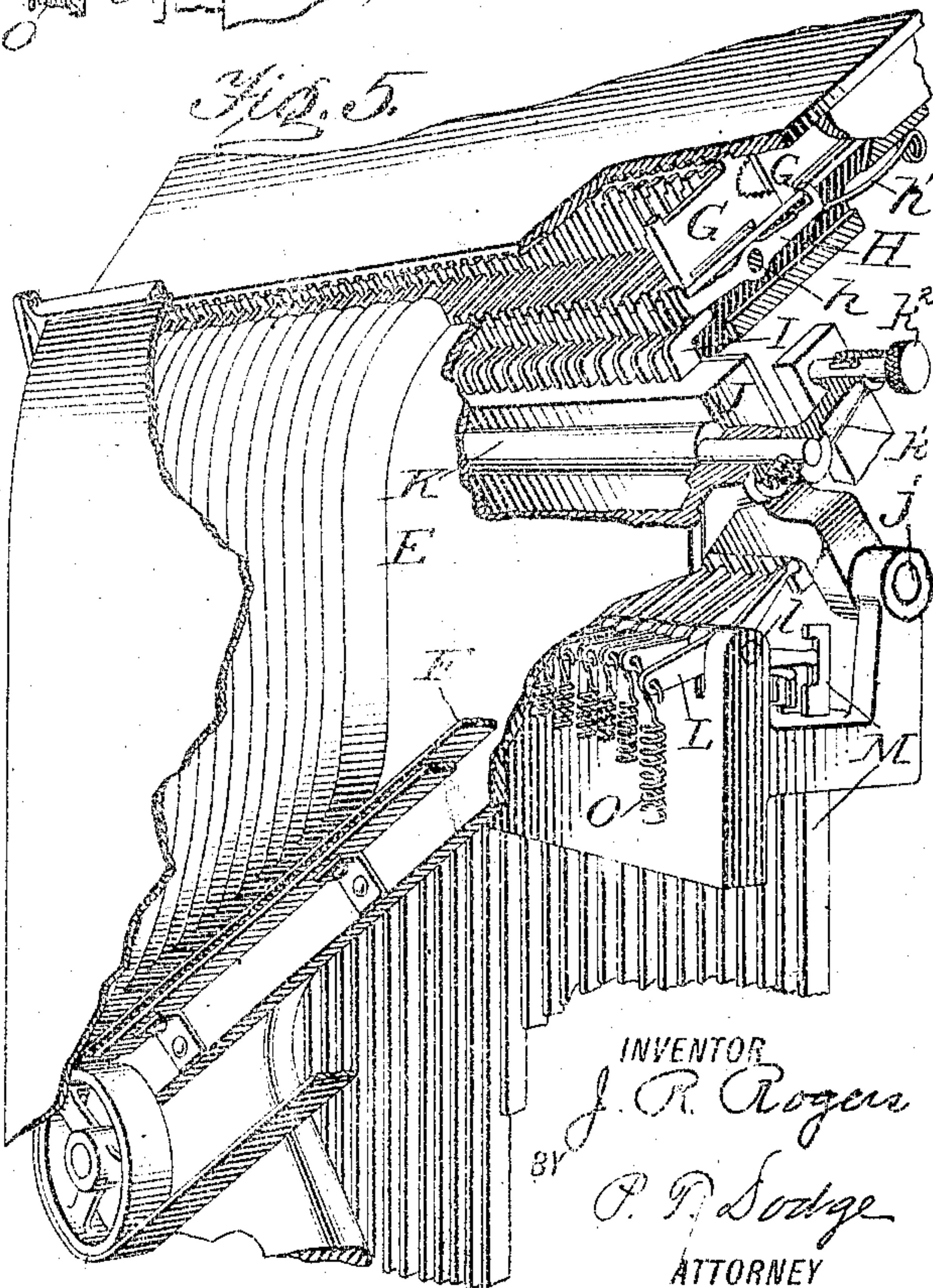
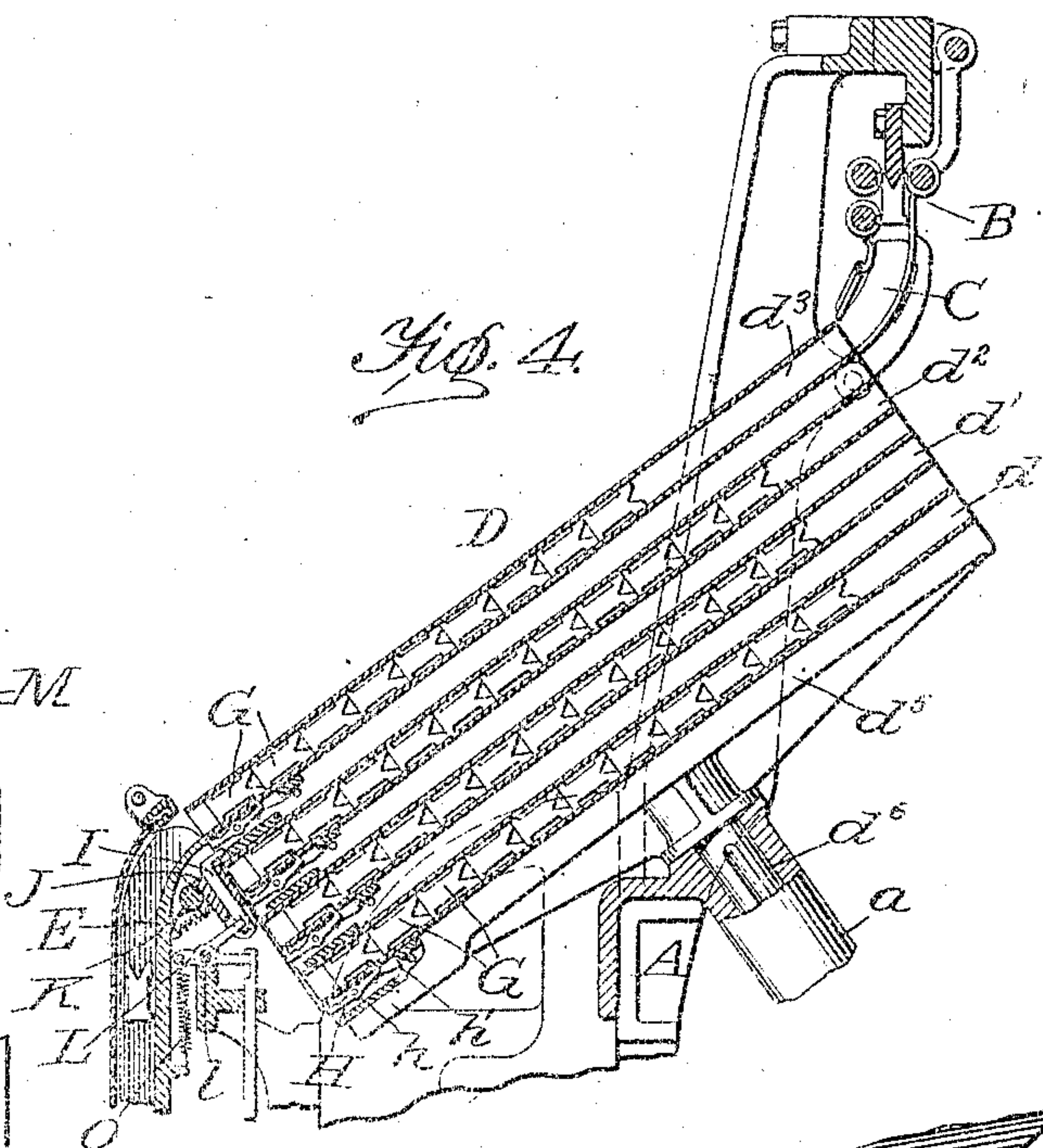
APPLICATION FILED JAN. 19, 1906. RENEWED NOV. 8, 1906.

2 SHEETS—SHEET 2.



WITNESSES:

WITNESSED.
All Binding.
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UNITED STATES PATENT OFFICE.

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

LINOTYPE-MACHINE.

No. 859,618.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed January 19, 1906. Renewed November 8, 1906. Serial No. 342,567.

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 Linotype-Machines, of which the following is a specification.

My invention has relation to that class of machines wherein circulating matrices stored in a magazine, are released by finger keys, assembled temporarily in line, and the lines presented successively to a mold in which a type metal slug or linotype is cast against them, after which the matrices are returned through the distributing mechanism to the magazine from which they started, as shown for example, in Letters Patent of the United States to Ott. Mergenthaler, No. 436,532. It has reference more particularly to that special form of such machines shown in U. S. Patent 702,851, in which two or more magazines, carrying matrices for type faces of different sizes or styles, are movably mounted in relation to the distributing mechanism, from which they receive matrices, and the assembling mechanism to which they deliver matrices, so that any one of the magazines may be brought at will into operative relation to said parts, thus enabling the machine to produce type faces of one character or another, as demanded.

The aim of the invention is to adapt the magazines to carry at all times the full complement of matrices contained in the machine, and to admit of the magazines being moved at any instant without first returning to their lower ends certain of the matrices detained beyond the magazine, as required in the patented structures above referred to.

The aim is further, to provide a practical and positive mechanism which may be instantly thrown into and out of connection with the escapement devices, so that it may be caused to actuate the escapements of that particular magazine which is, for the time being, in operative position.

I have restricted the drawings herein to those parts of the machine with which my invention is immediately associated. The other parts may be of any ordinary or appropriate construction, as shown, for example, in the patent above referred to.

Referring to the drawings,—Figure 1 is a vertical section through the magazines, the distributing, and a portion of the assembling mechanism, and adjacent parts of a machine containing my improvement. Fig. 2 is a similar section on an enlarged scale, through the lower end of one of the individual magazines, with the escapement actuating devices in operative position. Fig. 3 is a similar section, including the keyboard connections, but with the escapement actuating devices disconnected to permit the movement of the magazine. Fig. 4 is a view similar to Fig. 1, but with a different

magazine in operative position. Fig. 5 is a perspective view from the front, showing the lower end of the magazine and the various parts co-operating therewith.

Referring to the drawings, A represents a rigid main frame, which may be of any suitable construction; B a distributing mechanism, by which the matrices are returned to the upper end of the magazines; C the stationary vertically channeled throat, which receives the matrices from the distributor; D the magazine which receives the matrices from the distributor through the throat C; E the stationary vertically channeled face plate, through which the matrices are delivered from the lower end of the magazine to the inclined assembling belt F, by which they are delivered one after another to the composed line in the assembler, as usual. The magazine D is a multiplex structure, consisting of a number of superposed magazines d, d' , etc., each adapted to carry a font or set of matrices.

Each of the individual magazines or sections consists, as usual in linotype machines, of parallel top and bottom plates suitably spaced apart and provided in their opposing faces with longitudinal grooves to receive and guide the upper and lower edges of the matrices G, which pass through the magazine by gravity, being delivered one at a time at the lower end in the order in which their respective characters are to appear in print. The series of individual magazines may be laid directly one upon another, and united or connected so that they constitute jointly a single multiplex magazine. They may be permanently united, but the connection is preferably such that they may be separated at will in order to permit the substitution of other magazines or sections containing matrices of such fonts as may be demanded from time to time. The magazine, as a whole, is supported on an underlying base frame d^5 , attached rigidly to the upper end of a strong screw d^6 , which is guided in a rigid tube a , forming part of the main frame. The lower end of the screw is encircled by a gear nut d^7 , secured to the lower end of the tube a by a collar a^2 , so that it is prevented from rising or falling while being permitted to turn freely. This nut d^7 is actuated by a pinion d^8 , having its shaft mounted in a bearing on the sleeve or tube a , and provided with a hand-crank d^9 . By turning this crank, the screw d^6 and the entire magazine thereon may be raised and lowered so as to bring any one of the individual magazines or sections in operative relation to the throat C at the upper end, with the face plate D at the lower end.

In Fig. 1, the second magazine from the bottom is shown in operative position, while in Fig. 4 the magazine is shown with the upper magazine or section in operative position, the change being effected by lowering the magazine as a whole from the position shown

in Fig. 1 to that shown in Fig. 4. In order to secure the delivery of the selected matrices one at a time from the respective channels of the magazines, each magazine has each channel provided with an escapement H, consisting of a lever seated in a longitudinal slot in the under side of the magazine on a central pivot *h*, the two ends of the lever being carried upward through the bottom of the magazine to serve as pawls or dogs to engage the lower edges of the matrices. The vibration of the escapement lever projects its two pawls into the magazine alternately, thus permitting the matrices to escape one at a time. Each escapement is acted upon at the upper end by a spring *h'*, attached to the magazine and acting to hold the upper end of the escapement in engagement with the matrix, as shown in Fig. 2, when the parts are in their normal positions of rest.

For the purpose of actuating the escapements of the magazine, which is in operative position, in opposition to the springs *h'*, I employ a series of vertical slides I, mounted in grooves in a supporting plate J, which is sustained at its ends on horizontal pivots *j*, seated in the main frame. The plate J is held forward or upward by an eccentric shaft K seated in the main frame, whereby the plate is caused to hold the upper ends of the slides I in operative position beneath the forward ends of the escapement levers H. The eccentric shaft K is provided at one end with a crank-arm *k'*, carrying a locking stud *k²*, which may be engaged in the main frame to prevent the rotation of the shaft. When the locking stud is withdrawn, the eccentric shaft may be turned by the crank so as to permit the upper side of the guide plate J to fall forward to the position shown in Fig. 3, thereby carrying the ends of the entire series of actuating slides out of engagement with the escapements and forward of the end of the magazines. This disconnection and retraction of the actuating slides I in series leaves the magazines free to rise and fall. After the magazines have been readjusted and the proper section or magazine brought into operative position, the rotation of the crank K again carries the series of actuating slides beneath the escapements and causes them to be held in operative relation thereto.

It will be seen that the construction shown admits of the magazines being made of full length so that each will carry a full font or complement of matrices, and the escapements holding the same therein and for delivering them one at a time, as required. All the matrices are retained within the lower end of the magazine, so that when the magazines are to be shifted, the restoration of matrices to or through their lower ends, as heretofore, is unnecessary.

It will be observed that the single series of slides I serves to actuate the escapements of all the magazines, or in other words, the one series of slides will actuate the escapements of any one of the magazine sections which may be in operative position. It will also be observed that the escapement actuating slides engage directly with the escapement levers and reciprocate when in action in paths parallel with the end of the magazine, or in other words, at right angles to the path of the matrices. It will further be observed that the escapement actuating slides are capable of adjustment bodily at right angles to their working paths, and that it is this distinct or secondary movement which causes

them on the one hand to pass away from the escapements and beyond the end of the magazine to permit the movement of the latter.

I believe myself to be the first to combine with a multiplex magazine, having the several series of escapements, a single series of escapement actuating devices mounted in a movable support so that they may be thrown into or out of their operative positions at will, and it will be understood that the details may be varied in form and arrangement, provided only that the escapement actuating devices can be moved to and from their operative positions in order to permit the movement of the magazine. While I prefer to employ the particular form of escapements shown in the drawings, they are not of the essence of my invention, and may be replaced by escapements of any equivalent form—several of which are already known to the art. The actuating slides I may be operated from the keyboard through any suitable connections, but I recommend the arrangement shown in the drawings, in which L represents a forked lever mounted on a pivot *l* in the main frame. At one end, the upper arm of this lever enters a notch in the slide I, while the lower arm is engaged by a vertically guided reed or slide M, which is mounted in the main frame and urged constantly downward by a spring N. The lever L has its forward end connected to the spring O, the opposite end of which is attached to the main frame, this spring being weaker than the spring N, so that the slide I stands normally in its lowermost position, as shown in Figs. 1, 2 and 3. The lower end of the reed M stands directly over a vertically swinging yoke P, carrying a cam Q, overlying a constantly rotating roll R. These parts are connected with finger keys S, as in the ordinary Mergenthaler linotype keyboard, shown in United States Letters Patent No. 530931, so that whenever a key is depressed, the cam Q causes the yoke P to rise and lift the reed M, which releases the lever L, which is in turn thrown upward by the spring O, so that its upper end lifts the lower end of the escapement H. The effect of this action is to permit the foremost matrix to pass over the upper end of the pawl from the position shown in Fig. 2 to the position shown in Fig. 5. Immediately following this action, the reed M descends, causing the lever L to pull the slide I downward and thereby release the escapement, which is restored by a spring *h'* to its original position, the effect being to deliver the foremost matrix from the magazine, and at the same time arrest the advance of the next matrix which takes the place of the one discharged.

It will, of course, be understood that the magazine sections, the connection between them, and the means for raising and lowering the magazine may be varied at will, as they are not of the essence of the invention.

The distributor shown is of the ordinary form used in commercial linotype machines of the present day, and it may be replaced by any other suitable distributor without affecting the action of my machine.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:—

1. In a linotype machine, the multiplex movable magazine having a series of escapements for each section, in combination with a single series of actuating devices adapted to engage the escapement levers, and a movable support for such actuating devices, whereby they may be

moved back in series clear of the escapements and beyond the end of the magazine to permit the unobstructed movement of the latter.

2. In a linotype machine, the fixed channel plate E to receive the released matrices, in combination with the multiplex magazine having a series of escapement levers for each section, and movable at its delivery end past the channel plate, the single series of actuating devices adapted to engage the escapement levers, and a movable support for the actuating devices, adapted to carry them in series out of engagement with the escapements and beyond the end of the magazine, whereby the unobstructed movement of the latter is permitted.

3. In a linotype machine, the combination of a main frame, a multiplex magazine provided with plural series of escapements, means for raising and lowering the magazine to different operative positions, and a single series of escapement actuating slides mounted to be advanced in series and maintained in operative relation to the escapements, and to be retracted in series to inoperative positions beyond the delivery end of the magazine.

4. The movable multiplex magazine having the several series of escapements, in combination with the escapement actuating slides, and the movable support in which the slides are mounted.

5. In combination with the movable multiplex magazine with a series of escapements for each section, the escapement actuating slides, the pivoted support for the slides, the levers engaging the slides and the actuating reeds engaging the levers.

6. In combination with a magazine and its escapements,

the escapement actuating slide, spring *h'*, lever I, and its actuating spring O, the reed M, and means for reciprocating the same.

7. In combination, a magazine, its escapement lever, spring *h'* tending to move the lever in one direction, the actuating slide I, lever L, spring O, reed M, spring N, and yoke P to move the reed in opposition to spring O.

8. A movable magazine and an escapement lever carried thereby within the end of the magazine, in combination with an actuating device movable parallel with the end of the magazine and adapted to directly engage the escapement lever, and means for moving the actuating device into engagement with the escapement lever or moving it out of engagement and clear of the magazine to permit movement of the latter.

9. In a linotype machine, a movable multiplex magazine having a series of escapements for each section, in combination with escapement actuating devices arranged to reciprocate at right angles to the length of the magazine, and a support for said actuating devices movable at right angles to their working path, whereby the actuating devices may be advanced in series into operative relation to the escapements, or withdrawn beyond their operative position and beyond the end of the magazine.

In testimony whereof I hereunto set my hand this twelfth day of January, 1906, in the presence of two attesting witnesses.

JOHN R. ROGERS.

Witnesses:

D. S. KENNEDY,
R. G. CLARK.