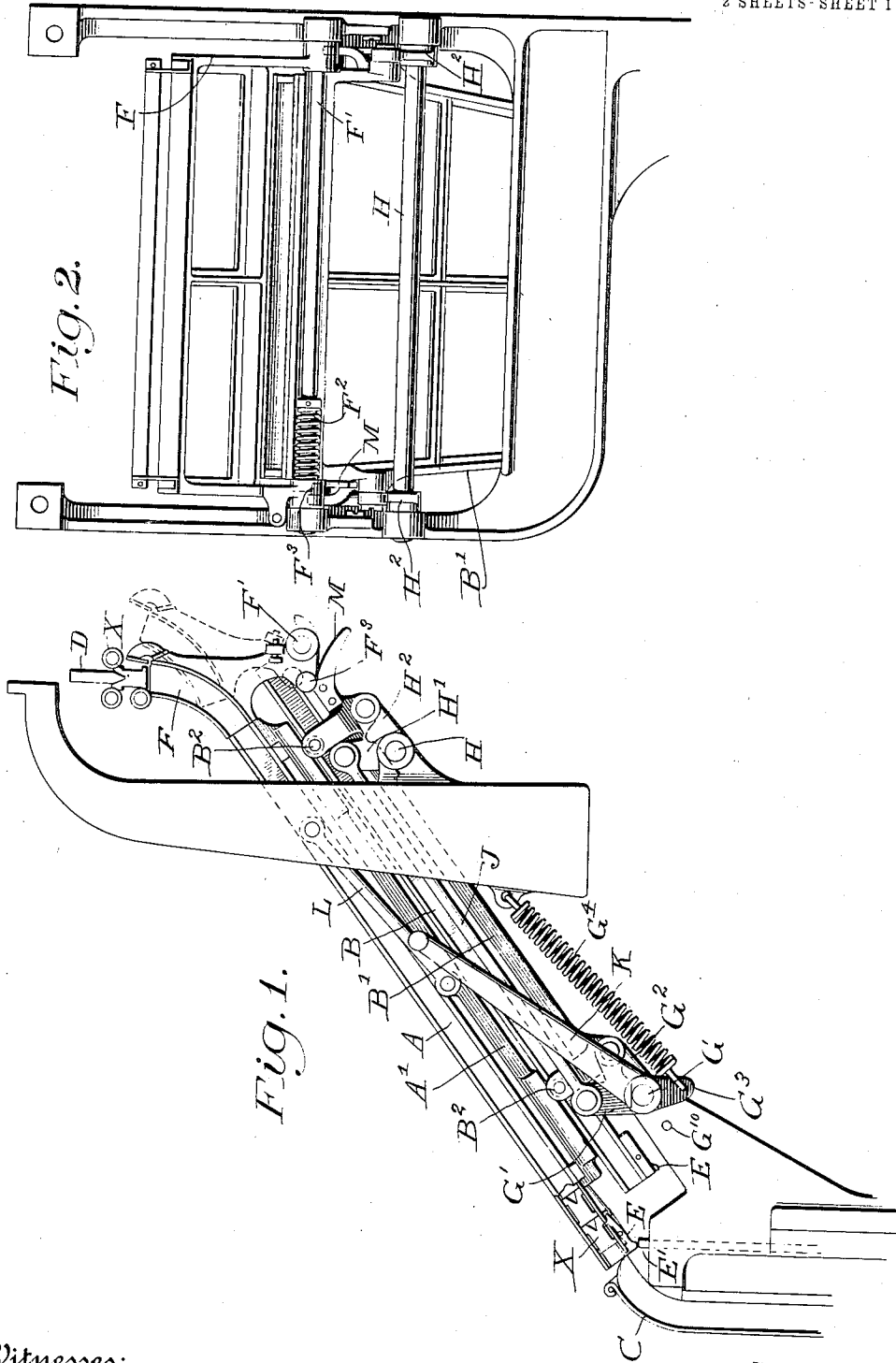


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 TYPOGRAPHICAL MACHINE.  
 APPLICATION FILED MAY 28, 1914.

1,130,174.

Patented Mar. 2, 1915.

2 SHEETS-SHEET 1



Witnesses:  
*L. E. Morrison*  
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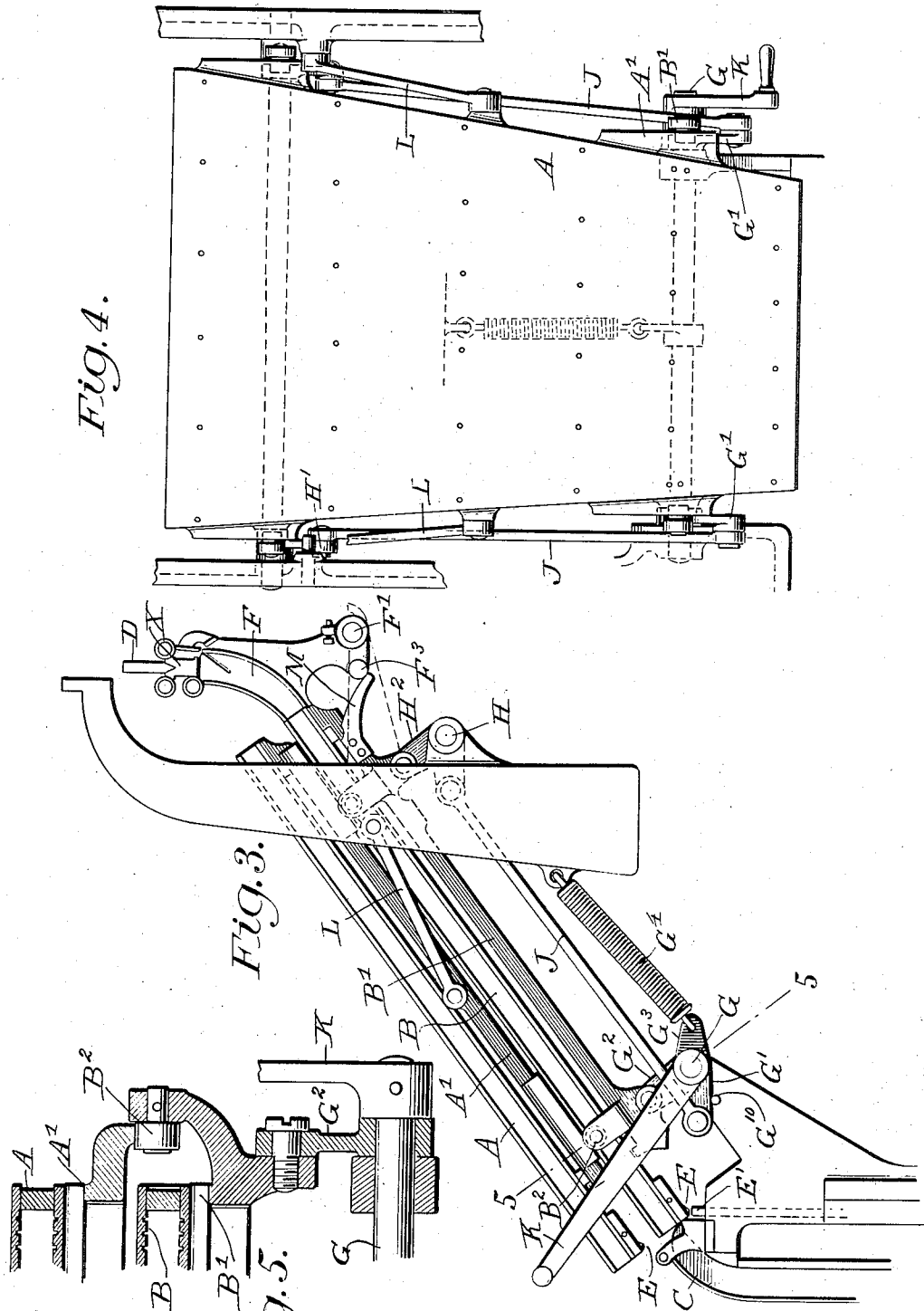
Inventor  
*George P. Kingsbury*  
 By *Rogers, Kennedy & Campbell*  
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# UNITED STATES PATENT OFFICE.

GEORGE P. KINGSBURY, OF BROOKLYN, NEW YORK, ASSIGNOR TO MERGENTHALER  
LINO-TYPE COMPANY, A CORPORATION OF NEW YORK.

## TYPOGRAPHICAL MACHINE.

1,130,174.

Specification of Letters Patent.

Patented Mar. 2, 1915.

Application filed May 28, 1914. Serial No. 941,422.

*To all whom it may concern:*

Be it known that I, GEORGE P. KINGSBURY, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Typographical Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to typographical machines, such as line casting machines of the general organization represented in Letters Patent of the United States, No. 436,532, to O. Mergenthaler, wherein circulating matrices are released from a magazine in the order in which their characters are to appear in print and then assembled in line, the composed line transferred to the face of a mold, the mold filled with molten metal to form a slug or bar against the matrices which produce the type characters thereon, and the matrices thereafter returned through distributing mechanism to the magazine from which they started.

More particularly, it relates to the use of a number of fonts or sets of matrices representing different sizes or styles of type, in such manner that any font may be brought into action at will; and to this end is employed a plurality of magazines in combination with means for shifting them and for bringing any selected one into operative position. To effect this result, in the present instance the several magazines are moved both conjointly and also relatively to each other during their passage into and out of operative relation to the assembling and distributing devices.

The specific construction and mode of operation of the parts will be described in the specification and the invention finally pointed out in the claims.

In the accompanying drawings, I have shown my invention in preferred form and by way of example, and as applied to a line casting machine; but obviously many changes and variations may be made therein, and in its mode of application, which will still be comprised within its spirit. Thus, it may be applied to other forms of typographical machines, such as typesetters, typecasters, etc., which handle type or dies, instead of matrices. 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.

Referring to the drawings: Figure 1 is a side elevation of the upper portion of the machine, with my improvements embodied therein; Fig. 2 is a rear view thereof; Fig. 3 is a view similar to Fig. 1, showing the parts in different position; Fig. 4 is a rectilinear plan view of the upper magazine, etc.; and Fig. 5 is a sectional detail on the line 5—5 of Fig. 3.

The matrices X are stored according to font in the magazines A and B, which may be shifted so as to bring either into operative relation to the face plate C, distributing devices D, and channel entrance F. In the preferred form illustrated, only two such magazines are disclosed, but obviously the number thereof may be increased if desired, as the principles of construction and operation apply similarly to a greater number. Each of the magazines is equipped with its own series of escapements E, and as it is shifted into active position, its escapements are brought into operative relation to suitable actuating devices, such for instance as the reeds E<sup>1</sup>.

The magazines A and B are mounted upon the customary base frames A<sup>1</sup> and B<sup>1</sup> respectively, the upper frame A<sup>1</sup> resting upon and being supported by rollers B<sup>2</sup> mounted in laterally projecting arms of the lower frame B<sup>1</sup>, as best shown in Fig. 5. In other words, the upper frame is so supported upon the lower frame that they may be shifted vertically together and at the same time a longitudinal relative movement is permitted, in the manner subsequently to be described. It will be observed that the upper magazine A overhangs or projects beyond the magazine B to a considerable extent, when the former is in use, as shown in Fig. 1; and that their forward ends are in the same plane, when the magazine B is in use, as illustrated in Fig. 3. It is therefore necessary to provide means, which not only shift the magazines vertically, but also move them relatively to each other, in their passage from one position to the other. These means comprise two transverse rock shafts G and H, mounted in the machine frame. These rock shafts are caused to move in unison by links J connected to arms G<sup>1</sup> and H<sup>1</sup> on the respective shafts, this arrangement being duplicated at opposite sides of the

machine. The rock shaft G is provided with the handle K, whereby the magazines may be manually shifted when desired. Also mounted upon each of the shafts G and H is a pair of arms G<sup>2</sup> and H<sup>2</sup> respectively, pivotally connected at their upper ends to, or near to, the four corners of the lower base frame B<sup>1</sup>, in such manner that the rocking of the shafts by the handle K effects the raising or the lowering of both magazines, according to the direction of movement of the handle. When the parts are in the condition shown in Fig. 1, with the upper magazine in use, the lower or supporting frame B<sup>1</sup> rests directly upon the shafts G and H; and when they are in the condition illustrated in Fig. 3, with the lower magazine in use, they are held therein by the engagement of the arm G<sup>1</sup>, on the rock shaft G, with the fixed stop or pin G<sup>10</sup>. The spring G<sup>4</sup> connected to the main frame and to a third arm G<sup>3</sup> on the shaft G serves to counterbalance the weight of the parts and minimize the manual effort involved in their shifting.

The devices for effecting the relative longitudinal movement of the magazines are a pair of links L at opposite sides of the magazines, and pivotally connected at one end to the machine frame and at the other to the base frame A<sup>1</sup>. Due to this form of suspension, the magazines are caused to move rearwardly and forwardly with relation to each other, as they are respectively elevated and depressed, and thereby are brought into proper operative relation to the assembling and distributing mechanisms. Thus, it will be noted that the upper magazine moves in a substantially straight path into and out of operative position, whereas the lower magazine has a combined movement, comprising vertical and longitudinal components, into and out of operative position.

The distributing mechanism D is constructed to deliver the matrices X through a single channel entrance F to the magazine in use, and I have provided means for automatically moving the latter into and out of operative position during the shifting of the magazines, so as to permit the unimpeded action of the latter. To this end, the entrance F is mounted upon the rock shaft F<sup>1</sup> (Fig. 2) provided with the spiral spring F<sup>2</sup>, whereby the entrance is normally held in proper relation to the distributing mechanism, and on the shaft F<sup>1</sup> is also mounted an arm F<sup>3</sup> adapted to engage the cam plate M secured to the frame B<sup>1</sup>. The contour of the cam plate is such that when the roller rests on either end thereof (see Figs. 1 and 3), the entrance will be held in normal position by the spring F<sup>2</sup>, but when the frame B<sup>1</sup> is being shifted, the entrance will be moved to inoperative position, as shown by dotted lines in Fig. 1, at which time it is out of the path of the moving magazines.

As previously stated, I have shown my improvements only in preferred form and by way of example, and as adapted to a line casting machine; but obviously many modifications and alterations therein, and in their mode of adaptation, as for instance to three or more magazines, will suggest themselves to those skilled in the art, without departure from the scope of the invention.

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, the combination of a single distributor, a plurality of magazines movable conjointly to bring one or another into operative relation to the distributor, and means for shifting the magazines relatively to each other in their conjoint movement.

2. In a typographical machine, the combination of two magazines movable vertically to bring one or another into operative position, said magazines being so mounted that in their vertical movement one will move in a substantially straight path, and the other forwardly or backwardly.

3. In a typographical machine, the combination of a magazine, a supporting frame therefor mounted to move vertically and also forwardly and backwardly to shift the magazine into and out of operative position, and a second magazine movable vertically in a substantially straight path and mounted on the supporting frame so as to be shifted thereby into and out of operative position.

4. In a typographical machine, the combination of a magazine, a supporting frame therefor mounted to move vertically and also forwardly and backwardly to shift the magazine into and out of operative position, and a second magazine suspended from the machine frame and resting upon the movable supporting frame; whereby the second magazine will be moved vertically in a substantially straight path while the other magazine will be moved forwardly or backwardly in its vertical movement.

5. In a typographical machine, the combination of a plurality of magazines movable vertically as a whole to bring one or another into operative position, and means for shifting the magazines relatively to each other in their movement, so that in one vertical position they will stand out of alinement and in another position they will stand in alinement.

6. In a typographical machine, the combination of a shift frame, a magazine slidably mounted thereon, and connections between the magazine and the machine frame to effect a longitudinal relative movement between the magazine and the shift frame when the latter is moved.

7. In a typographical machine, the combination of a magazine movable vertically and also forwardly in an endwise direction to locate it in operative position, a magazine-entrance, and automatic means for shifting said entrance from its operative position when the aforesaid movement of the magazine is effected.

8. In a typographical machine, the combination of a magazine movable vertically and also forwardly in an endwise direction to locate it in operative position, a magazine-entrance, and means whereby the said movement of the magazine will shift the magazine-entrance from its operative position.

9. In a typographical machine, the combination of a magazine movable vertically and also forwardly in an endwise direction to locate it in operative position, a magazine-entrance, means whereby the said movement of the magazine will shift the

magazine-entrance from its operative position, and automatic means for returning it thereto when the magazine has completed its movement.

10. In a typographical machine, the combination of a plurality of magazines having their receiving ends arranged one behind another in staggered relation and movable conjointly to bring one or another into operative position, a magazine-entrance to cooperate with the operative magazine, and automatic means for moving the entrance backwardly from operative position when the magazines are moved to prevent its engagement therewith.

In testimony whereof, I have affixed my signature in presence of two witnesses.

GEORGE P. KINGSBURY.

Witnesses:

E. H. ALLEN,  
CHARLES R. PARSONS.