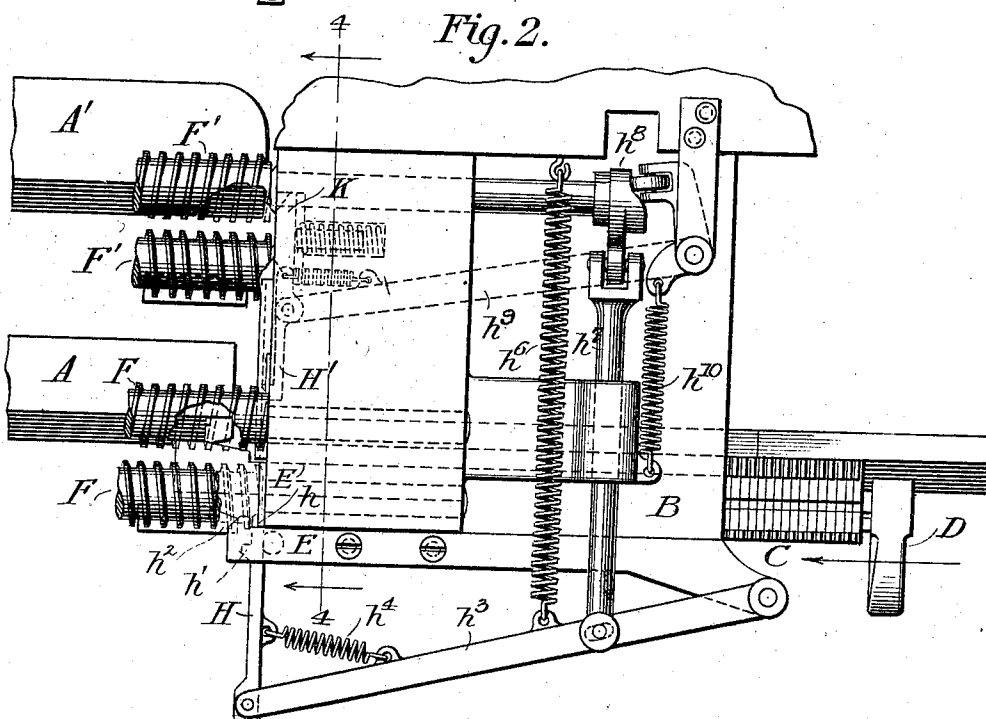
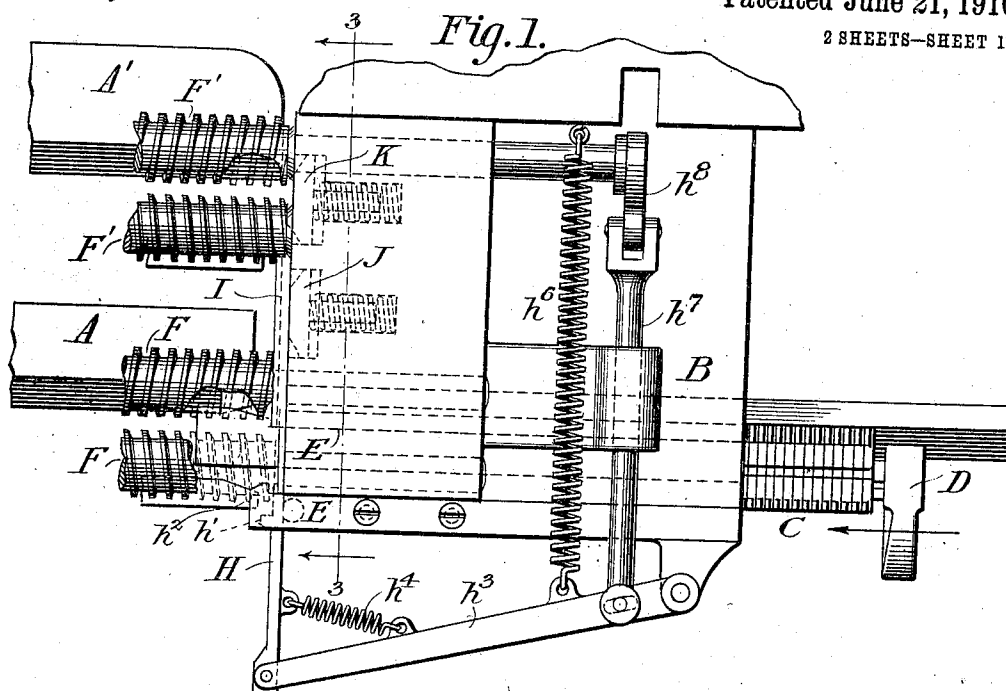


J. R. ROGERS.
LINE CASTING MACHINE.
APPLICATION FILED MAY 18, 1909.

961,798.

Patented June 21, 1910.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

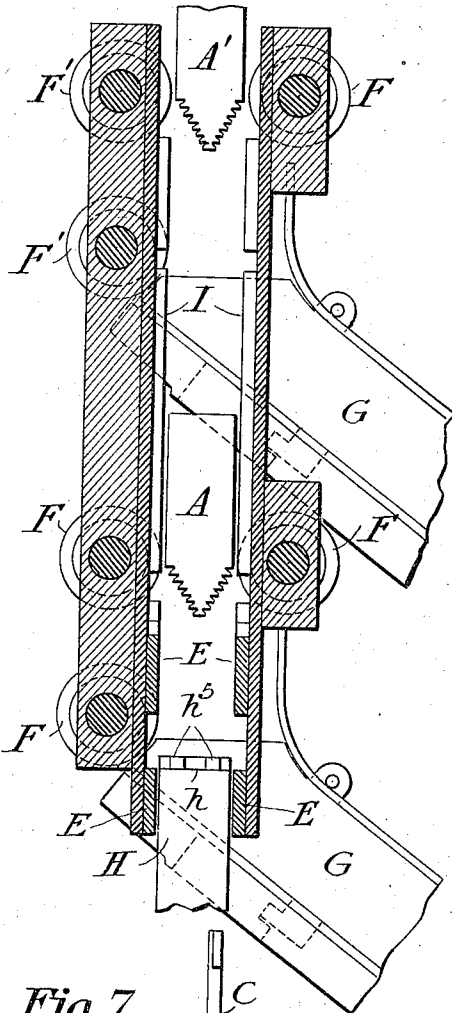


Fig. 5.

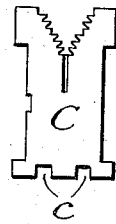


Fig. 4.

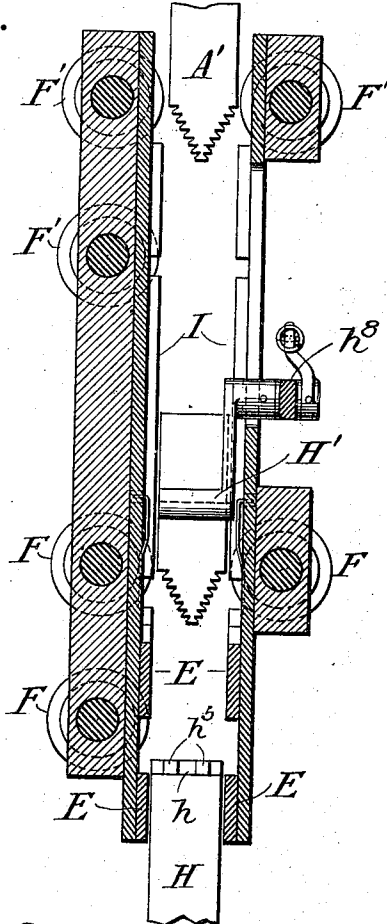


Fig. 6.

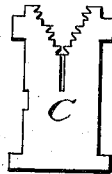
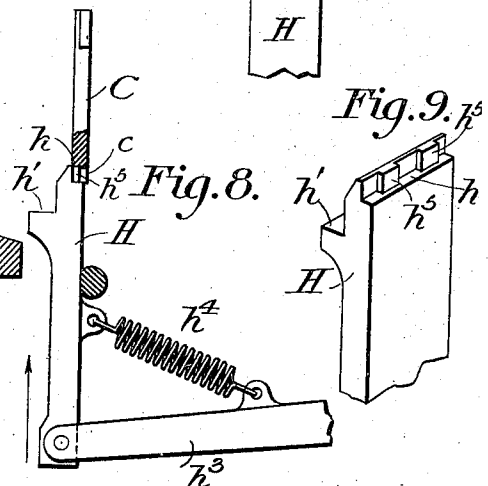
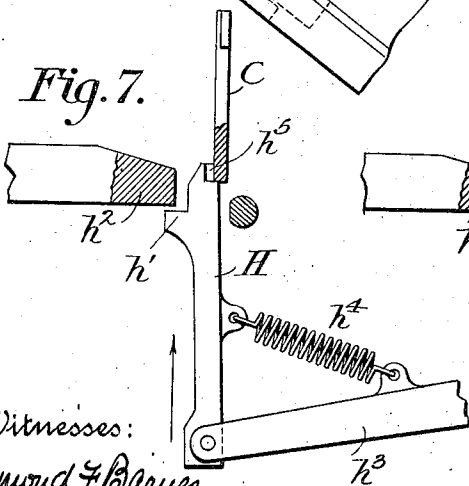


Fig. 7.



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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.

LINE-CASTING MACHINE.

961,798.

Specification of Letters Patent. Patented June 21, 1910.

Application filed May 18, 1909. Serial No. 496,689.

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 Line-Casting Machines, of which the following is a specification.

My invention relates to line casting machines of the general organization represented in Letters Patent of the United States 436,532, wherein matrices stored in a magazine are selected by a finger key mechanism and composed in lines, which are transferred to a mold, to form type characters on the slugs cast therein, and thereafter transferred to a distributing mechanism, by which the individual matrices are returned to their magazine channels.

It has reference more particularly to machines in which two fonts or sets of matrices are employed, in which machines, in various forms, it is common to compose a line of matrices from either or both magazines at will.

The invention consists in improved mechanism for delivering the matrices from the composed line to one or the other of two distributors, one for each font.

My invention comprises means for delivering the composed line endwise toward the one distributor, which receives directly the matrices belonging to one font, while those of the other font are transferred to a second distributor by a lifting or transferring finger, which is controlled as to its length of movement by the form of the respective matrices.

In the drawings: Figure 1 is a side elevation of my mechanism in its preferred form. Fig. 2 is a side elevation of the same in a modified or alternative form. Fig. 3 is a vertical section on the line 3—3 of Fig. 1 looking in the direction of the arrow, toward the distributor bar and screws. Fig. 4 is a vertical section on the line 4—4 of Fig. 2 looking in the direction of the arrow, toward the distributor bar and screws. Figs. 5 and 6 are face views of two matrices, one designed for the upper and the other for the lower magazine. Fig. 7 is a side elevation showing the manner in which the lifting device is arrested and limited in movement when it receives a matrix designed for the

first or lower distributor. Fig. 8 is a similar view illustrating the manner in which the finger is released and permitted to carry a matrix for the second distributor upward thereto. Fig. 9 is a perspective view of the lifting finger.

Referring to Figs. 1, 3, 5, 6, 7, 8 and 9, A and A' represent two stationary toothed distributor bars of the character described in the Mergenthaler Patent 347,629 commonly used in commercial Mergenthaler machines of the present day.

B represents a "distributor lift box", so-called, designed to receive the composed lines of matrices C and direct them toward the distributing devices. The matrices C are notched and toothed in the upper end as heretofore, the teeth of matrices bearing different characters being variously arranged in order that the matrices traveling along the distributor bars may be suspended therefrom until they arrive over the proper channels in the respective magazines, where they are released by the disengagement of their teeth, as well understood in the art. The composed line is thus urged endwise in a horizontal position by a pusher D, being sustained by side rails E having stop shoulders near their forward ends to encounter the foremost matrix and arrest the advance of the line.

F, F, F, represent three horizontal screws lying adjacent to the lower distributor bar for the purpose of carrying the matrices along the same as usual; and F', F', F', represent corresponding screws for a like purpose, adjacent to the upper distributor.

The matrices intended for the upper distributor, for delivery to the upper magazine G, are formed with one or more notches *c* in the lower end or with any equivalent depression or peculiarity adapted to cooperate with the lifting finger hereinafter described. The matrices for the lower magazine, however, as shown in Fig. 6, are constructed without the notches.

H represents a vertically movable lifting finger having a transverse shoulder *h* near the upper end in order that it may engage beneath the foremost matrices of the line one at a time and carry them upward, away from the line, for delivery to the distributor. This finger is provided on the forward

side with a shoulder or projection h' designed to engage with a stop h^2 which will limit its upward movement. The finger is pivoted to its actuating lever h^3 and connected thereto by a spring h^4 which urges the finger constantly toward the matrix line, so that when it descends the shoulder may pass beneath the foremost matrix in position to lift the same as shown in Figs. 7 and 8. This finger is provided on the right hand side above the lifting shoulder with lips or projections h^5 corresponding to the recesses in the matrices for the upper magazine.

If the matrix appearing at the forward end of the line belongs in the lower magazine and is without notches, as shown in Fig. 6, it will act against the side faces of the lips h^5 and rock the finger forward until its lip h' passes beneath the stop h^2 , as shown in Fig. 7. This will limit the upward movement of the finger H, and the matrix will be lifted a short distance only, sufficient to clear the detaining rails which pass between the lower distributor screws by which the matrices will be advanced along the lower distributor bar so that they may be delivered therefrom to the appropriate channels in the lower magazine. If, however, the foremost matrix presented to the lift belongs in the upper magazine and has the notches shown in Fig. 5 the lips h^5 of the lift will enter these notches and the lift will swing backward under the influence of spring h^4 far enough to clear the stop h^2 , as shown in Fig. 8, so that the lift is permitted to continue its upward course and carry the matrix upward toward the upper distributor. The matrix thus lifted clear of the lower distributor will be held against the vertical guides I subject to a spring-actuated pressure-shoe J. The next matrix which is lifted to the upper position pushes the preceding one still farther upward, in position to engage the upper distributor screws and pass upon the upper distributor bar A', the spring actuated pressure-device K serving to hold the matrix forward.

The lifting finger H may be actuated in any suitable manner. I prefer to connect its lever h^3 to the lifting spring h^6 and to the depressing slide h^7 , the upper end of which is acted upon by a cam, h^8 , on the end of one of the distributor screws. By this arrangement the finger is depressed positively but is lifted by a spring action. This permits the arrest of the finger at the lower level as before described.

The essence of the mechanism above described lies in the fact that the lifting devices carry the matrices from the line to one level or another, that is to say to one distributor or the other, according to the shape of the matrices, which latter control the travel of the lifting or transferring devices.

Instead of using a single lift in the manner above described I may adopt the construction shown in Fig. 2, which is similar in all respects to that above described except that a second lifting finger, H', is provided, its lower end being made of hooked form and its vertical travel being so regulated that it will engage beneath those matrices which have been raised clear of the first distributor by the lift H and carry them upward to the second distributor. The lever h^9 carrying the second lift is urged in one direction by a spring h^{10} and in the opposite direction by the before mentioned cam h^8 which operates the first lifting finger. In this second form of apparatus the matrices designed for the lower distributor push the finger H forward so that its ascent is limited by the stop, while the matrices designed for the upper distributor permit the finger to lift the matrices clear of the lower distributor and into position to be engaged by the upper finger H', which in turn raises them to the second distributor.

It will be observed that in my mechanism the matrices control devices which, in turn, control, independently of the matrices, the travel of the parts which lift the matrices from the composed line.

I believe it to be wholly new in the art to combine with matrix-carrying devices having a variable length of movement, means to control the length of such movement, such means being in turn controlled by the matrices, which do not in themselves act as stop devices.

Having described my invention, what I desire to secure by Letters Patent is:

1. In a mechanism for distributing matrices, a movable device for advancing the individual matrices, and means controlled by the matrices and acting in turn to limit the travel of the advancing device.

2. In a matrix distributing mechanism, means for presenting a composed line of matrices, a carrier for delivering the individual matrices from the line, said carrier having a variable length of movement, and means for directly controlling the length of movement of said carrier, said means adapted to be controlled by matrices of certain forms.

3. In a matrix distributing mechanism, means for advancing the composed line of matrices endwise, a transversely movable carrier to remove the matrices one at a time, and means other than the matrices for automatically arresting the carrier at one point or another according to the form of the matrix presented thereto.

4. In a line casting machine, a reciprocating finger to advance the individual matrices, matrices of different forms, means for presenting such matrices one at a time to the carrier, and means distinct from the mat-

rices for determining the length of movement of the carrier according to the form of the matrix presented thereto.

5 In a matrix distributing mechanism, and in combination, a reciprocating carrier to advance the individual matrices, said carrier movable transversely in relation to its path of reciprocation, means for presenting the matrices individually to said carrier,
10 matrices differing in form and adapted to give the carrier different positions laterally, and means for limiting the movement of the carrier according to its lateral position.

6. In combination, the reciprocating finger pivoted to move laterally, spring connections for advancing the finger, means for presenting the matrices individually to the finger, matrices differing in form at their point of contact with the finger, and means
15 for limiting the advance of the finger when it is moved laterally from its normal position.

7. A matrix guide finger H and spring connections for advancing the same in the
25 operative direction, in combination with a stop device to arrest the finger at an intermediate point in its path when moved laterally from its normal position.

8. In combination with means for delivering a matrix line endwise thereto, the finger H for removing the matrices individually from the line, spring connections for advancing the finger endwise in an operative direction, and a stop device to limit the advance of the finger in advance of its final position.
30

9. In combination, means for presenting a composed line of matrices, two distributing mechanisms, a carrier for advancing the individual matrices from the line to the distributors, and automatic means for limiting the travel of the carrier according to the form of the matrix presented thereto; whereby the one carrier is enabled to feed
35 both distributors.

10. In combination, means for presenting a composed line of matrices, a carrier for removing the matrices successively from the line, two distributors in the path of the carrier, matrices of different forms, and means

for arresting the carrier at one point or another according to the form of the matrix on which it is acting.

11. In combination, two parallel distributors, means for sustaining a composed line of
55 matrices and advancing the same endwise, and carrier devices acting to remove the matrices successively from the end of the line in a straight path to the respective distributors.

12. In combination with two parallel distributors, means for presenting a composed
60 line of matrices endwise, a reciprocating carrier for transferring the individual matrices from the line to the first distributor, and a second carrier acting to transfer the matrices in a continuation of their original path from the first carrier to the second distributor.
65

13. In a distributing mechanism, the combination of the reciprocating and laterally movable finger H having lips h^5 , means for moving the same, a stop h^2 to limit its advance, and matrices with and without notches; whereby the finger is caused to move matrices of different forms to different
75 points.

14. In a line casting machine, and in combination with notched matrices and matrices without notches, a carrier device having projections to enter the notches, and means to
80 limit the movement of the carrier when the unnotched matrices are presented thereto.

15. In a distributor, the combination of the pivoted reciprocating finger H having lips h^5 , and a stop h^2 to engage the finger
85 and limit its advance in an operative direction.

16. In combination with the two distributors, the two carrier fingers H and H', one arranged to deliver matrices to the other,
90 and means for presenting matrices individually to the first named finger.

In testimony whereof I hereunto set my hand this eleventh day of May, 1909, in the presence of two attesting witnesses.

JOHN R. ROGERS.

Witnesses:

DAVID S. KENNEDY,
LUCY E. SMITH.