

No. 658,740..

Patented Sept. 25, 1900.

O. MERGENTHALER, Dec'd.

THE SAFE DEPOSIT & TRUST CO., OF BALTIMORE, AND A. GREENLEAF, Executors.

LINOTYPE MACHINE.

(Application filed May 11, 1897.)

(No Model.)

2 Sheets—Sheet 1.

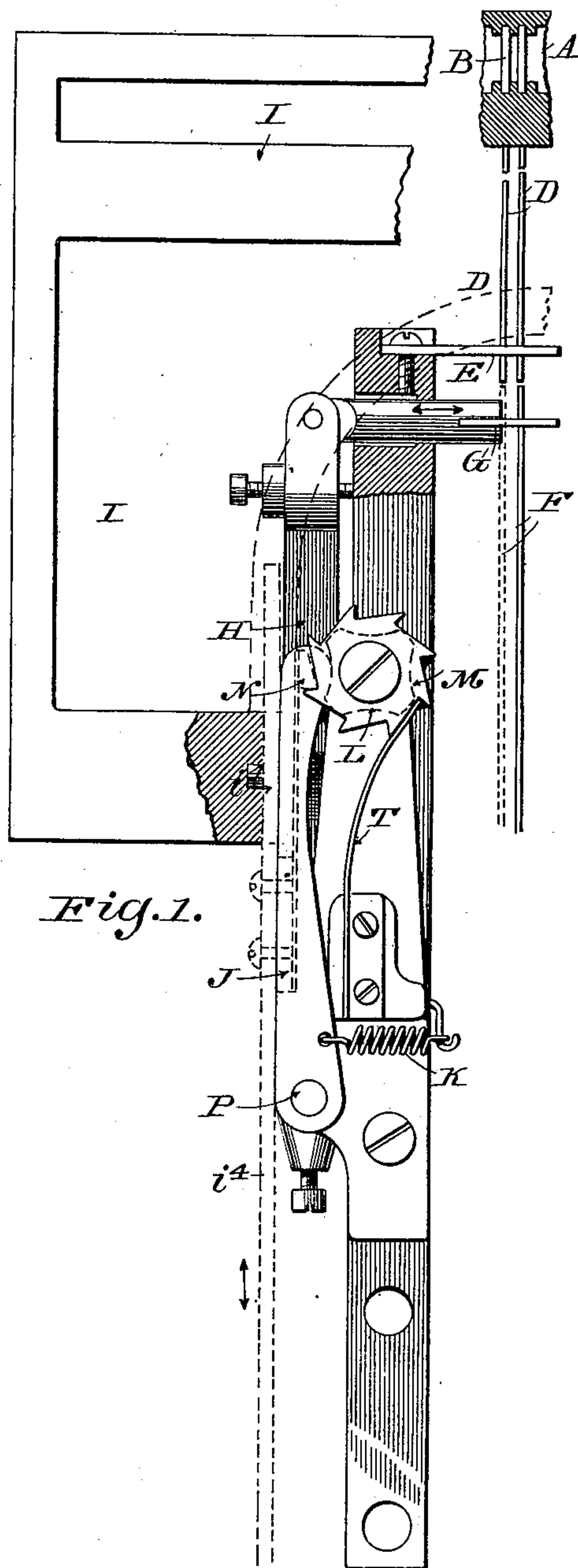


Fig. 1.

WITNESSES:

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INVENTOR

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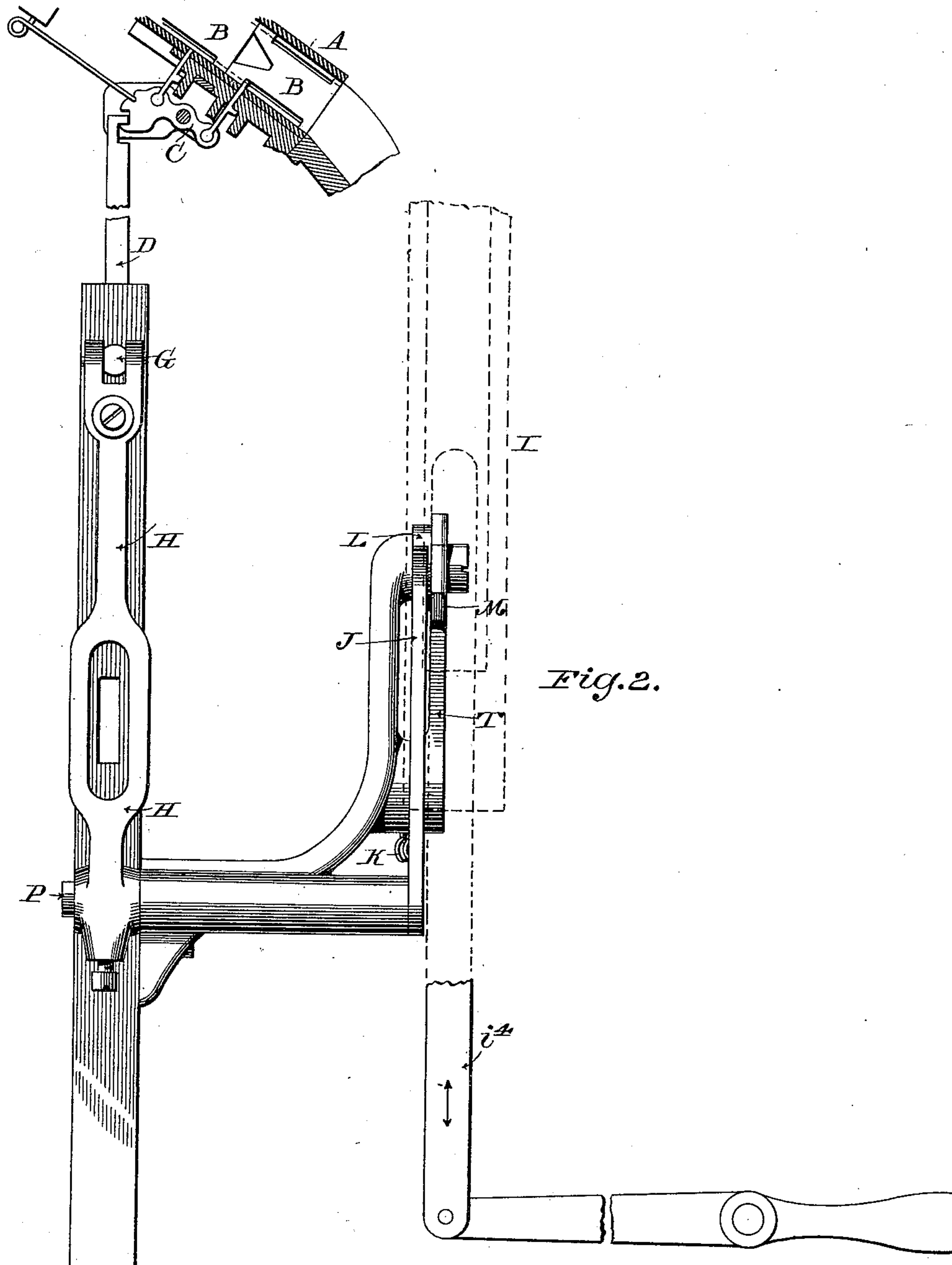
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WITNESSES:

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UNITED STATES PATENT OFFICE.

OTTMAR MERGENTHALER, OF BALTIMORE, MARYLAND; THE SAFE DEPOSIT AND TRUST CO., OF BALTIMORE, AND ABNER GREENLEAF, EXECUTORS OF SAID MERGENTHALER, DECEASED, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE MERGENTHALER LINOTYPE COMPANY, OF NEW YORK, N. Y.

LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 658,740, dated September 25, 1900.

Application filed May 11, 1897. Serial No. 636,084. (No model.)

To all whom it may concern:

Be it known that I, OTTMAR MERGENTHALER, of Baltimore, State of Maryland, have invented a new and useful Improvement in Linotype-Machines, of which the following is a specification.

In linotype-machines, such for example as those shown in Letters Patent of the United States of Ottmar Mergenthaler, dated September 16, 1890, No. 436,532, a series of single-letter matrices are arranged in channels in a magazine, from which they are selected, delivered by finger-key mechanism, and assembled temporarily in lines to produce type characters on slugs or linotypes cast against such lines. Each of the magazine-channels contains usually about twenty matrices. As it frequently happens that three or more lines are in progress through the machine at one time, it occasionally happens that matrices representing the letters most frequently used, such as small "e," are exhausted, so that the operator is compelled to wait until the matrices are again returned to the magazine.

The object of the present invention is to provide for the handling of an increased number of matrices without increasing the number of finger-keys in the keyboard.

To this end it consists in providing the magazine with two or more channels carrying matrices of the same character, these channels being provided with the usual escapements or delivery devices alternately operated from a single finger-key through the medium of automatically-shifting connections. The operation of the key as usual causes matrices to be delivered from the channels alternately. In the form herein shown the shifting connections are operated by means of the "assembling-elevator," so called.

In the accompanying drawings I have represented only such parts as have special association with my improvement. In all other respects the machine may be of ordinary constructions.

Figure 1 is a front elevation of the assembling-elevator, the escapement-actuating rods, and the intermediate connections

through which a finger-key operates the escapements of two channels. Fig. 2 is a side elevation of the same.

Referring to the drawings, A represents the magazine, having two parallel adjacent channels intended to receive matrices B B, bearing like characters. Each of these channels is provided with the customary escapements or discharging device C, actuated by downwardly-extending reciprocating rods D. The two rods D pass through a guide E and are lifted alternately by a reciprocating bar F, which is actuated from the finger-key through the ordinary connections, such, for example, as those shown in Letters Patent of the United States No. 530,931, dated December 18, 1894. This bar F instead of being guided, as usual, passes through a reciprocating guide G, mounted in the frame, so that by this movement the bar F may be moved laterally into position to operate one or the other of the escapement-rods D. The shifting guide is connected with the upper end of lever H, carried by a horizontal rock-shaft P, which in turn carries at its opposite end an arm J, acted upon by a spring K. This spring holds the arm in contact with a four-sided hub or cam L on the side of a vertical ratchet-wheel M. This ratchet-wheel is held normally by a spring-detent T and receives motion intermittently from a spring-pawl N, connected to the vertical bar i^4 , which is in turn connected to the assembling-elevator I. This elevator and operating-bar i^4 correspond to the parts bearing the same letters in United States Patent No. 436,532.

As shown in the drawings, the hub or cam L is formed as a four-pointed star having depressed portions between the successive points, thereby providing its periphery with eight alternating raised and depressed operative portions in such manner that its periodical rotation will effect movements of the arm J and its connected parts in opposite directions. The ratchet-wheel M on the side of the cam L is provided with eight ratchet-teeth corresponding in number and position to the active eight operative portions of the

cam L, so that a single actuation of the ratchet M causes the turning of the cam L to bring its next succeeding operative portion against the arm J. It will be seen that through the
 5 described arrangement and construction the guide G will be shifted automatically in opposite directions at each reciprocation of the elevator I.

As the matrices are delivered from the
 10 magazine one after another they are received side by side in the upper part of the assembling-elevator, and when the composition of the line is completed the elevator is raised preparatory to the transfer of the matrix-line
 15 to the casting mechanism. These parts are all constructed and operate as usual. When the elevator descends after the delivery of one matrix-line and preparatory to the reception of the next, its pawl N, acting on the
 20 ratchet-wheel M, gives a partial rotation to the hub or cam L, which in turn moves the arm J, the arm J and lever H shifting the guide G in one direction or the other. Thus it is that the repeated movements of the as-
 25 sembling-elevator cause the keyboard connections to be automatically shifted in such manner that the finger-key will deliver the matrices from first one and then the other of the magazine-channels. Consequently I am
 30 enabled, without complicating the keyboard and without calling for any special care or attention on the part of the operator, to provide the machine with a greatly-increased number of matrices for any given character.
 35 It will of course be understood that the shifting guide may be used in connection with any desired number of key-bars F and that there may be a corresponding number of pairs of escapement-rods D.

40 While I prefer to shift the connections by or through means of the assemblage-elevator, it will of course be understood that they may be modified in form and that they may receive motion from any other part of the ma-
 45 chine which moves at suitable intervals.

The invention involved in this application is to be distinguished from the inventions presented in other applications involving similar subject-matter in that it effects the
 50 desired object by the employment of two escapement devices for discharging matrices and a single actuating device therefor and in the employment therewith of connections with a periodically-operated part of the ma-
 55 chine, whereby the said actuating device is automatically connected with the two escapement devices alternately.

Having thus described my invention, what I claim is—

1. In a linotype-machine two escapement
 60 devices for discharging matrices, a single actuating device, and connections with a periodically-operated part of the machine to automatically connect the actuating device with the two escapement devices alternately. 65

2. In a linotype-machine, two escapement-
 70 rods, the single key-bar, the shifting guide and automatic mechanism to move the guide whereby the key-bar is automatically caused to actuate the two escapement-rods alter-
 75 nately.

3. In a linotype-machine, the combination
 of two escapement-rods, a key-bar, a shifting guide for said bar and automatic connec-
 75 tions from said guide to the assembling-elevator.

4. In a linotype-machine, in combination
 with the key-bar its movable guide, the rock-
 shaft and arms for moving said guide, the ro-
 tary hub and ratchet-wheel for turning the
 80 same and pawl connected to the assembling-elevator and acting automatically to turn the ratchet-wheel.

In testimony whereof I hereunto set my
 hand, this 17th day of September, 1896, in the
 85 presence of two attesting witnesses.

OTT. MERGENTHALER.

Witnesses:

CHARLES H. AKERS,
 J. M. WATTS.