

(No Model.)

2 Sheets—Sheet 1.

P. T. DODGE.
LINOTYPE MACHINE.

No. 547,633.

Patented Oct. 8, 1895.

Fig. 1.

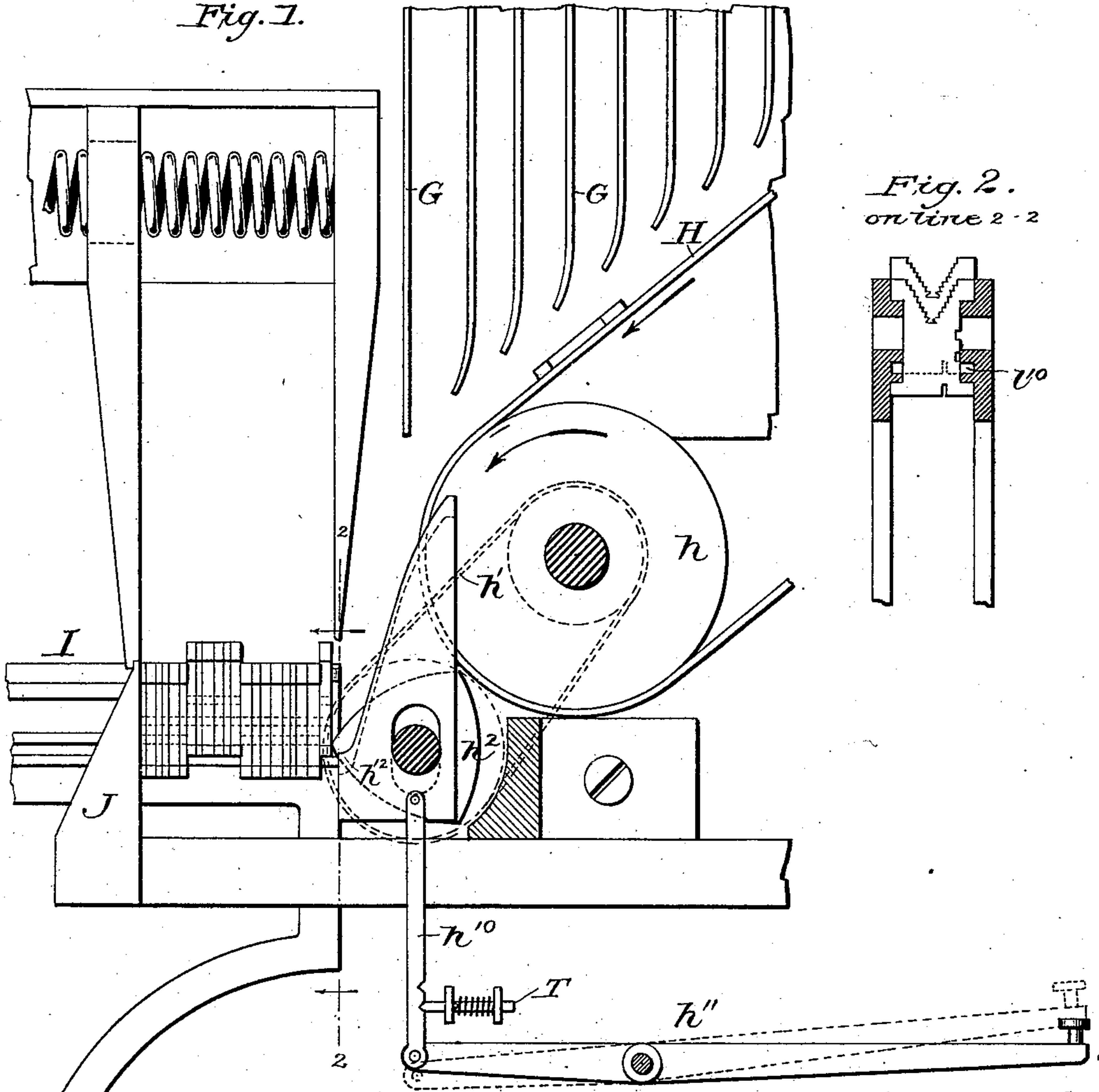


Fig. 2.
on line 2-2

Fig. 3.

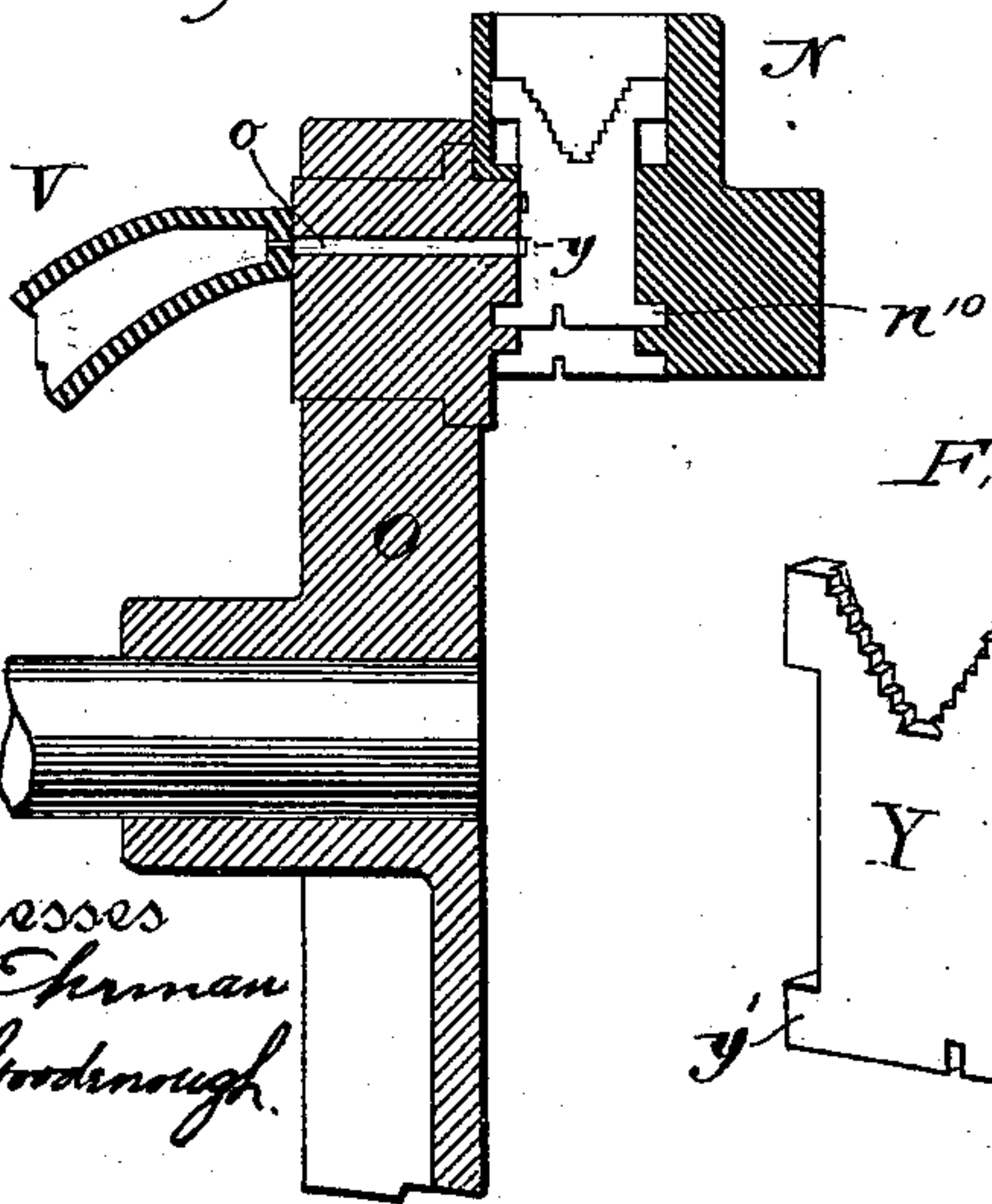


Fig. 4.

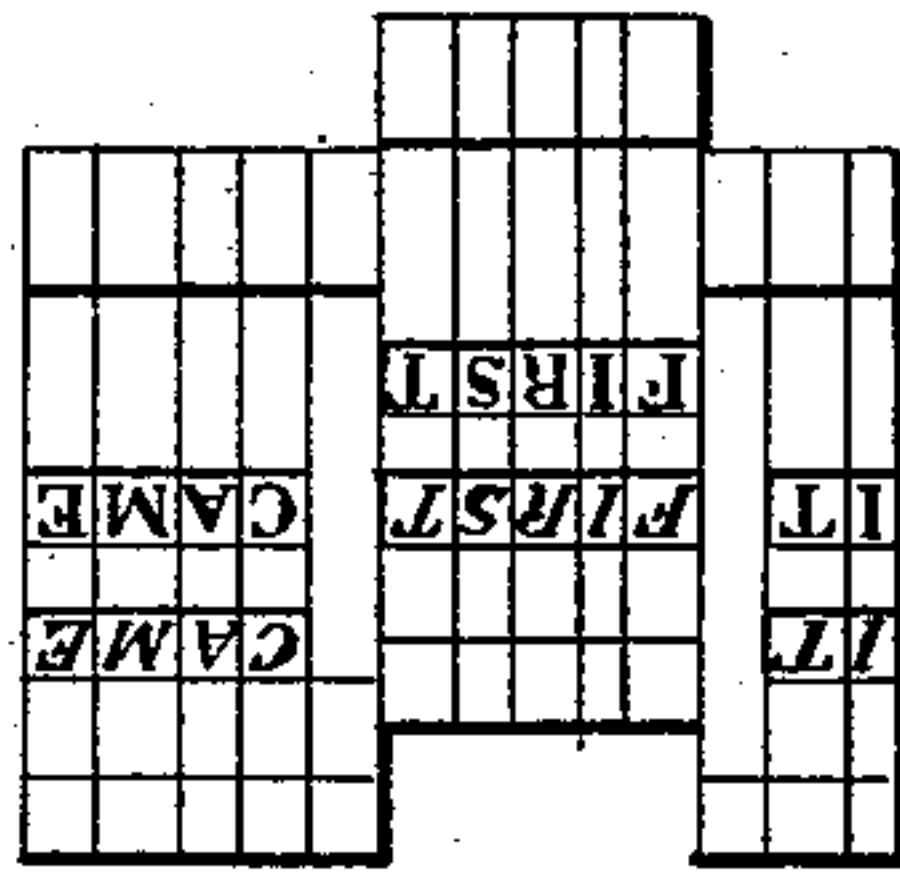
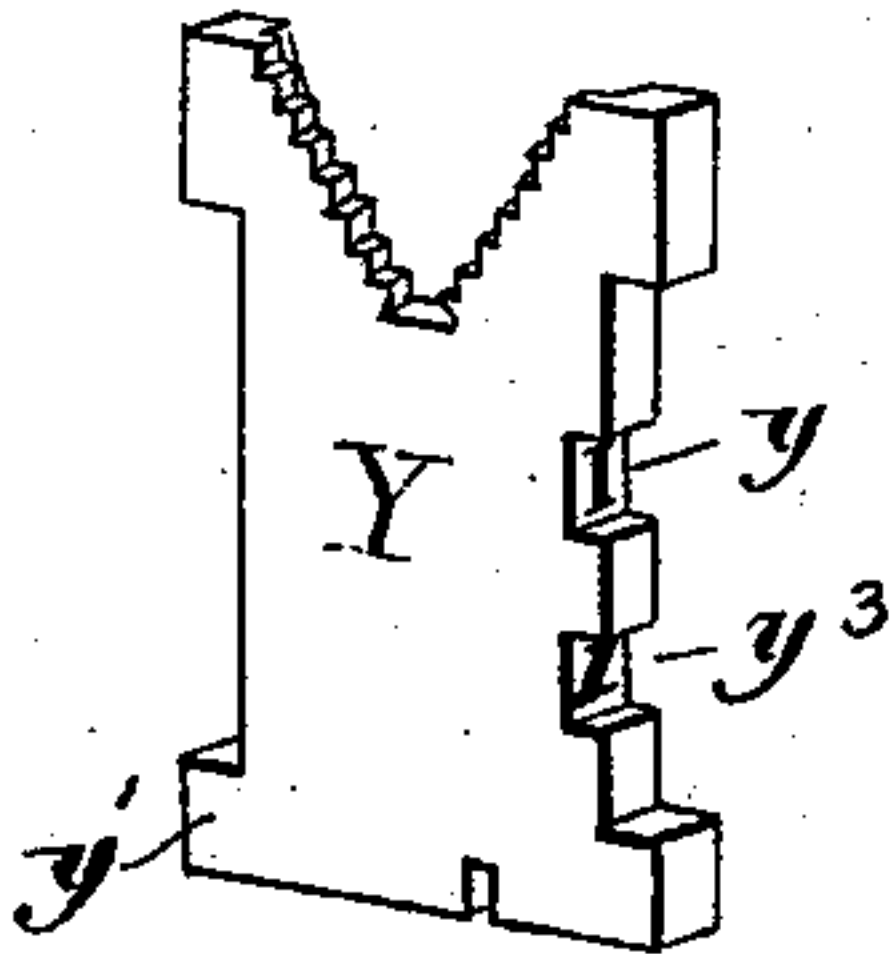


Fig. 5.



Witnesses
A. H. Chirman
Emily Goodenough.

Inventor

Philip T. Dodge

(No Model.)

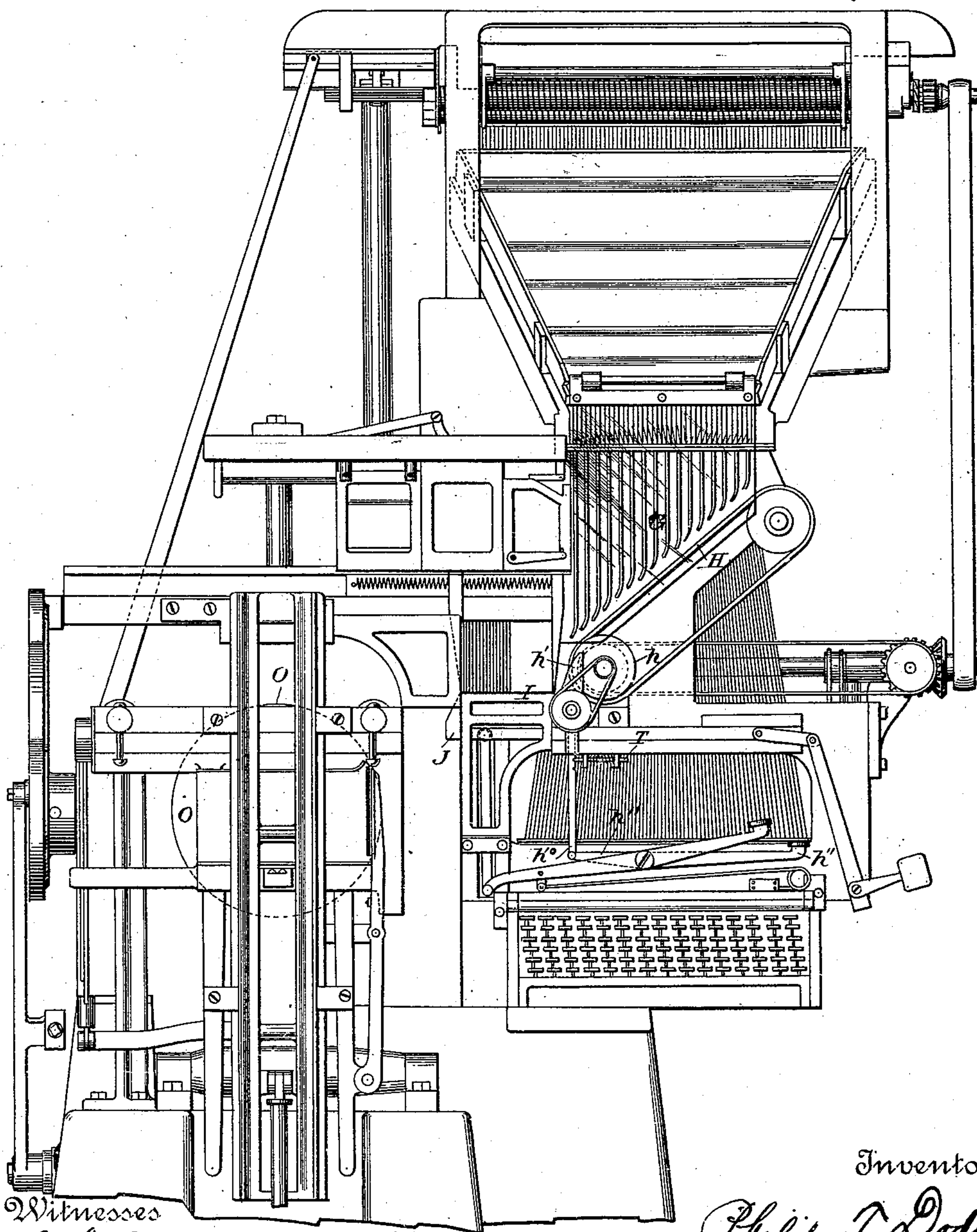
2 Sheets—Sheet 2.

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Fig. 6.



Witnesses

J. G. Jones.
J. J. Moore

Inventor

Philip T Dodge

UNITED STATES PATENT OFFICE.

PHILIP T. DODGE, OF WASHINGTON, DISTRICT OF COLUMBIA.

LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,633, dated October 8, 1895.

Application filed May 25, 1892. Serial No. 434,326. (No model.)

To all whom it may concern:

Be it known that I, PHILIP T. DODGE, of Washington, District of Columbia, have invented a new and useful Improvement in Linotype-Machines, of which the following is a specification.

At the present day there are known in the art various machines intended to do away with the use of ordinary single-letter printing-type by producing as substitutes for the type slugs or linotypes having type-characters to print a line. These machines are of two classes. In those of the Mergenthaler or linotype pattern a series of single-letter matrices are, through the instrumentality of finger-keys, assembled in line in front of a mold supplied with molten type metal, so as to reproduce their characters in relief on the edge of a slug or linotype cast in the mold. In another class of machines cameo type or type-dies are, by means of finger-keys, assembled in line and then impressed in papier-maché, lead, or equivalent material to produce a line-matrix, against which the slug or linotype is subsequently cast as a distinct operation. In these machines as heretofore constructed each matrix or die, as the case might be, contained a single character, there being as many different dies or matrices employed as there were characters on the keyboard. For many kinds of printing it is necessary to use the same character or letter in different faces—for example, the upper and lower case Roman and Roman small caps, and Italics. As machines have heretofore been constructed, this variety of faces could only be obtained by increasing the size of the machine, the number of matrices or dies, and the number of finger-keys.

My invention has in view the provision in one machine of means for producing all the characters in two or more faces or styles without increasing the size of the machine or the number of matrices, dies, or keys, so that the operation of a given key—for instance, the key representing “a”—will bring into line an “a” of either of the several faces for which the machine is fitted. In this way, for example, I am enabled, in a machine producing nonpareil Roman faces, to introduce at will, either into the lines of nonpareil or throughout entire lines, Italic faces. Under

my invention the machine may be adapted to produce two, three, or more different faces at will. I accomplish the desired result by providing each matrix or each die with the same character in two or more forms or styles—as, for example, in nonpareil Roman, nonpareil Italic, and nonpareil small caps, or nonpareil Roman, nonpareil full-faced, and nonpareil small caps, or in nonpareil, minion, and brevier. I arrange these matrices or dies in magazines or holders of any ordinary or suitable character and combine with the magazine finger-keys and a composing mechanism or equivalent mechanism of any form adapted to release the selected or designated matrices or dies and assemble them in line. Between the magazine and the point of assemblage I locate a switch or equivalent device by which the position of the matrices in the line may be varied, so that each matrix will present one or another of its characters in line, as demanded. I also construct the device by which the cast or impression is made in such manner as to hold the composed line with the matrices in the position demanded.

In my drawings I have represented my improvement as applying more particularly to the well-known Mergenthaler linotype machine; but the skilled mechanic will understand that it is not thus limited in its application, and that it may be embodied in many forms the mechanical equivalents of those herein shown. Except in the particulars herein described, the machine may be in all its essential parts of the construction represented in the patent of O. Mergenthaler, dated September 16, 1890, No. 436,532.

As the details of the magazine, its escape-ment devices and other parts are foreign to the present invention and are fully described in the above-named patent, it is not necessary to illustrate or describe them herein.

In the accompanying drawings, Figure 1 is a front elevation of so much of the composing mechanism as is necessary to an understanding of my invention; Fig. 2, a cross-section of the same on the line 2 2; Fig. 3, a vertical cross-section through the mold and attendant parts; Fig. 4, a face view of matrices in accordance with my invention assembled or composed in line to present two different faces in the one line. Fig. 5 is a

perspective view of one of the matrices. Fig. 6 is a front elevation of the leading parts of the machine, showing its general organization.

5 G G represent vertical channels or passages through which the matrices descend, one at a time, under the action of finger-keys from the magazine above.

10 II is an endless rapidly-traveling belt passing around pulley h at its lower end and serving to carry the matrices downward and forward toward the assembling-point.

I represents the slotted "assembling-block," so called, into which the matrices are delivered, one after another, and assembled in line against the horizontally-yielding finger or resistant J. At the forward or receiving end of this assembling-block there is an angular rapidly-revolving wheel h^2 , which acts against 20 the last matrix in the line, forcing the line bodily forward, so as to give an opportunity for each matrix or space to enter the block as it is added to the line. The matrices on leaving the belt are supported and directed downward to their position in the assembling-block in front of the wheel h^2 by means of the stationary guide or block h' , which is slotted to admit of the wheels h and h^2 working there-through. In their construction and arrangement 30 the above parts are the same as those described and indicated by like letters in the former patent.

In carrying my invention into effect I may construct the matrices Y (shown in the several figures) in the same form and manner as those represented in the patent, except that I provide each one in its edge, in addition to the intaglio character or matrix proper y , with one or more additional characters or 40 matrices y^3 , placing it in the same edge of the body, either above or below the ordinary character. For the purpose which I have especially in view, the matrices proper y and y^3 should represent the same letter or character, 45 but in different faces, as represented in Fig. 5, in which Y shows the Roman letter "I" and y^3 the corresponding Italic letter "I." Now it will be obvious that when this matrix is used in the machine it will produce one or 50 the other of these two characters, according to its longitudinal adjustment in the line. In order, therefore, that the position may be determined according to the requirements, I mount the guide-block h' so that it may slide 55 upward and downward to a limited extent and connect it by a link h^{10} with a pivoted finger-lever h^{11} , arranged in any position which will admit of its being conveniently manipulated by the attendant. The lower front face of the 60 block is curved forward to form a supporting-shoulder h^{12} , by which the matrices are arrested in their descent and directed forward into the assembling-block. Now it will be obvious that when the block h' is raised it will 65 deliver the matrices into the block at a higher level than when it is depressed. I provide the assembling-block, in addition to the should-

ders with which it was formerly provided to sustain the matrices, with two horizontal grooves i^{10} , extending along its inner walls or 70 faces and adapted to receive the projecting ears y' at the lower ends of the matrices. When the block h' is down in its normal position, (indicated by the dotted lines in Fig. 1,) the matrices will pass into the assembling- 75 block in precisely the same manner as in the former machine, so that their characters y will be presented to the mold as heretofore. When, however, the block h' is raised by means of the finger-key to the position shown in full 80 lines in Fig. 1, each matrix on entering the assembling-block will be delivered above the ordinary level and so that its supporting-ears y' will enter the sustaining-grooves i^{10} . The effect of this will be to lift the matrices above 85 their ordinary position, so that the Italic y^3 will be finally presented in operative relation to the mold.

It will be observed that the entire line of matrices may be assembled in an elevated 90 position to produce the Italic or other exceptional characters; or, as shown in Figs. 1 and 4, the line may be composed in part of matrices in the normal position to produce the ordinary characters and in part of matrices 95 elevated to produce Italic characters; and in this way Italic characters or words may be produced in any desired positions in lines composed mainly of the ordinary characters.

The guiding devices or supporting devices 100 through which the line is transferred to the mold will all be provided with grooves or shoulders to sustain the matrices in the relative positions in which they were assembled, and the mold or its adjuncts, or both, will be 105 correspondingly formed.

As I find that the most perfect alignment is secured when the matrices are directly engaged with the mold, I recommend the construction shown in Fig. 3, in which O represents the mold-wheel, having the slot or mold 110 proper O therethrough; V, the mouth of the melting-pot, through which the molten metal is delivered into the mold, and N the slotted vertically-movable yoke by which the aligned 115 matrices are sustained and presented against the face of the mold, that the slug or linotype may be cast against their characters or matrices proper, as in the original machine. I provide this yoke, in addition to the shoulders heretofore used to support the matrices, with horizontal grooves n^{10} to receive the ears 120 of those matrices which are in an elevated position, whereby they are held so as to present their supplemental characters y^3 to the 125 mold. The assembled line is delivered from the assembling-block to the mold, and from the latter to the distributing mechanism and through the top of the magazine, in the same manner and by the same means as in the 130 Mergenthaler patent above mentioned. These parts, shown in the drawings, need not, therefore, be described in detail herein.

In operating the machine the attendant

5 fingers the keys and permits the ordinary operations to occur in all respects in the ordinary manner, except that he from time to time operates the special finger-key to determine which style or class of characters shall enter the line. Obviously the key or any part of the switch mechanism may be provided with locking devices, so that the machine may be set to deliver the selected style of character into the line continuously. This admits of the machine being changed instantly, for example, from nonpareil to minion, or minion to brevier.

15 In Fig. 1, I represents a spring-actuated bolt or detent mounted in fixed guides and entering notches in the switch-controlling link for the purpose above named.

20 I do not claim herein matrices each containing a plurality of different characters, longitudinally adjustable in relation to each other. My invention relates only to matrices each having its characters duplicated in different forms.

25 Having thus described my invention, what I claim is—

30 1. In combination with a series of matrices or dies each having the same character repeated in different forms, a composing mechanism for selecting and assembling said matrices in line, and means under the control of the operator for controlling the longitudinal adjustment of each matrix in relation to others in a composed line; whereby the line may be composed in whole of either form of character, or in part of each.

2. In combination with a series of matrices each having duplicate characters in variant forms as described, the composing mechanism, and the movable switch whereby the longitudinal adjustment of the matrices in relation to each other may be controlled at will.

3. In combination with a series of matrices each having characters repeated as described, a composing mechanism, means for determining the longitudinal adjustment of the matrices in relation to each other, and a mold adapted to interlock with the matrices in the composed line and retain them in their adjusted positions.

4. In combination with the matrices having their characters repeated as described, and an assembling block provided with a plurality of sustaining shoulders whereby the matrices in the closed line may be maintained in different positions.

5. In a linotype machine, and in combination with matrices each having a plurality of characters at different heights, a support for the composed matrices, provided with a plurality of horizontal shoulders adapted to sustain the matrices in the line at the different elevations to which they may be respectively adjusted.

In testimony whereof I hereunto set my hand, this 13th day of May, 1892, in the presence of two attesting witnesses.

PHILIP T. DODGE.

Witnesses:

ARTIS H. EHRMAN,
EMILY GOODENOUGH.