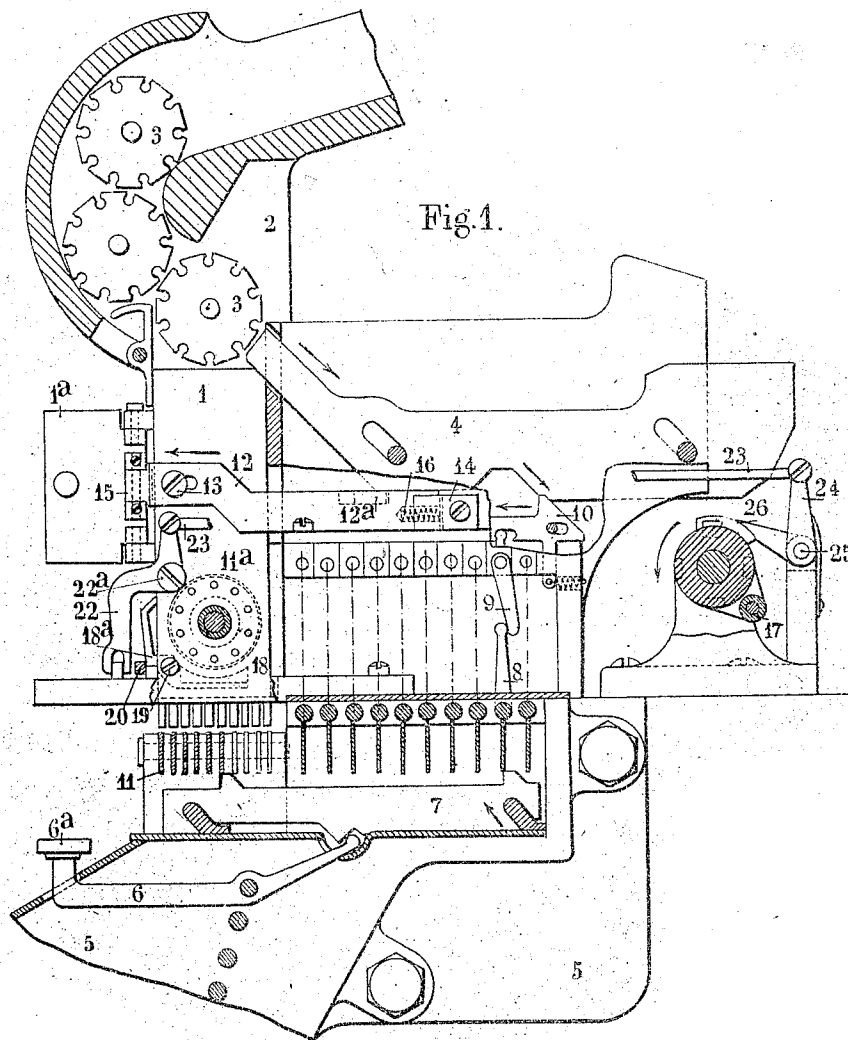


F. SCHIMMEL.
MACHINE FOR COMPOSING AND CASTING LINES OF TYPE.
APPLICATION FILED MAR. 29, 1911.

1,055,089.

Patented Mar. 4, 1913.
3 SHEETS—SHEET 1.



WITNESSES

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Fig. 2.

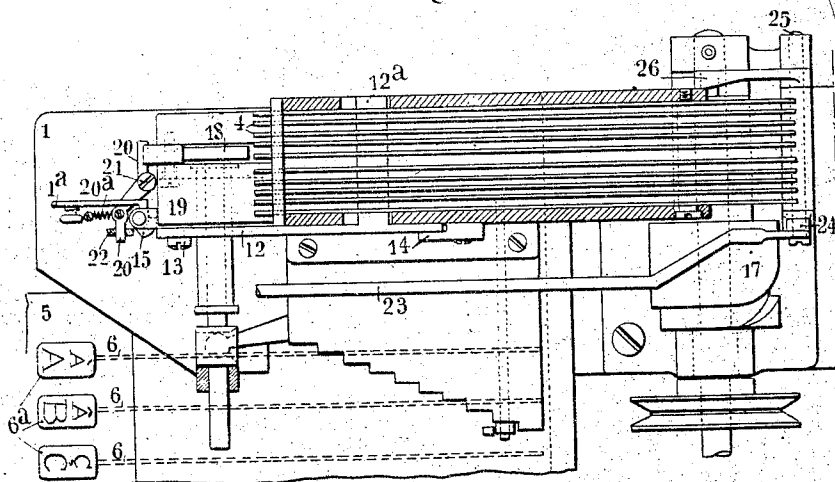
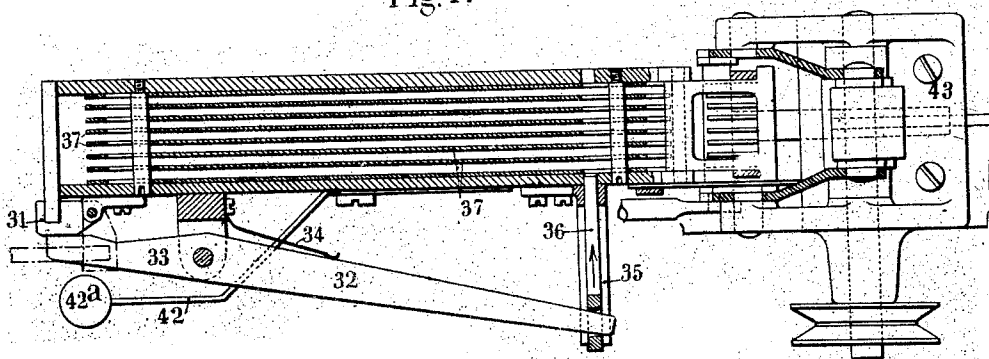


Fig. 4.



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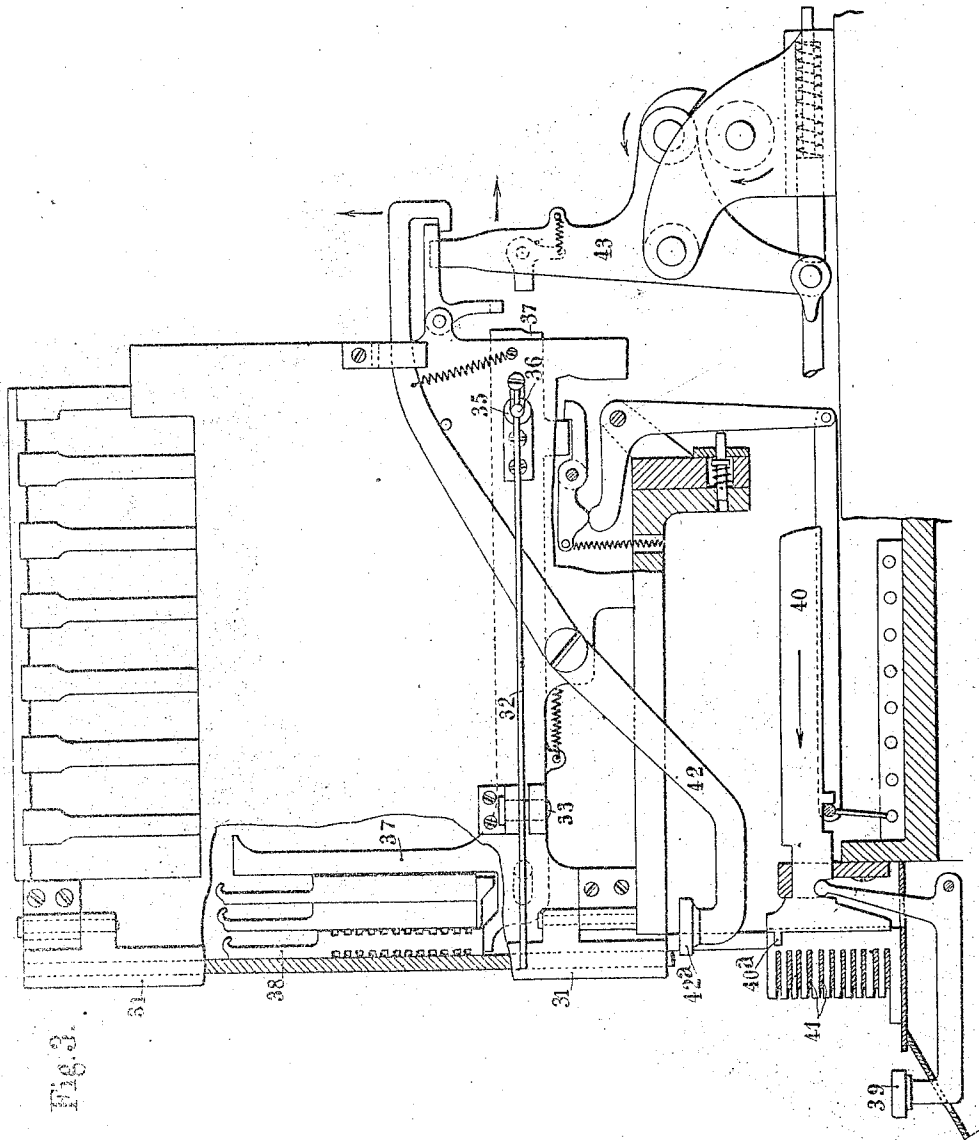


Fig. 2.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR COMPOSING AND CASTING LINES OF TYPE.

1,055,089.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed March 29, 1911. Serial No. 617,645.

To all whom it may concern:

Be it known that I, FRANZ SCHIMMEL, of 103 Rue du Sergens Blandan, Nancy, Meurthe-et-Moselle, Republic of France, engineer, have invented Improvements in Machines for Composing and Casting Lines of Type, of which the following is a full, clear, and exact description.

In automatic machines for composing and casting lines of type, since there are a large number of different characters which may be required in the text, and in order to dispense with an excessive number of finger pieces on the keyboard, a certain number of the said characters which are the least frequently employed, are arranged on supplementary matrices which are not mounted in the machine, but which are contained in a box placed within reach of the compositor. The latter can, at will, take from this box a matrix bearing the desired character and place it by hand in the line set up. After the line is cast, this matrix is taken out and put back in the box. If the composing machine employs matrices which each carry only a single character, as many supplementary matrices as there are characters not mounted in the machine, will be required. The box containing the supplementary matrices in this case is divided into a large number of compartments and the selection of the required matrix is very difficult.

Composing machines have heretofore been known in which each matrix carries several different characters, for example, 10 or 12 characters. It would be natural to employ to carry the supplementary characters, matrices similar to the matrices mounted in the machine, that is to say, each carrying ten or twelve characters also, which would be advantageous in that the number of supplementary matrices would be thereby reduced. But heretofore it has not been possible to do this and make the supplementary matrices with several characters. In fact, the compositor would be obliged to search among the ten or twelve characters on each matrix for the required character and bring this into position by turning the matrix around. This operation is too difficult and too slow to be practicable. Moreover in some composing machines the character to be reproduced in the line cast is situated on the side of the matrix away from the compositor and the latter would not be able to make certain that the required matrix is

correctly brought into position to present the character to be reproduced in proper place. Thus it has heretofore been necessary to have as many supplementary matrices as there are characters which are not provided in the machine.

The object of the present invention is to remedy this disadvantage. The said invention provides an arrangement by means of which supplementary matrices each bearing several characters are automatically brought into the required position in the line carrier by means of the keyboard of the machine. The compositor has only to drop the required matrix into the machine without troubling about the position it may be in, and then to strike one of the finger pieces of the keyboard, in order to automatically bring the matrix into position. In this case the finger pieces of the keyboard are marked with double indications or signs corresponding respectively to the ordinary characters and to the supplementary characters.

The invention is characterized by: 1. A device which as soon as a door in the machine is opened to permit the introduction of a supplementary matrix, immediately locks up the matrices contained in the distributing magazine and prevents them from traveling to the composing mechanism even if the finger pieces on the keyboard which normally set free these matrices, are struck. 2. A mechanism which at each time that a matrix falls into the composing mechanism, immediately puts into gear the eccentric which effects the raising of the members retaining the matrices in the magazine, if these members are lowered, and which rotates the matrix in the composing mechanism so as to bring it into the desired position and thrusts it into the line carrier.

The invention is illustrated in the accompanying drawing in which:

Figure 1 is an elevation, and Fig. 2 a plan showing the application of the present invention to a known type of composing machine. Figs. 3 and 4 are views respectively similar to Figs. 1 and 2, showing the application of the present invention to another known type of composing machine.

As shown in this drawing, Figs. 1 and 2 show only the front portion of a machine comprising a composing mechanism 1 on which rests a matrix magazine 2 in which round matrices 3 ready for setting up, are retained by bars 4. These bars 4 can be

unlatched by the lever 6 of the keyboard 5 furnished with finger pieces 6^a. When a finger piece 6^a is depressed, the lever 6 carrying this finger piece is rocked whereby the member 7 is moved forwardly and upwardly. The heel of this member 7 rocks the levers 8 and 9 and causes movement of a part 10 which retains the bar 4, and then allows the latter to escape. The bar 4 is moved in the direction indicated by the arrow and allows the lowermost matrix 3 to fall into the composing mechanism. The movement of the member 7 consequent on the operation of the finger piece 6^a causes one of the parts 11 to be raised, and thus causes a pin 11^a to project to stop the matrix in the desired position when this matrix is set in rotation by the composing mechanism. The matrix is subsequently thrust into the line carrier and when the latter is full the line is cast. All these operations and the construction of the matrices, are well known having been particularly described in my Patent No. 953,237, dated March 29, 1910, and it is not necessary to describe the same at further length.

The supplementary matrices are exactly similar to the ordinary matrices. They bear, for example, ten characters and they are divided into one, two or three classes according to the number of characters which are to be reserved for the supplementary matrices.

The composing mechanism is provided with a small door 1^a. When the supplementary matrices are to be dealt with, this door, which is closed in ordinary circumstances, is opened to permit the introduction of a matrix into the line carrier. Care must be exercised at this moment not to strike any of the finger pieces on the keyboard in order not to thereby release the ordinary matrices.

In the present improved machine, the opening of the door 1^a is utilized to lock the bars 4 and prevent the matrices 3 from falling into the composing mechanism at this time. For this purpose, the door 1^a is provided with a lug 15 which, when the door is open, as shown in Figs. 1 and 2, is thrust against a slide bar 12 guided by a screw 13 and a plate 14, and provided with a retracting spring 16. This slide bar 12 carries an arm 12^a which when the slide bar is thrust toward the right and, comes into position beneath the bars 4 and locks them so that these bars can no longer move and the matrices 3 cannot fall into the composing mechanism. It is to be understood that, at this time, the finger pieces of the keyboard can be struck without having any effect on the matrices 3. The said finger pieces have corresponding double indications or signs marked thereon; one indication corresponds to the ordinary characters A, B, C, . . .

etc., and the other indication corresponds to the characters on the supplementary matrices, for example, $\hat{A}$, $\hat{A}$, $\hat{C}$, . . . etc., (Fig. 2).

The bottom of the composing mechanism is formed by a lever 18 pivotally mounted at 19 and provided with an arm the lower part 18^a of which forms a kind of stop. When a matrix drops on to the lever 18 the latter is rocked and the stop 18^a is raised permitting the end of a lever 20 pivoted at 21 and controlled by a spring 20^a, to engage under the said stop 18^a. The other extremity of the lever 20 is engaged in the forked end of a lever 22 pivoted at 22^a and articulated to a connecting rod 23. The latter is itself connected to a lever 24 keyed on the spindle 25 of an arm 26 which serves to lock or release the eccentric 17, which effects the rotation of the matrix in the composing mechanism and its entrance into the line carrier.

The operation of these parts is as follows: At ordinary times the door 1^a is closed. When one of the finger pieces A, B, C, . . . is struck the bar 4 is acted upon to liberate the lowermost matrix 3; the latter falls on to the lever 18 and causes it to rock; the levers 20, 22, 24 are turned, and the arm 26 puts the eccentric 17 into gear; the bar 4 is returned to its initial position by the movement of the eccentric 17 thereagainst; the matrix is put in rotation in the composing mechanism until the hole therein is threaded on to the pin 11^a which is thrust out by the action of the finger piece 6^a, and the matrix is then thrust into the line carrier.

If it is desired to set up in the line a character carried by a supplementary matrix, the matrix carrying this character is taken by hand from the box in which it is stored and the door 1^a is opened. This opening of the door immediately locks the bars 4, by means of the arms 12^a and, consequently, the matrices 3 also. The finger pieces of the keyboard can then be operated without causing any of the matrices 3 to fall.

If the finger piece 6^a marked with the desired auxiliary character is struck, the corresponding pin 11^a is thrust out. The composing mechanism is thus put into condition to stop the matrix at the desired character. The matrix is then dropped into the composing mechanism through the opening uncovered by the door 1^a. The matrix can be in any chance position and the compositor never need trouble about the position which the selected character occupies. This matrix falls onto the lever 18 and as has been hereinabove described, the latter puts the eccentric 17 into gear. The supplementary matrix is put into rotation, stopped when the desired character is in position, and thrust into the line carrier.

If it is not required to put in any other character carried by a supplementary matrix, the door 1^a is closed whereby the bars 4 are set free. As will be seen from the foregoing the supplementary matrices are similar to the other matrices, they carry as many characters, and are automatically placed by the machine into the line carrier.

Each finger piece of the keyboard corresponds to two characters and serves a double purpose. First to control the matrices in the magazine and their rotation in the composing mechanism before they are put in place in the line carrier; second: in the case of a supplementary matrix, to prepare the composing mechanism in order that, on rotation of this matrix the latter automatically takes up the desired position before entering the line carrier. These results are insured by the present improved mechanism which puts the eccentric 17 into gear each time that one of the finger pieces on the keyboard is actuated. The automatic locking up of the ordinary matrices is effected by the opening of the door of the composing mechanism in order to introduce a supplementary matrix.

The improved mechanism can without difficulty be applied to existing machines. In Figs. 3 and 4, showing the application of the invention to a type of machine different from that shown in Figs. 1 and 2, one arm of a lever 32 which turns about an axis 33 is thrust by a spring 34, against the frame 31 of a door on the magazine. The other arm of this lever is connected to a pin 36, moving in a tubular guide 35. When the magazine door is opened, the lever 32 is rocked and causes the pin 36 to pass into holes provided for this purpose in the matrix retaining bars 37. These bars are thus locked and consequently, the matrices cannot fall into the composing mechanism.

The striking of any one of the finger pieces 39 of the keyboard of the machine, moves forward a corresponding bar 40 formed with a tongue 40^a which is then pressed against one of the horizontal plates 41; the latter enters the composing mechanism (not shown) and serves to receive and support a supplementary matrix introduced by hand into the composing mechanism. A special finger piece 42^a carried by a lever 42 is then struck. This sets in operation a rocking lever 43 which thrusts the matrix into the line then in course of composition. As will be readily understood, in this case also, the action of opening the door of the matrix magazine is sufficient to lock

up the matrices therein and to permit the finger pieces of the keyboard to be actuated to determine the position of the matrix.

The arrangements, hereinabove described are given by way of example only; the forms, dimensions and detail arrangements can be varied according to requirements without modifying the principle of the invention.

Claims:

1. In a machine for composing and casting lines of type, matrices carrying several characters, a magazine for said matrices, a composing-mechanism, a door for the composing-mechanism, retaining devices for the matrices in said magazine, a mechanism for locking up said retaining devices, and means for actuating said mechanism by opening the door of the composing-mechanism.

2. In a machine for composing and casting lines of type, matrices of round shape carrying several characters, a magazine for said matrices, a composing-mechanism, a door for the composing-mechanism, retaining devices for the matrices in said magazine, a mechanism for locking up said retaining devices, and means for actuating said mechanism by opening the door of the composing-mechanism.

3. In a machine for composing and casting lines of type, matrices, a magazine for said matrices, a composing-mechanism, a door for the composing-mechanism, retaining bars for the matrices, an arm capable of releasing said bars, a slide carrying said arm, and a member carried by the door of the composing-mechanism and coöperating with the slide.

4. In a machine for composing and casting lines of type, matrices carrying several characters, a magazine for said matrices, supplementary matrices to be placed by hand by the operator in the composing-mechanism of the machine, a composing-mechanism, a door for the composing-mechanism, retaining devices for the matrices in said magazine, a mechanism for locking up said retaining devices, and means for actuating said mechanism by opening the door of the composing-mechanism.

The foregoing specification of my "improvements in machines for composing and casting lines of type" signed by me this 17th day of March 1911.

FRANZ SCHIMMEL

Witnesses:

H. C. COXE,
R. THIRIOT.