Jan. 26, 1937. M. T. GOETZ 2,068,669

INDICATING MECHANISM

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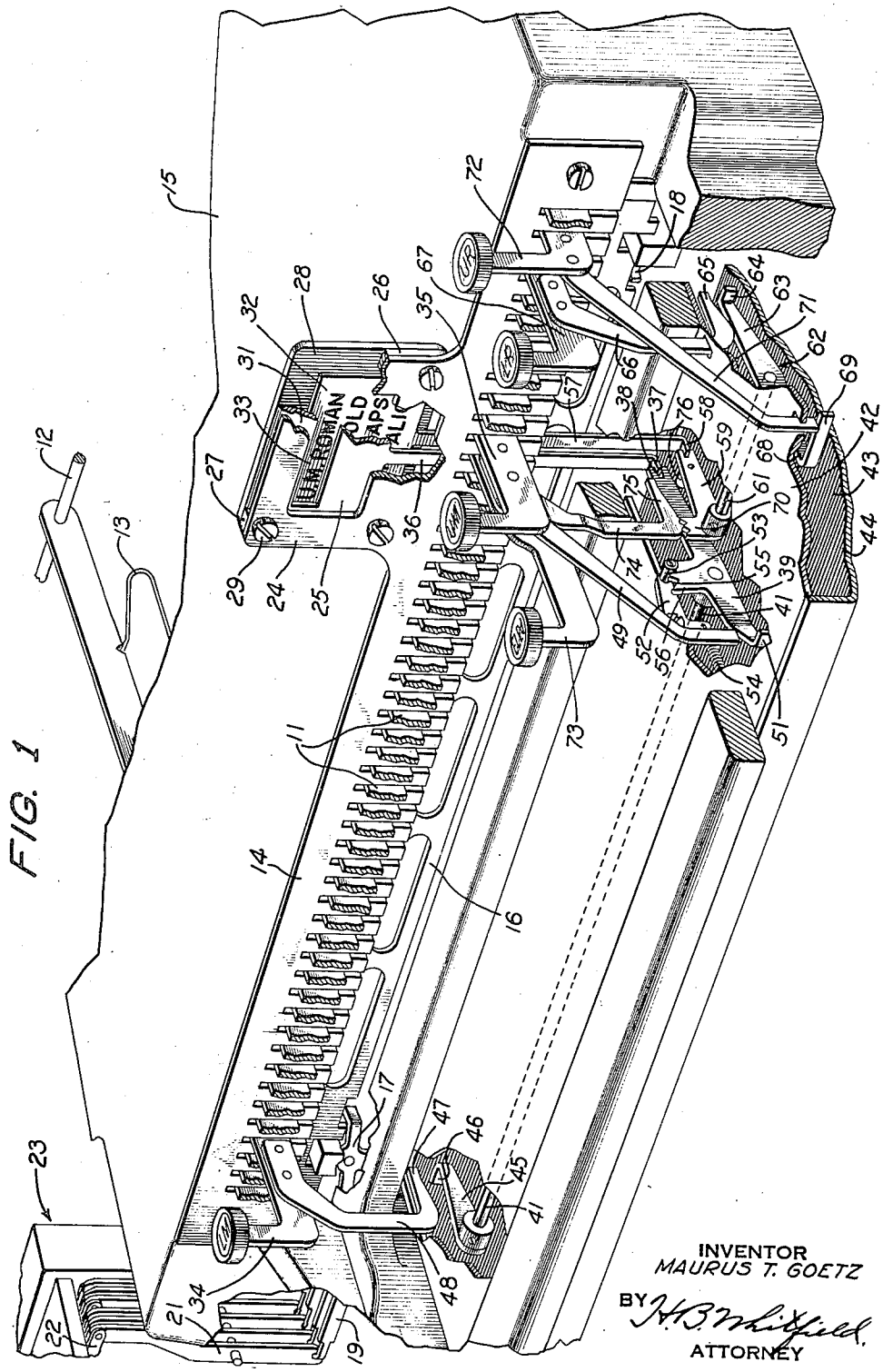


FIG. 1

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FIG. 2

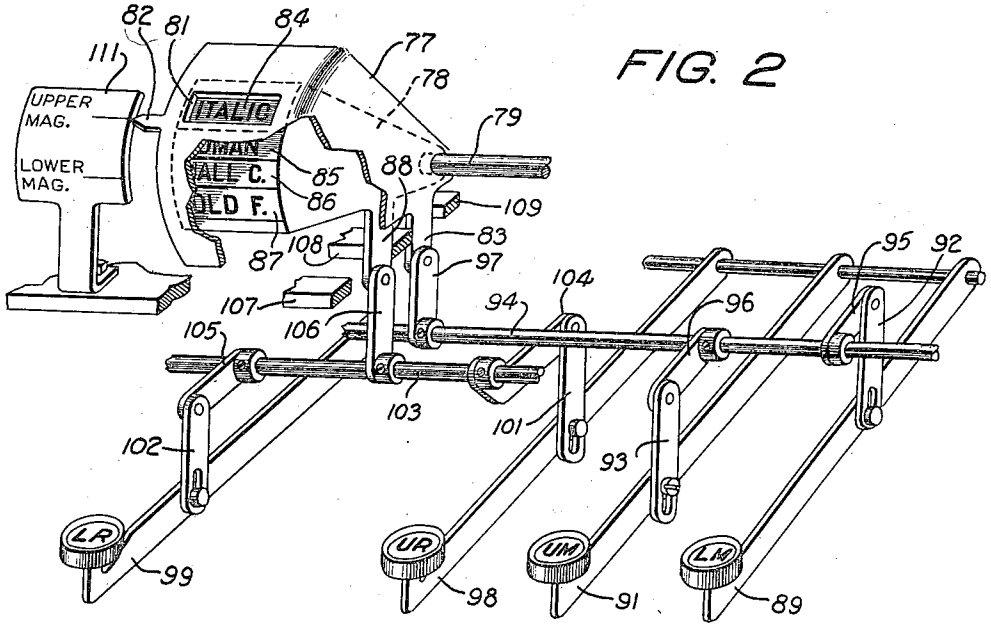
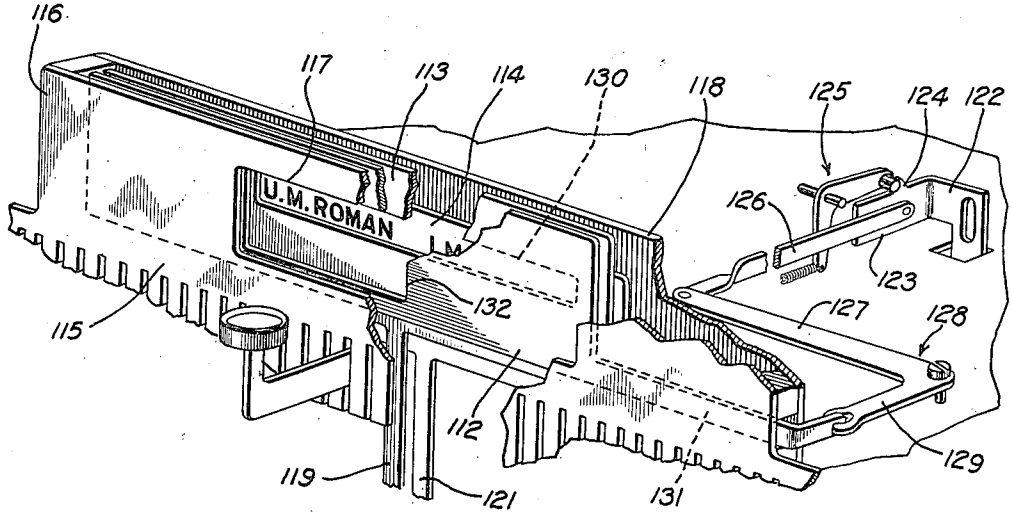


FIG. 3



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INDICATING MECHANISM

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Application February 1, 1935, Serial No. 4,434

12 Claims. (Cl. 164—112)

The present invention pertains to composing systems and apparatus therefor and more particularly to apparatus for preparing a control form for the automatic control of composing and casting machines.

The principal object of the invention is to provide, in an apparatus for the preparation of forms for the automatic control of casting machines, an indicating device to apprise the operator of the nature and style of type being composed.

Another object of the invention is the provision of an indicating mechanism to be used in connection with the preparation of perforated tape for the control of linecasting machines utilizing a plurality of matrix magazines.

Most linecasting machines utilize matrices provided with two letters or characters. For example, there may be a roman letter k and an italic letter *k* on the same matrix. In the assembly elevator and throughout the entire delivery mechanism there are two rails or tracks upon which the matrices rest and ride. Thus, for instance, if the *k* matrix assembles on the top rail, the italic *k* will be cast; if it assembles on the bottom rail, the roman k will be cast. Besides italics, the two-letter matrices are used to carry bold-face, small caps, and in some cases a second type face. The assembling elevator is provided with a shiftable or displaceable upper level supporting rail which, by its presentment or withdrawal from the entrance of the assembling block, may be made to determine the position in which the received matrices shall thereafter be supported within the elevator. The position of each matrix, once it is determined by the condition of the shiftable rail, exists throughout the composing operation and until an assembled line of matrices is thereafter carried to the casting mechanism. The shiftable rail is known in the art as the duplex rail.

To enlarge the scope of composition, linecasting machines are frequently provided with two or more storage magazines and also with means for choosing the magazine from which a matrix is to be selected. The structure according to the present invention contemplates the provision of an indicator to apprise the operator at all times during the preparation of perforated control strips, not only, which of the characters of a two-character matrix is to be used, but also of the particular magazine from which the matrix is to be chosen.

To achieve the above and other objects of the invention, the keylever comb of the keyboard perforator and counter according to copending application Serial No. 613,706, filed May 26, 1932 by H. L. Krum, which is located on the front surface of the base of the perforator and immediately behind the bank of key tops (Fig. 1 of said application) is modified to accommodate an indicator, comprising a frame integral with said comb and a series of slides, one or more having a window or aperture therein through which is exhibited the information printed on the other slide, the slides being movable relatively to each other. The embodiments of the invention contemplate keyboard apparatus in which the keyboard includes keylevers arranged in a manner characteristic of typewriters which operate a permutation selector mechanism contained in the housing thereof. The selector mechanism is set permutably by the operation of a keylever and acts to set correspondingly a series of punch interference members preparatory to producing a perforated signal in the control strip. Certain keylevers which are involved in the operation of the indicator according to the invention, act also to control the preparation of the control strip. According to the preferred embodiment of the invention, a lever arrangement is provided which is located in a housing beneath the key bank and is controlled by extensions on the upper and lower magazine keylevers, upper and lower rail shift keylevers, and the elevator keylever.

A more comprehensive understanding of the present invention may be had from the following description, taken in conjunction with the accompanying drawings, wherein like reference characters represent similar parts throughout the several views.

Fig. 1 is a perspective view of a part of a perforator and counter with parts broken away showing so much of the apparatus as is necessary for an understanding of the present invention; and

Figs. 2 and 3 are perspective representations of modified forms of the present invention.

Having reference to Fig. 1, it is noted that most of the parts shown have their counterpart in the structure illustrated in the copending application Serial No. 613,706, the entire perforating mechanism not being shown but which is, nevertheless, considered as operatively associated with the present invention. In Fig. 1 a plurality of keylevers 11 are pivoted on a common rod 12 and are normally upheld by individual springs 13. These keylevers are guided in the notches of a keylever comb 14 carried on the base 15 of the perforator and counter unit. The keylevers 11 extend over a number of pairs

of selector bars 16 included in the perforator selecting unit. Each keylever 11 is arranged to depress one of the bars 16 of each pair of bars and through the medium of rocker arms 17 and 18 lifts the other bar of the pair to reciprocate longitudinally a permutation bar 19 cooperatively associated with and subjacently disposed to each pair of bars 16, to impart corresponding movement to the associated pivoted member 21. The function of the members 21, as disclosed in the copending application, is to control the operation of punch interference elements 22 of the perforating unit 23. The bars 16 are set in characteristic combinations, and for this purpose the bars 16 are provided with notched upper edges (not herein shown), the bars of each pair being complements; that is, the high portions of one bar are disposed opposite the low portions of the other bar of the same general plan.

The keylever comb 14, according to the present invention, is provided with an integral frame portion 24 having a window or aperture 25. To the rear of the portion 24 and spaced therefrom by filler pieces 26 and 27 is a backing member 28 which is secured to the portion 24 by means of screws 29. Obviously, the fillers 26 and 27 may be made integral with the frame portion 24, if desired. This arrangement provides a slide frame adapted to accommodate two slides 31 and 32, the slide or shield 31 having a window or aperture 33 therein through which is exhibited the information printed on slide 32.

The slide 31 is controlled through a linkage arrangement by the lower magazine keylever 34 and the upper magazine keylever 35. To achieve this result, the slide 31 is provided with a depending arm 36 terminating at its lower extremity in a laterally disposed portion 37 adapted to cooperate with a notch 38 in the extremity of the rearwardly directed arm of a lever 39 fixed to a rock shaft 41 journaled in bearings (not shown) mounted on the under side of a plate 42 comprising one of the enclosing sides of a housing 43 having a lower enclosing side 44. Fixed to the left-hand end of rod 41 (as viewed in Fig. 1) is a rearwardly directed lever arm 45 which terminates in a lateral portion 46 to cooperate with portion 47 of a member 48 fixed to and depending from keylever 34. The keylever 35 is also provided with a depending arm 49 attached thereto which coacts with a laterally disposed portion 51 formed at the extremity of the forwardly extending portion of lever 39.

With this arrangement, the alternate actuations of keylevers 34 and 35 will cause the reciprocation of slide 31 since, upon the depression of keylever 34, portion 47 of member 48 will coact with portion 46 of lever 45 to rock the shaft 41 in a clockwise direction (as viewed in Fig. 1) to cause a corresponding rotation of lever 39 which in turn will result, through arm 36, in a downward movement of slide 31. Conversely, the depression of keylever 35 will cause, through the coaction of depending member 49 and portion 51, the rotation of lever 39 in a counterclockwise direction, whereupon, through arm 36, slide 31 will be moved upwardly.

The slide 31 is maintained in either its upper or lower position by a detent lever 52 carried by a bracket (not shown) mounted on plate 42. Detent 52 is provided at the extremity of its horizontal arm with a stud 53 which, because of the clockwise rotation imparted to the detent 52 by a spring 54, is constantly biased into one or the other of a pair of notches 55 formed on the upper edge of a vertically extending portion 56 of lever 39.

The slide 32 is provided with a depending arm 57 which terminates at its lower extremity in a laterally and forwardly disposed portion 58 which is articulated to an arm 59 fixed to a rock shaft 61 journaled in brackets (not shown) carried on the bottom side of plate 42. Fixed to the right-hand end of rock shaft 61 (as viewed in Fig. 1) is a lever indicated generally as 62, having a rearwardly directed arm 63 terminating in a laterally disposed portion 64 which coacts with portion 65 of a member 66 attached to and depending from a keylever 67, known as the lower rail keylever 67, so called because its operation causes a lower rail signal to be perforated in the tape simultaneously with the shifting of the slide 32 to the lower rail position.

Lever 62 is also provided with a forwardly extending arm 68 terminating in a laterally disposed portion 69 which cooperates with a member 71 fixed to and depending from the upper rail keylever 72. Similarly to keylever 67, keylever 72, when depressed, causes an upper rail signal to be perforated in the tape and the slide 32 to be moved to its upper rail position. More specifically, upon the depression of keylever 67, lever 62, through arm 66 and portions 64 and 65, will be caused to rotate in a clockwise direction (as viewed in Fig. 1) to cause through arms 59 and 57 the downward movement of slide 32, this position being the lower rail position; that is, the legend or inscriptions on the slide appearing through the window 33 of slide 31 will represent the style of type to be ultimately cast from the matrices subsequently released in the linecasting machine in response to signals corresponding to the keylevers 11 depressed following the operation of lower rail keylever 67. The depression of upper rail keylever 72 results through arm 71 and portion 69 in the counterclockwise rotation of lever 62, which, through arms 59 and 57 causes the upward movement of slide 32 to its upper rail position which is that position wherein the indications appearing through slide 33 in either the upper or lower position of the latter will represent the character to be cast with the matrix in its upper rail position. For example, with the position of the slides as shown in Fig. 1; that is, with the slide 31 in its upward position and slide 32 in its downward position, the legend appearing through the window 33 indicates that the Roman or lower rail characters from the upper magazine matrices will be cast. Now, if keylever 72 is depressed, the slide 32 will be actuated to its upward position, whereby the legend "U. M. BOLD" will appear through window 33, which signifies that the subsequently released matrices from the upper magazine will be set in the upper rail position so as to cast bold face type. If, instead of depressing lever 72, lever 34 is depressed, slide 31 will be actuated to its lower position, whereupon the legend "L. M. S. CAPS" will appear through the window 33, which signifies that matrices from the lower magazine will be assembled in the assembling elevator of the composing machine when the perforated strip is used for control purposes, and that the matrices so released will be set in the lower rail position. Also, upon depression of the lower magazine keylever 34 and the upper rail keylever 72, the slide 31 will assume its lower position and the slide 32 in its upper position, whereupon the legend "L. M. ITALICS" will appear through window 33, signifying that, upon control of the

linecasting machine by the control strip, matrices from the lower magazine will be chosen which, when set in the assembling elevator, will be positioned on the upper rail.

Automatically controlled linecasting machines are provided with the feature of automatically restoring the duplex rail to its lower rail position whenever the elevator is returned to its normal or home position preparatory to receiving a new line of matrices. To be consistent with this feature, the keyboard device according to the present invention has been provided with means for restoring the indicator to the lower rail position whenever the elevator key has been depressed preparatory to beginning the perforation of a new line of matter to be composed. To accomplish this result, the elevator keylever 73 is provided with a depending arm 74 secured thereto which terminates in a rearwardly disposed portion 75 which coacts with a stud 76 carried by the arm 59. With this arrangement, the slide 32 will be actuated to its lower position whenever the elevator keylever 73 is depressed, that is, the depression of keylever 73 causes, through the coaction of portion 75 of arm 74 and stud 76, the clockwise rotation of arm 59, whereupon slide 32, through its arm 57, will be actuated to its downward or lowermost position.

The slide 32 is maintained in either its upper or lower position by a detent arrangement similar to that described in connection with slide 31. Accordingly, only that part of said arrangement represented by a vertically extending portion 70 of arm 59 is indicated in Fig. 1.

Modification

In the embodiment shown in Fig. 2, the indicator consists of two concentric cylindrical sectors 77 and 78 arranged to pivot on a common shaft 79. The outer sector 77 has a window or aperture 81, a pointer 82, and a vertical extension 83. The inner sector 78 carries facilities for mounting four cards on positions 84, 85, 86, and 87, and also is provided with a vertical extension 88. Sector 77 may be moved to either of two positions under the influence of keylevers 89 and 91 through the medium of links 92 and 93, and the assembly consisting of shaft 94 and the actuated levers 95, 96, and 97 which are fixed to shaft 94, the latter in turn being journaled in bearings provided in the keyboard apparatus.

Sector 78 likewise may be moved to either of two positions under the influence of keylevers 98 and 99 through the medium of links 101—102 and the assembly consisting of shaft 103 and the levers 104, 105, and 106 affixed thereto. Keylevers 89 and 91 are used for lower magazine and upper magazine selections respectively, and the keylevers 98 and 99 are employed for upper rail and lower rail selections respectively. Extensions 83 and 88 stop against fixed stops 107, 108, and 109 and are held in their selected positions either by friction means or by detents (not shown in Fig. 2).

Stationary plate 111 carried on the base of the keyboard apparatus is provided to index the position of sector 77. As illustrated in Fig. 1, the combination indicator shows that matrix selections will be made from the upper magazine of the composing machine and will be assembled in the upper rail position of the assembly elevator which, in the particular font being used, will cause italic characters to be cast on the slug of metal. If, now, the L. R. (lower rail) keylever 99 is depressed, section 85 of sector 78 will be moved in line with the window 81 and the operator will be informed that roman characters are being selected. If the L. M. (lower magazine) keylever 89 is depressed, sector 77 will move to its lower magazine position in which the U. R. (upper rail) keylever 98 will present a bold F (bold face) type to the window 81.

It should be noted that the depression of either of the keylevers 89 or 91 with either of the keylevers 98 or 99 will result in different relative movements between sectors 77 and 78 to denote the different relative positions between the upper and lower rail positions of the matrices selected from upper and lower magazines. Of course, the feature disclosed in connection with the embodiment shown in Fig. 1, wherein the elevator key (which is also called the "Return" key), when depressed, acts to restore the indicator to the lower rail position, may readily be adapted to the form illustrated in Fig. 2 by connecting the elevator keylever (not shown) to the shaft 103 by means of a link and lever arm analogous to link 102 and arm 105, respectively, associated with the lower rail keylever 99.

The modification of the invention exemplified in Fig. 3 is provided for use with linecasting machines having not only two main storage magazines but also two side or auxiliary magazines. Linecasting machines of this type are also provided with distributing mechanism capable of accomplishing the simultaneous distribution of matrices to any one of a multiplicity of magazines. Conformable with this arrangement of magazines, an indicator is provided having a third slide 112 (Fig. 3) which is movable from left to right and vice versa or transversely of the movement of slides 113 and 114, the latter being comparable to slides 31 and 32 indicated in Fig. 1. Like the indicator shown in Fig. 1, the indicating device illustrated in Fig. 3 comprises a keylever comb 115 having an integral frame portion 116 provided with a window or aperture 117. The indicator is also arranged with a back member 118 which is spaced from the portion 116 by suitable means to provide sufficient sliding space for slides 112, 113, and 114.

The slides 113 and 114 are slidable vertically through their arms 119 and 121 respectively by mechanism analogous to that shown and described in connection with Fig. 1. The slide 112, however, is slidable horizontally by means of its mechanical interconnection with the shift and unshift mechanism disclosed in Figs. 2 and 15 of the aforementioned copending application Serial No. 613,706 to which reference may be had for a more comprehensive understanding of the details thereof. As noted in the copending application, the shift and unshift keylevers are effective to rock an extension 122 carried on a rocker member (not shown).

The extension 122 is provided at its upper extremity with a forwardly directed portion 123 having a projection 124 which coacts with a spring actuated detent member 125. Pivotally connected to portion 123 is one end of a link 126, the other end of which is pivotally connected to arm 127 of a bell crank lever 128. The other arm 129 of bell crank 128 is pivotally articulated at its extremity to the end of an extension 131 integral to slide 112. Thus, when the extension 122 is actuated forwardly, the bell crank 128 will be rotated counterclockwise (as viewed in Fig. 3) to reciprocate the slide 112 rightwardly to bring its aperture 132, which has a vertical dimension substantially equal to the vertical dimension of

the aperture 117 in the keylever comb portion 116 and a horizontal dimension of substantially one-half that of aperture 117, into register with the right one-half of aperture 117 to enable through aperture 130 of slide 113 the reading of the indications on the slide 114 which refer to the style of type contained in the side or auxiliary magazines. When the slide 112 is in its left-hand position, its aperture 132 registers with the left-hand indications on slide 114 to apprise the operator of the style of type to be set from the main magazines. The right and left-hand positions of slide 112 may be designated as the upper and lower case positions if the movement of the slide 112 is produced by means of the shift and unshift keylevers, or they may be designated as the main magazine and side or auxiliary magazine positions if the positions are determined by special keylevers known as main magazine and auxiliary magazine keylevers. It is thus manifest that with the arrangement shown in Fig. 3, an indicator is provided for indicating eight different selections, conditions, or relations.

It should be noted also that a further combination may be had by arranging to move sector 77 axially on shaft 79 under the influence of the shift and unshift keys, or by means of special keys designated as main magazine and auxiliary or side magazine keys. In this event the sector 78 would necessarily be increased in width to accommodate a second column of indicatory matter.

Inasmuch as many changes and modifications may be made without departing from the spirit and scope of the present invention, it is not intended that this invention be limited to the specific language of the foregoing description nor to the details of the accompanying drawings, but to be permitted instead a latitude of construction as indicated by the hereunto appended claims.

What is claimed is:

1. In a machine for preparing control forms for typographical machines which employ a plurality of magazines, a plurality of operating elements, an indicator comprising a support with suitable indications thereon and a shield, reciprocable each with respect to the other, and means selectively operable by any one of said elements for controlling said indicator to establish a predetermined relation between said support and said shield according to the element operated.

2. In combination, a plurality of operating elements, an indicator comprising an apertured portion and an indicatory portion movable one with respect to the other, and means operated by said elements to control said indicator to establish a predetermined relation between said portions according to the element operated.

3. In combination, a plurality of operating elements, an indicator comprising an apertured sector and an indicatory sector arranged in nested relation and movable one with respect to the other, and means operable by said elements for controlling said indicator to establish a predetermined relation according to the element operated.

4. In combination, a plurality of operating elements, indicating means comprising an apertured slide and a cooperating indicatory slide movable one in relation to the other, and means selectively operable by said elements for controlling said indicator to establish a predetermined relation between said slides according to the element operated.

5. In a machine for preparing control strips for typographical machines which employ a plurality of magazines, a perforating mechanism, a selector mechanism for controlling said perforating mechanism, an indicator comprising a support with suitable indications thereon and a shield, movable one in relation to the other, means to control said indicator, and a plurality of operating elements operable to control simultaneously said selector mechanism and said indicator to establish in the latter a predetermined relation between said support and said shield according to the element operated and to produce in the control strip a signal corresponding to the relation established.

6. In a machine for preparing control strips for typographical machines which employ a plurality of magazines, a plurality of operating elements, indicating means comprising an apertured slide and a cooperating indicatory slide movable one in relation to the other, means selectively operable by said elements for controlling said indicator to establish a predetermined relation between said slides according to the element operated, and means to insure the conditioning of said indicator to a normal position preparatory to beginning the composition of a new line.

7. In combination, a plurality of operating elements, an indicator comprising a plurality of apertured means and indicatory means, each means movable with respect to any of the other means, and mechanism operated by said elements to control said indicator to establish a predetermined relation between said means according to the element operated.

8. In a machine for preparing control strips for typographical machines which employ a plurality of magazines, a plurality of operating elements, an indicator comprising a pair of apertured slides and a cooperating indicatory slide, each movable in relation to the others, and means operable by said elements for controlling said indicator to establish a predetermined relation between said slides according to the element operated.

9. In a machine for preparing control strips for typographical machines which employ a plurality of magazines, a signal determining device, a selector mechanism for controlling said device, an indicator comprising an apertured portion and an indicatory portion movable one with respect to the other, means to control said indicator, and a plurality of operating elements operable to control simultaneously said selector mechanism and said indicator to establish in the latter a predetermined relation between said portions according to the element operated and to produce in the control strip, through the instrumentality of said device, a signal corresponding to the relation established.

10. In a machine for preparing control strips for typographical machines which employ a plurality of magazines, a signal determining device, a selector mechanism for controlling said device, an indicator comprising an apertured portion and an indicatory portion movable one with respect to the other, means to control said indicator, and means to control simultaneously said selector mechanism and said indicator to establish in the latter a predetermined relation between said portions according to the element operated to produce in the control strip, through the instrumentality of said device, a signal corresponding to the relation established.

11. In combination, a plurality of operating elements, an indicator comprising an apertured

portion and an indicatory portion movable one with respect to the other, means operated by said elements to control said indicator to establish a predetermined relation between said portions according to the element operated, and means to insure the establishment of said indicator to a normal position preparatory to beginning the composition of a new line.

12. In a machine for preparing control strips for typographical machines, a signal determining device, a selector mechanism for controlling said device, an indicator comprising a plurality of apertured means, an indicatory means, each means movable with respect to any of the other means, means to control said indicator, and means to control simultaneously said selector mechanism and said indicator to establish in the latter a predetermined relation between said portions according to the element operated and to produce in the control strip, through the instrumentality of said device, a signal corresponding to the relation established.

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