

Aug. 2, 1938.

P. HILPMAN

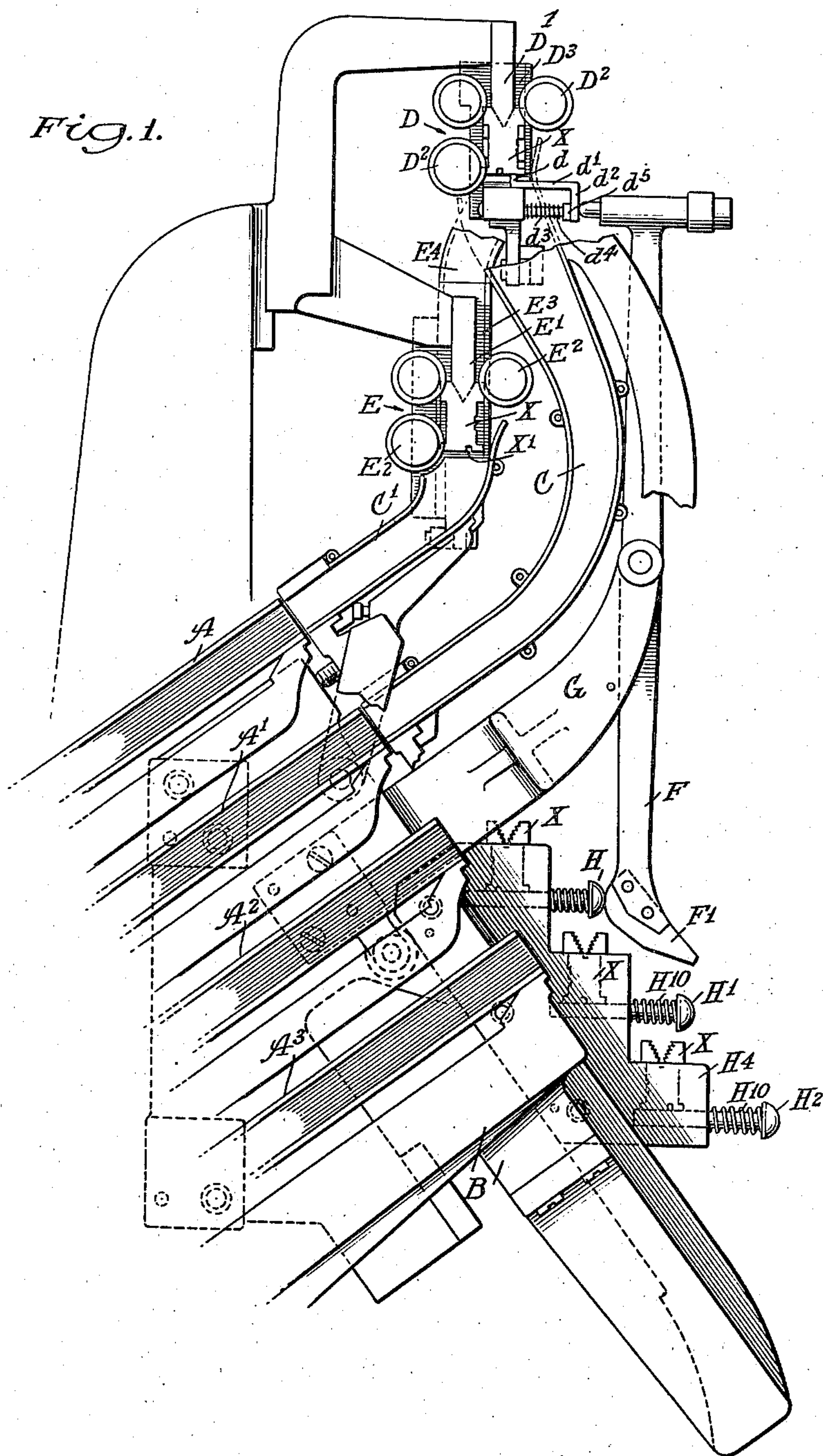
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TYPOGRAPHICAL COMPOSING MACHINE

Filed April 19, 1937

2 Sheets-Sheet 1

Fig. 1.



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2 Sheets-Sheet 2

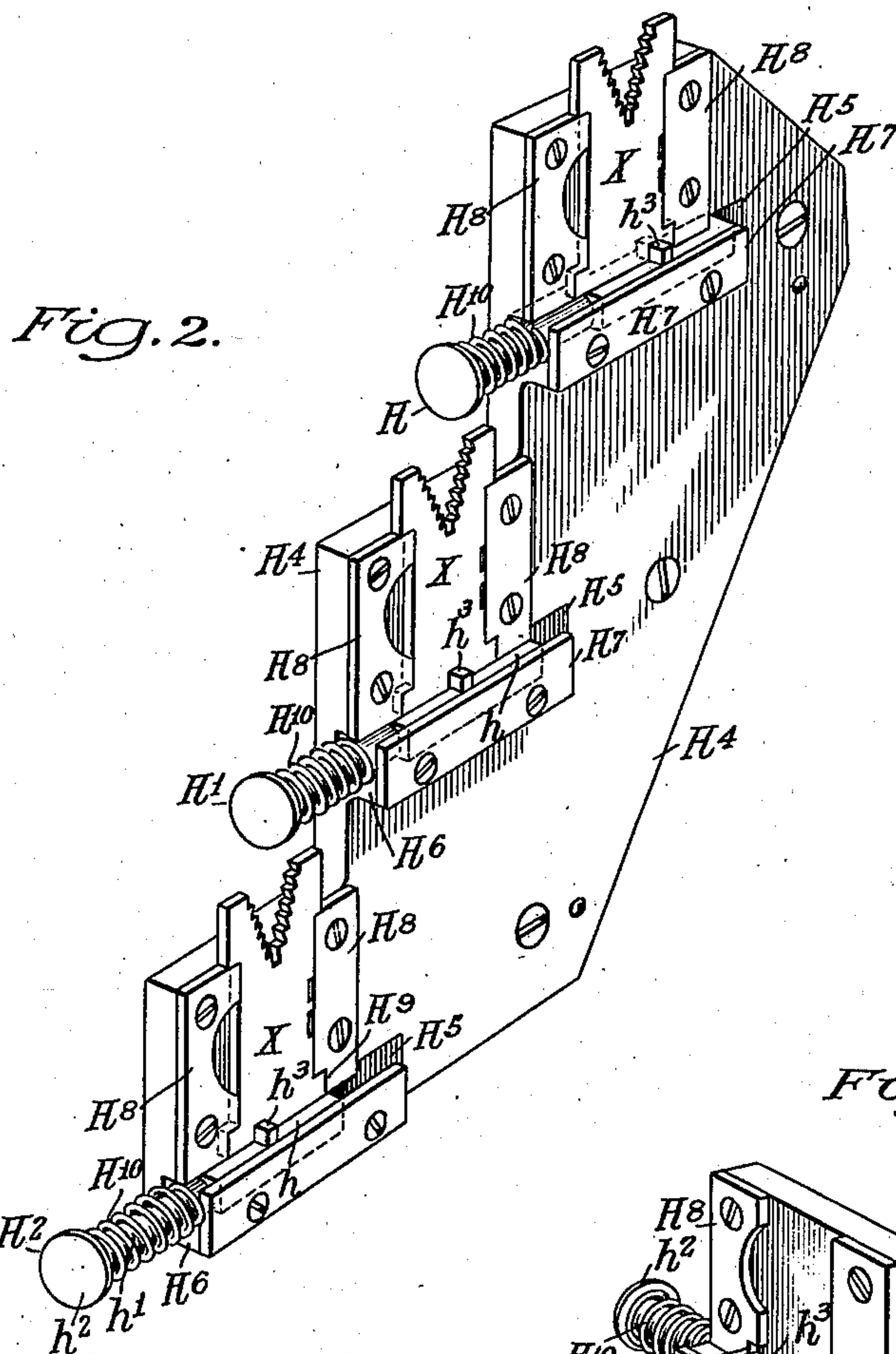
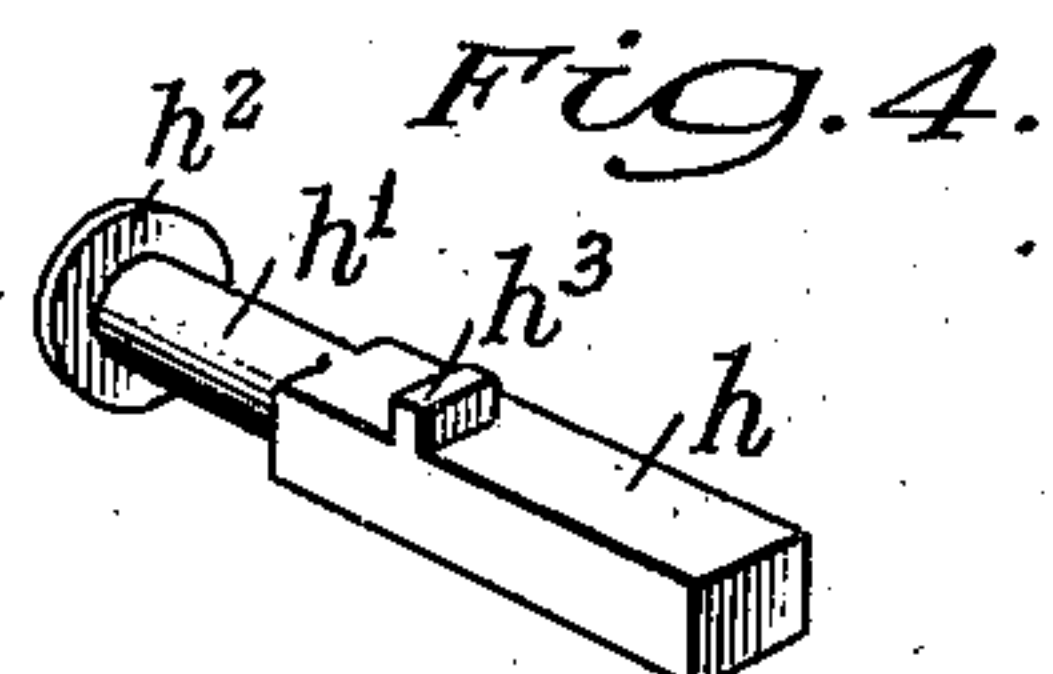
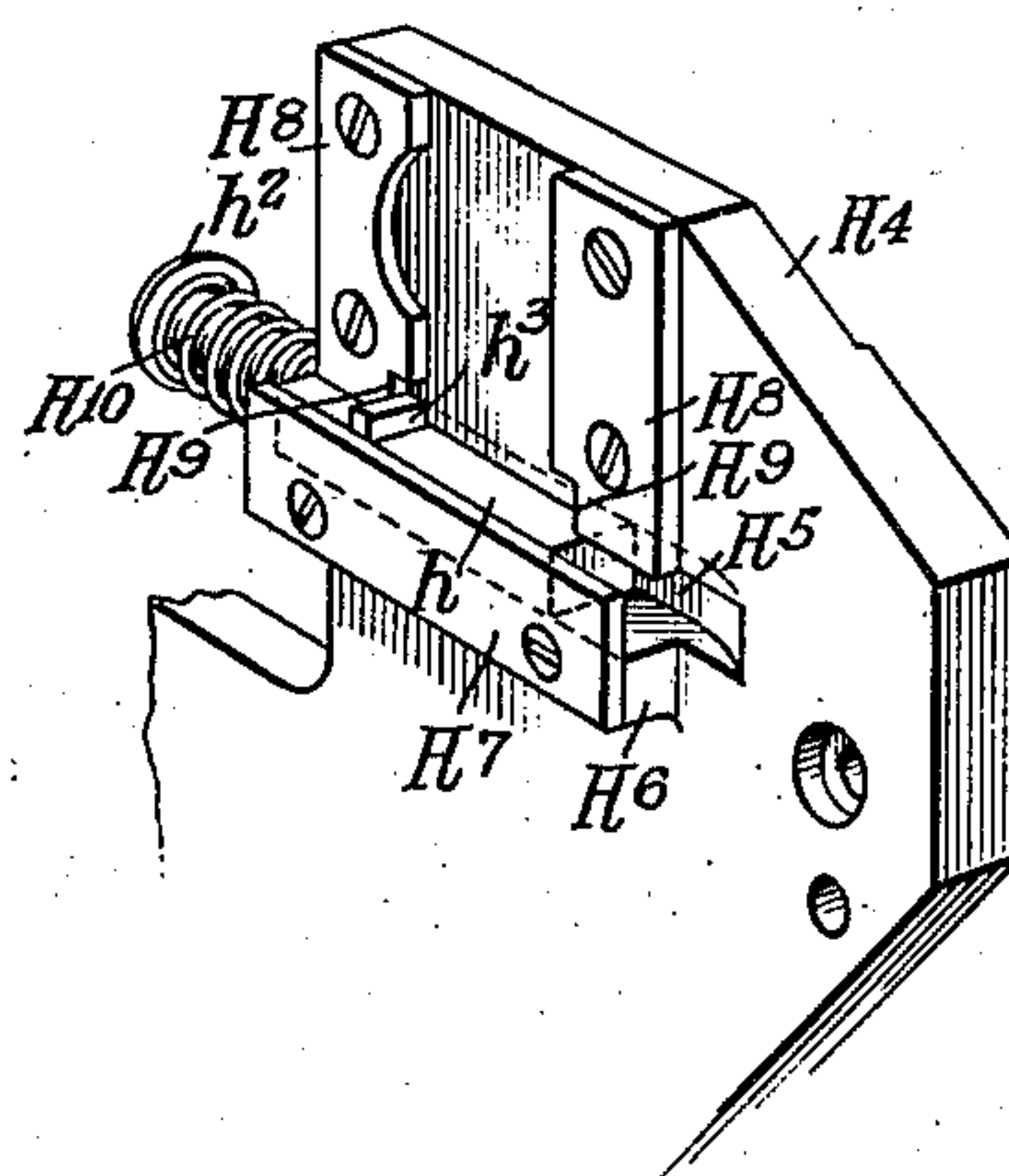


Fig. 3.



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TYPOGRAPHICAL COMPOSING MACHINE

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Application April 19, 1937, Serial No. 137,609

20 Claims. (Cl. 199—38)

This invention relates to improvements in the distributing mechanism of typographical composing machines, such as those known commercially under the trade-mark "Linotype". More particularly, it relates to that type of such machines which are equipped with a plurality of magazines containing matrices of respectively different fonts or faces, adjustable as a whole to bring different pairs of them into operative relation with two matrix distributors.

In machines of the character referred to, means are employed for sorting the matrices of the different fonts in order that they may be routed to their respective magazines. For this purpose, the matrices are provided in their lower edges with notches located in different positions according to font, it being understood that the notches in the matrices of the same font are located in the same position. The distributors are usually located one above the other and with the font sorting device or separator at the level and directly in advance of the upper distributor. While the font sorting device may take different forms, it as ordinarily constructed includes a rail or bridge adjustable in a fore-and-aft direction so that in one position it will register with the notches in the matrices of one font, permitting such matrices to straddle or ride low across the rail and drop into a chute leading to the lower distributor, and causing the matrices of the other font (whose notches will not register with the rail) to ride high across the rail and engage the distributor bar of the upper distributor. In the present machine, the upper distributor distributes matrices to the lower magazine in operative position, while the lower distributor distributes matrices to the upper magazine in operative position.

In accordance with the present improvements, the font sorting rail or bridge is adjusted automatically as the different pairs of magazines are moved into operative position by devices which are previously set according to the fonts contained in the respective magazines. These devices consist of abutment members, one corresponding to each pair of magazines, mounted on the shift frame wherein the magazines are mounted, and locatable in different positions according to the fonts in use. The abutment members are in the form of small fore-and-aft slides located beneath holders which are adapted to receive a single matrix and are formed in their upper edges with lips or ridges of the same cross sectional dimensions as the adjustable font sorting rail. In order properly to locate an abutment member in a position to effect the setting of the adjustable rail

to sort the matrices of a given pair of fonts, a matrix from the upper font of the pair is inserted in the holder associated with the corresponding abutment member, and the latter moved in a fore-and-aft direction until the ridge thereon registers with the notch in the matrix. When the matrix is thus located in the holder, it acts to maintain the abutment member in a position such that when the corresponding pair of magazines or fonts is moved into operative position, it will, through a lever connection, effect a corresponding setting of the font sorting rail. The matrices from the upper fonts of the different pairs are used in the adjustment of the abutment members, and consequently in the adjustment of the rail, since for any pair of fonts in operative position, the matrices from the upper one are those whose notches must straddle or aline with the rail. The location of the notches in the matrices of the other font makes no difference, provided, of course, they do not register with the rail.

It can readily be seen that this arrangement greatly facilitates predetermining the setting of the font sorting rail for any series of magazines in the machine, since all that the operator need do is to make certain that the control matrix is selected from the upper font of each operative pair and that it is inserted in the corresponding holder. The selection of the proper holder is likewise a simple matter, since they are arranged one above the other in the same order as the pairs of magazines to which they correspond.

Referring to the drawings:

Fig. 1 is a side elevation of the distributor mechanism of a linotype machine equipped with the present improvements;

Fig. 2 is a perspective view of the abutment member and matrix holder assembly, looking from the rear;

Fig. 3 is a perspective view of a portion of the assembly shown in Fig. 2, as viewed from a different angle; and

Fig. 4 is a perspective view of a single abutment member.

The general construction of the machine in connection with which the invention is illustrated in the drawings, is of known form and includes (see Fig. 1) four (4) superposed matrix magazines A, A¹, A² and A³ mounted in a shift frame B which is adjustable to raise and lower the magazines to bring any adjacent pair thereof into operative relation with a pair of magazine entrances C, C¹ located at the rear, it being understood that the assembler mechanism, not shown, but which is located at the front of the machine,

is such as to permit mixing of the matrices from the pair of magazines in operative position.

The machine is equipped with two distributors D and E of well known form, and which include each a distributor bar D^1 , E^1 , a set of distributor screws D^2 , E^2 , and a distributor box D^3 , E^3 . The upper distributor D is associated with the magazine entrance C leading to the lower magazine in operative position, and the lower distributor E with the magazine entrance C^1 leading to the upper magazine in operative position (which in the drawings, have been illustrated as the upper pair of magazines).

In order to insure that the matrices X of the different fonts are returned to the magazines from which they were released for assembly, they are formed in their lower edges with notches X^1 , which, for any given font, are located in the same relative positions in the matrices, but in different positions for the different fonts. These notches are adapted to cooperate with an adjustable rail or bridge d with which the upper distributor box D^3 is equipped, the bridge being adjustable in a fore-and-aft direction to register with the notches in the matrices of the font in the upper magazine in operative position.

Thus, when a line of matrices is elevated to the upper distributor box after the casting operation has been completed, the matrices thereof are caused to traverse the box in well known manner and raised one at a time into a position wherein they will be engaged by the distributor screws D^2 . If the matrices are devoid of notches X^1 in the position of the bridge, the bottom edges of the matrices will ride along the upper edge thereof and will engage the distributor bar D^1 of the upper distributor, passing therealong until they drop into the magazine entrance C which returns them to their proper channels in the lower magazine in operative position.

On the other hand, if the matrices have notches in a position registering with the bridge d , the notches will straddle the bridge, and consequently the matrices will ride across it in a position too low to engage the distributor bar D^1 of the upper distributor mechanism and will, when they cease to be supported by the upper distributor box rails, drop into a chute E^4 leading to the distributor box E^3 serving the lower distributor E. These matrices will then be fed to the distributor screws E^2 and carried into engagement with the distributor bar E^1 , passing along the bar until they drop into the magazine entrance C^1 which returns them to their proper channels in the upper magazine in operative position.

From what has been said, it will be understood that for any given pair of magazines, the bridge d must be located in a position to register with the font notches in the matrices located in the upper magazine in operative position. Consequently, assuming that each of the four magazines A, A^1 , A^2 , A^3 contains a different font (which, of course, they will), the adjustment of the bridge d to a position corresponding to the location of the notches X^1 in the matrices of the top magazine A, when the upper two magazines are in operative position, will automatically route the matrices to their proper magazines, as will also the adjustment of the bridge to a position corresponding to the notches in the matrices of the second and third magazines when the second and third magazines A^1 and A^2 and the third and fourth magazines A^2 and A^3 are, respectively, the pairs in operative position.

According to the present improvements, the ad-

justment of the bridge d is effected automatically as the different pairs of magazines are moved into operative position in accordance, however, with predetermined settings of the automatic mechanism depending upon the fonts in use. For this purpose, the bridge d is presented at the front end of a small fore-and-aft slide d^1 tongued and grooved into a portion of the distributor box and arranged to be moved in a forward direction through the medium of a lever F fulcrumed at its center on a fixed bracket G projecting rearwardly from the machine frame, the lever at its upper end engaging a depending portion d^2 of said slide. The slide d^1 is moved in a forward direction, under the action of the lever F, against the force exerted by a spring d^3 encircling a small rod d^4 slidably arranged in the distributor box just below the slide, and reacting between the rear face of the distributor box and an enlarged portion d^5 formed at the rear end of said rod which bears against the front face of the depending portion d^2 against which the lever F banks. When the lever F is free to turn in a direction opposite to that which effects the forward adjustment of the slide, the slide will be adjusted rearwardly, under the action of the spring d^3 , through a distance depending upon the extent of movement of the lever.

The position of the lever F for any pair of magazines in operative position is determined by one or another of a series of three abutment members H, H^1 and H^2 movable with the magazines and provided one for each pair of magazines. These abutment members are set in different positions (in a fore-and-aft direction) according to the fonts in the upper magazine of each pair of magazines and, as each pair of magazines is moved into operative relation with the magazine entrances C and C^1 , the abutment member corresponding thereto will be located immediately opposite and in contact with a shoe F^1 formed at the lower end of the lever F. In this way, the position of the lever F, and consequently the position of the bridge d , will be automatically set according to the setting of the active abutment member.

The abutment members H, H^1 , H^2 (see Figs. 1 to 4) are mounted in a bracket H^4 screwed to the shift frame B wherein the magazines are mounted, and are formed (see Fig. 4) each with a rectangular body portion h , a rounded end portion h^1 terminating in an enlarged head h^2 , and on the upper surface of the body portion a straight-sided transverse rib h^3 identical in cross-section with the bridge d . The bracket H^4 is formed with a series of spaced parallel fore-and-aft slots H^5 and beneath the slots with laterally projecting shelves H^6 , the shelves and the bottoms of the slots serving as bearing surfaces for the abutment members. The abutment members are held in position in the slots by plates H^7 fastened to the shelves at their outer edges and projecting upwardly beyond the shelves flush with the upper surfaces of the abutment members.

Overlying each of the abutment members, there are secured to the bracket H^4 a pair of spaced vertical plates H^8 , the lower edges of which are flush with the top faces of the abutment members. These plates together constitute a matrix frame, and for this purpose are formed in their lower edges with opposed recesses H^9 just large enough to accommodate the lower projecting ears of a thin matrix. The dis-

tance between the opposed faces of the plates H^8 is the same as the distance between the front and rear edges of the body portion of a matrix, except for a tolerance sufficient to permit the insertion of a matrix therebetween, while the upper edges of the plates are so located as to present bearing shoulders for the upper projecting ears of a matrix.

In other words, each frame, as just described, will hold a matrix rigidly in place above its respective abutment member with the lower edge thereof in contact with the upper face of the abutment member, provided, of course, that there is a notch in the lower edge of the matrix for the accommodation of the upstanding ridge h^3 in the abutment member. Consequently, by inserting matrices from the upper fonts of the different pairs of magazines in the matrix frames associated with the corresponding abutment members, the latter will be located so as to effect the proper setting of the bridge d by the lever F for any pair of magazines in operative position. In inserting the matrices in the frames, however, care must be exercised to insure that they are in the reverse position from that in the matrices of the corresponding font, since, because of the arrangement of the parts, a rearward adjustment of the abutment members corresponds to a forward adjustment of the bridge member and vice versa.

The matrices are inserted in the frames merely by placing them on the abutment members in the correct position and with the notches in the lower edges thereof straddling the ridges h^3 , and then locating the abutment members so that the matrices can be pressed laterally into the frames presented by the vertical plates H^8 . At this point, it might be stated that a compression spring H^{10} encircles the rounded end portion of each of the abutment members and reacts between the head h^2 thereof and the opposed edge of the bracket H^4 . The purpose of the spring is to maintain a slight pressure on the matrix to prevent it from falling out of the frame and to facilitate the insertion of the matrix, since it requires that the abutment member always be pressed forwardly when inserting the matrix in place. When there is no matrix in a frame, the abutment member is prevented from being pushed rearwardly out of the bracket by the banking of the ridge element h^3 against the rear vertical plate H^8 .

It might also be mentioned that the rear plates H^8 are formed each with a semi-circular cut-out portion to facilitate the removal of the matrices from the frame.

While the invention has been illustrated in connection with a machine having four magazines, any two adjacent magazines of which can be moved into operative position, it is equally applicable to a machine employing a fewer or a greater number of magazines or where none of the different pairs have magazines in common, as for instance, where only the upper two or the lower two magazines can be used simultaneously in the case of a four magazine machine. Furthermore, the principles of the invention can be applied to a machine with a single distributor and where the purpose of the adjustable element (such as the well known "font distinguisher") is merely to prevent the passage to the distributor of matrices that do not belong to the font in the magazine in operative position, although in such case there would be as many abutments as there are magazines. Moreover, it is equally clear that the

principles of the invention are applicable to a font sorting device or separator other than the specific one herein disclosed. Thus, another common form of font sorting device is shown in the Homans Patent No. 1,202,719, wherein matrices of different fonts are delivered to different distributors by the swinging back and forth of a common distributor box or channel which is controlled in its swinging movements by means of an adjustable lip adapted to cooperate with the differently located notches cut in the lower edges of the matrices of the different fonts. In all such cases, the distributing mechanism will present an adjustable element for permitting the distribution to a magazine in operative position of only those matrices of the font in said magazine, the adjustment of said element being controlled automatically by the setting of the abutments before described with the aid of the matrices taken from the appropriate fonts.

In the accompanying drawings, the invention has been shown merely by way of example and in preferred form, and obviously many variations and modifications may be made therein which will still be comprised within its spirit. It is to be understood, therefore, that the invention is not limited to any specific form or embodiment, except insofar as such limitations are specified in the appended claims.

Having thus described my invention, what I claim is:

1. In or for a typographical composing machine adapted to be equipped with a plurality of magazines movable into and out of operative position and containing matrices of different fonts varying in form according to font, a distributing mechanism including, in combination, adjustable means for permitting the distribution to a magazine in operative position of only those matrices of the font contained in said magazine, and mechanism for automatically adjusting said means as a different magazine is moved into operative position to cooperate in like manner with the matrices of the font contained in said magazine, said mechanism including a matrix corresponding in form to the matrices contained in the magazine moved into operative position for controlling the adjustment of said means.

2. In or for a typographical composing machine adapted to be equipped with a plurality of magazines movable into and out of operative position and containing matrices of different fonts varying in form according to font, a distributing mechanism including, in combination, adjustable means for permitting the distribution to a magazine in operative position of only those matrices of the font contained in said magazine, and mechanism for automatically adjusting said means as a different magazine is moved into operative position to cooperate in like manner with the matrices of the font contained in said magazine, said mechanism including a matrix corresponding in form to the matrices contained in the magazine moved into operative position for controlling the adjustment of said means, and said matrix being replaceable by a matrix of different form when a magazine containing another font is moved into operative position.

3. In or for a typographical composing machine adapted to be equipped with a plurality of magazines containing matrices of different fonts varying in form according to font, and with a shift frame wherein the magazines are mounted and movable to bring different magazines into operative position, a distributing mechanism in-

cluding, in combination, adjustable means for permitting the distribution to a magazine in operative position of only those matrices of the font contained in said magazine, and mechanism for automatically adjusting said means as different magazines are moved into operative position to cooperate with the matrices of the fonts contained in said magazines, said mechanism including matrices arranged in the shift frame and movable therewith to bring a different one into operative position as a different magazine is moved into operative position, said matrices corresponding in form to the matrices of the fonts in operative position and acting to control the automatic adjustment of said means.

4. In or for a typographical composing machine adapted to be equipped with a plurality of magazines containing matrices of different fonts varying in form according to font, and with a shift frame wherein the magazines are mounted and movable to bring different magazines into operative position, a distributing mechanism including, in combination, adjustable means for permitting the distribution to a magazine in operative position of only those matrices of the font contained in said magazine, and mechanism for automatically adjusting said means as different magazines are moved into operative position to cooperate with the matrices of the fonts contained in said magazines, said mechanism including matrices arranged in the shift frame and movable therewith to bring a different one into operative position as a different magazine is moved into operative position, said matrices corresponding in form to the matrices of the fonts in operative position and acting to control the automatic adjustment of said means and being removable from the machine and replaceable by different matrices when the machine is equipped with magazines containing different fonts.

5. A typographical composing machine including, in combination, a pair of distributors, a series of three or more magazines containing matrices of different fonts varying in form according to font and movable to bring different pairs of magazines into operative position with the distributors, means adjustable according to the form of the matrices for sorting the matrices of the fonts in operative position so as to route them to their proper magazines, and mechanism for automatically adjusting the font sorting means as different pairs of magazines are moved into operative position, said mechanism including matrices, one for each pair of magazines, for controlling the adjustment of the font sorting means, and said matrices corresponding in form to the matrices of one of the fonts in the different pairs of magazines for which the adjustment is effected.

6. A typographical composing machine including, in combination, a pair of distributors, a series of three or more magazines containing matrices of different fonts varying in form according to font and movable to bring different pairs of magazines into operative position with the distributors, means adjustable according to the form of the matrices for sorting the matrices of the fonts in operative position so as to route them to their proper magazines, and mechanism for automatically adjusting the font sorting means as different pairs of magazines are moved into operative position, said mechanism including a matrix for each pair of magazines for controlling the adjustment of the font sorting means,

and said matrices corresponding in form to the matrices of one of the fonts in the different pairs of magazines for which the adjustment is effected and being replaceable by other matrices when the machine is equipped with magazines containing different fonts.

7. A typographical composing machine including, in combination, a distributing mechanism, a series of three or more magazines, a shift frame wherein the magazines are mounted and movable to bring the different magazines into operative relation with the distributing mechanism, said magazines containing matrices of different fonts formed in their lower edges with notches differently located according to font, an element associated with the distributing mechanism and adjustable to different positions to permit matrices having correspondingly positioned notches to be routed to the magazine in operative position, means acting as a given magazine is moved into operative position automatically to adjust said element to a position corresponding with the notches in the matrices of the font in such magazine, said means including a plurality of abutment members for the magazines, a lever for locating the adjustable element in different positions as determined by said abutment members, and a matrix associated with each of the abutment members for determining its position of adjustment, said matrices varying in form according to the matrices of the fonts in the magazines corresponding to the abutment members.

8. A typographical composing machine including, in combination, a distributing mechanism, a series of three or more magazines, a shift frame wherein the magazines are mounted and movable to bring the different magazines into operative relation with the distributing mechanism, said magazines containing matrices of different fonts formed in their lower edges with notches differently located according to font, an element associated with the distributing mechanism and adjustable to different positions to permit matrices having correspondingly positioned notches to be routed to the magazine in operative position, means acting as a given magazine is moved into operative position automatically to adjust said element to a position corresponding with the notches in the matrices of the font in such magazine, said means including a plurality of abutment members for the magazines, a lever for locating the adjustable element in different positions as determined by said abutment members, and a matrix associated with each of the abutment members for determining its position of adjustment, said matrices being formed with notches cooperating in the adjustment of the abutment members and similarly located to the notches in the matrices of the fonts in the different magazines corresponding to the abutment members.

9. A typographical composing machine including, in combination, a distributing mechanism, a plurality of magazines movable into and out of operative relation with the distributing mechanism and containing matrices of different fonts provided with notches in their lower edges differently located according to font, an element associated with the distributing mechanism adjustable to different positions corresponding to the position of the notches in the matrices of the font in the magazine in operative position, a plurality of abutment members corresponding to the magazines and movable therewith, a matrix

associated with each abutment member and provided with a notch similarly located to those in the matrices in the magazines corresponding to the abutment members, said abutment members being formed with a ridge adapted to cooperate with the notches in their associated matrices so as to be positioned thereby, and means for adjusting the aforesaid element in accordance with the position of one or another of said abutment members as the corresponding magazine is moved into operative position.

10. A combination according to claim 7, wherein the matrices associated with the abutment members are replaceable by other matrices when the machine is equipped with magazines containing matrices of different fonts.

11. A typographical composing machine including, in combination, a pair of distributors, a series of three or more matrix magazines movable to bring different pairs thereof into operative relation with the distributors, said magazines containing matrices of different fonts formed in their lower edges with notches located differently according to font, a bridge adjustable to different positions to aline with the notches in the matrices of one font so as to effect the distribution of the matrices of such font by one distributor and the matrices of the other font by the other distributor, a series of abutment members associated one with each pair of magazines and movable therewith, a ridge formed on each of said abutment members, a matrix associated with each abutment member and provided with a notch located similarly to the notches in the matrices of one of the fonts in the pair of magazines corresponding to its respective abutment member, the notches in matrices cooperating with the ridges on the abutment members to locate the latter in different positions, and means operable when a given pair of magazines is in operative position automatically to locate the adjustable bridge in one position or another according to the position of the corresponding abutment member.

12. A combination according to claim 11, wherein the means for adjusting the bridge by the abutment members includes a single centrally pivoted lever and wherein the matrices associated with the abutment members are reversely positioned with respect to the position in which the correspondingly notched matrices traverse their distributor.

13. In or for a typographical composing machine, a distributing mechanism including, in combination, an adjustable element operable to distinguish between matrices formed with notches located differently according to font, and means for adjusting the position of said element for different fonts, said means including a matrix having a notch located similarly to the notches in the matrices of the font for which the bridge is to be adjusted, the notch in said matrix cooperating in determining the adjusted position of the distinguishing element.

14. In or for a typographical composing machine, a distributing mechanism including, in combination, an adjustable element operable to distinguish between matrices formed with notches located differently according to font, means for adjusting the position of said element for different fonts, said means including a matrix having a notch located similarly to the notches in the matrices of the font for which the element is to be adjusted, but located in a position reverse to that in which the correspondingly

notched matrices traverse the distributing mechanism, and means located by the notch in said matrix for determining the position of adjustment of the adjustable element.

15. In or for a typographical composing machine employing circulating matrices formed with notches located differently according to font, a distributing mechanism including, in combination, an adjustable element adapted to distinguish between matrices of different fonts, means including an adjustable member for adjusting the position of said element, a matrix holder associated with the member and adapted to receive matrices having notches located similarly to the notches in the matrices of the different fonts, said holder acting when equipped with a matrix to position the adjustable element in accordance with the position of the notch therein, and means for adjusting the distinguishing element in accordance with the position of adjustment of said member.

16. A combination according to claim 15, wherein the matrix in the holder is in a position reverse to that in which correspondingly notched matrices traverse the distributing mechanism and wherein the adjustment of the distinguishing element by the adjustable member is effected through a centrally pivoted lever.

17. In or for a typographical composing machine, a distributing mechanism including, in combination, adjustable means for permitting the distribution to a magazine in use of only those matrices of the font contained in said magazine, and mechanism for automatically adjusting said means as a different magazine is brought into use to cooperate in like manner with the matrices of the font contained in said magazine, said mechanism including a matrix of a given font for controlling the adjustment of said means, and said matrix being replaceable by one of a different font when required.

18. In or for a typographical composing machine adapted to be equipped with a plurality of magazines movable into and out of operative position and containing matrices of different fonts varying in form according to font, a distributing mechanism including, in combination, adjustable means for permitting the distribution to a magazine in operative position of only those matrices of the font contained in said magazine, and mechanism for automatically adjusting said means as a different magazine is moved into operative position to cooperate in like manner with the matrices of the font contained in said magazine, said mechanism including a plurality of adjustable abutment members for the magazines, and an element associated with each of the abutment members for determining its position of adjustment, said elements varying in form according to the matrices of the fonts in the magazines corresponding to the abutment members.

19. In or for a typographical composing machine adapted to be equipped with a plurality of magazines movable into and out of operative position and containing matrices of different fonts varying in form according to font, a distributing mechanism including, in combination, adjustable means for permitting the distribution to a magazine in operative position of only those matrices of the font contained in said magazine, and mechanism for automatically adjusting said means as a different magazine is moved into operative position to cooperate in like manner with the matrices of the font contained in said magazine, said mechanism including a plurality of

adjustable abutment members for the magazines, and an element associated with each of the abutment members for determining its position of adjustment, said elements varying in form according to the matrices of the fonts in the magazines corresponding to the abutment members and being removable from the machine and replaceable by different elements when the machine is equipped with magazines containing different fonts.

20. A typographical composing machine including, in combination, a pair of distributors, a series of three or more magazines containing matrices of different fonts varying in form according to font and movable to bring different pairs of magazines into operative position with

the distributors, means adjustable according to the form of the matrices for sorting the matrices of the fonts in operative position so as to route them to their proper magazines, and mechanism for automatically adjusting the font sorting means as different pairs of magazines are moved into operative position, said mechanism including adjustable abutment members, one for each pair of magazines, for controlling the adjustment of the font sorting means, and an element associated with each of the abutment members for determining its position of adjustment, said elements varying in form according to the matrices of the fonts in the magazines corresponding to the abutment members.

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