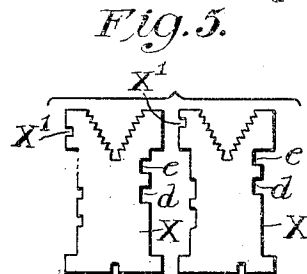
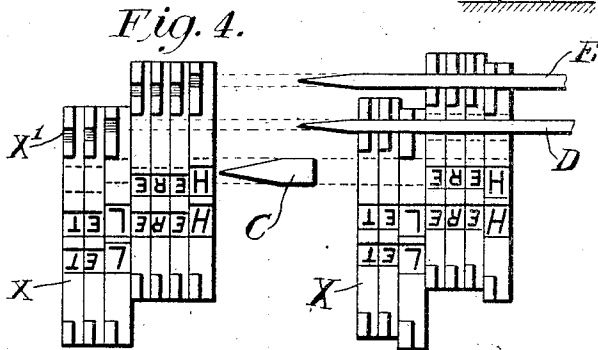
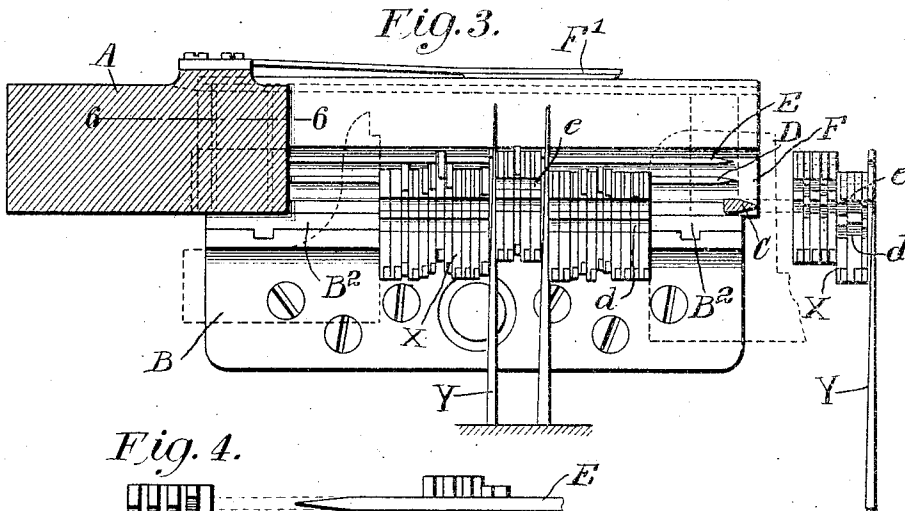
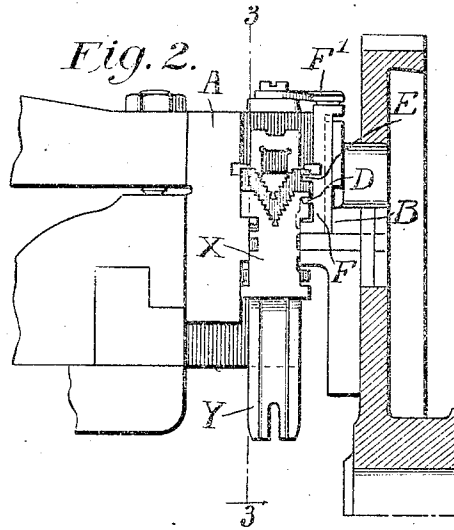
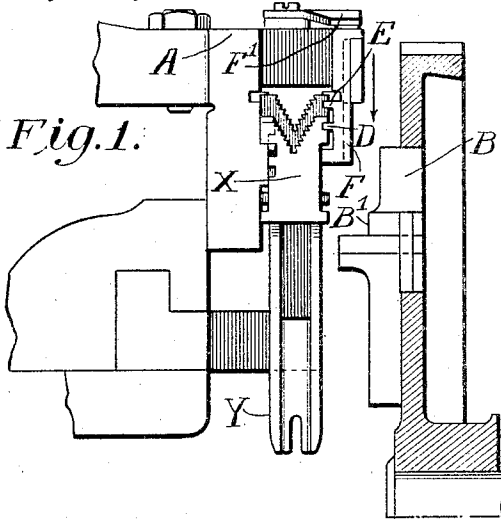


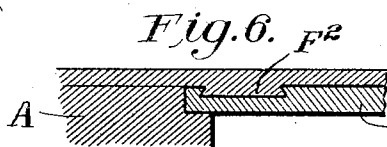
J. N. BANKS.
 TYPOGRAPHICAL MACHINE.
 APPLICATION FILED FEB. 18, 1913.

1,099,482.

Patented June 9, 1914.



WITNESSES:
S. M. McKee
A. Morrison



INVENTOR.
J. Nelson Banks.
 BY *Regis Kennedy Campbell*
 ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN NELSON BANKS, OF MILAN, ITALY, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

TYPOGRAPHICAL MACHINE.

1,099,482.

Specification of Letters Patent.

Patented June 9, 1914.

Application filed February 18, 1913. Serial No. 749,070.

To all whom it may concern:

Be it known that I, JOHN NELSON BANKS, a subject of the King of Great Britain, residing at Milan, Italy, have invented certain new and useful Improvements in Typographical Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to typographical machines, such as linotype machines of the general organization represented in Letters Patent of the United States, No. 436,532, to O. Mergenthaler, wherein circulating matrices are released from a magazine in the order in which their characters are to appear in print, and then assembled in line, the composed line transferred to the face of a mold, the mold filled with molten metal to form a slug or linotype against the matrices which produce the type characters thereon, and the matrices thereafter returned through a distributing mechanism to the magazine from which they started.

More particularly it relates to the casting devices and the means whereby the matrices are brought into proper relation to each other and to the mold.

In machines of this kind, the vertical alinement of the matrices is ordinarily accomplished by a slight upward movement of the first elevator prior to the casting, whereby the lower ears of the matrices are caused to engage with the under side of the mold, the keeper plate, or the like, and in this manner the characters are brought into exact relations with each other and the mold slot. As the characters on the matrices ordinarily stand in inverted position thereon, the various characters are in this way alined at their top instead of at their base. For most purposes, it is desirable that the letters on the slug and in the printed line appear on a common base line regardless of their size, that is to say, that letters of different sizes appear in common alinement at their bottoms; and the present invention is intended to secure this result without making new or special matrices, as would ordinarily be necessary. To this end, the matrices are formed with special notches, which cooperate with alining means in such manner that the matrices are raised or lowered as the case may be, until their characters stand in line at their base, instead of at their top

as customarily. In this manner, I make ordinary matrices in stock available for common alinement by simply providing them with the special notches. In this manner also, I aline the matrices individually with reference to each other, instead of simultaneously as in the manner previously described.

These and other features and the advantages secured by my improvements will now be described and later claimed.

I have herein shown and described my invention in preferred form and by way of example, and as applied to the particular style of machine already mentioned, but obviously many changes and variations therein, and in its mode of application, will be possible and still be comprised within its spirit.

In the accompanying drawing: Figure 1 is a transverse sectional view through the mold and first elevator, with my invention applied thereto; Fig. 2 is a similar view, but showing the parts in different position; Fig. 3 is a section, taken substantially on the line 3—3 of Fig. 2; Fig. 4 is a diagrammatic view, showing the manner in which the matrices are shifted and delivered to their respective sustaining bars; Fig. 5 illustrates matrices constructed according to my invention; and Fig. 6 is a sectional detail on the line 6—6 of Fig. 3.

The composed line consists of the matrices X and spacers Y, and is transferred to the first elevator A, whereby it is presented to the mold B, all in the manner well understood in the art. The matrices are illustrated as each formed with a plurality of characters, and moreover these characters are of varying size and arranged for different alinement. Nevertheless, provision is made to cause them to appear in common alinement on the same base line. This is preferably accomplished by shifting the matrices individually with reference to each other, and registering the characters at their bottoms instead of at their tops, it being remembered that the characters appear on the matrices in inverted position. As a result of this improvement, I am enabled to mix matrices of different styles and sizes, and by a slight alteration to employ ordinary matrices already in stock, instead of making entirely new ones, as might be nec-

essary, were the ordinary mode of alinement employed. It will be observed that each matrix X is formed in one of its upper ears with the sustaining cut or notch X¹, and at the opposite edge thereof, according to the number of characters, with registering notches *d* and *e*, whereby the notch X¹ is brought into proper engaging relation with appropriate supporting means.

- 10 The elevator A is formed on its inner wall with a short beveled projection C, so located as to engage one or the other of the notches *d* and *e* as the matrices are laterally transferred to the first elevator. According to
- 15 the set position of the matrices in the line, the engagement of the projection C with the notch *d* or *e* effects the vertical adjustment thereof, and registers the sustaining notch X¹ with one or the other of the ribs
- 20 D and E formed upon the opposite wall of the elevator. For instance, referring to Fig. 4, it will be seen that two-letter matrices are shown in the process of transfer, and that not only are these matrices as-
- 25 sembled at different levels, but also that their characters are of such different style and size, that when used together they would not be properly alined, if alined in the ordinary manner—namely, at their
- 30 tops—as in such event the bases of the printed characters would not appear along the same line. Thus, the initial letters "H" and "L" were not originally designed to appear on the same base line with the
- 35 other characters, when the matrices are alined in the usual manner at their tops, but by the adaptation of my invention thereto, they are thus registered. This result will be clearly apparent by a compari-
- 40 son of the matrices at the left-hand side with those at the right-hand side, in Fig. 4. It will be understood that the notches *d* and *e* are located in such position on the matrices and with the proper accuracy to
- 45 effect the registration of the notches X¹ with the corresponding sustaining ribs.

As the composed line is moved into the elevator, the matrices clear the short projection C because of the notches in their edges, and similarly the spacers may be so formed that they may also clear it, as by a notch or otherwise, although this latter feature is not illustrated and constitutes no part of my present invention. When the

- 50 elevator is in the casting position, the spacer wedges are free to be operated in the ordinary manner, and thus to justify and elongate the line between the casting jaws.

After the matrices and spacers are transferred to the elevator A, it descends (see Fig. 1) to bring them into operative relation to the mold B, after which the mold advances and takes the casting position shown in Fig. 2. The final alining action in relation to the mold thus results from

the downward movement of the elevator, instead of from an upward movement thereof, as in the customary practice. It is further to be noted that a portion of the upper wall of the mold, or mold-cap, is cut away as at B², and that when the elevator descends into proper casting relation thereto, this opening is closed by the elevator section F, which contacts with and rests upon the mold liners B², B³, irrespective of their thickness (see Fig. 3), and thus in effect constitutes a portion of the upper wall of the mold.

In order to insure a proper engagement of the section F with the mold, it is so connected to the body portion of the elevator as to permit a slight relative movement with respect thereto, as for instance by a dovetail joint, shown at F² in Fig. 6, and indicated by dotted lines on Figs. 1, 2 and 3. The section F is normally held in its lowermost position, relatively to the elevator, by the spring F¹ bearing thereon and connected to the elevator body; the spring permitting a slight yield of the section F when it contacts with the mold, as indicated in Fig. 2. The matrices and spacers are loosely supported in the elevator and with some capability for play therein, and thus their relative position is not affected by the movement of the section F relatively to the body A.

As already stated, I have shown my invention only in preferred form and by way of example, and in a special mode of application. Many changes and variations therein will suggest themselves to those skilled in the art, without departure from its scope, whereby the same operations and results will be secured. These operations and results it is unnecessary to detail in the specification, as they are set forth in the claims; and generally speaking, I desire it to be distinctly understood that I do not limit myself to any specific form or embodiment, except in so far as such limitations are specified in the claims.

As previously pointed out, two systems of alinement are used in this art, one wherein the characters are alined along their tops, and the other wherein the characters are alined along their bottoms. It will be understood therefore that in the use of the expression "mode of alinement" in the claims one or the other of these two systems is referred to. The specific mention of "top alinement" or "base alinement" is of course intended to refer to alinement of the characters along their tops and along their bases, respectively.

Having thus described my invention, its construction and mode of operation, what I claim and desire to secure by Letters Patent of the United States is, as follows:

1. In a typographical machine comprising

matrices having characters designed for top alinement, means for shifting the matrices relatively to each other to bring the characters into common base alinement.

5 2. In a typographical machine comprising matrices having characters designed for top alinement, means for supporting the matrices in different relative positions to bring their characters into common base alinement.

10 3. In a typographical machine comprising matrices having characters designed for top alinement, means for shifting the matrices to and for supporting them at different levels in order to bring their characters into common base alinement.

15 4. In a typographical machine, the combination of a composed line of matrices having their characters designed for top alinement, and means for shifting the matrices relatively to each other to bring their characters into common base alinement.

20 5. In a typographical machine, the combination of a composed line of matrices having their characters designed for top alinement, and means for shifting the matrices relatively to each other to bring their characters into common base alinement, and for supporting the matrices in their shifted positions.

30 6. In a typographical machine comprising matrices adapted to be moved laterally into a part of the machine and having characters designed for top alinement, means to cooperate with said matrices during their lateral movement to bring their characters into common base alinement.

35 7. In a typographical machine comprising matrices adapted to be moved laterally into a part of the machine and having characters designed for top alinement, means to cooperate with said matrices during their lateral movement to bring their characters into common base alinement, and to maintain them therein.

40 8. In a typographical machine, the combination of a composed line of matrices having characters designed for top alinement and movable endwise through the machine, and means for shifting said matrices relatively to each other during the endwise movement of the line to bring their characters into common base alinement.

50 9. In a typographical machine, the combination of a composed line of matrices having characters designed for top alinement and movable endwise through the machine and means for shifting said matrices relatively to each other during the endwise movement of the line to bring their characters into common base alinement, and for supporting them in their shifted positions.

60 10. In a typographical machine, the combination of a composed line of matrices having characters designed to stand out of

common base alinement when the matrices are in proper position in the line, and means for shifting and supporting the matrices to bring their characters into such alinement.

11. In a typographical machine, the combination of matrices having characters designed for top alinement, and a supporting rib therefor, the matrices being formed with notches to engage the rib, which notches are located in different positions on the several matrices so that they will be supported with their characters in common base alinement.

12. In a typographical machine, comprising matrices having characters designed for top alinement, and each formed with an alining notch, a blade to engage in said notches and move the matrices to bring their characters into common base alinement.

13. In a typographical machine, comprising matrices having characters designed for top alinement and formed with notches to support them with their characters in common base alinement, means for shifting the matrices relatively to each other so as to register the said notches.

14. In a typographical machine, the combination of an endwise-movable line of matrices having characters designed for top alinement and each formed with an alining notch, and an alining blade located in the path of travel of the matrices and adapted to engage in their alining notches and bring their characters into common base alinement.

15. In a typographical machine, the combination of matrices having characters designed for top alinement, and formed with notches to support the characters in common base alinement, with a supporting rib to engage in said notches, and means for shifting the matrices relatively to each other so as to register the notches with the rib.

16. In a typographical machine, the combination of matrices having characters designed for top alinement, each formed with a supporting notch and an alining notch, a rib to engage in the supporting notches and hold the matrices with their characters in base alinement, and a blade to engage in the alining notches of the matrices to shift them so as to register their supporting notches with the rib.

17. In a typographical machine, the combination of matrices having characters designed for top alinement, and formed in their opposite edges respectively with notches to support the matrices with their characters in base alinement, and other notches to aline the supporting notches, with a supporting rib and an alining blade located in cooperative relation to the said notches.

18. In a typographical machine, the combination of matrices having characters designed for top alinement, and formed with supporting notches so located as to bring the

characters into common base alinement when said notches are in registry, with means for supporting the matrices by said notches.

19. In a typographical machine, the combination of matrices having characters designed for top alinement, and formed with supporting notches located in different positions so as to bring the characters into common base alinement, with means for registering the said notches.

20. In a typographical machine, the combination of a composed line of matrices having their characters designed for top alinement, and means for bringing the characters into common base alinement.

21. In a typographical machine, the combination of a mold having one of its walls partially cut away, and a matrix carrier to transport the matrices to and from the mold for casting and distribution respectively, formed so as to supplement the remaining portion of the wall.

22. In a typographical machine, the combination of a mold having one of its walls partially cut away, and a vertically movable elevator for presenting matrices thereto, a

part of said elevator being adapted to supplement the remaining portion of the wall.

23. In a typographical machine, comprising matrices having characters designed to be alined at one of their ends, means for alining said characters at their opposite ends.

24. In a typographical machine, comprising matrices having characters designed to be alined at one of their ends, means for shifting the matrices relatively to each other to aline said characters at their other ends.

25. In a typographical machine, the combination of matrices having characters designed to be alined at one of their ends, and each formed with a supporting notch, and means for supporting the matrices by their notches, the said notches being located so as to bring the opposite ends of said characters into alinement.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN NELSON BANKS.

Witnesses:

SVENG SEGAL,
P. P. DE ANNISAL.