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MEANS FOR ALINING THE PIECES OF A TYPOGRAPHICAL LINE IN A LINE PRODUCING MACHINE.

APPLICATION FILED APR. 20, 1914.

1,119,493. Patented Dec. 1, 1914.

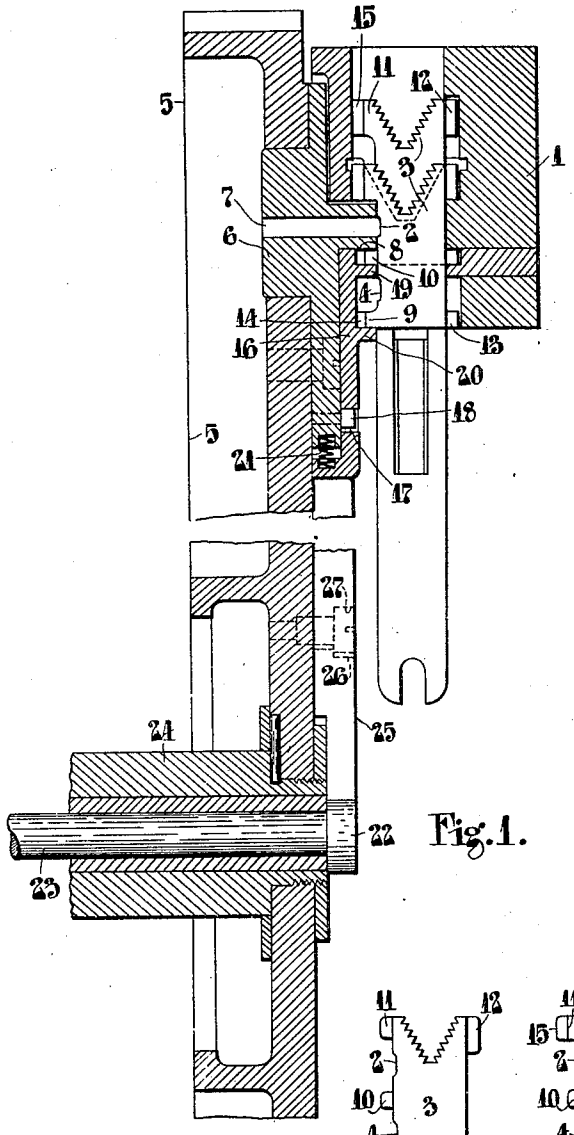

Fig. 1.

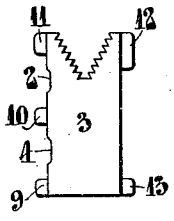

Fig. 2.

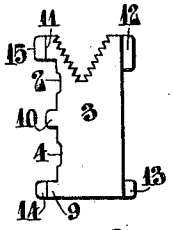

Fig. 3.

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UNITED STATES PATENT OFFICE.

BRUNO BLOCH, OF BERLIN, GERMANY, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

MEANS FOR ALINING THE PIECES OF A TYPOGRAPHICAL LINE IN A LINE-PRODUCING MACHINE.

1,119,493. Specification of Letters Patent. Patented Dec. 1, 1914.

Original application filed December 10, 1913, Serial No. 805,724. Divided and this application filed April 20, 1914. Serial No. 833,083.

To all whom it may concern:

Be it known that BRUNO BLOCH, a subject of the German Emperor, residing at 130 Chausseestrasse, Berlin, N. 4, in the Empire of Germany, have invented new and useful Improved Means for Alining the Pieces of a Typographical Line in a Line-Producing Machine, of which the following is a specification.

There are known at the present time, matrix composing and line casting machines, viz:—those sold under the trade mark "Linotype", in which the act of alinement consisting in moving the matrices independently of each other till all their characters register with each other horizontally in the sense that the feet of all the letters in a printed line register with each other horizontally, is effected by making a shoulder on the mold in which the body of the desired line will be cast, overlie a lug projecting from the then opposite edge of each matrix, the dimensions of a lug and the distance between it and the character, being common to all the matrices in the font, and thereupon making the organ of the machine which carries and presents the matrices in the casting position, pull them all upward by direct contact till all the lugs are in equally close contact with the said shoulder, and maintain that pull until the said matrices are clamped by other means.

The presenting motion just referred to is a dropping one down to a stationary abutment, the length of it being regulated by a set screw adjustable in the presenting organ in the direction of its motion, the nose of the screw being the part of the organ that actually bears upon the abutment. This screw has to be so adjusted so that the composed line of characters is presented at a level just below the true casting position, to allow of the upward motion thereinto caused by the described pull on the matrices. When the matrices have two characters one above the other in the same edge, the mold having two shoulders likewise one above the other, the bottom shoulder overlies the lugs of the matrices whose top characters are in the casting position and the top shoulder overlies the lugs of the matrices whose bottom characters are in the casting position. Either both these shoulders are incorporated with a mold block detachable from a mold carrier or so called mold wheel and having the mold proper in it, or the bottom shoulder is constituted by the top face of a groove in a detachable plate fixed to the front face of the mold block. But the pulling action of the presenting organ is not affected by the number of characters in each matrix.

If the matrices and casting apparatus of the machine just referred to, are replaced, respectively, by type dies and a device for supplying a stereotyper's flong, the type dies being made to indent the latter, the machine would be one making stereotype matrices. At the same time, it together with the one above mentioned, would be a line producing machine. The present invention is applicable to any such line producing machine equipped with pieces having one or a plurality of characters. It consists in each character—intaglio or cameo as the case may be—having an alining lug limited to itself and projecting from that edge of the piece which carries the said character, the improved pieces calling for and adapted to be used in conjunction with means in part incorporate with and in part connected with the mold block for alining the composed characters through the respective alining lugs by direct contact with the latter, and automatic means which may be independent of the presenting organ, for actuating the said alining means, neither the said means nor the said automatic means forming any part of the present invention, but both constituting the subject matter of a pending patent application 805724 filed December 10th 1913, which has resulted in Patent No. 1,105,612 dated August 4th, 1914.

The practical advantages conferred by the two inventions are, first, greater accuracy in alinement, inasmuch as each character is alined independently of the other characters on the same matrix, and second, any failure to adjust the presenting position of the presenting organ with reference to the casting position of the mold proper, will not necessarily prevent exact alinement.

The accompanying figures illustrate a preferred construction of the application of the two inventions to a matrix composing and line casting machine as above described equipped with what are known as two letter matrices.

In them Figure 1 is a vertical section through the mold in the mold block, showing the two inventions ready to aline; and Figs. 2 and 3, side elevations of two improved alternative constructions of matrices.

1 is the first elevator presenting the top characters 2 of some of the matrices 3, and the bottom characters 4 of the others, in the casting position. 5 is the mold wheel or carrier having the mold block 6 with the mold proper 7 in it, fast thereto, and by reason of its being likewise in the casting position, having a shoulder 8 incorporate with the said block 6, overlying the lugs 9 for alining the characters 4 and also the lugs 10 for alining the characters 2, the overlaid lugs 9 registering horizontally with the overlaid lugs 10 and therefore not appearing in Fig. 1. The distance between the characters 2 and 4, center to center, and that between the operative, viz. the top, face of an alining lug 9 or 10 and the respective character which it alines, are arranged in the well known way. The new lug 9 may appear to be the well known bottom lug on the character face of a matrix, but it differs from that in being limited to alining the bottom character 4, the said well known bottom lug serving as the alining lug for any of the characters on the same matrix. The new alining lugs 9 and 10 (together with the known lug 11) may be projections incorporate with, but outside the normal width of the body portion of the matrix, and may also, together with the lugs 12, 13 on the opposite edge be of a thickness common to all the matrices in a font as shown in Fig. 2, such known reduction enabling them to coöperate with the grooves in the opposite plates of the matrix magazine in which they engage, such grooves having a common width and being equidistant.

The alternative construction shown in Fig. 3, consists in the body of the matrix being narrowed in order that the lugs 9, 10 and 11, may be incorporate with it, be within the normal width of it and have the same thickness; lugs 14, 15, of the reduced thickness to engage in the respective grooves, being added to the lugs 9 and 10 respectively. The advantage of this alternative construction is that it endows the new alining lugs 9, 10, and, the engaging lugs with the maximum possible strength.

As already stated the means for alining the composed characters 2 and 4 and the actuating means for actuating the plate 16, form no part of the present invention. Nevertheless as an exact comprehension of them serves to illustrate and define the present invention, it has been decided to include a specification of them in the present specification.

The means for alining the composed characters 2 and 4 through the respective alining lugs 10 and 9 by direct contact with the latter, consists of a plate 16 located under the shoulder 8, and connected to the mold block 6 so as to slide thereon toward or from that shoulder, by any suitable device such as slots 17 and screws 18. It has an alining ledge 19 parallel with the shoulder 8 and projecting toward the composed line; and may have a second and similar ledge 20 to support the lower matrices by their lugs 9 or 9, 14. The reason why the plate 16 slides to and from the shoulder 8 is to provide for the motion necessary to effect alinement. While the mold proper 7 is being moved into casting position the plate 16 is held away from the shoulder 8 by a spring device 21 resilient between the mold block 6 and the said plate, far enough for the ledges 19 and 20 to clear the bottom faces of the respective lugs 9 and 10, the shoulder 8 clearing their respective tops because they are presented in a slightly lower plane. This device 21 must be automatic and constantly urging the plate 16 and its ledges away from the shoulder 8.

The automatic means for actuating the plate 16, must be able to push it toward the shoulder 8 far enough to effect alinement. It consists in the present instance of a cam 22 fast on a shaft 23 operated from the driving shaft of the machine and mounted to turn within the stud 24 on which the wheel 5 is mounted and a prolongation 25 of the plate 16, in constant contact with the said cam and guided by a slot 26 and screw 27 device.

Having described my invention, I declare that what I claim and desire to secure by Letters Patent is:—

1. A typographical piece having in one edge a plurality of characters and a corresponding plurality of alining lugs on the same edge, one for each such character.

2. A typographical piece having on one edge a plurality of independently usable lugs adapted to engage the alining surface of a mold.

3. A flat rectangular typographical piece consisting of a body portion, a plurality of characters, and an alining lug for each character projecting from the edge which carries the latter, one of the said lugs located at one end of the said edge and another, but non-alining, lug at the opposite end of the same edge, all these lugs being of the same thickness as the body portion, an engaging lug of reduced thickness projecting from each of the said end lugs and in the same direction, and a similar lug of like-

wise reduced thickness projecting from each end of the opposite edge.

4. A typographical piece having in one edge a character and formed in said edge with an alining portion situated within its normal body width adapted to engage the coöperating alining surface of a mold.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

BRUNO BLOCH.

Witnesses:
HENRY HASPER,
WOLDEMAR HAUPT.