

No. 794,629.

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O. MERGENTHALER, DEC'D.

SAFE DEPOSIT AND TRUST COMPANY OF BALTIMORE & A. GREENLEAF, EXECUTORS.

METHOD OF PRODUCING JUSTIFIED TYPE LINES.

APPLICATION FILED AUG. 26, 1903.

Fig. 1.

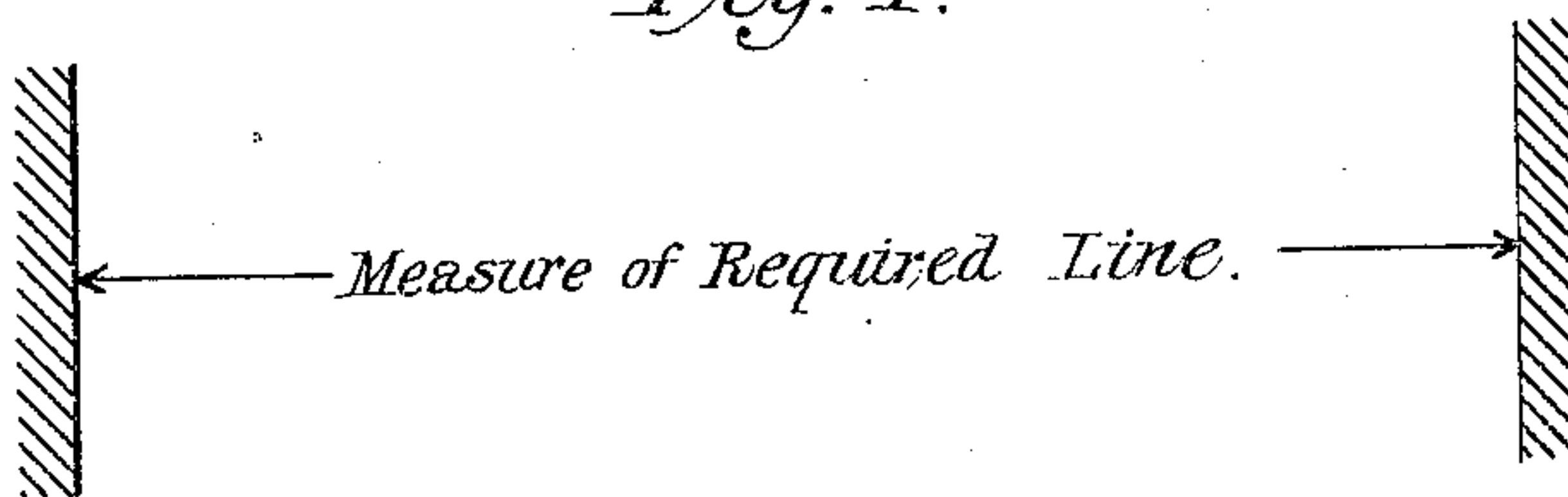


Fig. 2.

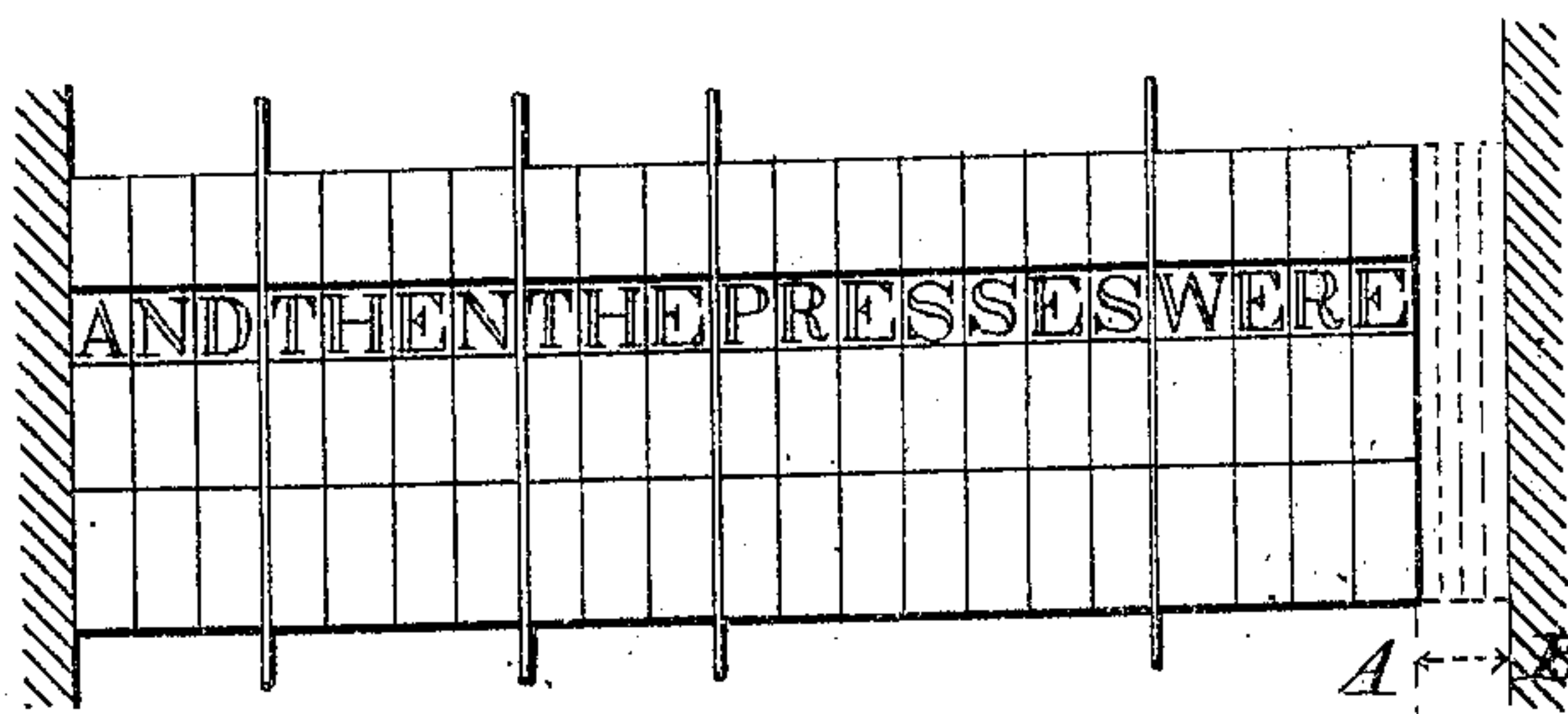


Fig. 3.

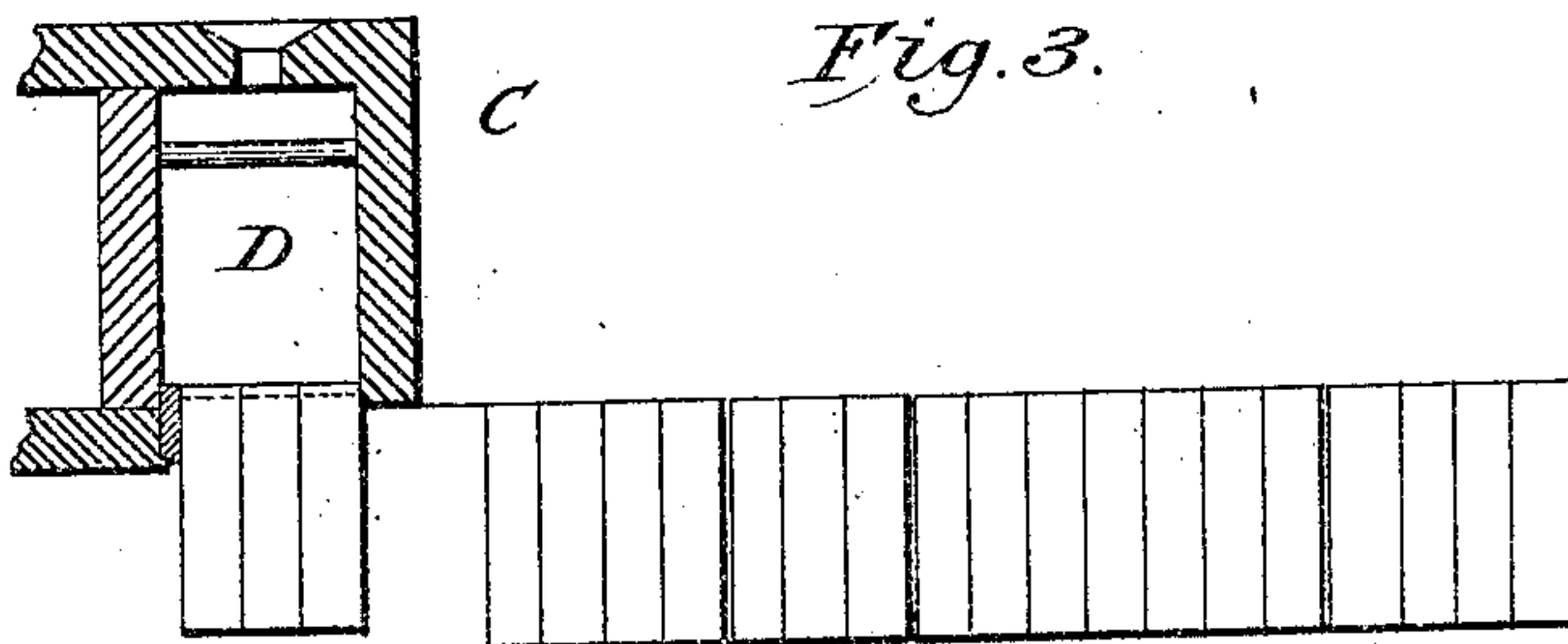
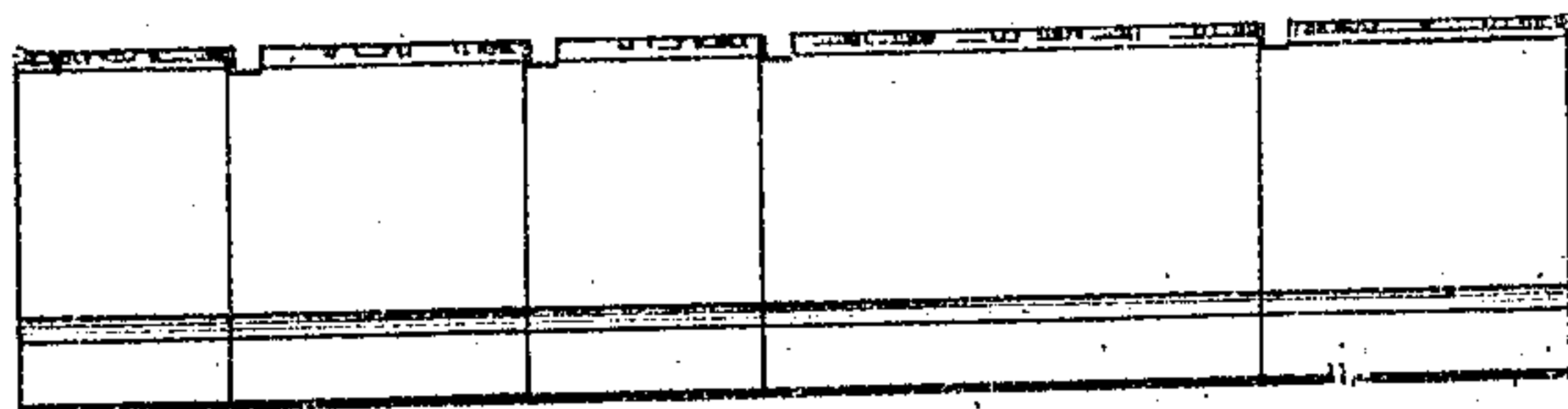


Fig. 4.



Witnesses

Sydney P. Heelingworth

Frank L. McGee

Safe Deposit and Trust Co.

Abner Greenleaf

Executors of Ottmar Mergenthaler

By Philip T. Lodge

Inventor

deceased

Attorney

UNITED STATES PATENT OFFICE.

SAFE DEPOSIT AND TRUST COMPANY OF BALTIMORE AND ABNER GREEN-
LEAF, OF BALTIMORE, MARYLAND, EXECUTORS OF OTTMAR MERGEN-
THALER, DECEASED, SAID EXECUTORS ASSIGNORS TO MERGENTHALER
LINO TYPE COMPANY, A CORPORATION OF NEW YORK.

METHOD OF PRODUCING JUSTIFIED TYPE-LINES.

SPECIFICATION forming part of Letters Patent No. 794,629, dated July 11, 1905.

Application filed August 26, 1903. Serial No. 170,873.

To all whom it may concern:

Be it known that OTTMAR MERGENTHALER, deceased, late a citizen of the United States, and a resident of the city of Baltimore, State of Maryland, did invent a certain new and useful Method of Producing Justified Type-Lines, of which the following is a specification.

This invention has in view the production of justified type-lines for printing purposes, which lines consist of logotypes instead of single types or continuous linotypes, thus substituting the word as the unit of composition for the letter or line. These word slugs or logotypes are cast with the proper spaces for separating the words integral therewith, so that when assembled end to end they will form justified lines of a predetermined length.

In carrying the method into practice individual letter-matrices of the form used in linotype-machines may be employed or any other suitable matrix which is adapted to be repeatedly selected and assembled in the various combinations in which their characters are to appear in the successive lines of print. Between the words which compose the assembled line of matrices temporary spacers are preferably introduced. These temporary spacers separate the line into groups or sections each representing a word and are preferably formed to project endwise beyond the matrices, so as to facilitate their subsequent removal. In order to produce a line of predetermined length, the matrices representing all the characters which can be introduced within the prescribed length are first assembled in proper order, together with the tentative spacers. This selection and assemblage of the matrices and spacers may be effected in any desirable or convenient manner either by suitable mechanism or by hand, the specific means employed therefor forming no part of the present invention.

When the matrices are assembled as above,

it will usually be found that they are of a length less than that of the line required. Since the words are to be cast from the matrices, it is necessary to provide for justifying purposes on the ends of the logotypes blank spaces of such thickness that they will jointly elongate the line of logotypes to the required length. The total space which must be added to the assembled line of matrices in order to accomplish this is therefore measured and then divided or apportioned according to the number of intervals in the line, thus determining the width of the final spaces demanded between the words to justify the line. Having thus determined the final or justifying spaces, the individual matrices are separated into groups each corresponding to a single word, and from these separate groups or word-matrices the logotypes are cast individually of a length equal to that of the word plus the final or justifying space determined as above described. Each of the logotypes or slugs thus produced represents, therefore, a complete word and a space to separate the same from the next word. As the number of intervals in the line is one less than the number of words, one of the logotypes is formed without a justifying-space.

Since the logotypes are formed singly, they are most conveniently cast in a mold which is adjustable in size, so as to suit the different lengths of the words and their annexed spaces. The construction of the mold, which may be similar to that used in type-founding or linotype machines, forms no part of the present invention.

Referring to the figures of the drawings, which represent diagrammatically one form of practicing the method, Figure 1 indicates the measure or length of line for which it is required to produce logotypes. Fig. 2 shows a composed line of matrices and temporary spacers within the required measure and also the surplus space which it is necessary to divide among the several logotypes. Fig. 3 presents a plurality of word-matrices with

one of them separated and presented to the mold, and Fig. 4 illustrates several of the completed logotypes assembled end to end.

The matrices are assembled in proper order to represent the several words of the line, being separated one from another by means of temporary spacers, which preferably project beyond the matrices to facilitate their removal and the separation of the word groups for the casting operation. As shown in Fig. 2, the line contains five words, thus necessitating four spaces within the line. The length of the prescribed measure exceeds the length of the composed line by the distance A B, and the dotted lines indicate the necessary division of the space A B, commonly known as the "final error," into four equal portions, which determines the width of the spaces required between the words of the particular line shown to effect its justification. As the temporary spacers between the words occupy a certain amount of room in the line, it follows that the blank necessary on the logotype should be equal to one of the four divisions of the space A B plus the thickness of one of the spacers.

In Fig. 3 one of the word-matrices is shown detached from the line and presented to the mold C, which is formed with the mold-slot D therein, the latter being adjustable, so as to form a logotype of a length equal to that of the particular word presented plus a blank at one end equal to the thickness of the justifying-space. The successive groups of matrices representing the words are presented one at a time to the mold, which is adjusted in each case to the length of the word and the additional space necessary. As shown in Fig. 3, one of the interior word-matrices of the line is in position at the mold, a spacer of the proper width to secure the necessary justification being indicated in connection therewith. The particular form of spacer thus employed and the construction of the adjustable mold form no part of the present invention. It will also be seen that the method may be employed in connection with any desired form of machine automatically operated, or the several steps may be carried out entirely by hand.

Fig. 4 shows a plurality of the completed logotypes which are the product of the method. As has been already pointed out, the number of spaces necessary to justify the line is one less than the number of words, and accordingly one of the logotypes, preferably the first or the last, is cast without a justifying-space.

It will be seen that many variations may be made in the method without departing from the spirit of the invention, the essence of which resides in assembling the matrices representing the words for a line, in utilizing the assembled line of matrices from which a

series of separate logotypes is to be formed as a means for determining the width of the spaces required for justification, and in the secondary use of the matrices in producing the logotypes with word-spaces thereon.

Having thus described the invention and its mode of operation, what is claimed, and desired to be secured by Letters Patent of the United States, is as follows:

1. A method of producing justified type-lines, consisting of the following steps; first, assembling in the required order individual matrices representing the characters admissible to the line; second, making use of the composed line to determine the spaces necessary for justification; third, forming from the composed matrices, one at a time, a series of logotypes representing the words and justifying-spaces integral therewith.

2. The method of producing justified type-lines consisting in assembling in line individual matrices representing the words admissible within the prescribed measure; second, determining the spaces necessary between the words to effect justification of the line; and, third, separating the word groups of matrices and forming from them individually the words, together with integral spaces proper to justify the line.

3. The method of producing type-lines, consisting in assembling individual matrices representing the words admissible within the prescribed measure, to the end that the additional space necessary to justify the line may be determined, and thereafter separating the groups of matrices representing words and producing therefrom a series of logotypes sufficiently longer than the words to form a justified line.

4. The method of producing justified type-lines of prescribed length, consisting in first determining the aggregate width of the characters admissible to the line; second, determining the width of the spaces necessary between the words to justify the line; and, third, forming successively logotypes, each representing an individual word and a space necessary between such word and the next.

5. The method of producing a line of logotypes comprising the following steps; first, selecting the matrices for all the characters in the line; secondly, separating the matrices into groups corresponding each to a single logotype; and thirdly, forming the logotypes individually and consecutively from the groups.

6. The method of producing a line of logotypes of predetermined length, comprising the following steps; first, selecting the matrices for all the characters in the line; secondly, separating the matrices into groups corresponding each to a single logotype; and, thirdly, producing the logotypes individually and consecutively as the groups are sepa-

rated, and forming upon the logotypes justifying-spaces, so that collectively they will fill out the predetermined length of line.

7. The method of producing a line of logotypes of predetermined length, comprising the following steps; first, measuring the total justifying-space to be filled out in the line, and, secondly, producing the logotypes individually and consecutively and forming upon the logotypes justifying-spaces, so that said spaces collectively will fill out the total justifying-space.

8. The method of producing a line of logotypes of predetermined length, comprising the following steps; first, measuring the total space to be filled out in the line and apportioning this space among the several logotypes, and, secondly, producing the logotypes individually and consecutively, and forming upon each logotype, its apportioned share of justifying-space.

9. The method of producing a justified line of logotypes, comprising the following steps; first, selecting the characters for the entire line; secondly, measuring the excess space to be filled out in the line; thirdly, apportioning the excess space among the several logotypes, and, fourthly, producing the several logotypes individually and consecutively and forming upon each its appropriate share of the excess space.

10. The method of producing a line of logotypes of predetermined length comprising the following steps; first, selecting the characters for the entire line; secondly, measuring the excess space to be filled out in the line; thirdly, apportioning the excess space among the several logotypes; and, fourthly, producing the several logotypes individually and consecutively and forming upon each logotype its appropriate share of the excess space, so that collectively they will fill out the predetermined length of line.

11. The method of producing a line of logotypes of predetermined length comprising the following steps; first, arranging the matrices for the entire line; secondly, measuring

the excess space to be filled out in the line; thirdly, apportioning the excess space among the several logotypes; and, fourthly, producing the several logotypes individually and consecutively and forming upon each its appropriate share of the excess space, so that collectively they will fill out the predetermined length of line.

12. The method of producing a line of logotypes of predetermined length comprising the following steps; first, arranging the matrices for the entire line; secondly, measuring the excess space to be filled out in the line; thirdly, apportioning the excess space among the several logotypes; and, fourthly, casting the several logotypes individually and consecutively and forming upon each logotype its appropriate share of the excess space, so that collectively they will fill out the predetermined length of line.

13. The method of producing a line of logotypes comprising the following steps: first, assembling the matrices for all the characters of the line; and secondly, forming the logotypes individually and consecutively from the matrices thereof.

14. The method of producing a line of logotypes comprising the following steps: first, assembling a line of word-matrices; and secondly, forming the logotypes individually and consecutively from the said word-matrices.

15. The method of producing a line of logotypes comprising the following steps: first, separating a composed line of matrices into groups corresponding each to a single word; and secondly, forming the logotypes individually and consecutively from the groups.

[L. s.] SAFE DEPOSIT AND TRUST CO.
OF BALTO.,

By JNO. W. MARSHALL,
2d V. P.,

ABNER GREENLEAF,
Executors of Ottmar Mergenthaler, deceased.

Witnesses:

FRANK N. MASLIN,
JOHN J. NELLIGAN.