(No Model.) 2 Sheets—Sheet 1.

J. O. CLEPHANE.

LINOTYPE MACHINE.

No. 458,314. Patented Aug. 25, 1891.

Fig. 1.
Printed Sheet

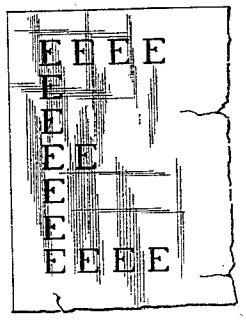


Fig. 2.
Linotype

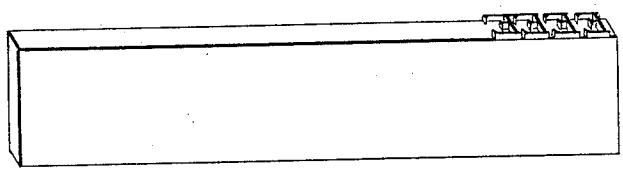


Fig. 3.
Form composed of Linotypes

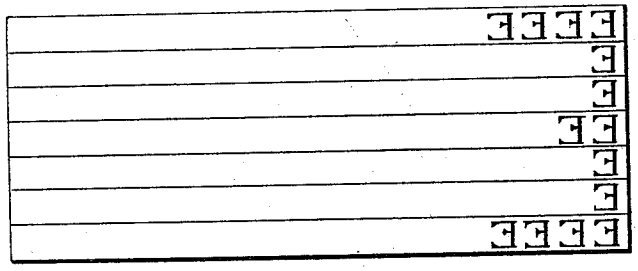


Fig. 4.

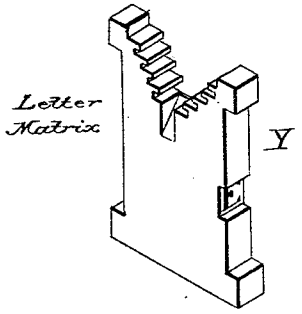


Fig. 5.

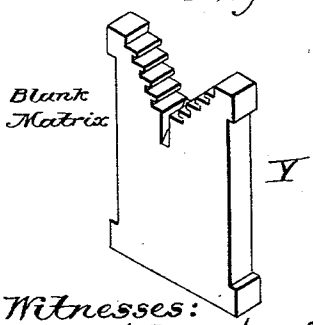
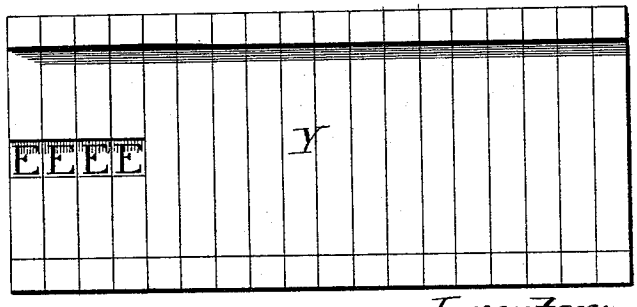


Fig. 6.
Aligned Matrices



Witnesses:
W. M. Mortimer
W. A. Kennedy

Inventor:
J. O. Clephane
By his atty Richd. T. Dodge

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

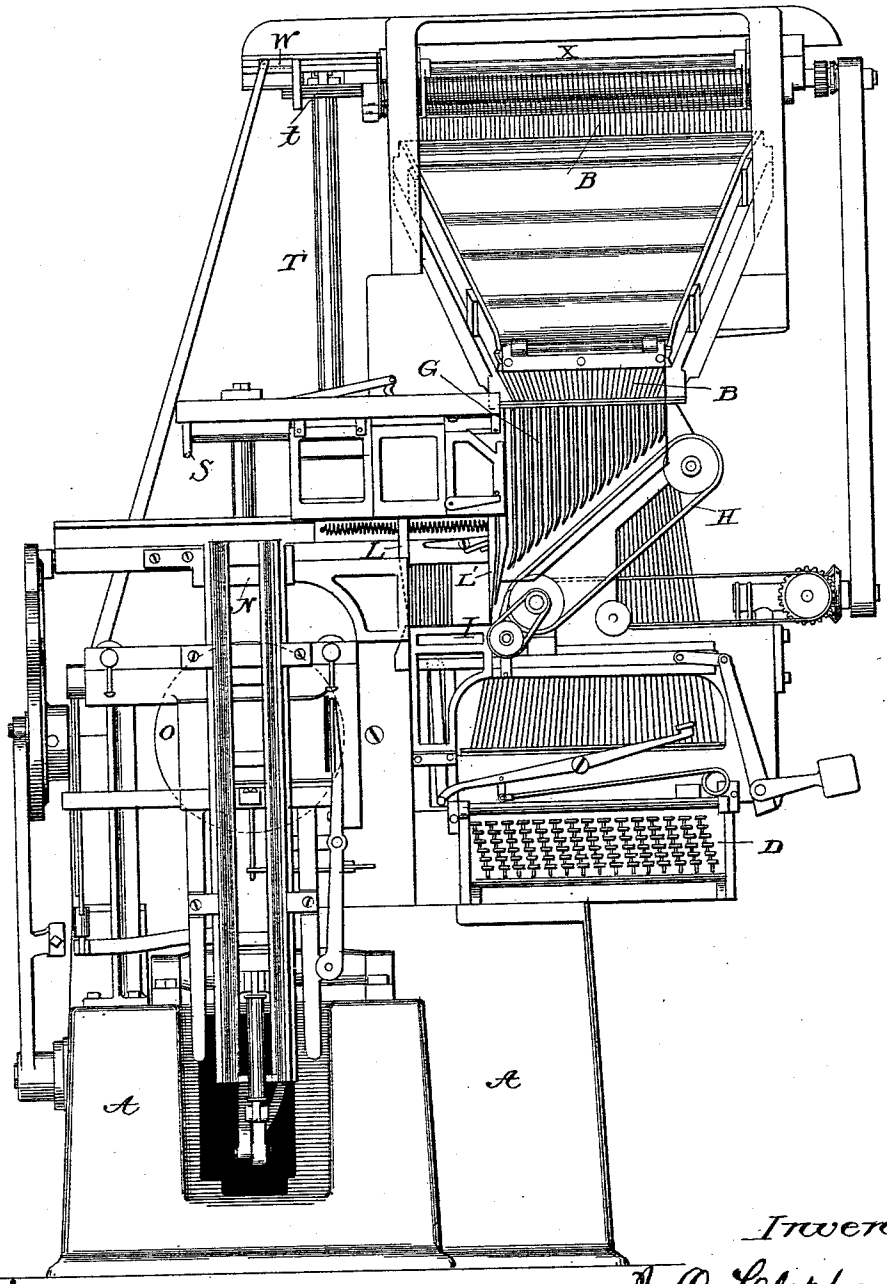
(No Model.) 2 Sheets—Sheet 2.

J. O. CLEPHANE.

LINOTYPE MACHINE.

No. 458,314. Patented Aug. 25, 1891.

Fig. 7.



Witnesses:
William N. Mortimer
M. R. Kennedy

Inventor:
J. O. Clephane
By his Atty
Phil. T. Dodge

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES O. CLEPHANE, OF NEW YORK, N. Y., ASSIGNOR TO THE NATIONAL TYPOGRAPHIC COMPANY, OF WEST VIRGINIA.

LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 458,314, dated August 25, 1891.

Application filed February 18, 1891. Serial No. 381,870. (No model.)

To all whom it may concern:

Be it known that I, JAMES O. CLEPHANE, of New York, in the county of New York and State of New York, have invented certain Improvements in Linotype-Machines, of which the following is a specification.

This invention relates to what are now known in the art as "linotype-machines," which, being controlled by finger-keys representing letters or characters, produce what are known as "linotypes," each consisting of a type-high bar having on its edge all the type characters that are to appear in one line in the order in which they are to be printed, so that a series of these bars assembled side by side would present a surface identical with that secured by composing or setting up the ordinary individual type.

It is the common practice of printers to print for advertising purposes large letters each composed of a series of small letters—for example, to print a large letter "E" by means of a series of ordinary small type arranged in proper relations to each other. The aim of the present invention is to adapt the linotype-machines to produce linotypes of such character that when assembled the characters upon them will serve to print the large composite letters. In order to accomplish this result, I provide the machine with the usual individual letter-matrices for the upper-case or capital letters, adapted to be selected and assembled temporarily in line, so that a linotype may be cast against the entire line at one time, as in the well-known Mergenthaler machines. I also provide the machine in place of the usual lower-case matrices with blank matrices of widths corresponding with the capital letters, so that on touching, for example, the "A" key, a matrix to produce that character will be introduced into the line, and that on touching the small "a" key a blank having a width equal to the "A" will be introduced into the line. In this manner I am enabled to so space the letters on each linotype that when the linotypes are assembled their characters will jointly produce the composite letter.

The essence of the invention resides, it will be perceived, in providing the machine with character-matrices and with spaces of corresponding width; and it is to be distinctly understood that the construction of the matrices in other respects and the construction of the mechanism by which they are selected and aligned against the mold or impression mechanism may be modified at will.

I have selected for purposes of illustration, and prefer to use, the Mergenthaler linotype-machine, such as set out in detail in Letters Patent of the United States No. 436,532, dated September 16, 1890, and it is to be understood that the machines may be identical with that represented in this patent in all respects, except that the lower-case matrices are replaced by blank matrices or spaces.

In the accompanying drawings, Figure 1 is a view illustrating a composite letter such as is printed by the linotypes produced by my machine. Fig. 2 is a perspective view of one of the linotypes. Fig. 3 is a face view showing a series of linotypes assembled and adapted to print the composite letter. Fig. 4 is a perspective view of one of the character-matrices. Fig. 5 is a perspective view of one of the corresponding blank matrices or spaces. Fig. 6 is a view showing the manner in which the character matrices and blanks are assembled in line. Fig. 7 is a front elevation of the machine.

Referring to the drawings, A represents the main frame, and B an inclined channeled magazine, in which the assorted matrices Y, such as shown in Fig. 4, are confined, and from which they are delivered one at a time by escapement devices actuated by finger-keys D. The matrices descend between guide-plates G to an inclined traveling belt H, from which they are delivered one after another with suitable spaces into the vertically-slotted block I. This block, movable vertically, presents the assembled line between arms L L′, which shift it laterally to a vertically-movable yoke N. This yoke lowers the line in front of a mold-wheel O, containing a slot or mold of the external dimensions of the required linotype. A melting-pot provided with a force-pump delivers molten metal into the mold and against the assembled line of matrices, thereby producing a linotype.

After the linotype is thus cast the mold makes a partial revolution, the linotype is ejected, and the line of matrices, which has performed its duty, is lifted by the yoke N and transferred by a horizontal slide S to a plate *t* on one end of a vertically-swinging arm T. The arm in rising lifts the line of matrices in front of the slides W, by which the line is pushed forward to a distributing mechanism X, by which the matrices are delivered, respectively, to the magazine-channels from which they started.

The foregoing parts are all constructed and operate as in the Mergenthaler patent, except that the lower-case matrices are replaced by blank matrices Y, such as shown in Fig. 5. These matrices may be of the same marginal form as the letter-matrices, and be maintained in and discharged from the magazine, assembled in line and presented to the casting and distributing mechanisms in the same manner. For each of the letter-matrices there is a blank matrix of corresponding width or thickness.

In operating the machine the operator, knowing from the form of the composite letter to be produced the relations which the small letters must occupy on each type-bar, touches the letter-key and the space-keys in such order as may be demanded, in order to bring the letters and spaces on each linotype into the required relations. As shown in Fig. 3, one bar may have characters its entire length; another, characters for part of its length, and in bars bearing the same number of characters they may appear in different relations, according to the form of the composite characters to be printed.

The manner in which the matrices and spaces are assembled in line for presentation to the mold is plainly shown in Fig. 6.

Having thus described my invention, what I claim is—

1. In a linotype-machine, a series of letter-matrices and a series of blank matrices or spaces corresponding in width with the respective letter-matrices, in combination with a composing mechanism actuated by finger-keys to select and assemble the matrices, whereby the characters and spaces of one line may be so positioned as to insure their registration with the characters and spaces of an adjacent line.

2. In a machine having a mechanism to compose or assemble matrices in line and a linotype-mold to which the assembled line is presented, a series of letter-matrices and a series of blank matrices of widths corresponding with the respective letter-matrices, whereby the machine is adapted to produce linotypes which will in series print composite letters or designs.

In testimony whereof I hereunto set my hand, this 2d day of February, 1891, in the presence of two attesting witnesses.

JAMES O. CLEPHANE.

Witnesses:
WM. M. GAGE,
SELIGMAN MANHEIMER.