

(No Model.)

2 Sheets—Sheet 1.

J. O. CLEPHANE.  
LINOTYPE MACHINE.

No. 453,962.

Patented June 9, 1891.

Fig. 1.

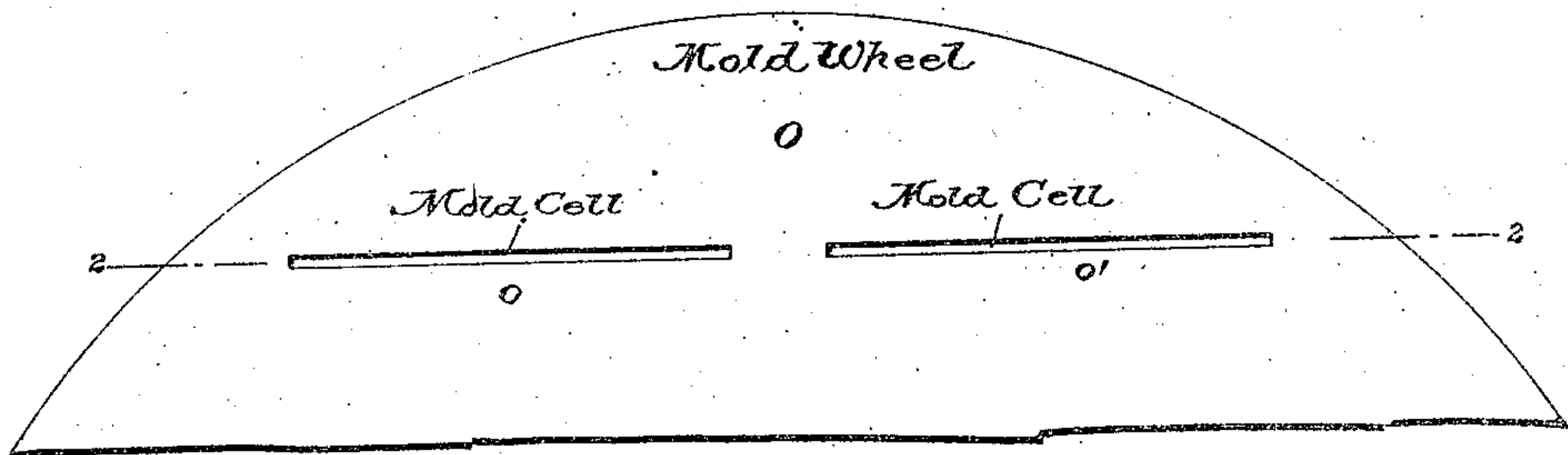


Fig. 2.

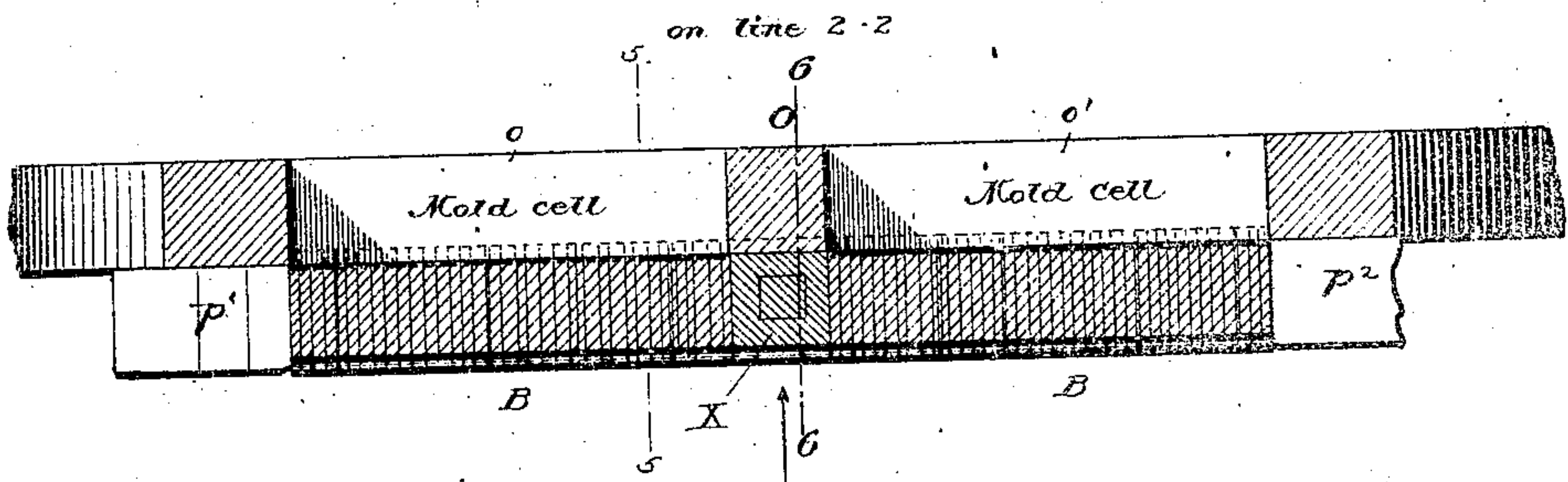


Fig. 3.

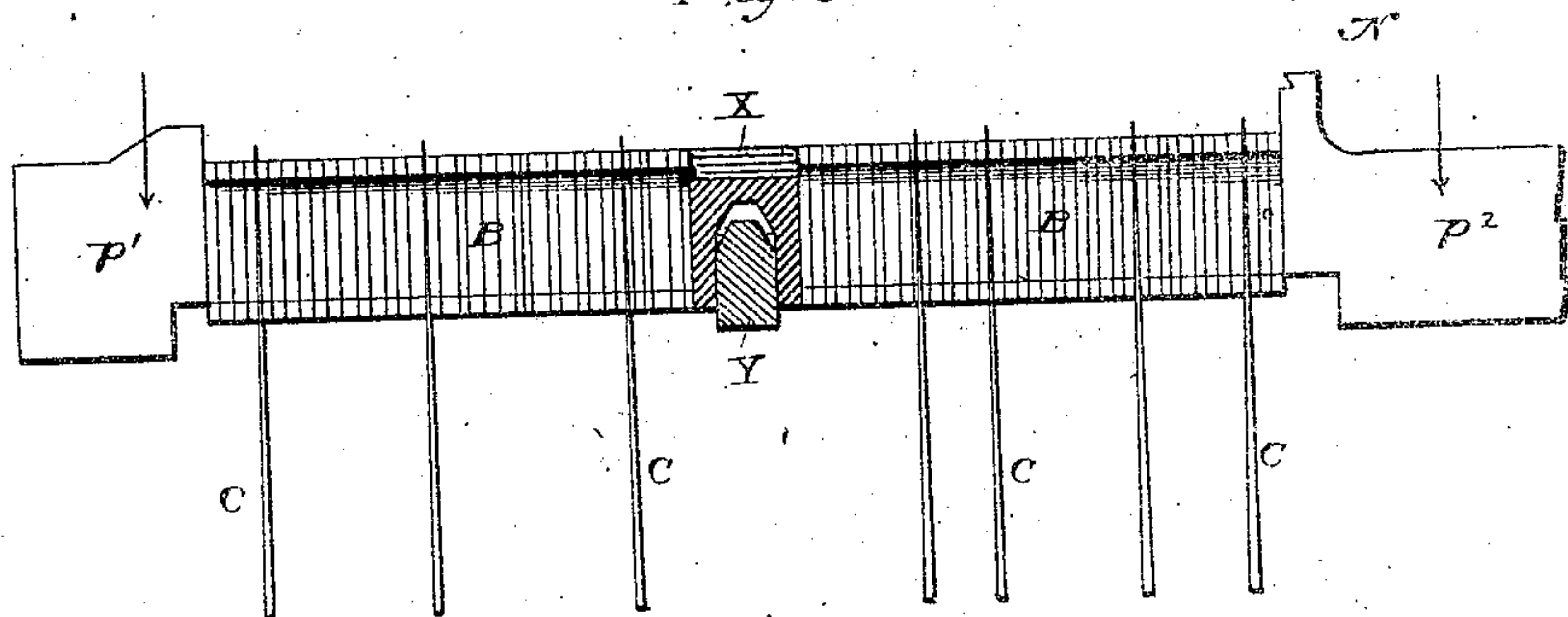
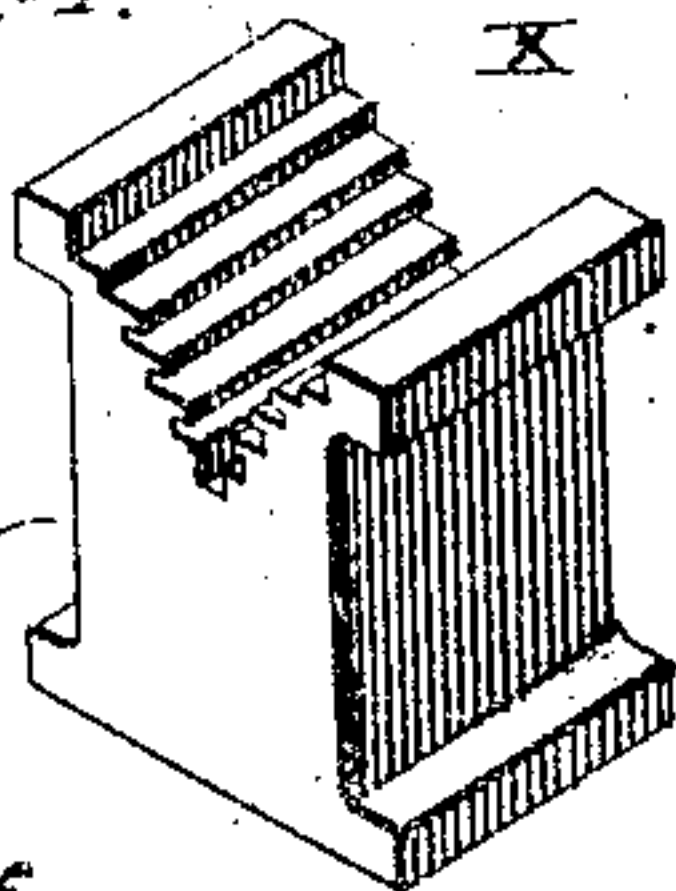


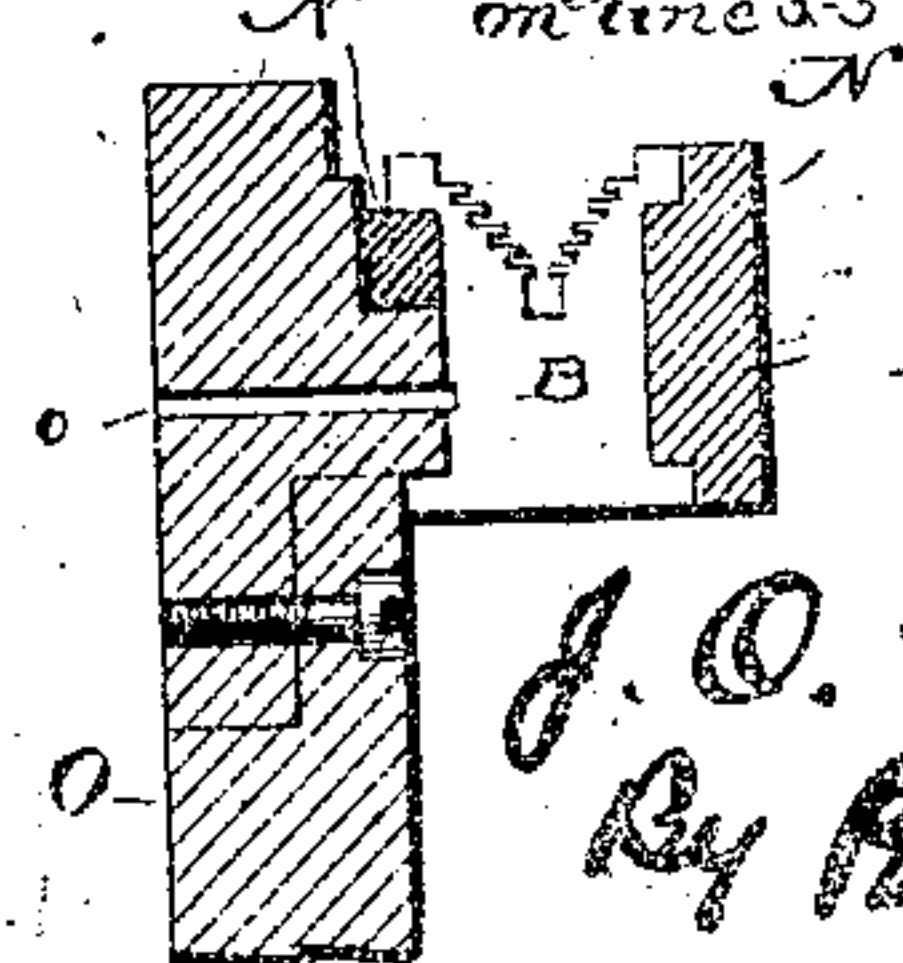
Fig. 4.



Witnesses:

*W. H. Martin*  
*J. Stanley Ehuore*

Fig. 5.



Inventor:

*J. O. Clephane*  
*By Paul S. Dodge*

(No Model.)

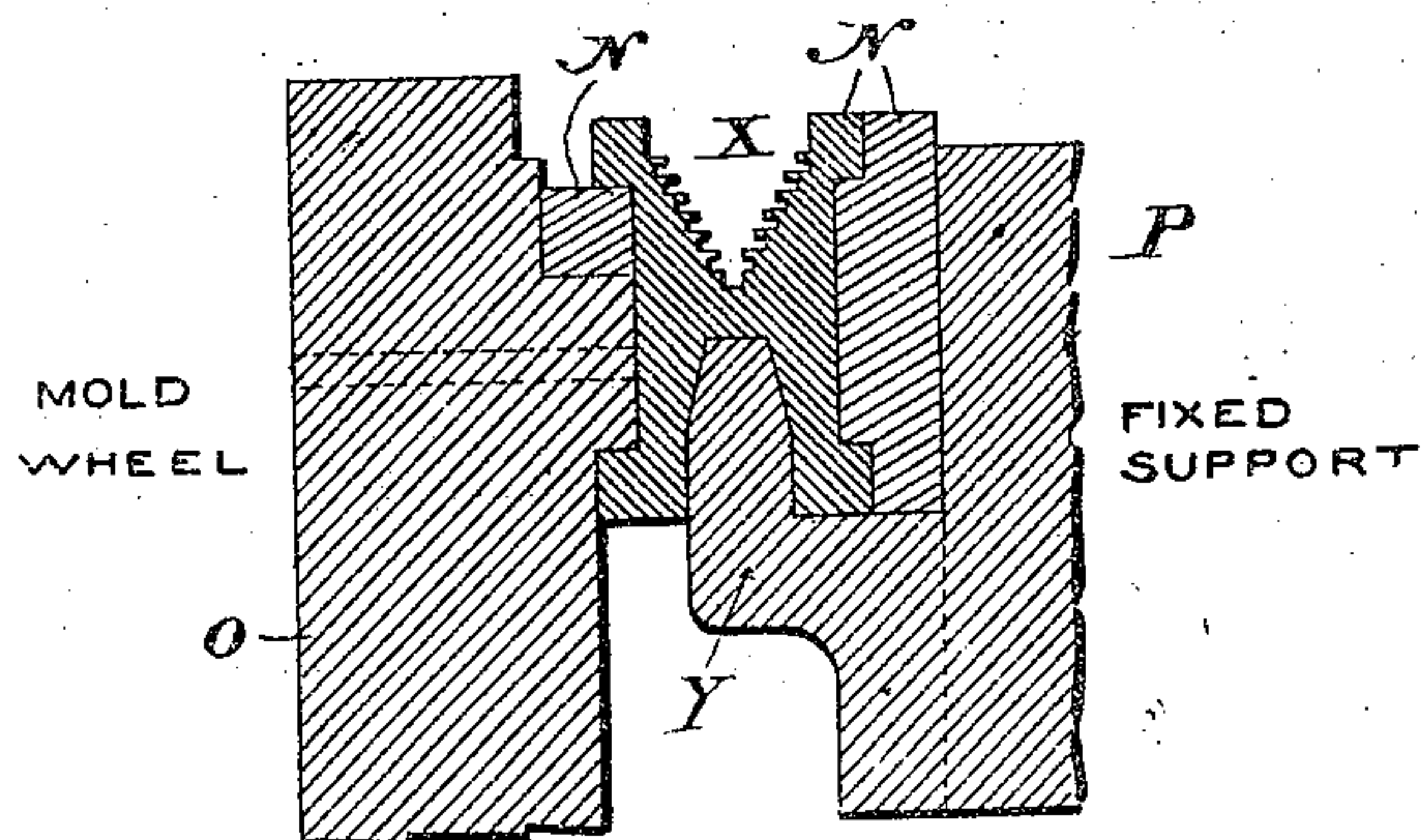
2 Sheets—Sheet 2.

J. O. CLEPHANE.  
LINOTYPE MACHINE.

No. 453,962.

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*Fig. 6.*  
*on line 6-6*



Witnesses:

*William H. Mortimer,*  
*A. R. Kennedy,*

Inventor:

*J. O. Clephane*  
*By his Atty*  
*Phil. T. Dodge*



# UNITED STATES PATENT OFFICE.

JAMES O. CLEPHANE, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR  
TO THE NATIONAL TYPOGRAPHIC COMPANY, OF WEST VIRGINIA.

## LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 453,962, dated June 9, 1891.

Application filed October 3, 1890. Serial No. 366,925. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES O. CLEPHANE, of Washington, in the District of Columbia, have invented certain Improvements in Linotype-Machines, of which the following is a specification.

My invention relates more particularly to machines for producing type-bars or linotypes each bearing on the inner edge the characters to print another line. In these machines, as ordinarily constructed, the bars are cast from molten metal one at a time in a mold, the front of which is closed by a series of matrices or type temporarily aligned with suitable spaces against it.

In the operation of the machines, particularly in casting short lines, it will sometimes happen that the casting mechanism is unable to keep pace with the assemblage of the matrices by the operator, so that the operator is compelled to lose time in awaiting the action of the casting devices.

The object of my invention is to increase the capacity of the machine by increasing the rapidity of the casting operation, and at the same time to lessen the wear and tear on the casting devices by reducing the frequency of its action. To this end I adapt the casting apparatus for the production of two or more linotypes at one time and construct the devices for sustaining the matrices so that they will sustain and present to the respective mold-cells two or more lines of matrices at one time. Thus the operator is enabled to set up two or more lines of matrices and have them disposed of at a by a single casting action, thus casting two linotypes in the time heretofore required for the production of one.

The essence of my invention resides in adapting the machine to produce two or more bars at one time from two or more independent lines or series of matrices, and although I have represented in the accompanying drawings the construction which I prefer, and which I find best adapted for use in connection with the Mergenthaler linotype-machines, for which the improvement is chiefly intended, it is to be understood that the details of construction may be modified at will within the limits of mechanical skill.

As a machine containing my improvements may be in all other respects identical with that represented in Letters Patent of Ottmar Mergenthaler, dated September 16, 1890, No. 436,532, I have deemed it necessary to illustrate in the drawings only those parts which are immediately connected with my improvement, referring the reader to the patent in question for other and ordinary details of construction.

In the accompanying drawings, Figure 1 represents a face-view of my mold, having two cells therein. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1, showing not only the mold-wheel, but also the matrices in operative relation thereto. Fig. 3 is an elevation of the matrices and clamps, looking in the direction indicated by the arrow in Fig. 2. Fig. 4 is a perspective view of the device for separating the two lines of matrices. Fig. 5 is a cross-section on the line 5 5 of Fig. 2. Fig. 6 is a vertical cross-section on the line 6 6 of Fig. 2.

In order that the application of the improvement to the Mergenthaler machine may be more readily understood, I have in the accompanying drawings given the parts the same letters by which they are designated in the patent.

O represents the vertical mold-wheel in the form of a flat disk, with the two mold-cells *o* and *o'* for casting linotypes cut therethrough from one face to the other. This wheel may be identical with that in the Mergenthaler patent, except that it has two cells instead of one. The two cells are arranged in line end to end, but by preference entirely separate from each other.

B represents the series of matrices, each bearing a single letter or character, and C the long tapered space-bars, which are assembled in line with the matrices and movable endwise through the line for the purpose of increasing the spaces to effect justification.

N is a vertically-movable yoke in which the matrices are arranged in line and sustained by their shoulders, and by which they are lowered and presented in front of the mold. Instead of constructing this yoke of a length suitable for a single line of matrices, I in-



crease its length so that two lines may be assembled therein end to end, as shown in Figs. 2 and 3.

In order that the two lines of matrices may be separated from each other and held at a suitable distance apart to admit of their presentation to the respective mold-cells *o* and *o'* at the same time, I introduce into the yoke or other support a separating-block X, such as shown in Fig. 4. This block may have the same external form as the matrices, in order to beset into the line with them. Its width will of course correspond exactly with the distance between the adjacent ends of the cells *o* and *o'*.

*p' p'* are two horizontal jaws or clamps between which the lines of matrices and the separating-block X are lowered by the yoke. These jaws, adapted to approach each other, serve to limit the length of the two matrix-lines. They are adapted to move inward, so that the inner ends of the jaws will stand in line with the outer ends of the mold-cells *o* and *o'*, respectively, in order to properly limit the length to which the matrix-lines are expanded or elongated by the action of the spacing-wedges. After the matrices and the spacing-blocks are in position in front of the mold and after the jaws are moved inward to the proper points the space-bars are raised either successively or simultaneously, so as to space out or justify the line in essentially the same manner as described in the Mergenthaler patent.

The two lines locked up in front of the respective cells are adapted to produce at one operation the characters on the linotypes cast in said cells. The molds will be supplied with molten metal from a melting-pot or other forcing mechanism, as heretofore. The mouth of this pot should be adapted to supply the two cells simultaneously.

In order to keep the separating-block X in a central location during the justifying action, so that the two lines may be of precisely the same length, I recess it in the under side, so that it may fit down over a stationary stud or guide Y on the main frame. As shown in Fig. 6, the stud is attached to and projects backward and upward from the stationary abutment P, which lies, as in the Mergenthaler patent, in front of the matrix-sustaining yoke N, in order to support the yoke and mat-

rices horizontally against the face of the mold. It is to be understood that any equivalent device may be employed to prevent lateral motion of the separating-block.

While I have illustrated my improvement in connection with matrices for producing type-characters in relief, it is to be understood that the same construction and arrangement of parts may be used for locking up or justifying at one time two lines of metal dies or type to produce matrix impressions.

Having thus described my invention, what I claim is—

1. In a linotype-machine, the combination of two lines or series of assembled individual-letter matrices, a casting mechanism comprising two closed mold-cells, and a pump mechanism to supply them with molten metal, adapted to produce two linotypes at one operation.

2. In a linotype-machine, two mold-cells and means for supplying them simultaneously with molten metal, in combination with two lines of assembled individual-letter matrices and means for presenting them simultaneously to the respective cells.

3. In a linotype-machine, the combination of two opposing clamps or jaws, an intermediate series of matrices arranged in line, and a block dividing the line into two short lines or groups.

4. In combination with the yoke or support to sustain the matrices in line, the separating-block removably mounted therein, and a fixed guide to hold the separator in a central position.

5. In a mechanism for producing casts or impressions of two lines at one operation, the combination of two lines of assembled matrices, adjustable spaces located in the lines to elongate and justify them, a fixed separating device located between the two lines to support their adjacent ends, and means at the outer ends of the respective lines to limit their elongation, whereby the two lines may be expanded each to a predetermined limit.

In testimony whereof I hereunto set my hand, this 24th day of September, 1890, in the presence of two attesting witnesses.

JAMES O. CLEPHANE.

Witnesses:

ALFRED S. MILLER,  
EDWARD DAMAI, JR.