

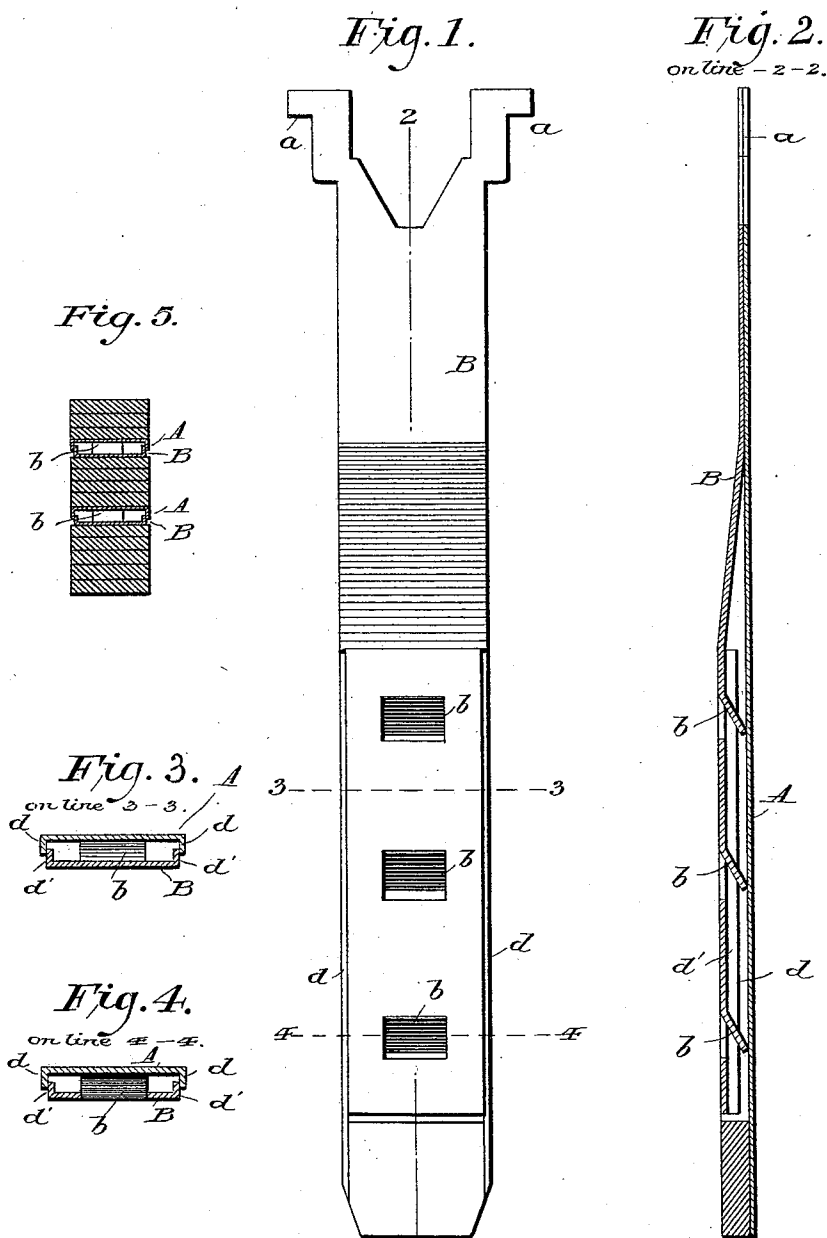
(No Model.)

2 Sheets—Sheet 1.

C. P. WOODRUFF.
LINOTYPE MACHINE.

No. 538,094.

Patented Apr. 23, 1895.



WITNESSES:

Raymond H. Barnes.
James S. Elmors.

INVENTOR

Charles P. Woodruff
BY
Phil T. Dodge
ATTORNEY.

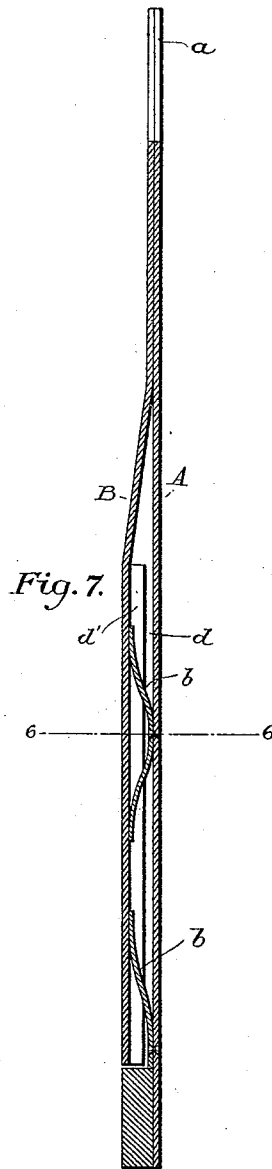
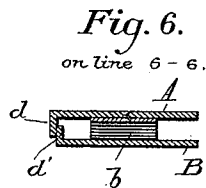
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Raymond Barnes.
J. J. Elmore

Inventor

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UNITED STATES PATENT OFFICE.

CHARLES PANGBURN WOODRUFF, OF BROOKLYN, ASSIGNOR TO THE
MERGENTHALER LINOTYPE COMPANY, OF NEW YORK, N. Y.

LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 538,094, dated April 23, 1895.

Application filed March 29, 1893. Serial No. 468,165. (No model.)

To all whom it may concern:

Be it known that I, CHARLES PANGBURN WOODRUFF, of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Linotype-Machines, of which the following is a specification.

The object of this invention is to provide a yielding or compressible space for the purpose of spacing out or justifying composed lines of type matrices or dies. It is intended more particularly for use in the Mergenthaler linotype machine, in which type matrices bearing characters to appear in a line of print are temporarily assembled in front of a mold in which a slug or linotype is formed against them, so that they produce the required characters in relief on its edge. In this machine the spaces introduced into the line of matrices must be expandible or adjustable in order to fill out the line to an extreme predetermined length, and they must also be adapted to co-operate with the matrices in closing the face of the mold that there may be no leakage of molten metal therefrom between the matrices. To this end I make use of a metallic elongated space constructed in such manner as to be compressible throughout portions of its length, so that after its thin end is set in the line it may be thrust endwise therethrough in order to present its thicker portion in the line if further elongation or justification is necessary.

The space consists of two metal plates having at their front edges overlapping lips to close the space between them, and having formed in or attached to one of the plates springs which, acting upon them, serve to urge the two plates apart, and thus expand or increase the thickness of the space.

The space is of the same general character and operated in the same general manner as that represented in Letters Patent of the United States issued to Philip T. Dodge, No. 444,337, dated January 6, 1891, but differs therefrom in details of construction herein after recited.

Figure 1 is a side view of my improved space. Fig. 2 is a longitudinal vertical section of the same on the line 2—2. Figs. 3 and 4 are cross sections on the line 3—3 and 4—4 respectively. Fig. 5 is a horizontal section through

a line of matrices having my spaces inserted therein. Fig. 6 is a horizontal section, showing the space with overlapping lips at one edge only. Fig. 7 is a longitudinal section, of a space, showing the springs separately formed and introduced between the two principal members.

A and B represent the two elongated plates or strips of which the space is composed. At one end these strips are brought together and united face to face to form the thin end of the space. This end is provided with sustaining shoulders *a*, or otherwise formed, to admit of its being supported in the Mergenthaler linotype or analogous machines.

Plate B, which is made of spring steel or equivalent material, has a series of lips *b*, punched endwise therethrough in order to rest against the opposite plate and serve as springs to urge the plates apart, in order to give the lower end of the space greater thickness than the upper. The yield of these springs will permit the plates to approach each other under moderate pressure, so that the space having its thin end inserted in the line which requires to be lengthened, it is only necessary to force the space endwise through the line in order to present its thicker portion therein, this thicker compressible portion serving to separate the matrices between which it is inserted, while at the same time its compressibility permits of its yielding as it is crowded into place so that it will exactly fill the required space. In practice the custom is to set up a line of matrices and spaces between two jaws or abutments which determine the length of the line, and thereafter to crowd the spaces forward to effect the justification; but obviously the line may be overset, that is to say, set to a length greater than is demanded and thereafter compressed endwise within the required limits. When the line is in position in front of the mold the edge of the spaces will be presented toward the mold subject to the action of the molten metal. To prevent this metal from entering the interior of the spaces between the plates A and B, I form the latter with longitudinal lips *d* and *d'*, turning these lips inward as shown in Figs. 3 and 4 at right angles to the side face of the

space so that they will overlap each other. The foremost lip may be made extremely thin so that there will be no danger of the molten metal materially escaping through the angular space at its edge when the machine is in action.

In practice I propose to construct the two plates of sheet steel, sheet brass of spring temper or other equivalent material. They may be quickly formed into shape and cheaply finished and united. Obviously the lips *d d'* may be constructed on either or both edges of the members A and B, or the metallic springs may be separately constructed and inserted between said members.

What I claim as my invention is—

1. A compressible space, consisting of two thin metallic members, provided with overlapping lips to leave an internal cavity, and a series of metallic springs seated in said cavity and holding the space normally in an expanded condition.

2. The improved space consisting of the two longitudinal plates formed with overlapping lips along their edges one of said plates having spring lips punched therefrom to act upon the other.

3. The space consisting of the plates A and B rigidly united at one end, and separated at the opposite end of the space, their edges being provided with overlapping lips substantially as described.

4. A compressible space consisting of two side plates, and separating springs adapted to close into or through one of said plates when compressed, whereby extreme compression of the space is permitted.

In testimony whereof I hereunto set my hand, this 18th day of March, 1893, in the presence of two attesting witnesses.

CHARLES PANGBURN WOODRUFF.

Witnesses:

JACOB G. PREGENSER,
REMSEN RUSHMORE.