

(No Model.)

P. T. DODGE.
SPACING DEVICE FOR LINOTYPE MACHINES.

No. 565,441.

Patented Aug. 11, 1896.

Fig. 1.

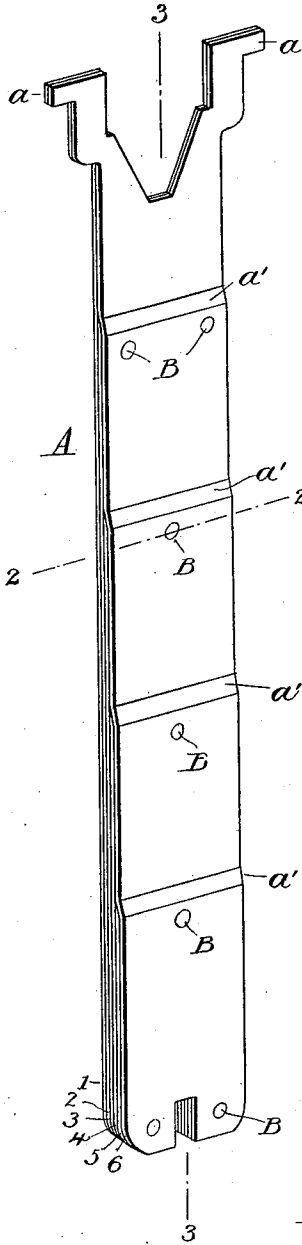


Fig. 3.

on line 3-3.

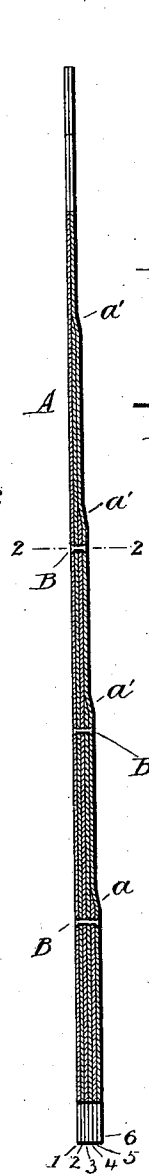


Fig. 5.

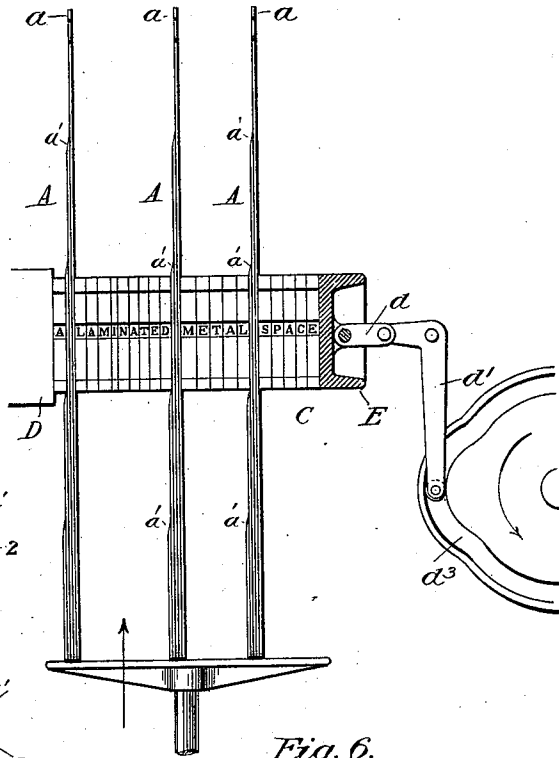


Fig. 6.

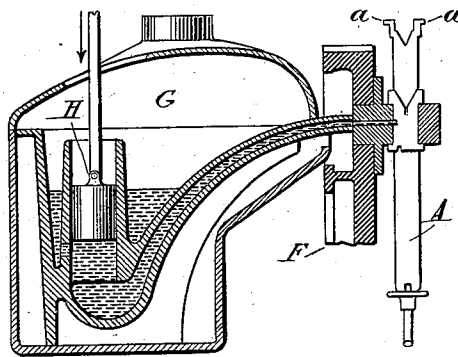


Fig. 4.

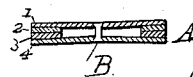
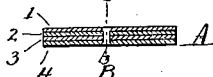


Fig. 2.

on line 2-2.



Witnesses:

G. J. Emme.
Raymond H. Barnes.

Inventor:

P. T. Dodge

UNITED STATES PATENT OFFICE.

PHILIP T. DODGE, OF NEW YORK, N. Y.

SPACING DEVICE FOR LINOTYPE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 565,441, dated August 11, 1896.

Application filed October 20, 1894. Serial No. 526,897. (No model.)

To all whom it may concern:

Be it known that I, PHILIP T. DODGE, of New York, county of New York, and State of New York, have invented a new and useful Improvement in Spacing Devices for Linotype-Machines, of which the following is a specification.

My invention has reference to elongated stepped spaces of the general character represented in Letters Patent of the United States granted to me on the 6th day of January, 1891, No. 444,387, intended to be used in connection with composing lines of type-matrices for the purpose of spacing out or justifying the line to a predetermined length.

In the patent above referred to is represented an elongated space increasing in thickness step by step from one end toward the other and compressible in thickness to a limited extent, so that the justification may be approximately effected by thrusting the spaces endwise through the line of matrices until it is filled out to the proper length, any variation in the length which is thus attainable being effected by the compression or expansion of the spaces or of those portions of the spaces which are in the line.

The object of the present invention is to provide a space having all the advantages of that described in the patent and which at the same time shall be cheaper to construct and better adapted to resist the destructive effects of the molten metal which is flowed against it during the casting operation.

To this end the invention consists of stepped spaces composed of a series of laminæ of sheet metal connected by rivets to hold them in fixed relations.

In practice it is found that a space composed of several thicknesses of metal, while possessing considerable rigidity, is by reason of the number of joints between the layers compressible and expansible to a limited extent, an extent sufficient to admit of perfect justification under the system described and claimed in the above-mentioned patent.

Referring to the drawings, Figure 1 is a perspective view of my improved space; Fig. 2, a cross-section of the same on the line 2 2 of Figs. 1 and 3. Fig. 3 is a longitudinal section on the line 3 3 of Figs. 1 and 2. Fig. 4 is a cross-section illustrating a slight modification.

Fig. 5 is a face view illustrating the manner in which the spaces are used in connection with a line of matrices and in the composing mechanism. Fig. 6 is a vertical cross-section indicating the manner in which the spaces are employed in connection with the casting mechanism.

Referring to Figs. 1, 2, and 3, A represents my improved space in the form of an elongated bar increasing in thickness step by step from the upper to the lower end, its upper and thinner end being provided, in the present instance, with supporting-ears *a*, by which it is adapted for use in connection with the composing and distributing mechanism of the well-known Mergenthaler linotype-machine.

As shown in the drawings, the different lengths or sections of the space are joined on the outer surface by inclined shoulders *a'*, leading from each section outward to the next thicker section. Each of the sections or thicknesses of the bar is constructed with its outer or opposite side faces parallel, so that the space consists in effect of a series of short spaces of different thicknesses joined end to end by the inclined shoulders, each section or space being, however, of uniform thickness at all points in its length.

Instead of forming the space in one solid piece, it is composed of several layers or sheets of metal 1 2 3 4, &c. I prefer to form the outer surfaces, as shown, by continuous sheets bent to form steps or shoulders. The inner or filling strips are made of different lengths. Each step or section contains a less number of layers or strips than the next thicker section. To illustrate, the second step from the top may consist of three thicknesses, the two on the outside and the one in the center running entirely to the lower end. The next section will consist of four thicknesses, the fourth section, in addition to those above named, starting in this section and running to the lower end. The next section contains an additional thickness, commencing therein and also running to the lower end.

The main feature of the invention is in the employment of a series of metallic sheets or layers so united that they will present jointly a space, the edge of which is adapted to resist the action of molten metal and which is,

as a whole, compressible to a slight extent. I commonly unite the several layers by means of rivets, as shown at B. In some cases it is advisable to construct a space of reduced thickness at the middle in order that the outer or thicker edges shall bear against the adjacent matrices in the line. This is effected by cutting out or slotting one or more of the layers longitudinally, as shown in Fig. 4, so that the outer plates may be compressed or drawn together at the middle, as shown.

In making use of my spaces their thinner ends are first inserted in the line of matrices C, as shown in Fig. 5, and either during or after the composition of the line is effected. Justification is effected by thrusting all or part of the spaces through the line endwise until they present an increased thickness therein. If the length to be added to the line to perfect justification is such that it is not exactly filled by the spaces in their normal condition, the justification is completed either by forcing in the spaces until the line exceeds its proper length, and thereafter applying compression to the line to reduce it to the proper length, or by confining the line within the proper limits of length and then forcing the spaces through while it is thus confined, and in this manner compressing the spaces and crowding them to their places.

In Fig. 5, D and E represent two jaws or clamps for confining or limiting the length of the matrix-line. The jaw D may be fixed and the jaw E moved in any suitable manner—for example, by a link d , connected by a lever d' , mounted on a fixed fulcrum and op-

erated by means of a grooved cam-wheel d^3 , engaging a stud on its end.

Fig. 6 illustrates the manner in which a line of matrices and spaces are presented across the mouth of the mold F, which is supplied with molten metal from the mouth of the metal-pot G through the action of a pump-plunger H, as in the ordinary Mergenthaler machine.

Having thus described my invention, what I claim is—

1. A compressible space consisting solely of metal laminæ laid directly together throughout their length to form a practically solid body substantially as described.

2. An elongated stepped space consisting of a series of flat metal layers placed directly in contact throughout their operative portions.

3. A compressible metal space consisting of outer layers bent to form steps therein and intermediate metallic layers, of different lengths seated in the interior substantially as described.

4. A stepped metallic space consisting of laminæ of different lengths laid together directly throughout their length and united by rivets, substantially as described.

In testimony whereof I hereunto set my hand, this 11th day of October, 1894, in the presence of two attesting witnesses.

PHILIP T. DODGE.

Witnesses:

W. R. KENNEDY,
F. S. ELMORE.