

(No Model.)

B. L. FAIRCHILD.
MEANS FOR JUSTIFYING TYPE.

No. 572,974.

Patented Dec. 15, 1896.

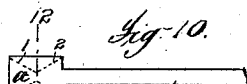
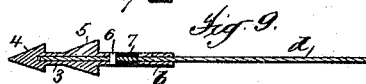
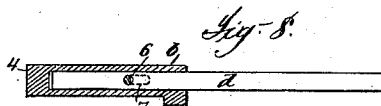
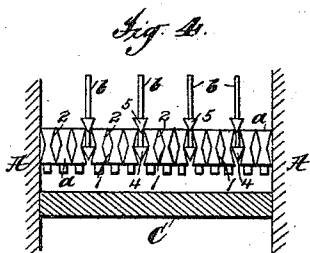
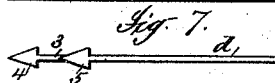
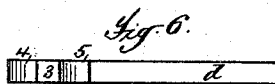
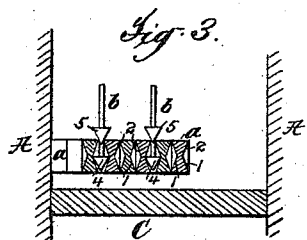
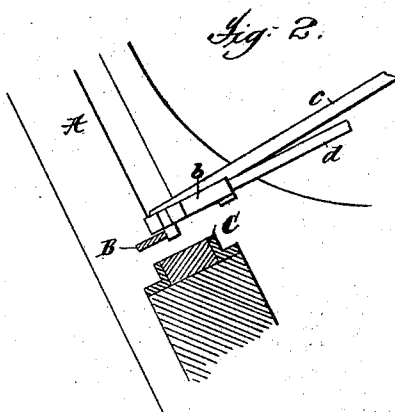
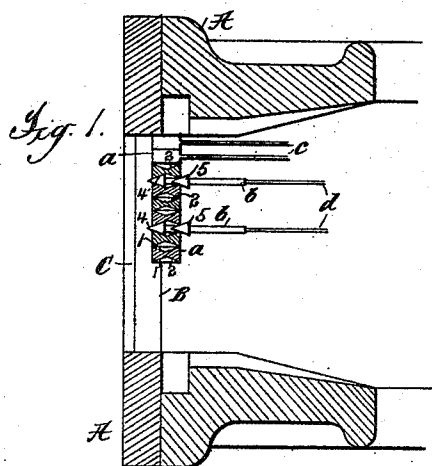
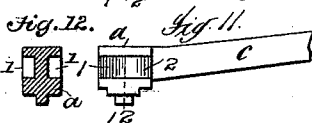
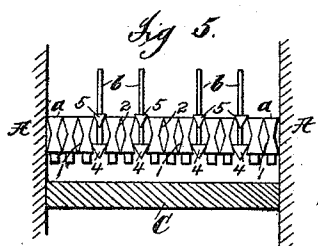


Fig. 14.



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UNITED STATES PATENT OFFICE.

BEN L. FAIRCHILD, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE MERGENTHALER LINOTYPE COMPANY, OF SAME PLACE.

MEANS FOR JUSTIFYING TYPE.

SPECIFICATION forming part of Letters Patent No. 572,974, dated December 15, 1896.

Application filed July 31, 1890. Serial No. 360,487. (No model.)

To all whom it may concern:

Be it known that I, BEN L. FAIRCHILD, a citizen of the United States, residing at New York city, county of New York, and State of New York, have invented certain new and useful Improvements in Means for Justifying Type, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to an improved means for justifying type which is of general application in all cases in which it is necessary to justify a line of composed type, whether set by hand or by machine, but is of especial value as applied to type-setting, matrix-making, type-casting, or other machines in which a line of type is set up and justified mechanically.

In justifying type, that is to say, spacing the same out to a predetermined length, it is necessary that the parallelism of the type shall be maintained. Heretofore this has been secured either by using an expansible space composed of two reversely-arranged wedges, or by using a space of wedge form arranged to act against a corresponding inclined surface extending in the direction of the length of the type or matrix, so that the justification was effected by moving the wedge in a direction parallel with the face of the type.

In carrying my invention into effect I combine with the type, having a correspondingly-inclined surface, a wedge justifier in one piece arranged to move in a direction at right angles to the face of the type, that is to say, toward and from the face.

In one of its forms my justifier is constructed with two wedges, one behind the other, to cooperate with the side face of the type.

For a full understanding of my invention a detailed description will now be given, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a portion of a matrix-making machine of a common construction in which the type and justifiers are carried by sliding bars and justification is made by advancing the justifiers in a direction parallel to the type-faces, some of the type being shown in section. Fig. 2 is a side view of the same.

Fig. 3 shows in horizontal section a construction similar to that in the preceding figures, except that the type and justifiers are not carried by bars. Fig. 4 shows an unjustified line of type with justifiers moving longitudinally of the type—that is to say, in a direction toward and from the face of the type. Fig. 5 shows the same line justified. Figs. 6 and 7 are respectively side and edge views of a justifier formed integral with the justifier-bar. Figs. 8 and 9 are central longitudinal sections of a justifier moving independently of the justifier-bar, the sections being taken at right angles. Fig. 10 is a detail plan of the type of Figs. 1 to 3. Fig. 11 is a side view of the same. Fig. 12 is a section on the line 12 12 of Figs. 10 and 11. Fig. 13 is a perspective view of one of the type shown in Figs. 4 and 5 to illustrate the inclined surfaces in its side. Fig. 14 is a perspective view of one of the justifiers shown in Figs. 4 and 5, illustrating the two inclined surfaces on its side.

Referring now particularly to Figs. 1 and 2, A A are side walls of the composing-space in the machine, B is the bar against which the type rest during the process of composition, and C is the platen by which the impression is made. The type *a* and justifiers *b* are carried by the type and justifier bars *c d*, respectively. It will be understood that in this construction the type-bars *c*, carrying the type *a*, move longitudinally one after another during the composition of the line until each type is brought to bear at one side against the rest-bar B, the body of the type then being upon the rest-bar in position to be securely locked against the same, and the justifier-bars *d* also move longitudinally until the justifiers *b* are brought into the composing-space between the assembled type. In this construction the type-body, as shown clearly in Figs. 1, 10, 11, and 12, is provided with an inclined justifying-surface 1, this surface extending from the outer wall of the type inward to any line desired, preferably to the central line of the body, as shown. From this inner end of the incline 1 the surface of the type is beveled or inclined outward to the wall of the type on the side opposite the outer end of the incline 1. This surface 2 performs no function in

justification, however, and this portion of the type may be of any other suitable form, so long as the two sides of the type are held at the same distance apart by the justifier and follower, as herein described. The construction shown, however, provides a strong type and one easily produced. These inclined surfaces 1 2 preferably extend, as shown, less than the full thickness of the type-body, in order to leave the full width of the type for the support of the type-face, and the surfaces thus form grooves upon opposite sides of the type, extending across the body in a direction parallel to the type-face and having walls reversely inclined longitudinally of the bar.

The justifier *b* (shown clearly in Figs. 1, 6, and 7) is of a width equal to that of the groove formed in the type, and consists of a bar 3, provided with two wedges 4 5, formed integral with the bar, as shown, or secured thereto in any suitable manner. The inclines of the wedge 4 extend in the same direction as the inclined surfaces 1 of the grooved type, and the angles of the wedge and inclined surface are preferably the same. The wedge 5 is inclined in the same direction as wedge 4 and engages the type at the outer end of the incline 2.

When the justifier is positioned between the type previous to justification, the wedge 4 is in the position shown in Fig. 1, with its inclined surfaces in contact with the inclined surfaces 1 of two adjacent type and separating the two type the required distance at one edge, while the wedge 5 passes between the type at the outer end and holds them at a corresponding distance apart. When the justifier is pressed forward for justification, the type are forced farther apart by the action of the wedge 4 on the inclined surfaces 1 of the type, and wedge 5 moves with the wedge 4 and acts as a follower, preserving the uniformity of distance between the two opposing surfaces or side faces of the type.

In Figs. 8 and 9 is shown, on an enlarged scale, a modified form of justifier, in which the bar 3 is in the form of a sleeve carrying the wedges 4 and 5 and adapted to slide upon the justifier-bar *d*. The sleeve 3 is provided with a pin 6 and the justifier-bar with a groove 7, the movement of the justifier on the justifier-bar thus being limited in both directions.

The construction shown in Fig. 3 is substantially the same as that shown in Figs. 1 and 2, except that the type are not carried by bars, but are of the form of ordinary type, except for the inclined surfaces 1 2. The justifiers *b* in this construction may be carried by bars, as in the construction shown in Figs. 1 and 2, but are shown as independent pieces, which may be dropped or otherwise introduced between the type in the process of composition.

In the construction shown in Figs. 4, 5, 13, and 14 the inclined surfaces 1 2 of the type extend longitudinally of the type or toward

the type-faces, instead of transversely, as in the preceding figures, and the justifier *b* moves toward the face of the type, instead of at right angles thereto. With my means for justifying, this movement of the justifier is practicable, for, as shown in Figs. 4 and 5, the justifier previous to justification need not extend outside the body of the type on the face side, so that on justification the justifiers still project but a very slight distance beyond the body and do not interfere with the impression. In this construction the justifiers *b* are preferably made the full width of the type, as shown in Figs. 13 and 14, the direction in which the inclined surfaces of the type extend, leaving the full body of the type for the support of the face and rendering the grooved construction unnecessary.

While I have used the word "type" to describe my invention, it will be understood that my invention is equally applicable to matrices, and I desire to be understood as using the word "type" to cover dies provided with either a raised or sunken character upon the face and independent of the use made of the line of composed and justified dies.

It is evident that many modifications may be made in the specific construction shown without departing from my invention.

I am aware that a type-body having parallel side faces has been provided with an inclined surface or depression in the side from end to end to operate with a justifying-wedge movable in a direction parallel with the face of the type, as shown in the application of W. S. Scudder, Serial No. 365,815, and therefore I do not lay broad claim to a type having an inclined justifying-surface to directly cooperate with a wedge. I believe myself to be the first, however, to construct a type with an inclined justifying-surface extending but partly across the type, so that the latter is left at full thickness at both edges to cooperate with a justifier having two wedges. I believe myself to be the first also to combine with a type having a correspondingly-inclined surface a justifying-wedge which moves in a direction at right angles to the face of the type, that is to say, toward and from the face. I also believe myself to be the first to provide a justifier having two wedge-surfaces, one in advance of the other, to act at the same time on a type.

What I claim is—

1. In combination with a justifier having two inclined surfaces, one in advance of the other, a type having parallel outer surfaces and recessed to cooperate with the justifier substantially as shown.

2. In combination with two type having inclined justifying-surfaces and a justifier adapted to move between said type and provided with a justifying-wedge engaging said surfaces and with a follower-wedge holding the type apart substantially as described.

3. In combination with a composed line of type, the wedge justifier adapted to slide for-

ward through the line in a direction perpendicular to the type-faces.

4. In combination a type having at its side a surface extending from the front backward at an inclination, in combination with a justifier having a correspondingly-inclined surface and moving in a direction perpendicular to the face of the type.

5. In combination with a composed line of type, a justifying device movable through the line in a direction perpendicular to the

face of the type and adapted to be protruded at the front substantially as described and shown.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

BEN L. FAIRCHILD.

Witnesses:

WM. E. STIGER,
PAUL GORHAM.