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JUSTIFIER FOR LINE CASTING MACHINES.

APPLICATION FILED OCT. 31, 1908.

955,764. **Patented Apr. 19, 1910.**

Fig. 1. Fig. 2. Fig. 3. Fig. 4. Fig. 5. Fig. 6. Fig. 7.

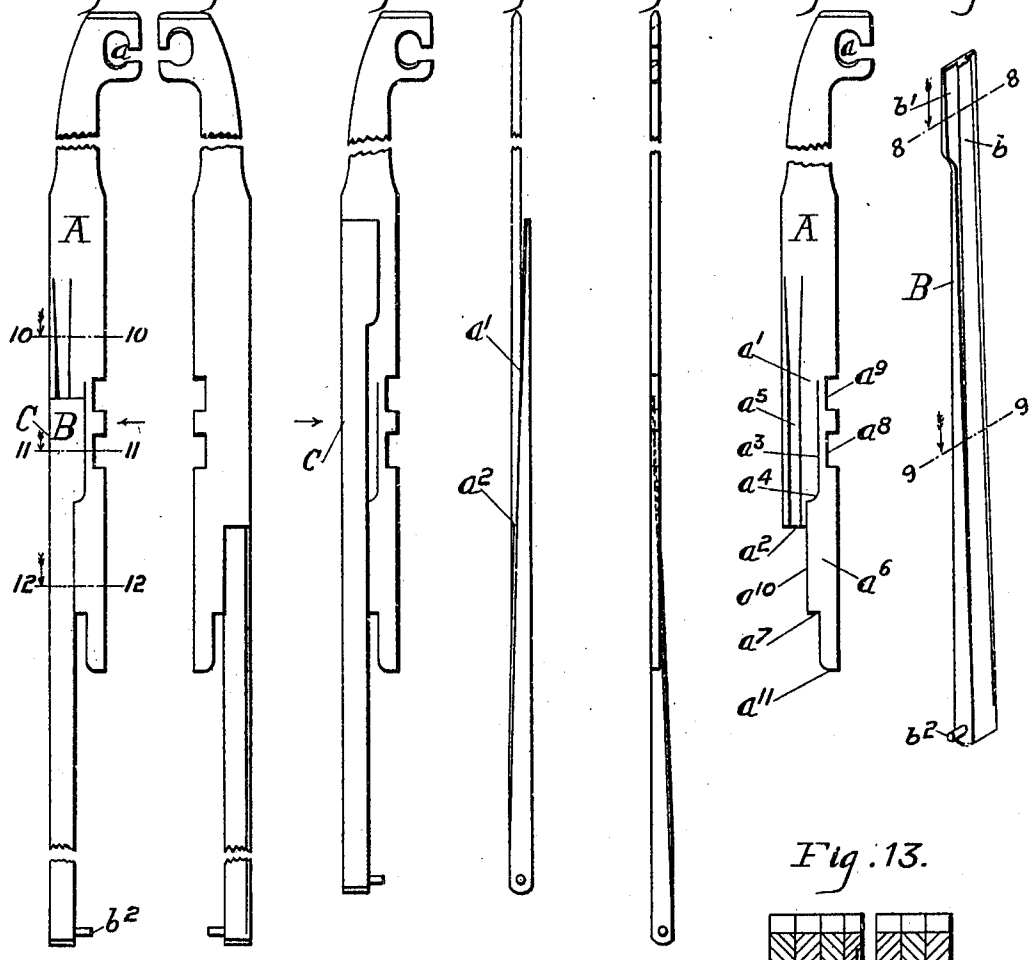


Fig. 13.

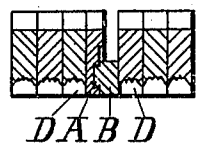
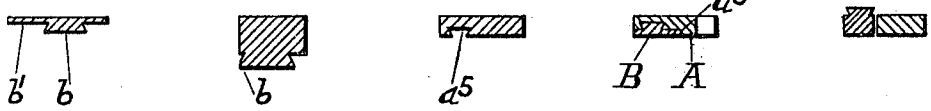


Fig. 8. Fig. 9. Fig. 10. Fig. 11. Fig. 12.



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JUSTIFIER FOR LINE-CASTING MACHINES.

955,764. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed October 31, 1908. Serial No. 460,518.

To all whom it may concern:

Be it known that I, ROBERT G. CLARK, of the borough of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Justifiers for Line-Casting Machines, of which the following is a specification.

My invention relates to an improved form of expansible spacer or justifier consisting of two oppositely tapered connected wedges and adapted more particularly for use in line-casting machines of the general organization shown in Letters Patent of the United States #679,481. In this class of machines, the justifiers and the coöperating matrices are suspended from and arranged to travel around and around on endless inclined guides or wires, and the conditions are such that the spacers must be made very narrow and slender. For this reason it has been found exceedingly difficult to give them strength sufficient to maintain the connection between the two parts and to prevent them from being distorted by the severe strains to which they are subjected.

The particular aim of my invention is to securely connect the two coöperating wedges and at the same time admit of the space being reduced to a minimum thickness at the casting point to prevent loss of space in the line without lessening the amount to which it can be expanded for justifying purposes.

In the drawings,—Figure 1 is a side elevation of my improved spacer with the parts in their initial or normal position. Fig. 2 is a view from the opposite side. Fig. 3 is a view similar to Fig. 1, but with the wedge driven upward to increase the thickness of the device at the casting point. Fig. 4 is a view looking toward the front or casting edge of the spacer, with the parts in the position shown in Fig. 3. Fig. 5 is a similar view from the opposite edge, with the parts in the position shown in Fig. 1. Fig. 6 is a side view of the upper member of the device, looking in the same direction as in Fig. 1. Fig. 7 is a perspective view of the lower member or wedge detached. Figs. 8 and 9 are cross-sections of the same on the lines 8—8 and 9—9, respectively. Figs. 10, 11 and 12 are cross-sections on the correspondingly numbered lines, Fig. 1. Fig. 13 is a cross-section at the casting point C, just above the line 11—11, Fig. 1, showing the spacer in the position which it would occupy in a line of matrices, with the lower or wedge member driven upward for justification purposes.

Referring to the drawings, A represents the upper and B the lower member, the two parts being permanently united side by side by a vertical sliding joint.

The member A is in the form of a slender shank or stem, having at the upper end an eye a, by which the device as a whole is suspended from the guide-wire on which it travels in the machine in a manner well understood by those skilled in the art. The lower end of the member A is beveled or cut away for a portion of its width beginning at the point a' and terminating at the horizontal end or shoulder a^2, the effect being to reduce the thickness of this portion toward the lower end, or in other words, to give it a wedge form in vertical section. On one side this recessing or cutting away is performed in such manner as to leave a vertical shoulder a^3 terminating at the lower end in a rounded or transverse shoulder a^4, the purpose of which will presently appear. In the middle of the tapered or wedge portion, is formed a vertical groove a^5, starting at the lower end a^2 and extending upward. The bottom surface of this groove is parallel with the inclined or tapered surface so that the groove gradually diminishes in depth toward the upper end where it finally vanishes through the side of the body portion. That side of the body which is not tapered, is left of full and uniform thickness and is extended downward below the shoulder a^2, forming a neck a^6, which is indented or shouldered at a^7 and formed with a vertical face or shoulder a^{10}. The non-tapered edge of the body is cut away to form the notches a^8 and a^9, which coöperate with members in the machine for retaining the spacer in its operative position.

Referring now to the second member or wedge B, it is tapered or reduced in thickness from the lower to the upper end, and is formed throughout its length on one side with a rib b of dovetail form in cross-section, this rib being of suitable size and shape to fit within the groove a^5 of the other member. This dove-tail groove extends substantially the entire length of the wedge, but is reduced

in thickness toward the lower end, until it finally vanishes, as shown in Fig. 7. At its upper end the member B has a lateral projection or extension b'.

The parts A and B are united by inserting the dove-tailed rib of the latter in a downward direction into the groove a^5, the parts being so fitted that the member B may descend freely by gravity until the lower end of its lip b' encounters the shoulder a^4, by which its movement is arrested. It is to be noted that this shoulder a^4 serves as a means of suspending or supporting the member B, so that it cannot escape accidentally from the carrying member A. The separation of the two parts in a vertical direction is prevented by a pin b^2, which is fixed in one side of the member B at the lower end, in such position that when the member B is carried upward to the extreme limit, this pin will encounter the lower shoulder a^7 of the body member.

The parts A and B have their inclined or tapered surfaces at the same angle, so that their outer or operative surfaces are at all times parallel.

When the device is in use, it is confined in the ordinary manner between matrices in the composed line, which line is presented to a slotted mold so that the slug or linotype may be cast therein against the edges of the matrices and spacers, which for the time being, close the face of the mold in a manner well understood. The casting operation against the edge of the justifiers occurs at or about the point C in the various figures.

In order that the thinnest spaces allowable may be used in the line, and in order that the space may be greatly increased when the line is of such character as to require great elongation to effect justification, the wedge B must vary in thickness at its opposite ends. Notwithstanding this requirement, it is necessary to keep the member B within a length from three to four inches. In this connection, the groove a^5, starting at the lower end and extending out through the side of the body, is of great importance. It admits of the wedge surfaces being given an extreme taper. It also admits of the wedge being given a very thin upper end and of this end being drawn down to operative position flush with the side of the upper member, as shown in Fig. 5, so that the total thickness of the space is equal only to that of the part a^6 of the upper member, while at the same time a long and secure connection is maintained between the two parts. As the wedge is carried upward, the upper end of its dovetailed rib rides out of the groove a^5 and extends beyond the side of the body, as shown in Fig. 5, thus permitting the wedge B to be carried upward past the side of the body portion until its lower and thick end is in operative position. This ability of the lower sliding member B to move upward and outward beyond the side of the member by which it is supported and carried, is a marked advantage. It permits a range of variation in thickness not otherwise obtainable.

The wedge B is made of a width greatly less than that of the body A, so that unlike the body, it cannot receive support at the rear edge from the parts which support the matrices. In this connection, the vertical shoulders a^3 and a^{10} on the body A, and the long groove a^5 containing the rib on the lower wedge, are of importance since they give a solid support to the rear edge of the member B, holding it forward firmly with its front edge flush with the edge of the member A and with the front faces of the adjacent matrices D, as shown in Fig. 13, when the composed line is confined between the mold and the pot, so that both will be supported tightly against the face of the mold.

Having thus described my invention, I claim and desire to secure by Letters Patent,—

1. In a justifier, the body A in one piece having its lower end laterally tapered and provided with a vanishing groove a^5 and shoulder a^4, in combination with the wedge B having a rib to fit said groove and a lip to encounter the shoulder; whereby the parts are strongly connected and the wedge supported edgewise by the body member.

2. The body A, having the tapered lower end, the groove open at its upper end, and the integral shoulder a^4, in combination with the narrow wedge B, having the integral rib adapted to enter the upper end of the groove, the lip b', and the applied stop b^2 to prevent the disconnection of the parts.

3. In a justifier, a body member provided at its upper end with means of suspension, and having its lower end tapered and vertically grooved on the side, in combination with a wedge member permanently connected by a sliding rib to the tapered and grooved side of the body, its upper end being adapted to pass upward and outward beyond the side of the body member and its lower end provided with a stop to prevent their separation, substantially as shown; whereby extreme expansion of the justifier is permitted.

4. The body member A having at the lower end the tapered portion a' and a^2 on one side, with a vertical dove-tail groove a^5 extended upward from the lower end and vanishing at its upper end through the side of the body, in combination with the oppositely tapered wedge B, having a rib seated in said groove, said parts formed and arranged to permit the upper end of the wedge to pass upward and outward beyond the side face of the body.

5. The member B for a justifier consisting of a wedge-shaped portion having a longitudinal vanishing dovetailed rib *b* and a laterally projecting lip or shoulder *b'*.

6. In a justifier, a body member provided with suspending means at its upper end, and having its lower end tapered, vertically grooved and provided with a shoulder, in combination with an oppositely tapered narrower wedge having a longitudinal vanishing rib adapted to be inserted in a downward direction into and through the groove in the body, said wedge being adapted to interlock with the stop shoulder on the body, and provided at the lower end with an applied stop to prevent its vertical separation from the body.

7. In a justifier, the one-piece body or shank A, having its lower end of full thickness to the lower extremity at one edge, and having its side face tapered and grooved at the opposite edge, in combination with the coöperating wedge B having a rib fitted in said groove and having its upper end adapted and arranged to slide downward and inward flush with the side of the body A.

In testimony whereof I hereunto set my hand this twenty-seventh day of October, 1908, in the presence of two attesting witnesses.

ROBERT G. CLARK.

Witnesses:
JOHN R. ROGERS,
LUCY E. SMITH.