P. W. DRUITT.

APPARATUS FOR REDUCING THE LENGTH OF CAST SPACES.

APPLICATION FILED DEC. 31, 1907.

961,690. Patented June 14, 1910.

2 SHEETS—SHEET 1.

Fig. 3.

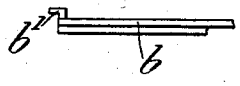


Fig. 4.

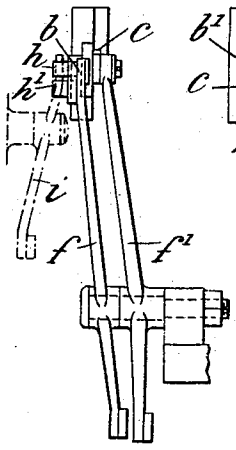


Fig. 2.

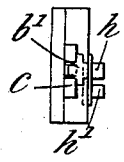
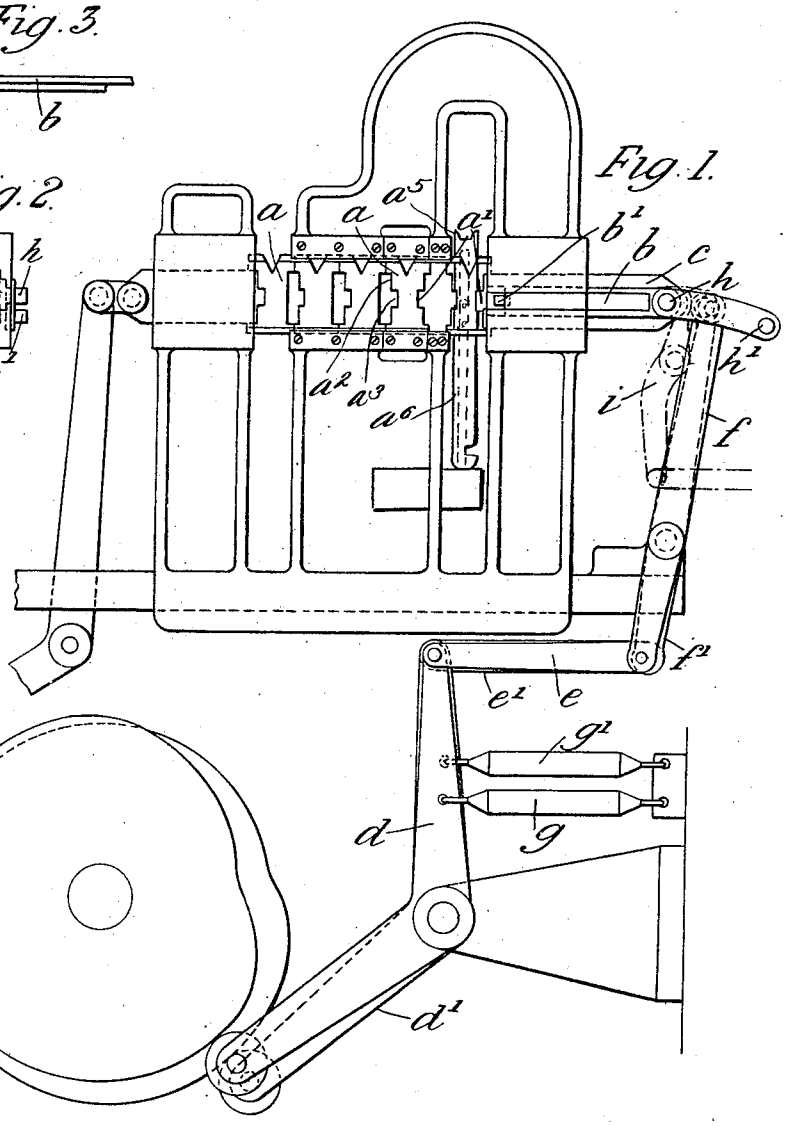


Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 5.

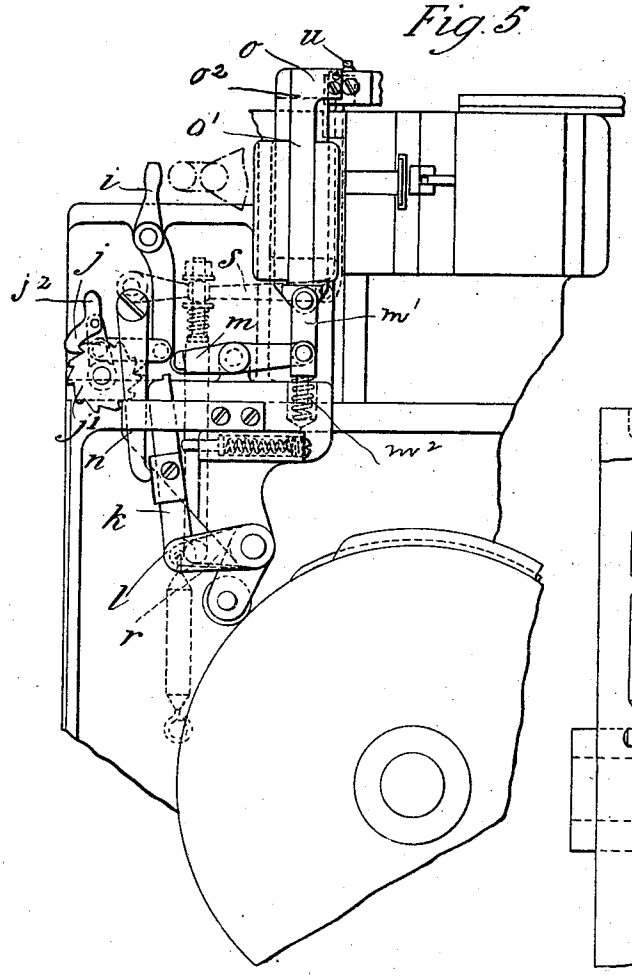
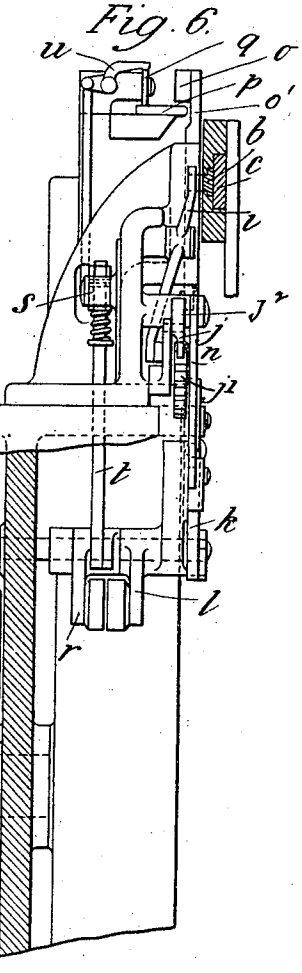


Fig. 6.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR REDUCING THE LENGTH OF CAST SPACES.

961,690. Specification of Letters Patent. Patented June 14, 1910.

Application filed December 31, 1907. Serial No. 408,781.

To all whom it may concern:

Be it known that I, PERCY WALTER DRUITT, a subject of the King of Great Britain, residing at 23 St. Stephen's avenue, Shepherds Bush, in the county of London, England, engineer, have invented certain new and useful Improvements in Apparatus for Reducing the Length of Cast Spaces, of which the following is a specification.

Hitherto it has been usual in apparatus for composing, casting, and setting type to cast the spaces of the same length as the type less the depth of strike, so that when the type is set up in the printing form a very slight longitudinal displacement renders the spaces liable to receive ink and make an impression on the paper in printing, and it has been proposed to obviate this by casting the spaces shorter than the type by means of a differential body slide.

According to the present invention the spaces are cast of full length and means are provided for subsequently breaking off their ends so as to reduce their length as much as may be necessary, such means being preferably actuated by mechanism which is automatically brought into operation by means of the space matrices themselves. The means by which this result is produced are illustrated in one form in the accompanying drawings as applied to composing and casting apparatus of the kind described in specifications to United States Patents 675827 and 675829, Figure 1 showing in elevation what may be called the controlling means and Figs. 2, 3 and 4 other elevational views of some of the details thereof; while Figs. 5 and 6 are respectively a front elevation and an end elevation partly in section of what may be called the operative means.

With the object of controlling the operative mechanism by means of the space matrices themselves, normal space matrices such as a, or the carrier parts a^5 of justifying spaces a^6, each of which spaces or parts are provided with shouldered notches a^2 as and for the purpose described in U. S. Patent No. 675,827 above referred to are formed with an additional notch a' opposite the usual notch a^3 that controls the set width of the casting molds and in coöperative relation with the nose b' of a slide b which is mounted on the pusher slide c for separating the matrices. Separate mechanisms such as the spring-urged and cam-retracted levers d, d' are connected by links e, e' with levers f, f' coupled with and actuating the pusher c and the supplemental slide b, which may be called the feeler slide. The two slides move forward as one, however, under the action of the springs g, g' unless and until a space matrix or justifying space is presented, in which case the notch a' allows the feeler slide to be advanced farther than the pusher thereby bringing the rear pin h' of a pair of projecting pins h h' carried by the feeler slide into engagement with one arm of a lever i mounted between the said pins, and displacing the said lever through a definite distance. The lever i is linked to the carrier of a pawl j (Figs. 5 and 6), which by the movement of the lever is advanced one tooth on a ratchet wheel j' so that when the lever i is retracted by the pin h on the return stroke of the pusher and feeler slides the ratchet wheel is rotated through an angle corresponding to one tooth. This movement of the ratchet wheel causes the end of a spring-returned arm k which is pivoted at its other end to a cam driven lever l to be projected into engagement with one end of a lever m by the nose of a tappet or pivoted arm n which carries a pin riding on the teeth of the ratchet wheel. The other end of the lever m is linked by means of a link m', in engagement with a buffer spring m^2, and slide o' with a guillotine or hammer o so that when arm k is in engagement with lever m which is actuated by the cam lever l the hammer o is caused to descend and to strike and break off the end of the space p which was cast and which is now in the proper position for this purpose. It will be obvious that the hammer will not be actuated except as consequent to the presentation of a space matrix with the additional notch as before described, but means may be provided whereby the operative mechanism can be rendered inoperative when desired even on the presentation of notched space matrices, as for example by providing the pawl j with a weighted handle j^2 by which it can be thrown and kept out of operative relation with the ratchet.

To prevent tilting of the space p at the moment of the blow from the hammer, a spring bead q which is attached to the delivery slide, is actuated by suitable linkage and coöperates with the notch in the space to guide its delivery, is at the proper moment pressed against the space to hold it firmly. This is effected by means of an-

other cam driven lever r operated from the same cam shaft as the lever l and connected with another lever s through a link t which is spring-cushioned or elastic to enable the mechanism to deal with type of different thickness. The lever s is linked with a bell crank lever u which is thereby oscillated to press on the bead q at the proper moment and so prevent tilting of the space p under the blow of the hammer.

Having thus described the nature of the said invention and the best means I know of carrying the same into practical effect, I claim:—

1. In a type casting and composing apparatus, in combination with a series of space matrices and a coöperating slide, means for reducing the length of the cast spaces automatically controlled by the cooperation of the slide with one of the said matrices, substantially as described.

2. In type casting and composing apparatus, a device for producing spaces of reduced length comprising a hammer automatically brought into operation to reduce the length of the cast space and means for preventing tilting of said space under the hammer.

3. In type casting and composing apparatus, in combination with space matrices, a device for reducing the length of the spaces cast therein comprising a pusher slide, a feeler slide mounted on the pusher slide and adapted to coöperate with the space matrices, a guillotine hammer, cam-driven mechanism actuating said hammer to reduce the length of the cast spaces, and means set by the coöperation of the feeler slide and space matrices to effect the coupling of the hammer with its actuating mechanism on the withdrawal of the pusher and feeler slides, substantially as described.

4. In type casting and composing apparatus, in combination with a device for reducing the length of spaces cast therein and comprising a pusher slide, a feeler slide mounted on the pusher slide, a hammer and mechanism adapted to actuate the hammer to reduce the length of the spaces, a space matrix formed with a set notch and with an additional notch opposite the set notch, said additional notch being adapted to cooperate with said feeler slide to set the said mechanism to actuate the hammer on the withdrawal of the feeler slide from the additional notch, substantially as described.

5. In type casting and composing apparatus, in combination with a device for reducing the length of justifying spaces cast therein and comprising a pusher slide, a feeler slide mounted on the pusher slide, a hammer and mechanism adapted to actuate the hammer to reduce the length of said spaces, a justifying space matrix, a carrier part connected with the said matrix and provided with a set notch and with an additional notch opposite the set notch, said additional notch being adapted to coöperate with said feeler slide to set the said mechanism to actuate the hammer on the withdrawal of the feeler slide from the additional notch, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PERCY WALTER DRUITT.

Witnesses:
JOSEPH MILLARD,
WALTER J. SKERTEN.