

989,997.

2 SHEETS—SHEET 1.



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# UNITED STATES PATENT OFFICE.

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## TYPE-CASTING MACHINE.

989,997.

Specification of Letters Patent.

Patented Apr. 18, 1911.

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*To all whom it may concern:*

Be it known that I, ROBERT PATON, a citizen of the United States, residing at Narberth, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Type-Casting Machines, of which the following is a specification.

The object of my said invention is to provide a clamp for holding type in an automatic type casting machine during the process of finishing the same, which will be efficient and can be used without danger of breaking during the operation, all as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings which are made a part hereof and on which similar reference characters indicate similar parts, Figure 1 is a top or plan view of an automatic type casting machine embodying my said invention, Fig. 2 a side elevation of the same, Fig. 3 a cross section as seen when looking in the direction indicated by the arrows from the dotted line 3—3 in Fig. 1, Fig. 4 a detail side elevation on an enlarged scale of the parts to which the invention especially relates, and Fig. 5 a front elevation of the same.

In said drawings the portions marked A represent the bed or frame, B the type carrier, and C a spring mounted plunger carrying the type holding device, or clamp.

The invention relating solely to the type holding device, or clamp, the other parts of the machine shown, being of a well known construction and operation, will not be described except incidentally in describing the invention.

The plunger C is mounted in a vertical socket in a bracket  $c$  secured upon and adapted to move with the type carrier B. A spring  $c'$  interposed between a head  $c^2$  on the top end of the plunger and the upper surface of the bracket operates to hold said plunger outward when released from contact with a fixed track or bearing  $c^3$  on a standard  $C^2$  which is mounted on bed or frame A. The type holding device consists of two plates 10 and 11 hinged together by a pivot 12, the plate 10 being rigidly secured in a recess in the lower end of plunger C by a set screw 13 and the lower plate 11 being held back against the front end of type carrier B by a leaf spring 14 the lower end

of which extends below the lower edge of plate 11 and is adapted to bear against the edge of the type presented to it.

In operation the type carrier B is reciprocated back and forth by a cam 20 on the driving shaft 21 of the machine, said cam engaging with an anti-friction roller  $b$  on the rear end of said type carrier in the usual manner. The mold for casting the body of the type is formed in the bed A its lower side being formed by a vertically reciprocating plunger 22 and its top side by the lower face of the type carrier bar B. When the parts are in the position shown in Fig. 4, the mold for the body of the type is formed as shown at M. The matrix for forming the type face is not shown but will be fitted to the outer end of the mold in the usual manner. The type is cast by the metal being forced from the metal pot 25 by the plunger 26 operated by a lever 27 and cam 28 on the driving shaft 21 in the usual manner. A spring  $s$  is shown for holding the outer end of lever 27 to said cam. As each type is cast the cam 29 which operates the plunger 22 through the lever 30 throws said plunger 22 upward and in the meantime cam 20 draws the type carrier bar B back to the position shown in Fig. 2. The plunger 22 then carries the type which has been cast, indicated by H in Fig. 2, to a position on a level with the top face of bed A when cam 20 forces type carrier B forward, carrying with it the type which has just been cast, and forces said type between the trimming knives 31 and 32 which dress off the end of the type adjacent to the type face "set-wise" of the type. As the type carrier B goes forward the plunger 22 returns to the position shown in Fig. 1, the mold is closed and the operation of casting another type proceeds.

During the time the cast is being made, type carrier B continues its forward movement, the head  $c^2$  of the plunger C passing under the track  $c^3$  on the standard  $C^2$ , which serves to hold the lower end of plate 11 firmly on the side of the type and to clamp it while it is being forced between the trimming knives 31 and 32. As soon as type carrier B reaches the position shown in Fig. 4, a cam 33 on shaft 21 operates through a lever 34 to depress a plunger 35 on the front end of said lever, which strikes the top end of plunger C and forces it downwardly car-



rying the type H into the vertical race shown in Fig. 1, and forcing the line of type therein down the width or "set" of one type, carrying the same between the trimming knives 36 and 37, which trim the ends of the type adjacent to its face along its top and bottom edges, and, also, by means of another trimming knife 38 arranged at the rear of the type race, cuts a groove, or "nick", in the base of the type. As soon as the plunger, C, with the hinged plate 11 on its lower end, has been forced below the top face of the bed the thickness of one type, said plunger is again allowed to rise, under the action of spring  $c'$ , and the type carrier B starts back to pick up another type. When plunger 35, and plunger C return perfectly under the action of springs  $c'$  and  $s'$  the plates 11 may clear the top face of the bed on the start of type carrier B on its return movement, but at times the action of said springs may be slow and said plate not be elevated sufficiently to clear said bed when the return movement begins. At such times the plate 11 will swing outward on its pivot 12 being allowed to do so by the yielding of spring 14 and thus enable said return movement to be accomplished without danger of breaking the parts or interfering with the operation. As is well understood, the parts must all be accurately adjusted in order to bring the type to the exact position required to trim and carry it exact distances and to secure and maintain exact dimensions and it is essential that no play or lost motion be allowed. By this arrangement, such exact adjustments and positive movements can be secured and plate 11 be either raised to clear the face of the bed, or allowed to yield, as the carrier B starts on its return movement, thus avoiding danger of breaking the machine or interruption to the work, while maintaining its accurate character.

I have shown a spring  $s$  for returning lever 27, a spring  $s'$  for returning lever 34, and a spring  $s^2$  for returning lever 30. It will be readily understood, of course, that grooved cams may be used to operate the levers in both directions, if preferred, and that

other changes in the details of the construction of the machine will in no way affect the operation or scope of my invention.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

1. A type holding device for the type carrier of a type casting machine comprising a reciprocally mounted spring plunger carrying a flexible clamping jaw adapted to hold the type, substantially as set forth.

2. A type holding device for type casting machines comprising a spring plunger mounted on the type carrier and arranged to clamp the type to said type carrier the lower end of said clamping device being yieldingly mounted, substantially as set forth.

3. A type holding device for type casting machines comprising a type carrier, a spring mounted plunger, means for operating said spring mounted plunger, a hinged clamping plate on the lower end of said plunger, and a spring for holding said clamping plate in a normal position, said spring extending below the lower edge of said clamping plate to impinge against the edge of the type, substantially as set forth.

4. In a type casting machine the combination of the type carrier, a type holder mounted thereon comprising a movable part, means for moving said part, a clamping plate yieldingly carried by said part, and means for holding said clamping plate in normal position when in operation, substantially as set forth.

5. A type casting machine comprising a type carrier and dressing device, and a type holder on said carrier mounted to move vertically and swing outwardly, and means for operating it, substantially as set forth.

In witness whereof, I, have hereunto set my hand and seal at Narberth, Pennsylvania this 24th day of January, A. D. nineteen hundred and ten.

ROBERT PATON. [L. s.]

Witnesses:

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