

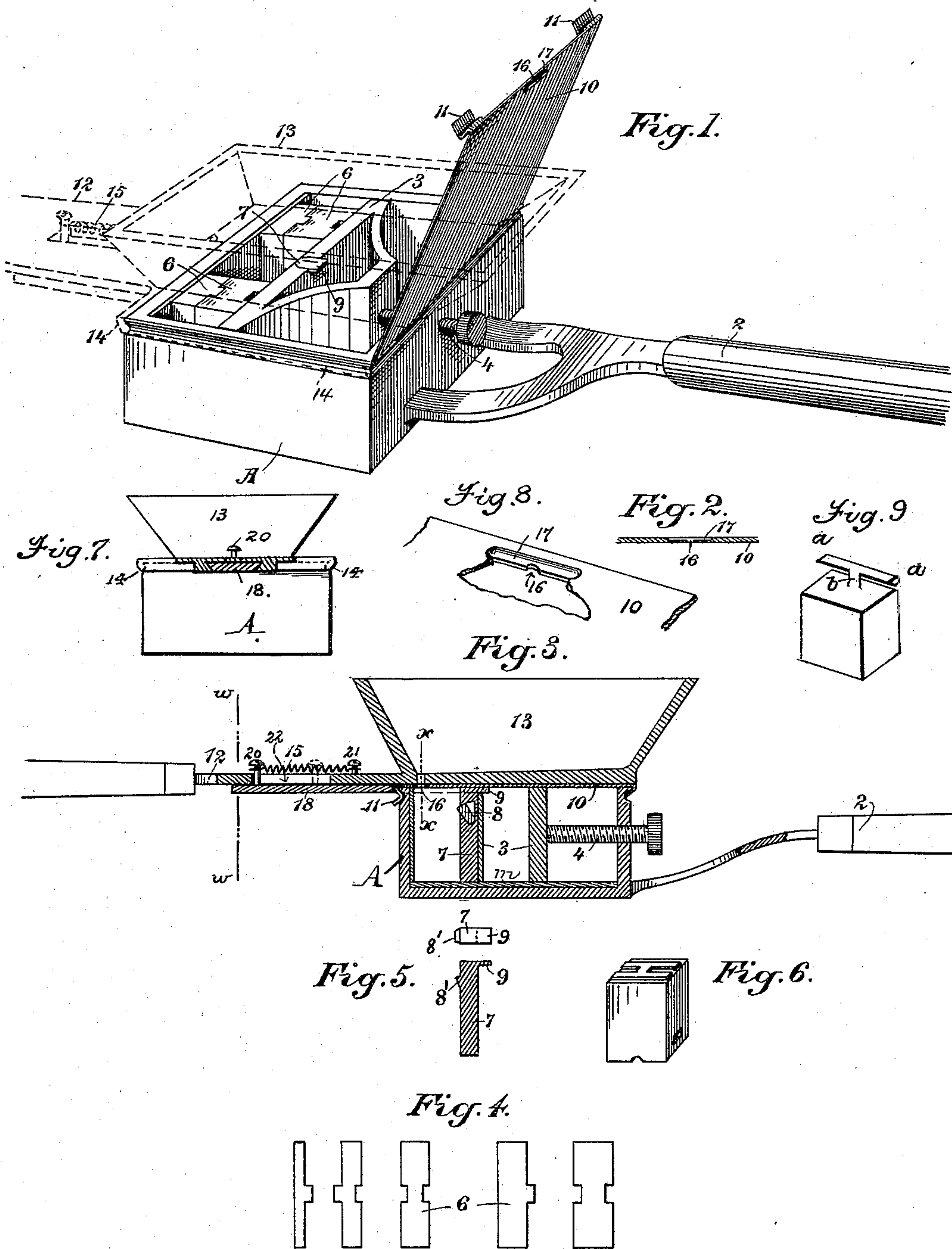
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Patented Nov. 27, 1900.

W. H. B. MILLER.  
REPRODUCING TYPE OR THE LIKE.

(Application filed May 15, 1900.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## REPRODUCING TYPE OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 662,573, dated November 27, 1900.

Application filed May 15, 1900. Serial No. 16,757. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER H. B. MILLER, a citizen of Victoria, residing at Oakland, county of Alameda, State of California, have  
5 invented an Improvement in Reproducing Type or the Like; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a means for repro-  
10 ducing metal type, both face and body, from any corresponding type and at a single operation without the use of a pattern or need for finishing processes, and which I term a "Duplitype."

15 It consists of a metal box, with means for producing a mold of the type and the form of the body and a device by which molten metal can afterward be poured in to form a complete copy of the type and body.

20 Figure 1 is a view of my box. Fig. 2 is a section through the cover on line *xx* of Fig. 3. Fig. 3 is a longitudinal central section through the apparatus. Fig. 4 is a view of the combination-blocks. Fig. 5 shows the  
25 slide with a fixed lug. Fig. 6 is a view of a type when completed. Fig. 7 is a reduced cross-section on the line *ww* of Fig. 3. Fig. 8 is a detail showing a portion of the cap 10 with its countersunk recess 17 and hole 16.  
30 Fig. 9 is a detail to be referred to.

The box A is made of any suitable or desired size, as two by three inches or other suitable size. This box may have a handle, as shown at 2, for convenience. The depth of  
35 the box is such that when the type to be molded is placed in it, with the molding material in the bottom, the end of the type will project slightly above the edges of the box, as hereinafter described. Within the box is  
40 a gage 3, which extends from one end to the other and the full depth of the box less the thickness of the mold material, and it is actuated by a screw 4 on the outside, by which it can be advanced and adjusted to the type  
45 which forms the pattern. In the bottom of the box is placed the molding material *m*, which is dry blotting-paper enameled on one side, or some equivalent therefor. I have found this substance to be very satisfactory  
50 for the purpose, a sufficient thickness being

placed in the bottom of the box. A double set of movable metal blocks 6 are employed to fill the space upon each side of the mold-cavity and between the gage and the side of the box. These metal blocks are made of various type-standard thicknesses and have corresponding tongues and grooves, so that any two or more of them may be put together to form a standard combination and fill the space upon each side of any standard type  
55 when the latter has been adjusted.

The operation of this part will be as follows: The type which is to be reproduced having been selected is placed between the gage 3 and the side of the box. The gage is set up  
60 against the side of the type, and the space between the edges of the type and the ends of the box is filled by the use of the proper combination of the blocks 6, so that the type is nicely centered, and the gage being thus centered, with the face resting upon the enameled surface which is to form the mold there-  
65 for, a sufficient pressure is brought upon the projecting end of the type to force it down until it is approximately level with the upper edges of the box. This will produce a sufficient impression in the molding material beneath for the desired purpose. In order to withdraw the type without disarranging the gage and the blocks 6, a vertically-movable  
70 slide 7 may be dovetailed into the face of the adjustable gage, extending from top to bottom, and it may have a small pivoted tiltable lug 8, fitted near the bottom, so as to stand vertically in a chamber or socket in the slide  
75 7, so that when the mold is being made this lug lies flush with the face of the slide.

The upper end of the slide 7 has a projecting lip, as at 9, which enables the operator to lift the slide. As the slide 7 is raised the lug  
80 8 engages the nick in the type and withdraws it from the box without moving or disarranging the gage and side blocks.

In place of the movable lug the slide 7 may have a fixed lug 8', in which case the slide would  
85 be removed before the mold is made. After the type is removed the slide is returned to its place and the lug falling outwardly again is in position to form a nick in the type which would be subsequently cast, and it also serves  
90 100



to lift the cast out, so that any number of reproductions of a type may be made without disarranging the mold.

Upon the top of the box A is fitted an aluminium cap 10. It may be formed with intumed flanges to slip over the box fitting corresponding grooves in the upper edge, as in Fig. 3, or it may be hinged to one side of the box and have elastic tongues 11 upon the opposite edge, which will spring over the edge of the box, engaging a groove or channel therein to retain this cap in its closed position. The cast may be withdrawn without disarranging the mold by simply raising this cap. This completes the mold for the type. Through this cap at a point in line with the mold beneath is made a hole 16, having an elongated countersunk recess 17, extending upon each side of the hole along the top and in the bottom. This is for the purpose of providing a leverage to break off the gate, which is done by a slight twist, the countersink providing the leverage for that purpose.

When the melting-box has been removed, the casting would appear as in Fig. 9, the wings *a a* resting in recess 17 and stem *b* in hole 16 of the cap 10, which latter is hinged, as shown in Fig. 1. The movement of opening or lifting this lid or cap 10 causes the stem *b* to be broken off, leaving the type end practically clean and free. The small diameter of 16 and the brittleness of the metal permits *b* to break readily. Thus the object of the recess 17 is seen, for without the wings *a a* the stem *b* would be left protruding from the casting.

The melting-box 13 has a projecting flange on each side, as shown at 14, with intumed edges, which allow it to be slipped into corresponding grooves along the sides of the box after the cap 10 has been closed, and it thus fits snugly upon the top of the cap. There is a hole made in the bottom of this melting-box coincident with the hole 16 in the cap 10, and this is closed by a dovetailed slide 18, movable along the lower side of the extension 12 and normally drawn forward by a spring 15, so as to cover the hole in the bottom of the melting-box. The metal, which may have bismuth as a part ingredient for making the type metal or which may be any ordinary type or linotype metal is placed in this box and held over a flame until it is melted and several degrees hotter than the melting-point, and the slide portion 14 being pushed over the top of the cap 10 the sliding gate will come in contact with the edge of the cap and will be arrested while the melting-box is pushed along until the hole in it coincides with the hole 16 in the cap. This allows the molten metal to at once flow in and fill the mold, and after waiting an instant for the

metal to cool, the melting-box having been removed, the cap 10 can be opened, the cast can be lifted out, and another can be made.

One object of this invention is to provide a simple, inexpensive, and rapid means for reproducing certain type, of which there are usually but a limited number in any font as received from the type-foundry, or replacing lost or injured letters.

By making the molds in the dry enameled blotting-paper and the use of the devices herein shown I am enabled to perfectly reproduce the desired type with a sufficient depth of the face for all practical purposes. It will also provide a rapid means for reproducing a line of type or series of lines or small illustrations and ornaments when duplicates are desired.

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

1. The combination with a mold-box, means for reproducing type therein, spacing-blocks within said box and a movable side of the box capable of adjustment against the blocks, of means for removing the type and forming a nick in the cast including a device movably fitted to said movable side.

2. A device for producing complete copies of type and the like consisting of a mold-box having a movable side adjustable to fit opposite sides of the type, spacing-blocks fitting the space between said side and the fixed side of the box whereby an exact fitting of the mold to the type may be obtained, a dry impressionable surface forming the bottom of the mold adapted to receive and retain the impression of the face of the type when the latter is forced therein after being fitted to the mold, and a means for removing the type and forming a nick in the cast consisting of a slidable plate fitting in the side of the mold.

3. A device for casting complete copies of type and the like, consisting of a mold-box having a movable side between which and the fixed side of the box the type may be fitted, spacing-blocks adjustable in the channel thus formed to fit upon each side of the type, a bottom formed of enameled-surface blotting-paper, in which an impression of the type-face may be made by a blow or pressure, a cap fitting the top of said mold having an opening, a melting-pot and guides therefor, and a gate movable under the opening and means for opening said gate in unison with its adjustment to the molding-box.

In witness whereof I have hereunto set my hand.

WALTER H. B. MILLER.

Witnesses:

S. H. NOURSE,

JESSIE C. BRODIE.