(No Model.) 2 Sheets—Sheet 1.

I. BAAS, Jr.

TYPE MOLD.

No. 565,661. Patented Aug. 11, 1896.

Fig. 1.

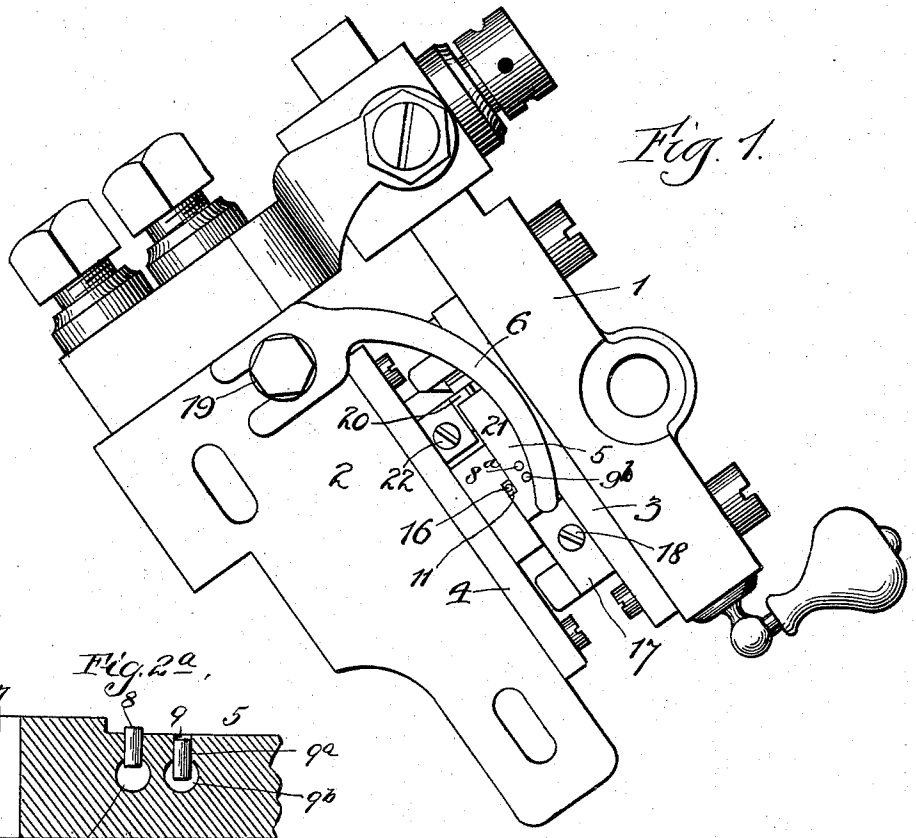


Fig. 2a.

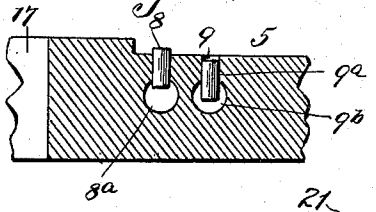


Fig. 2.

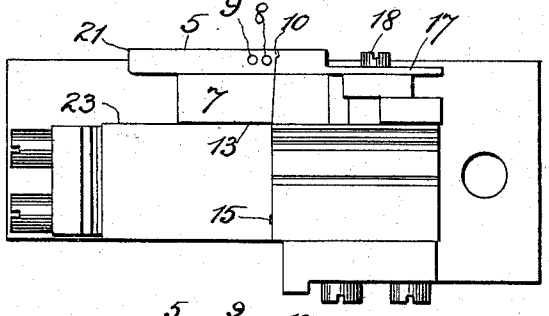
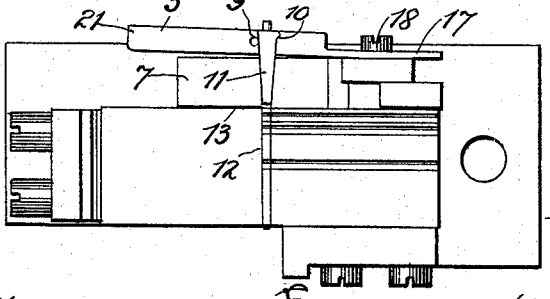


Fig. 3.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

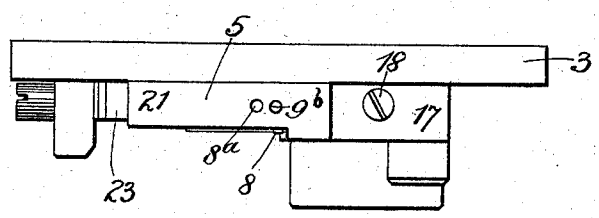


Fig. 5.

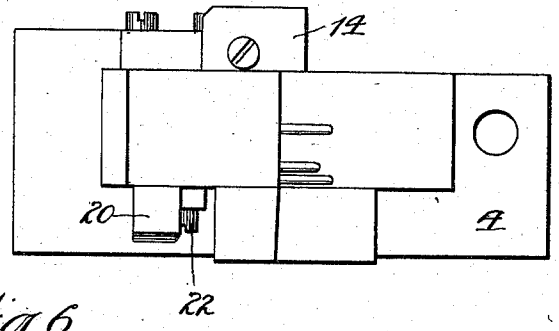


Fig. 6.

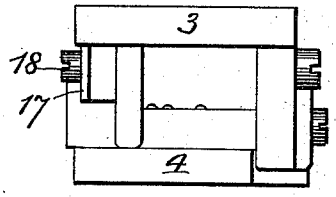


Fig. 7.

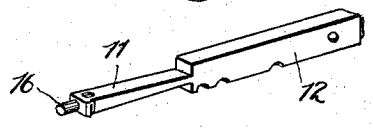


Fig. 8.

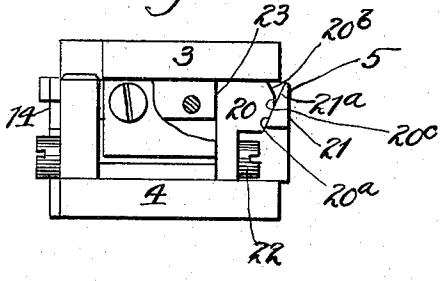
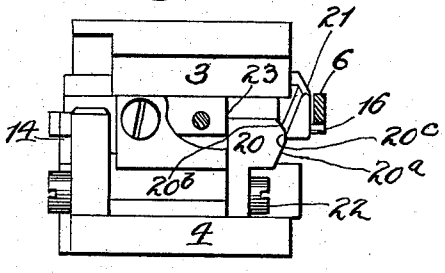


Fig. 9.



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UNITED STATES PATENT OFFICE.

ISAAC BAAS, JR., OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE AMERICAN TYPE FOUNDER'S COMPANY, OF NEW JERSEY.

TYPE-MOLD.

SPECIFICATION forming part of Letters Patent No. 565,661, dated August 11, 1896.

Application filed December 26, 1894. Serial No. 532,927. (No model.)

To all whom it may concern:

Be it known that I, ISAAC BAAS, Jr., a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Type-Molds, of which the following is a full, clear, and exact specification.

My invention relates to molds for casting type, and the improvements have more especial reference to the means for severing from the type-body and properly discharging from the mold that portion of the casting known in the art as the "jet." Various devices have been resorted to for accomplishing these ends; and my invention relates more particularly to that class of the same in which the breaking of the jet is effected by endwise or tensile strain on the jet, this being the most approved method. Heretofore this principle of breaking the jet has been carried out by the action of inclines or wedges acting directly upon complementary inclines formed on the jet by the said first inclines, the theory being that the elasticity of the metal will cause the jet to shoot out of the jet-mold when the metal is suddenly sundered by the action of the inclines pulling the jet away from the type-body; but in practice it is found that this method of producing the endwise or tensile pull is objectionable, as the jet cannot be managed to prevent damage, owing to its irregular departure from the mold, and for the further reason that in many instances when the mold becomes hot the elasticity of the metal, it would seem, is not sufficient to throw the jet, and it sticks in the mold.

The primary object of my invention, therefore, is to retain the entire casting in one member of the mold when the mold opens, and to impart the end pull on the jet for severing it by devices carried by the same member.

Another object of my invention is to sever the jet by giving it a direct endwise pull and to retain it in the mold until removed by positive means.

Another object of my invention is to provide jet-breaking mechanism which will permit the mold to retain possession of the jet until ready to be discharged, and will enable the employment of a fixed discharger for discharging the jet; and a further object is to cause a movable section of one member of the mold to grip the jet and pull it away from the body of the casting by the action of opening the mold.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a side view of a pair of mold-blocks or jaws provided with a mold constructed according to my invention. Fig. 2 is a plan or face view of the upper member of the mold drawn to an enlarged scale. Fig. 2^a is a vertical longitudinal section of the portion 5, enlarged. Fig. 3 is a similar view showing a type-casting therein with the jet broken off. Fig. 4 is a side elevation of the upper member of the mold, looking into the mouth of the jet-mold. Fig. 5 is a face view of the lower member of the mold. Fig. 6 is an end view of the mold, looking from the right in Fig. 1, and showing the members together or closed. Fig. 7 is a perspective view of the entire casting as produced by my improved mold. Fig. 8 is an end view of the mold, looking from the left in Fig. 1, also showing the mold members closed; and Fig. 9 is a view similar to Fig. 8, showing the members of the mold partly separated.

1 and 2 are the hinged or separable mold blocks or jaws to which the upper and lower separable mold members 3 4, respectively, are suitably secured, the general form of all of which parts may be of the usual or any suitable construction.

In the example of mold to which my improvements are applied (shown in the drawings) the upper member 3 of the mold is the movable one, and this member is provided with means for retaining possession of the entire type-casting when the mold opens; but it will, nevertheless, be understood that this arrangement of the mold members may be re-

versed without departing from the spirit or principle of my invention.

In carrying out my invention I provide the mold member 3 with an independently-movable section 5, which has means for gripping a part of the type-casting, and I provide a projection or other means for shifting this movable section when the mold opens, so as to produce strain upon and break off the jet. The jet is then dislodged by coming in contact with or being struck by a discharger 6.

The movable section 5 is best arranged at the end of the jet-mold 7 or so formed as to constitute a part thereof, and the devices for gripping the jet and detaining it in the mold are located entirely on the section 5, and they may consist of any of the well-known or suitable irregularities, such as the lug 8, indentation 9, and notch or tooth 10, the latter, however, being formed with a comparatively sharp angle, as shown in Figs. 2 and 3, so as to cling to the jet. The lug or pin 8 in the section 5 may be provided in any suitable way. As shown in the drawings, it is inserted in such section, and its inner or inserted end projects into a bore or cavity 8^a, extending through the face of the section 5, whereby the extent of protrusion of the pin or lug 8 may be varied by the insertion of a pin-wrench or other pointed instrument into the cavity 8^a and pushing the pin 8 outward. The cavity 9 is the result of depressing the companion lug or pin 9^a below the surface of the section 5, the inner end of pin 9^a being projected into a bore 9^b in a manner similar to the pin 8. The pin 9^a is only useful when the jet-casting is so large as to cover it. As shown in the drawings, the jet-casting does not cover the pin 9^a, and hence the pin is depressed below the surface of the bore 5 to permit the face of the jet-mold of the other member to come flat against the section 5. When casting large type, the pin 9^a should be raised like the pin 8, or if desired it may be depressed to form a cavity for the engagement of the metal; but the former method is of course preferable. It will thus be seen that when outward movement is imparted to the section 5 while the type-casting shown in Fig. 7 is in one member of the mold the jet portion 11 will be given an axial or endwise pull, while the type-body 12 remains immovable and rigid against the shoulder 13 of the mold and the jet will consequently part from the body. There is then no positive detention of the body and it may drop from the mold; but it is preferable to detain it until dislodged by the usual stool 14, and to this end the mold member 3 is provided with the usual detaining device or lug 15. The jet 11 is of course detained in the jet-mold by the notch 10 and lug 8, and it remains so until the member 3 rises far enough to bring the sprue 16 against the discharger 6, which positively knocks it out, whence it falls in a regular manner and may be taken care of.

The movable section 5 may be conveniently held in place and at the same time returned to its normal position by means of a spring 17, formed on or otherwise secured to it and attached to the mold member 3 by suitable means, such as the screw 18, the spring and the section 5 being held from rotation by fitting squarely against the under side of the main plate of the mold member 3.

The discharger 6 may consist of any suitable arm curved or projected over the sprue 16 and standing in a plane immediately adjacent to the outer face of the jet-mold and the section 5 thereof, so as not to be in the way of the nipple-plate, but will project across the path of the sprue as the upper mold member rises. The discharger is preferably adjustably secured to the fixed jaw or block 2 by a set-screw 19.

The projection or lug before alluded to for imparting independent movement to the section 5 preferably consists of a cam or lug 20, which is fixed with relation to the section 5 and whose face is adapted to engage with a projecting end 21 of the section 5, at least one of the engaging faces of these parts being beveled or inclined so that their relative movement will force the movable section 5 outward as the mold members separate. In order that the friction may be reduced to the minimum, however, I prefer to bevel or incline the engaging faces of both of these parts. When viewed as in Figs. 8 and 9, the projecting end 21 of the section 5 has its upper inner corner beveled off, as shown at 21^a, while the lug 20 has its lower outer as well as its upper outer corner beveled, as shown at 20^a and 20^b, the former of which is for forcing the projection 21 outward to make it pass over the lug in returning to its normal position, as shown in Fig. 8. In order that these inclined surfaces may retain the section 5 in its extreme outward position throughout the entire time that it takes for the motion of the upper member of the mold with relation to the discharger 6 to dislodge the jet, I form the outer side of the lug 20 with a flat or inactive portion 20^c, which will hold the projection 21 at its extreme outer movement, while such projection 21 at the same time rises with the upper member of the mold and remains in its extreme outer position until the jet has been completely dislodged.

The beveled lug 20 is preferably secured to the lower member of the mold or to some other fixed part, but, as shown in the drawings, to such lower member by means of a screw 22, and when the mold members come together it is adapted to project between the shoulder 23 and the extension 21. The effect of the inclines on the extension 21 and the lug 20 is a slight tendency to shift the mold members transversely with reference to each other, and in order that the upper mold members may not shift to one side when the extension 21 strikes the bevel 20^b, I so proportion the height of the lug 20 with reference to the shoulder 23 that the inner edge of such

lug will project past the lower edge of the shoulder 23 before the extension 21 comes into engagement with the bevel 20^b, so that any possibility of the upper member of the mold shifting to the right and causing the shoulder 23 to hang on the lug 20 will be absolutely avoided.

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

1. A separable-member type-mold having one of its members provided with means for causing the entire type-casting to cling thereto when the members are open and said member being also provided with an independently-movable portion constructed to grip a part of the type-casting, and means for moving said independently-movable portion lengthwise of the type-casting, substantially as set forth.

2. A separable-member type-mold having one-half of its jet-mold divided into a number of independent sections constituting the wall of the jet-mold cavity, and one of said sections having means for detaining the jet and means for moving one of said sections independently of the other, substantially as set forth.

3. A separable-member type-mold having one-half of its jet-mold divided into a number of independent sections constituting the wall of the jet-mold cavity and one of said sections having means for detaining the jet, means for moving one of said sections independently of the other, and means for yieldingly pressing said sections together, substantially as set forth.

4. A type-mold having in combination separable members, means carried by one of said members for retaining both the body and the jet of the casting, and means for imparting an endwise pull to said jet while so detained, substantially as set forth.

5. A type-mold having in combination separable members, means carried by one of said members for retaining both the body and the jet of the casting, means for imparting an endwise pull to said jet while so detained, and means for positively discharging said jet from the jet-mold while so detained, substantially as set forth.

6. A type-mold having in combination separable mold members, means carried by one of said members for retaining both the body and the jet of the casting, means for breaking the jet and the body of the casting apart, and means for positively discharging said jet from the jet-mold while so detained, substantially as set forth.

7. A type-mold having in combination separable members, the jet-mold of one of said members having an independently-movable section provided with means for causing the jet to stick thereto, and means for moving said section lengthwise of the jet while the body of the type is held in the mold, substantially as set forth.

8. A type-mold having in combination separable members, one of said members having a flexible independently-movable section provided with means for gripping a portion of the casting, and means for moving said section while the remainder of the casting is held in the mold, substantially as set forth.

9. A type-mold having in combination separable members provided with detaining devices for the jet and the body of the type, and the jet-mold of one of said members having an independently-movable section, the detaining devices for the jet being located entirely on said movable section, and the detaining devices for the type-body being located on the same mold member which carries said movable section, and means for moving said movable section, substantially as set forth.

10. A type-mold having in combination separable mold members provided with detaining devices for the jet and the body of the type, and the jet-mold of one of said members having an independently-movable section, the detaining devices for the jet being adapted to attach the jet to said section and being located entirely on said movable section, and the detaining devices for the type-body being located on the same mold member which carries said movable section, and means for moving said movable section independently of the jet-mold and lengthwise of the jet, substantially as set forth.

11. A type-mold having in combination separable members, one of said members having an independently-movable section constituting a part of the wall of the mold-cavity and adapted to grip a portion of the type-casting, and a relatively fixed lug for engaging with and imparting movement to said movable section while the remainder of the casting is held, the engaging faces of one of said parts being beveled or inclined whereby motion will be imparted to said movable section, substantially as set forth.

12. A type-mold having in combination separable members, one of said members having an independently-movable section constituting a part of the wall of the mold-cavity and adapted to grip a portion of the type-casting, and a relatively fixed lug having an inclined surface adapted to engage with a part of said movable section as the mold opens, for imparting movement to said section while the remainder of the casting is held, substantially as set forth.

13. A type-mold having in combination separable members, one of said members having an independently-movable section adapted to grip a portion of the type-casting, a relatively fixed beveled lug for imparting movement to said movable section while the remainder of the casting is held, and a spring for returning said movable section to its normal position, substantially as set forth.

14. A type-mold having in combination members separable lengthwise of the type-body, one of said members having an inde-

pendent section movable endwise of the jet and being provided with means for gripping and detaining said jet independently of its companion member, and means for moving said independent section independently while the body of the type is held in the mold, substantially as set forth.

15. A type-mold having in combination separable members, one of said members having an independently-movable section adapted to grip a portion of the type-casting, and a relatively fixed inclined lug having the flattened or inactive surface 20^c, for imparting movement to said movable section while the remainder of the casting is held, substantially as set forth.

16. A type-mold having in combination separable members, the jet-mold of one of which is provided with an independently-movable section having means for gripping the jet, and the other of which is provided with a beveled lug adapted to engage with said section and move it outward or away from the jet-mold as the mold members separate, substantially as set forth.

17. A type-mold having in combination a fixed and a movable member, the latter of which is provided with means for detaining the entire type-casting and with a jet-mold having an independently-movable section adapted to grip the jet, and a projecting lug for engaging and moving said movable section as the mold opens, substantially as set forth.

18. A type-mold having in combination separable members one of which is provided with an independently-movable section having means for gripping a portion of the type-casting, and the shoulder 23, the other of which is provided with a lug adapted to engage with and move said independently-movable section while the remainder of the casting is held, the said lug being so proportioned with relation to the shoulder 23 as to project past said shoulder before the lug and the movable section come into engagement, substantially as set forth.

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