

W. N. CLEMENTS.
TYPE CASTING MACHINE.
APPLICATION FILED FEB. 18, 1908.

948,605.

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.

fig. 1.

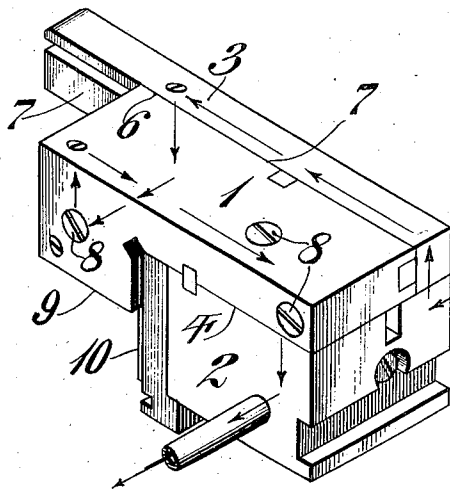


fig. 3.

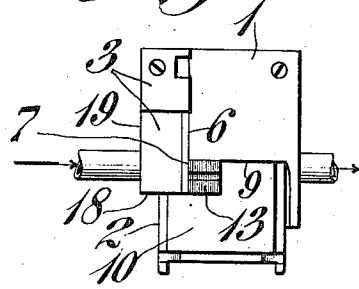


fig. 4.

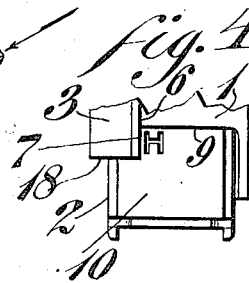
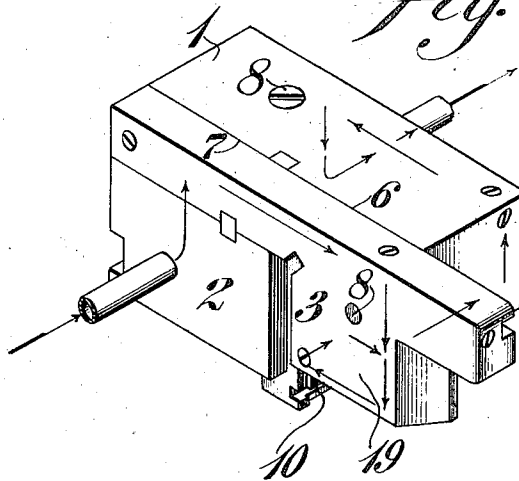


fig. 2.



Witnesses

L. Douville,
H. G. Dietrich

By

William N. Clements,
Diedersheim & Fairbanks

Attorneys

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2 SHEETS—SHEET 2.

fig. 5.

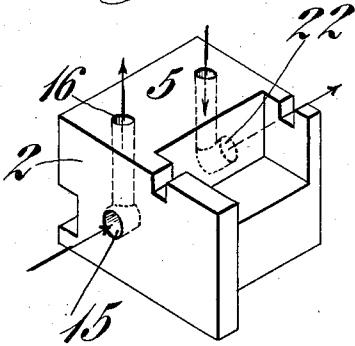


fig. 6.

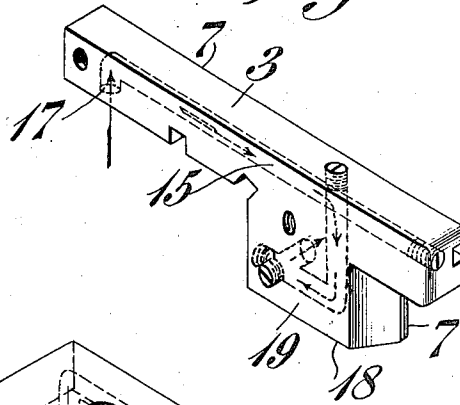


fig. 7.

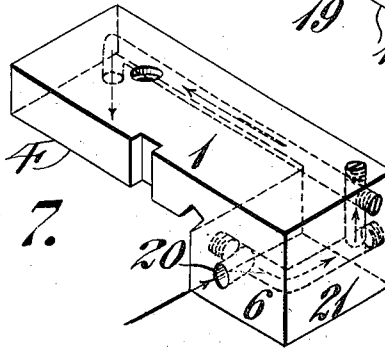
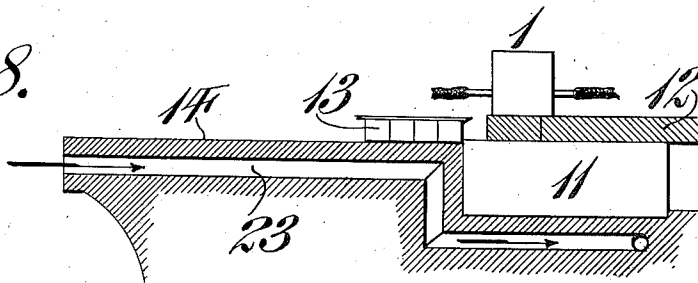


fig. 8.



Witnesses

L. Rowille,
H. G. Dietrich

William N. Clements, Inventor
Diederich & Fairbank
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM N. CLEMENTS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE
PRINTERS COOPERATIVE TYPE FOUNDERS CO., A CORPORATION OF NEW JERSEY.

TYPE-CASTING MACHINE.

948,605.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed February 18, 1908. Serial No. 416,465.

To all whom it may concern:

Be it known that I, WILLIAM N. CLEMENTS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Type-Casting Machine, of which the following is a specification.

This invention relates to type casting machines and has for an object to provide an insert having a passage therethrough for a cooling medium, by means of which construction type may be not only rapidly and perfectly cast but all sticking of the type in the matrix be eliminated and consequently make splashing of the molten metal impossible.

It further consists of other novel details of construction, all as will be hereinafter fully set forth.

For the purpose of illustrating my invention, I have shown in the accompanying drawings a preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein set forth.

Figure 1 represents a perspective view of an insert embodying my invention. Fig. 2 represents a similar view of the opposite side of the same. Fig. 3 represents an end elevation of the same with the type in position in the matrix. Fig. 4 represents a similar view showing the matrix. Figs. 5, 6 and 7 represent different parts of the insert. Fig. 8 represents the insert in position upon a portion of the machine and also a modification of my device.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings: 1 designates a top member, 2 a bottom member and 3 a side member which together form an insert for use in type casting machines. The top member 1 has a face 4 which is given an accurate rubbing finish to join a similar face 5 on the lower matrix member 2 and also has a face 6 finished in a similar manner to form a like joint with a face 7 on the side member 3. It will be seen that when the three members are tightly fastened together by any suitable means, such as screws

8, the two surfaces will be so closely joined together that the line of contact will be hardly discernible. When assembled, as shown in Figs. 1 and 2, it will be seen that the surface 7 and the surface 9 of the upper member 1 form two sides of a mold for the purpose of receiving molten metal to cast a type, the matrix 10 being secured in position, as shown in Figs. 3 and 4. In this type of casting machines it is well known that the insert is reciprocated to intermittently engage a stationary lower mold 11, shown in Fig. 8, and in which the other two sides, making up the complete type mold are located.

In Fig. 8, 12 indicates an ejector for removing the cast types 13 from their position beside the metal inlet to a table or head 14 where the types are collected ready for removal.

15 designates a passage bored through the insert for the purpose of circulating a cooling medium, therethrough, in the present instance water being used. The passage 15 preferably enters the member 2 passing upward therethrough to the exit 16, which is coincident with the opening 17 in the side member 3 along the length of which the passage 15 extends turning downward near the end thereof until it reaches a point near the lower surface 18 of the member 3. From here the passage 15 passes along just below the surface and makes a turn to parallel surface 19 of the same member, which brings it into alinement with the opening 20 in the member 1 in which the passage makes another turn parallel to the faces 6 and 21 and is then brought upward to the top surface of the member 1 along which it extends passing downward through the member 2 to the exit 22. Attention is called to the path for the cooling medium, since it is brought close to the type molding surfaces and maintains them in a comparatively cool condition during the casting process. Moreover, the path along which the cooling medium flows is so positioned that it passes in close proximity to the face of the matrix, whereby the latter is maintained at a comparatively low temperature and aside from prevention of any sticking of the molten type to the matrix it performs the function of chilling the face of the type, whereby a type having highly desirable qualities is formed.

It will be noted that in view of the exceedingly close joint between the several parts there is absolutely no chance of the cooling medium leaking out during the operation of the machine and thereby causing damage by coming in sudden contact with the exceedingly hot surfaces surrounding the type mold.

In the ordinary automatic type casting machines the matrix with the character cavities and the mold in which the type bodies are cast are movable relative to each other, in order to bring the matrix cavities over the mold opening. When in this position, the molten metal is forced in through a suitable opening and the character thus formed. It is a common practice to force the molten metal by means of a pump into this mold opening and therefore the joining together of the two parts must be absolutely accurate in order to prevent splashing of the molten metal, as any irregularities which are formed in the casting tending to destroy and prevent joining, will produce disastrous results in splashing of the molten metal. The irregularities above referred to are either formed by the type sticking to the insert or by gumming up the nicking knife due to the heating of the surrounding parts.

By means of the modification shown in Fig. 8, the cooling passage 23 is drilled to extend along just beneath the surface of the table or head 14, whereby when a cooling medium is passed therethrough the surface is kept substantially at an even temperature permitting the types to be moved along by the ejector 12 without sticking and they are also cooled sufficiently to allow a clean nick to be cut in the end thereof.

I am aware that it is old to use a cooling means in connection with type molding machines in order to cool certain parts but as a complete unitary insert provided with a cooling medium, I have produced a new and novel combination making the automatic casting of type a practical, efficient and rapid process.

Having thus described my invention,

what I claim as new and desire to secure by Letters Patent, is:—

1. In a type casting machine, an insert having a passage therethrough paralleling each face of said insert and adapted for the circulation of a cooling medium.

2. In a type casting machine, an insert having a passage therethrough extending in close proximity to each face of said insert and adapted to receive a cooling medium.

3. In a type casting machine, an insert having a passage therethrough extending in close proximity to both faces of said insert and matrix face and adapted to receive a cooling medium.

4. In a type casting machine, an insert having a passage therethrough adapted to receive a cooling medium, said passage surrounding the matrix.

5. In a type casting machine, an insert, a matrix secured thereto, a conduit through said insert in close proximity to said matrix, and an inlet and outlet for said conduit.

6. In a type casting machine, an insert, a matrix secured thereto, a conduit longitudinally disposed through said insert, a second conduit transversely disposed relative thereto, and in communication therewith whereby a passage surrounding a type mold face is provided, and an inlet and outlet for said conduits.

7. In a type casting machine, an insert comprising a plurality of members, a matrix secured between said members, a cooling passage in each member, and means to establish communication between the said passages.

8. In a type casting machine, an insert comprising a plurality of members, a matrix secured between said members, a cooling passage in each member and positioned to form a continuous conduit through said insert, and a ground joint to prevent leakage.

WILLIAM N. CLEMENTS.

Witnesses:

ROBERT M. BARR,
C. D. McVAY.