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MEANS FOR CASTING TYPE.

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Fig. 1.

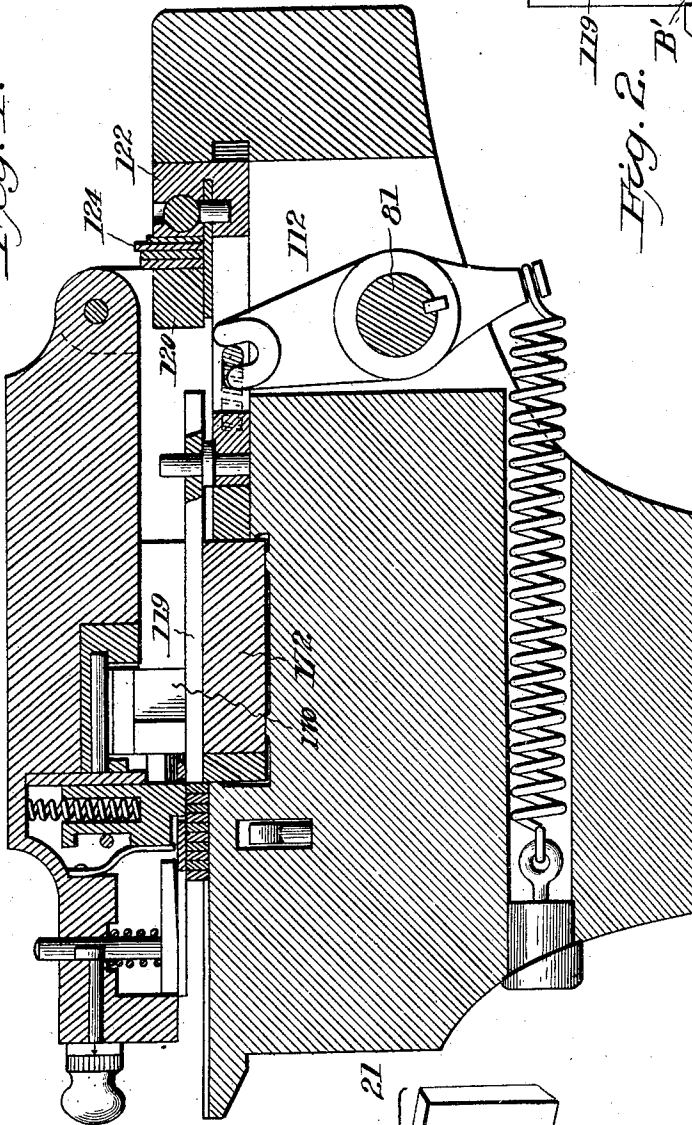


Fig. 2.

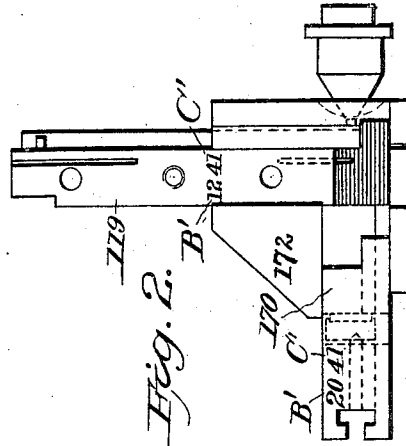


Fig. 4.

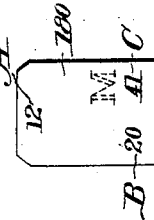


Fig. 3.

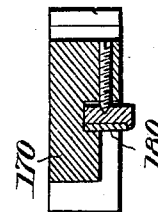
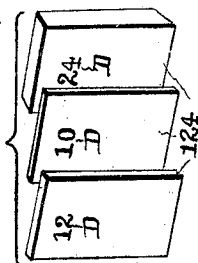


Fig. 5.



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UNITED STATES PATENT OFFICE.

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MEANS FOR CASTING TYPE.

No. 878,185.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, FRANK HOWARTH BROWN, JOHN EDWARD HANRAHAN, and GEORGE ALBERT BOYDEN, of Baltimore and Mount Washington, Baltimore county, Maryland, respectively, have invented certain new and useful Improvements in Means for Casting Type; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improved means for casting type, whereby individual type characters and matter of a maximum degree of perfection, are produced, such characters and matter comprising body and display letters, borders, ornaments, spaces, quads, and the like, such as are employed in ordinary type composition.

With the introduction of the "Sorts machine for casting type," invented by these same inventors, the art of producing type at this time is being revolutionized for the reason that instead of making type under the present foundry practice, with skilled labor, and then distributing the type throughout the country for printers to use, the printers are now producing type in their offices with unskilled labor. This results in a great saving of time and money, and affords convenience in procuring immediately type and sorts when desired. This invention necessitated the creation of various systems and inventions, not only relating to the type casting machine proper, but also to molds, mold making, matrices and matrix making, and to one of these systems the present invention relates.

Heretofore, in making type characters, it has been customary to employ molds made up of relatively adjustable parts, whereby the different sizes of the cast are obtained by adjustment of the several parts. The parts of the mold are first adjusted to the approximate size desired, and then said parts are manipulated by means of adjusting screws and micrometer gages to bring them near enough to the proper position to permit of a trial cast. Similar manipulation of the matrix is also necessary to bring the same into approximately proper relation with the mold parts. When all of the parts have been

thus adjusted, casts are made from which to begin sizing of the type bodies by measurement, first to ascertain if the sides of the type body are parallel "body-wise" and of the proper body measurement, and then to ascertain if they are parallel "set-wise," and of the proper "set-wise" measurement. After each cast and measurement, the mold parts are readjusted, until the standard measurements are obtained, said readjustments being accomplished by adjusting set screws and by tapping the respective mold parts to bring them into the desired position. After the mold parts have been so adjusted as to cast type bodies of standard measurement, it is usually necessary to readjust the matrix to bring the type character in a center of the type body "set-wise" and to the proper position "body-wise." These several adjustments require great care and skill owing to the accuracy necessary for standard type, and in practice consume from twenty minutes to two hours time for each change of the machine to make a difficult "body-wise" size.

The object of the present invention is to overcome the objectionable delay and necessary skilled manipulation above set forth, by the employment of mold parts of predetermined standard measurements to cast the type bodies, and to regulate the setwise measurement thereof, the selection of the requisite mold parts being dependent upon the style and character of the type to be cast. In practice, a suitable key or indexing means is employed which indicates the particular mold parts that are required for the casting of the selected character. In this manner the correct molds may be quickly selected and placed in proper relation without delay and a perfect cast at once obtained.

In the accompanying drawing, we have illustrated means for carrying out our invention, although we do not limit ourselves to said means.

In said drawings, Figure 1 is a sectional view of a type casting machine. Fig. 2 is a plan view of the type casting parts thereof. Fig. 3 is a sectional view of one of the movable mold parts. Fig. 4 is a face view of a matrix. Fig. 5 is a perspective view of a plurality of the measuring pieces hereinafter referred to.

Referring to the drawing, 21 indicates the head of the type casting machine, the same serving as a support for the stationary mold part 172. This latter is of such dimensions as to be capable of employment in casting all sizes of type both "set-wise" and "body-wise." Co-acting with the stationary mold part are a plurality of interchangeable mold parts 170 (but one being illustrated). Each movable mold part is of predetermined dimensions corresponding with the body size of the type to be cast, there being one of said movable mold parts for each body size of type. The matrix 180 is constructed to be removably mounted in a suitable holder carried by the movable mold part. A plurality of interchangeable ejectors 119 are also employed, but one of said ejectors, however, being illustrated. Each ejector is of different thickness to conform to the "body-wise" variations in the size of the type to be cast. There is one ejector for each "body-wise" size and each ejector coacts with its corresponding movable mold part to establish the "body-wise" size of the type. The ejector is reciprocated by means of an arm 112 attached to a rock shaft 81. The "set-wise" size is secured by means of a plurality of measuring pieces 124 of varying predetermined thicknesses, interposed between blocks 120 and 122, said former block serving as a stop to limit the movement of the ejector 119.

The matrix 180 is provided with a plurality of index numbers or signs A, B and C, the number A serving to indicate the "point" set-wise size of type for which said matrix is intended; the numbers B and C correspond with similar numbers B' and C' on the movable mold part and on the ejector, respectively. The number B indicates the body wise size for which the matrix is intended and the number C is the index or indicative number of the particular style of type and by means of which the proper mold parts and ejector may be selected. The pieces 124 conform in thickness to the "point" system of standard type measurement, and the number of "points" represented by the thickness of each liner is indicated thereon by a number D.

In practice, when it is desired to cast a type, say for instance a "twelve point Roman M," that matrix is selected. A number of liners 124, the added thicknesses of which will produce a cast of "twelve points", "set-wise" are then inserted between blocks 120 and 122, or a single liner of proper thickness may be used. An examination of the matrix indicates that the movable mold part and the ejector provided with the numbers B' and C' corresponding with the numbers B and C on the matrix, are the parts necessary to complete the mold for the desired cast. These parts are at once selected and placed in the machine and the latter is then ready

for the cast. Motion is imparted to the rock shaft 81 and movable mold part 170 by any suitable means (not shown) and the molten metal may also be fed in any suitable manner.

The advantages of our invention will be at once apparent to those skilled in the art to which the same appertains. It will be particularly observed that by employing mold parts of predetermined dimensions, an absolutely perfect cast of the desired size and with sides properly squared is secured, and after-measurement of the cast or readjustment of the mold parts is rendered unnecessary. By constructing the various mold parts of predetermined measurements and providing an index of the requisite parts necessary to make the desired cast, said parts can be readily ascertained and selected. The only time thus required to make a change in the size of the cast is solely that necessary to replace the movable mold part, ejector, and measuring pieces, which in practice requires between three and five minutes.

We claim as our invention:—

1. Means for casting type comprising a matrix having a key or index, and an insert mold member provided with casting faces of predetermined dimensions and also marked to conform to said key or index.

2. Means for casting type comprising a matrix having a key or index, and an ejector member having a casting face of predetermined dimensions, said ejector being marked to conform to said key or index.

3. Means for casting type comprising a matrix having a key or index, and a plurality of mold members of different characteristics and each provided with casting faces of predetermined dimensions, said mold parts being each marked to conform to said key or index.

4. Means for casting type comprising a matrix having a key or index, and predetermined means for regulating the setwise size of the cast, said regulating means being indicated by said key or index.

5. Means for casting type comprising a matrix having a key or index, an ejector having a casting face of predetermined dimensions, said ejector being marked to conform to said key or index, and predetermined means for regulating the setwise size of the cast, said regulating means being also indicated upon said matrix.

6. Means for casting type comprising a matrix having a key or index, a plurality of mold members of different characteristics and each provided with casting faces of predetermined dimensions, said mold parts being each marked to conform to said key or index, and predetermined means for regulating the setwise size of the cast, said regulating means being also indicated upon said matrix.

7. Means for casting type comprising a plurality of matrices each having a key or index, and a plurality of interchangeable mold members provided with casting faces of different dimensions, each mold member being marked to conform to the key or index on one of said matrices. 25
8. Means for casting type comprising a plurality of matrices each having a key or index, a plurality of insert mold members and a plurality of ejector members, each member being provided with casting faces of different dimensions, each of said members being marked to conform to the key or index on one of said matrices. 30
9. Means for casting type comprising a plurality of matrices each having a key or index, a plurality of ejectors each having a casting face of predetermined measurement, the measurement of said casting faces being different for each ejector, each ejector being marked to conform to the key or index on one of said matrices, and predetermined means for regulating the movement of said ejector, said means being also indicated on said matrices. 25
10. Means for casting type comprising a plurality of matrices each having a key or index, and a plurality of measuring pieces of predetermined dimensions and each marked to conform to the keys or indices on said matrices. 30
- In testimony whereof, we have signed this specification in the presence of two subscribing witnesses.
- FRANK HOWARTH BROWN.
JOHN EDWARD HANRAHAN.
GEORGE ALBERT BOYDEN.
- Witnesses:
THOS. KELL BRADFORD,
AUG. W. BRADFORD.