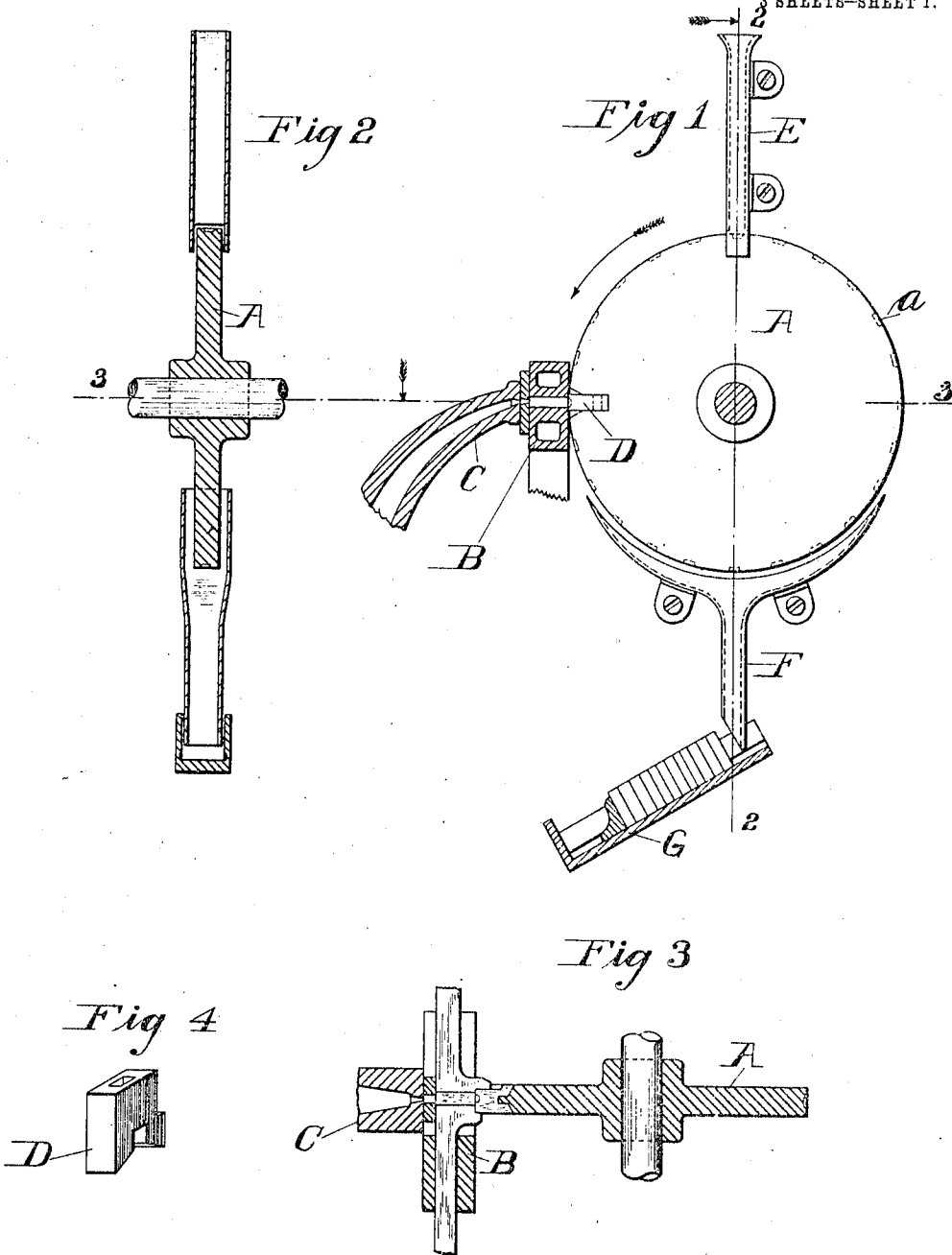


P. T. DODGE.
TYPE CASTING MACHINE.
APPLICATION FILED NOV. 14, 1910.

1,055,388.

Patented Mar. 11, 1913.

3 SHEETS-SHEET 1.



WITNESSES:
Edmund H. Parry
James Atkins

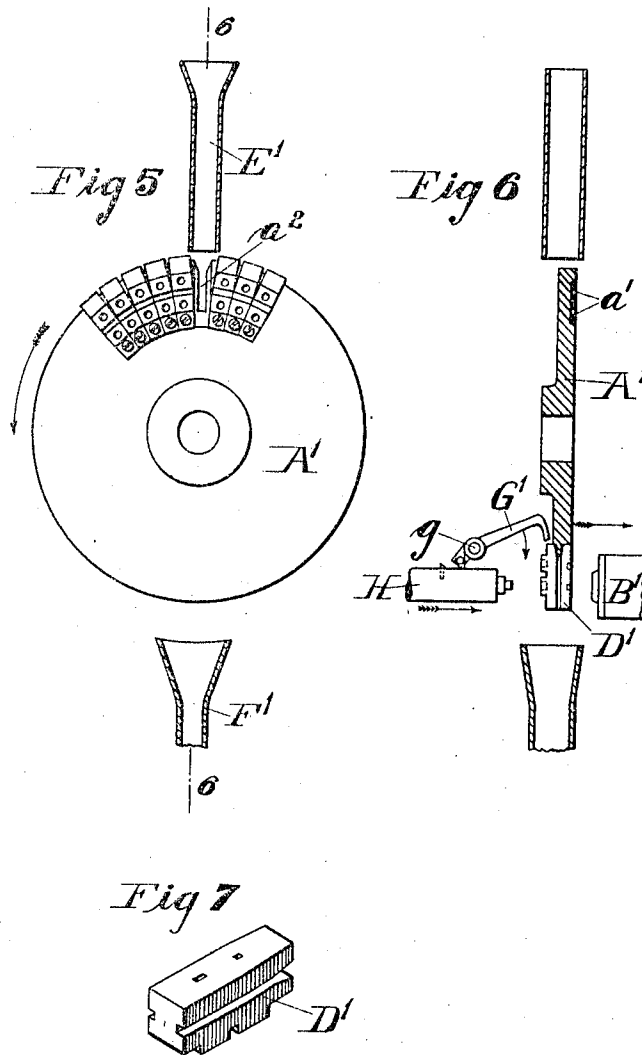
INVENTOR
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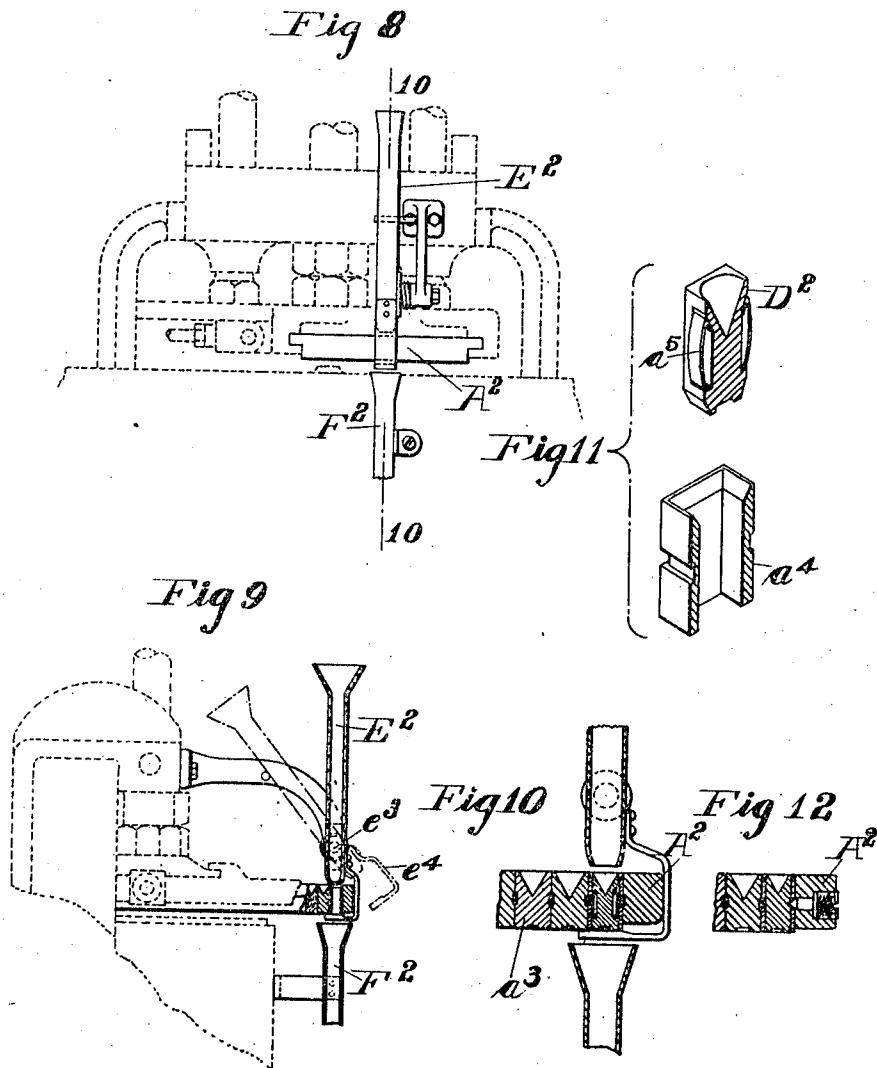
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INVENTOR

Philip T. Dodge

UNITED STATES PATENT OFFICE.

PHILIP T. DODGE, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

TYPE-CASTING MACHINE.

1,055,388.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed November 14, 1910. Serial No. 592,269.

To all whom it may concern:

Be it known that I, PHILIP T. DODGE, a citizen of the United States, and a resident of Washington, in the District of Columbia, have invented a new and useful Improvement in Type-Casting Machines, of which the following is a specification.

My invention has reference to machines for casting type or logotypes one at a time in the order in which they are to be composed, and particularly to those machines in which a movable wheel, or plate, or equivalent carrier, is provided with a series of matrices which may be presented by the movement of the carrier in the proper order to a mold. In these machines as heretofore constructed there was no provision for producing in the regular course of operation any character other than those represented by matrices fixed in the carrier. In other words, the machines were not adapted for the production of extra or pi characters. There are commonly used in printing a large number of characters—a number so great that it is impossible to have them all represented permanently in the machine.

My invention has in view the provision of means whereby any and all extra characters, commonly known as pi or sorts characters, may be produced in the machine at will, and in the required sequence. To this end it consists, broadly, in so constructing and organizing the parts that extra or sorts matrices may be speedily delivered to the matrix carrier for presentation to the mold, and thereafter discharged from the carrier.

The invention is susceptible of embodiment in a great variety of forms, and may be modified in detail to suit the peculiarities of the various machines now known in the art.

With the exception of the parts hereafter described the machine may be of the ordinary or any suitable construction. As the machines are well known to persons skilled in the art I have deemed it sufficient to describe and illustrate herein those parts with which my improvement is immediately associated.

In the drawings: Figure 1 is a vertical cross section through portions of a machine in which the matrices are carried on the periphery of a wheel, my improvement being incorporated therein. Fig. 2 is a section on the line 2—2, Fig. 1. Fig. 3 is a horizon-

tal section on the line 3—3, Figs. 1 and 2. Fig. 4 is a perspective view of one of the sorts or pi matrices. Fig. 5 is a vertical section showing the matrix wheel and other parts of a machine in which the matrices are presented on the side face of a vertical wheel, my improvement being embodied therein. Fig. 6 is a cross section on the line 6—6, Fig. 5. Fig. 7 is a perspective view of one of the sorts matrices. Fig. 8 is an elevation in outline showing a portion of the machine in which the matrices are carried in a horizontal reciprocating plate, as in the well known Lanston monotype machine, with my improvement applied thereto. Fig. 9 is a side elevation of the parts shown in the preceding figure. Fig. 10 is a vertical section on the line 10—10, Fig. 8. Fig. 11 is a view showing, in section, one of the sorts matrices, and the holder or support therefor. Fig. 12 is a similar section to that shown in Fig. 10, showing an alternative method of holding the matrix.

Referring to Figs. 1 to 4 of the drawings, A represents an upright wheel or disk provided on its periphery with a series of matrices, *a*, representing the various type characters. B represents a mold, adjustable in size, standing adjacent to the periphery of the wheel, so that by the rotation of the latter any one of the matrices may be brought into operative relation to the mold to form a type character on the body produced therein. C is the mouthpiece of a melting pot arranged to deliver molten type metal into the mold.

So far as described the parts may all be constructed and arranged to be operated in the well known manner. Various machines having finger keys to control the rotation of a disk, means for effecting its rotation, and means for controlling the mold are well known in the art.

In carrying my improvement into effect I provide in addition to the matrices, *a*, which form permanent members of the wheel, any desired number of sorts or free matrices D, of the form shown in Fig. 4, or any equivalent form; and I provide the wheel at one or more points in its periphery with a recess to receive one of these matrices and support the same in operative position, so that it may be presented by the rotation of the wheel to the mold in the same manner as the other matrices are presented thereto.

It will of course be understood that these extra or sorts matrices, which can be applied and removed at will, may be made of any suitable form externally, and that the cavity or supporting means in the wheel may be of corresponding form, the only requirement being that the extra matrices shall be adapted for speedy insertion and removal without disorganizing the machine or interfering with its ordinary operations.

As one means of introducing the extra matrices I propose to provide a fixed tube E, overlying the wheel in such position that the matrices delivered downward through this tube, by hand or otherwise, will be guided into the receiving cavity in the wheel when it is brought in alinement with the tube. Beneath the wheel I mount a delivery tube F, of such form and in such position that after the matrix D, has served its purpose at the mold it will, by the rotation of the wheel, be carried downward in position to be discharged through the tube F, into the receiving galley G, or other receptacle.

Referring to Figs. 5, 6 and 7, A' represents a vertical wheel which will be combined, as usual, with means for effecting its rotation, and with finger keys or their equivalent for causing the presentation of the selected matrices one at a time in front of the mold B', in order that they may form type faces or characters on the bodies cast in the mold. This wheel is provided around its periphery with a series of matrices a' , their faces lying in the side of the wheel, so that by the lateral movement of the wheel, or the mold, the selected matrices may be presented against the mold as shown, for example, in Letters Patent of the United States No. 944,108. At one or more points I provide the wheel with a cavity or seat a^2 , adapted to receive an extra or sorts matrix D'. There may be any number of these matrices, representing the various extra characters required. They are adapted to be seated one at a time in the cavity a^2 , so that their operative faces will occupy the same relation to the wheel as the faces of the permanent matrices therein. The matrices may be delivered to the wheel, by hand or otherwise, through the stationary tube E'; and they may be delivered from the wheel, after presentation to the mold, into the tube F'. Their delivery may be speedily effected by hand, or by a manual instrument; or the delivery may be effected automatically by a suitable mechanism.

In Fig. 6, G' represents a vertically swinging finger pivoted at g, with one end in position to act upon the matrix D', and deliver the same downward from the carrying wheel, and the other end in position to be acted upon by the slide H, which serves to lock the wheel momentarily in position, as in existing machines. When the slide H

is withdrawn to unlock the wheel the forward end of the lever G, is thrown downward as indicated by the arrow, and the matrices thereby delivered from the wheel.

Referring to Figs. 8 to 12, A² represents a flat horizontal matrix carrier arranged to reciprocate in horizontal lines under the influence of suitable driving mechanism and finger keys representing the various characters, as shown, for example, in Letters Patent of the United States No. 633,088. The plate or carrier A² is provided, as usual, with a series of upright matrices a^3 , having their operative faces at the lower end, for presentation to an underlying mold. I provide this carrying plate, in addition to the ordinary matrices, or in place of one of them, with a vertical cavity or pocket adapted to receive an extra or sorts matrix D², which may be introduced from above, presented by the carrier to the mold in the same manner that other matrices are presented, and then delivered downward by the carrier, that it may be replaced by another and different matrix. In this class of machines it is necessary that the matrices shall have a slight vertical movement in the carrier. I therefore recommend the employment in the carrier of a sleeve a^4 , having a slight vertical movement, the interior of this sleeve, which is open at the top and bottom, being adapted to receive the matrix D², which may be provided with one or more friction springs a^5 , to prevent it from falling through by accident. These extra or sorts matrices may be introduced when the carrying plate is in the proper or normal position, through a tube E², and after the casting operation they may be delivered from the carrier plate into a bottom tube or receptacle F². The feed tube E², may be mounted on a pivot e^3 , as shown in Figs. 8 and 9, and provided with a foot e^4 , to underlie the carrier plate and prevent the accidental escape of the extra or sorts matrix. When the tube is canted as shown in Fig. 9 it will withdraw the foot and permit the escape of the matrix.

It will be understood that in any of the mechanisms described the matrices may be held temporarily in place by frictional engagement, by springs, or by other suitable means.

It is obvious that matrix magazines and finger key mechanisms may be provided for selecting the extra matrices and delivering them to the feed tubes for presentation to the matrix carrier, but under ordinary conditions, the extra characters being used only at long intervals, it will be found advisable to deliver the sorts matrices by hand.

Having described my invention, what I claim is:

1. In a type casting machine, the combination of a mold, a carrier provided with a regular complement of matrices, and mov-

able to present them one at a time to said mold, and adapted to receive one or more extra matrices, and means for effecting the delivery of said extra matrices to and from said carrier.

2. In a type casting and composing machine, a carrier provided with a regular complement of matrices, a mold to which said matrices are presentable one at a time by the carrier, and means whereby additional free matrices may be presented one at a time to the carrier and discharged therefrom after presentation to the mold.

3. In a type casting machine, the combination of a mold, a carrier, a regular complement of matrices mounted in the carrier for presentation thereby to the mold, extra matrices, means for delivering said extra matrices one at a time to the carrier, said parts arranged to deliver the extra matrices from the carrier after presentation thereby to the mold.

4. In a type casting machine, the combination of a mold, a carrier provided with a regular complement of matrices presentable thereby one at a time to the mold, and extra matrices adapted for presentation to and removal from the carrier while the machine is in operative condition together with means for so presenting and removing said extra matrices.

5. In a type casting machine, a mold, a carrier provided with a regular complement of matrices for presentation to the mold, and extra or supplemental matrices, said carrier and matrices being adapted to permit the delivery of the extra matrices successively to and from the carrier together with means for delivering said extra matrices to and from the carrier.

6. In a type casting machine, a mold, a carrier provided with a regular complement of matrices for presentation thereby to the mold, free supplemental matrices, means for delivering the supplemental matrices one at a time to the carrier, and means for effecting their delivery from the carrier after presentation to the mold.

7. In a type casting machine, the combination of a mold, a carrier having one series of matrices mounted therein for presentation one at a time to the mold, and means whereby matrices of another series may be delivered as selected one at a time to and from the carrier.

In testimony whereof I hereunto set my hand this 11th day of November, 1910, in the presence of two attesting witnesses.

PHILIP T. DODGE.

Witnesses:

E. J. LAMB,
WALTER MOBLARD.