

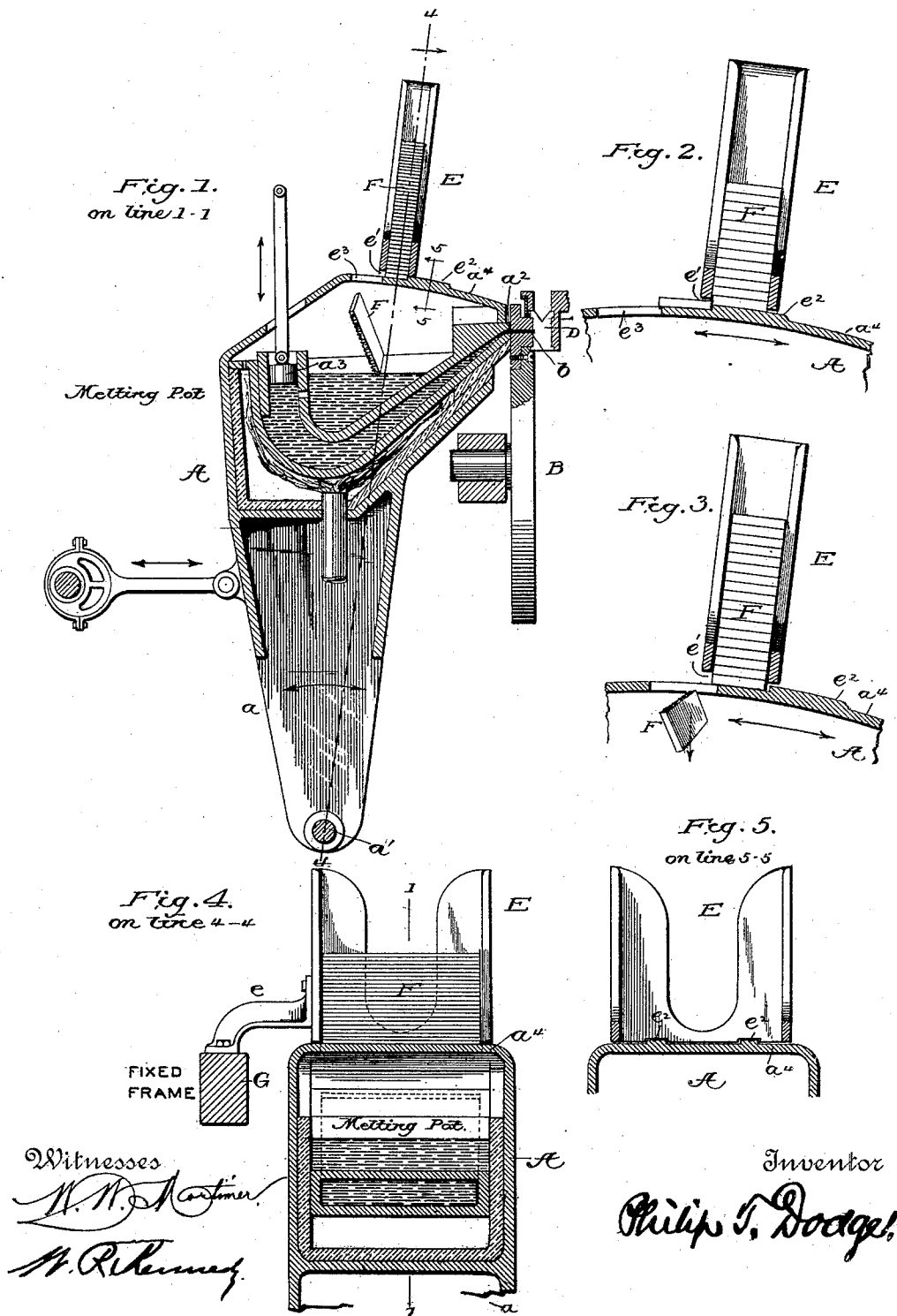
(No Model.)

2 Sheets—Sheet 1.

P. T. DODGE.
TYPE CASTING MACHINE.

No. 466,666.

Patented Jan. 5, 1892.



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Fig. 6.

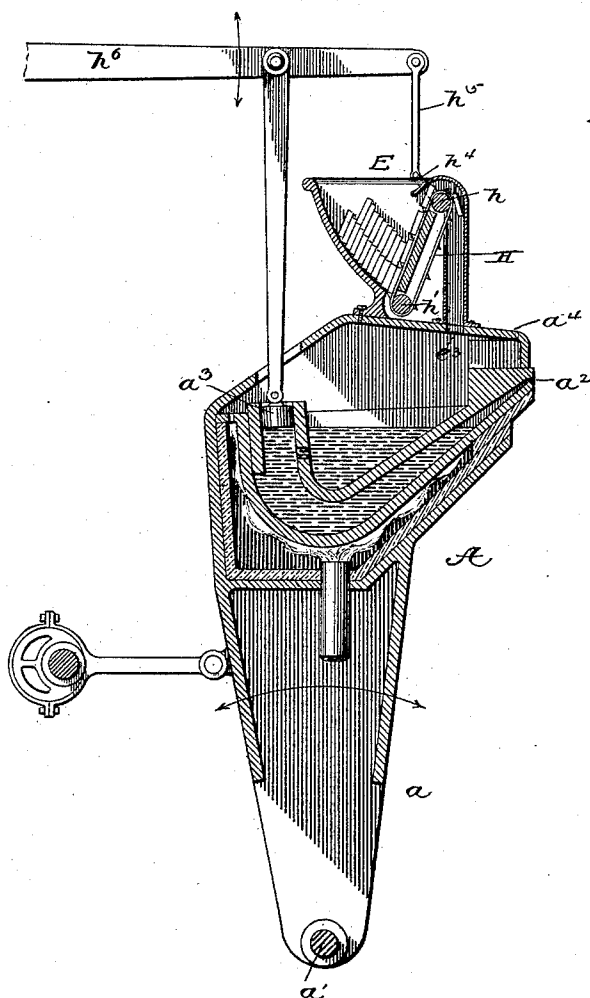
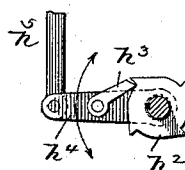


Fig. 7.



Witnesses:
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UNITED STATES PATENT OFFICE.

PHILIP T. DODGE, OF WASHINGTON, DISTRICT OF COLUMBIA.

TYPE-CASTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 466,666, dated January 5, 1892.

Application filed March 12, 1891. Serial No. 384,742. (No model.)

To all whom it may concern:

Be it known that I, PHILIP T. DODGE, of Washington, in the District of Columbia, have invented certain Improvements in Type-Casting Machines, of which the following is a specification.

This invention relates to the so-called "linotype-machines," in which molten metal is delivered intermittently by a pump into a mold, where it forms type-bars or linotypes.

The object of the invention is to maintain a constant and substantially uniform supply of metal in the pot without requiring attention on the part of the attendant except at long intervals; and to this end it consists in automatic mechanism whereby the solid metal is delivered to the pot at a proper rate of speed. As it is the practice to remelt the type-bars or linotypes after they have been once used, and as, therefore, the metal will be mainly in the form of such bars or linotypes, I have constructed my mechanism with special reference to the feeding of these bars.

The essential feature of the invention consists in combining with the machine a feed mechanism the action of which is dependent upon or bears a due relation to the casting operations of the machine in order that the metal may be supplied at practically the same rate of speed at which it is delivered to the mold.

In the accompanying drawings I have represented my device as applied to the Mergenthaler machine represented in Letters Patent of the United States No. 436,532, granted September 16, 1890.

In the accompanying drawings, Figure 1 is a vertical section from front to rear through the melting-pot, mold, and such adjacent parts as are necessary to an understanding of my invention on the line 1 1 of Fig. 4. Figs. 2 and 3 are similar sections in outline, showing the parts in different positions. Fig. 4 is a section on the line 4 4 of Fig. 1, looking in the direction indicated by the arrow. Fig. 5 is a vertical cross-section on the line 5 5 of Fig. 1. Fig. 6 is a vertical section with the feed devices in another form, the equivalent of those first described. Fig. 7 is a detailed view of the pawl-and-ratchet mechanism for operating the feed devices of Fig. 6.

Referring to the drawings, A represents the

melting-pot sustained by tall legs *a*, turning at their lower ends on horizontal pivots *a'*, whereby the pot is permitted, under the influence of the operating-gear, to swing forward and backward to and from the mold. The pot is provided with the delivery mouth or spout *a²* and with the pump *a³* to expel the molten metal therethrough. At its top the pot is covered by a fixed metal lid *a⁴*.

B represents the mold-wheel arranged in front of the pot and having the mold-cell *b*, into which the molten metal is delivered from the mouth of the pot when the latter is swung forward in contact with the mold.

D represents the line of matrices arranged in front of the mold and acting to close the same and produce the characters on the edge of the bar cast therein.

The foregoing parts may all be constructed and arranged to operate as usual.

In applying my improvement in the form shown in Figs. 1 to 5 I erect directly over the melting-pot an upright tube or magazine E, adapted to receive a column of the type-bars or linotypes F, lying on their sides. This magazine is open at both its upper and its lower ends in order that the bars may be introduced at the top and delivered at the bottom. I sustain the magazine in any suitable manner. As the most convenient means I recommend the rigid arm or bracket *e*, bolted to the arm G, forming a fixed part of the main frame. The column of type-bars is sustained within the magazine by the lid or top of the melting-pot, on which the bottom bar rests. It will be observed that the top of the pot swings forward and backward beneath the magazine.

I provide the magazine at the rear side with an opening *e'* between it and the top of the pot, through which the bars may be delivered one at a time. On the top of the pot I form a rib *e²* of a height somewhat less than the thickness of the type-bar and in such position that as the pot swings backward away from the mold this lid acting against the lowermost bar in the column will drive the same backward through the opening *e'* out of the magazine. As this occurs the next bar will descend until it rests upon the rib *e²*, so that it engages in front of the ejected bar, as shown in Fig. 2, the bar lying at this time on

top of the pot. At a suitable distance from the shoulder I provide the pot with an opening e^3 . When the pot swings forward, the ejected bar is held at rest, and as the opening e^3 is brought beneath it it falls there-
 5 through into the pot. Thus it will be seen that the pot serves as an automatic feeder to deliver the bars from the magazine to the melting-pot within. It will also be observed
 10 that the metal is delivered into the pot only when the pot is swung to and from its casting position and that as a fresh bar is delivered into the pot each time that a bar is cast the molten metal will be maintained at a sub-
 15 stantially uniform level.

In that form of my mechanism represented in Fig. 6 the magazine E is in the form of a hopper fixed on the top of the melting-pot and containing in one side an endless chain
 20 H, traveling around supporting-rolls h and h' at its upper and lower ends and provided with teeth, which act to lift the bars one at a time from the top of the hopper and drop them successively through the opening e^3 into
 25 the melting-pot.

The parts may be driven in any suitable manner; but I recommend the employment, as shown in Fig. 7, of a ratchet-wheel h^2 , fixed to the shaft of the upper roll h , in connection
 30 with an actuating-pawl h^3 , carried by a lever h^4 , mounted to turn loosely on the roll-shaft and connected by a link h^5 with the lever h^6 , which actuates, as usual, the pump for deliver-
 35 ing the molten metal from the top of the mold.

The parts will of course be so proportioned and timed as to secure the delivery of a linotype from the magazine or hopper into the
 40 pot each time that a linotype is cast in the mold.

The essence of my invention lies in combining with the casting mechanism an automatic mechanism for delivering the solid
 45 metal to the pot at the same or substantially the same rate that metal is consumed by the

casting mechanism, and it is to be understood that the invention may be modified in many forms the mechanical equivalents of those herein described.

Having thus described my invention, what I claim is—

1. In a type-casting mechanism, a mold, a melting-pot, and a pump mechanism for delivering the molten metal from the pot to the mold, in combination with automatic mechanism for introducing solid metal to the pot to replace the molten metal delivered there-
 55 from.

2. In a type-casting mechanism, a mold, a melting-pot, and a pump mechanism for delivering molten metal from the pot to the mold, in combination with a magazine or holder for metal bars or linotypes, and an automatic feed mechanism, substantially as described, to deliver said bars successively to
 65 the pot as the molten metal is delivered therefrom.

3. In a type-casting mechanism, a mold and a reciprocating melting-pot arranged to deliver to the mold and provided with a top opening e^3 and rib e^2 , in combination with a stationary magazine E thereover, whereby the movement of the pot is caused to feed the metal bars or linotypes from the magazine into the pot.
 75

4. In a type-casting mechanism, the combination of a melting-pot, a pump for forcing the molten metal thence to the mold, and a feed mechanism constructed and arranged to deliver a metal bar into the mold each time
 80 that the pump is operated to deliver molten metal therefrom.

In testimony whereof I hereunto set my hand this 3d day of March, 1891, in the presence of two attesting witnesses.

PHILIP T. DODGE.

Witnesses:

W. R. KENNEDY,

FABIUS STANLY ELMORE.