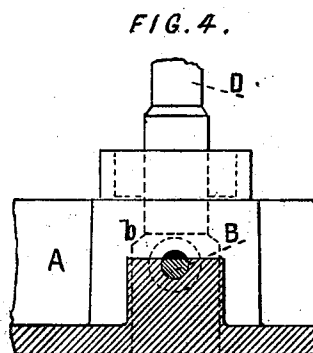
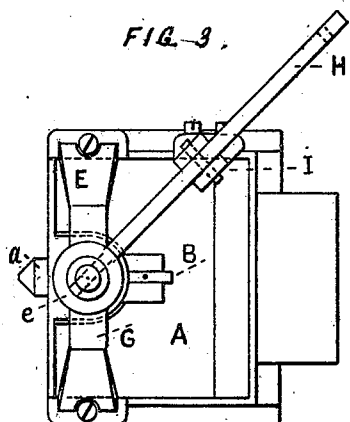
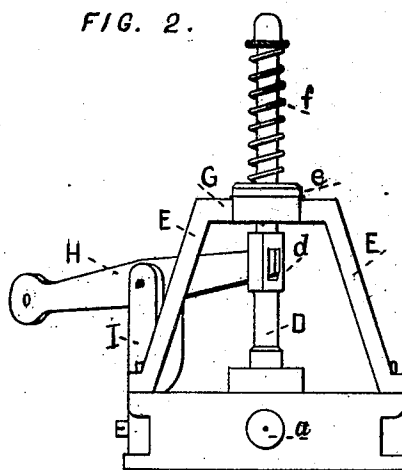
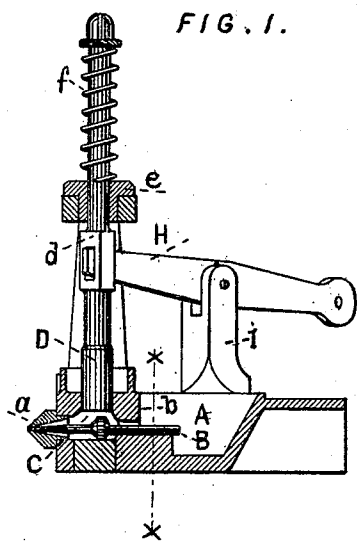


J. M. CONNER.
TYPE CASTING MACHINE.

No. 178,910.

Patented June 20, 1876.



WITNESSES.

L. O. Gordon
John. Cook

James M. Conner by A. Sidney Doane atty

INVENTOR.

UNITED STATES PATENT OFFICE.

JAMES M. CONNER, OF GREENVILLE, NEW JERSEY.

IMPROVEMENT IN TYPE-CASTING MACHINES.

Specification forming part of Letters Patent No. **178,910**, dated June 20, 1876; application filed March 23, 1876.

To all whom it may concern:

Be it known that I, JAMES M. CONNER, of Greenville, Hudson county, New Jersey, have invented, made, and applied to use Improvements in Machines for Casting Printing-Types; and that the following is a full, clear, and correct description of my invention, reference being had to the accompanying drawing, making part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a sectional view of the upper portion of a type-casting machine used by me in carrying out my process. Fig. 2 is a side view of the same. Fig. 3 is a top view of the same. Fig. 4 is a section through the line *x* *x*, Fig. 1.

In the drawing like parts of the invention are designated by the same letters of reference.

The nature of the present invention consists in improvements, as more fully herein-after set forth, in type-casting, and in the construction of mechanism for carrying out the same. The object of the invention is the production of a superior article of type, resulting from the fact that in type cast in accordance with my process the metal of which the type is composed is compressed to a greater extent than heretofore, and thus the particles of the metal are more closely united, thus rendering the type stronger and more durable.

To enable those skilled in the arts to make and use my invention, I will describe the construction and operation of the machine by which I propose to carry out the same, and will refer to the advantages resulting from casting type in accordance with my process.

A shows the well or chamber of a type-casting machine, in which is received the molten metal to be supplied to the mold for the formation of the type. Within an opening in or near the center of the front plate of the well A is secured the nipple *a*, through which the molten metal is forced into the mold from the well. Inserted in this opening in the front plate of the well A at its rear, and forming, as it were, a continuation of the same, is the grooved plate *b*, supporting the combined valve and stopper B. This valve and stopper B is constructed in accordance with the valve and stopper patented to John J. Sturgis, September 9, 1851, and reference is made to Let-

ters Patent of that date for a description of it. It consists of a flat piece or strip of metal, pointed at its forward end, and having passed over it about centrally a spherical body, which, when the valve is thrown back, is received within the half-round face of the plate *b*, and cuts off the flow of metal either backward or forward. The pointed forward end enters the opening in the nipple *a* and closes the same. A reciprocating motion is imparted to this valve B by connecting its rear end to a lever attached to a standard or forked lever, which may be operated by a cam. Directly above this grooved plate *b* is located the chamber C of the pump, in which the plunger D works up and down. Standards E rise from the forward sides of the well A, and support a cross-piece, G, provided with a central opening, through which the plunger D is inserted above the valve B. The plunger is shouldered, as at *d*, upon which rests the elongated portion of an annular disk, *e*, between which and the screw-top of the plunger, and over the same, is passed a spiral spring, *f*. The shouldered portion of the plunger is slotted, and within it is received the forward end of a lever, H, pinned about centrally in the slotted support I, the rear end of the lever H being connected with a suitable mechanical device to operate it, and, by depressing its forward end, give a downward movement to the plunger D, by which movement the spring *f* upon the plunger is compressed, and by the expansion of which spring the return movement of the plunger is facilitated.

Such being the construction of the mechanism by which I propose to carry out my process of type-casting, the operation of it may be thus set forth: The well A is supplied with metal to be melted, and kept in a molten state, or of the proper consistency for casting, in the usual way, by a fire-box properly charged with combustible material placed beneath it. The molten metal flows directly from the well A to and into the nipple *a*. The valve B is first withdrawn from its position within the nipple *a* by means of the mechanical devices operating it, and the metal is thus free to pass through the nipple into the mold. The plunger D of the pump is then depressed, and the mold to receive the molten metal having been

brought up to, and with the opening in the same in line with, the opening in the nipple *a*, the plunger D of the pump forces this metal directly into the mold in which the type is formed. As soon as this is effected the horizontal valve is thrown forward, its pointed end enters the nipple *a*, by which any "back flow" of the molten metal is prevented, and the plunger of the pump being thrown up, as described, and the horizontal valve being again thrown back, the operation of the machine, as described, is repeated. Thus it will be seen that the metal passes in a direct line from the well to the nipple, and that the pressure availed of to expel it from the nipple into the mold is a direct pressure.

In type-casting machines as now constructed the molten metal is forced by the pump from the bottom of the well or chamber up and through an inclined channel to and through the nipple. In my machine, the metal passing, as it does, in a direct line to the nipple, and through it into the mold, I am enabled to avail myself of the "head of metal," the metal cast from being on a line with or above the nipple.

The result of this direct pressure is to more closely unite the particles of metal used in the formation of type, and by more closely uniting these particles to produce a stronger and more durable type than heretofore produced.

Having now set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The within-described process for casting metal types, in which the metal is forced directly, or in a direct line, from the well, and through the nipple into the mold, substantially as and for the purpose set forth.

2. The well and chamber A, formed from one and the same metal, the chamber forming the bottom of the well, in combination with the pump C G, nipple *a*, grooved plate *b*, and horizontal valve B, the same being constructed and operating substantially as described, and for the purpose set forth.

JAMES M. CONNER.

Witnesses:

WM. C. CONNER, Jr.,
JAS. H. DOUGLAS.