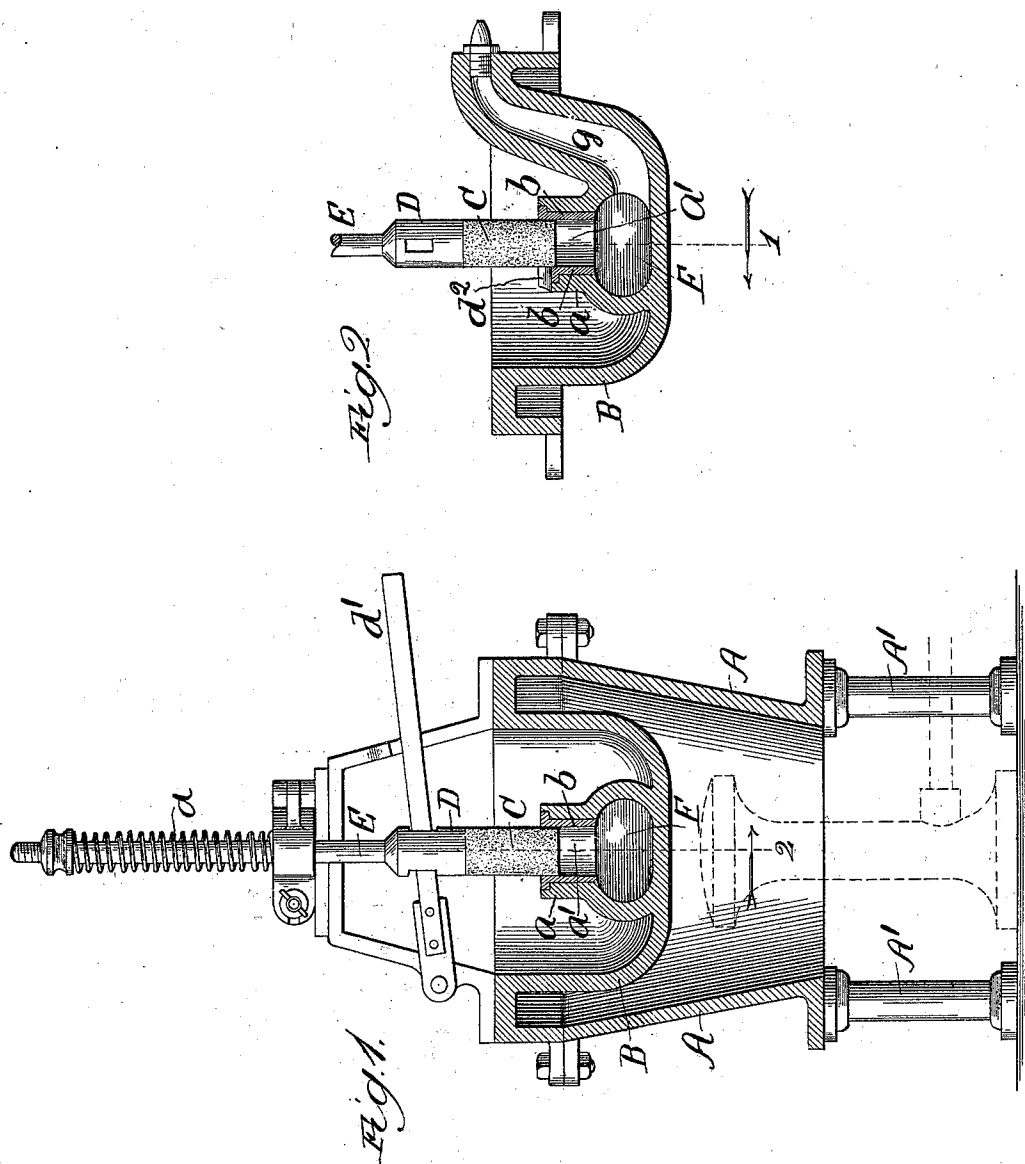


(No Model.)

J. WEST.
TYPE CASTING PUMP.

No. 554,405.

Patented Feb. 11, 1896.



Witnesses:
E. C. Chubb
L. J. Allen

Inventor:
John West.
By L. B. Coupland & Co.
Attys.

UNITED STATES PATENT OFFICE.

JOHN WEST, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE INDESTRUCTIBLE
TYPE COMPANY, OF SAME PLACE.

TYPE-CASTING PUMP.

SPECIFICATION forming part of Letters Patent No. 554,405, dated February 11, 1896.

Application filed February 18, 1895. Serial No. 538,758. (No model.)

To all whom it may concern:

Be it known that I, JOHN WEST, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Type-Casting Pumps; and I 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 improvements in that class of pumps used by type-founders for injecting molten metal into type-casting machines, and has for its object to provide a feature that will permit of the use of a much harder type-metal than is possible under the ordinary arrangement.

The difficulty met with in attempting to cast type from a harder metal or alloy than is usual was that the molten metal would adhere to the bearing-surfaces of the plunger and inclosing wall, causing the plunger to clog and stick and prevent its working successfully. Under the ordinary arrangement the piston and inclosing wall or passage in which it works are composed of metal.

This invention presents a plunger and bearing-surfaces composed of a non-metallic substance to which the molten metal will not adhere.

This invention is an improvement on the subject-matter of an application filed April 28, 1894, Serial No. 509,313, and goes a step farther, in that the cylindrical wall of the neck part of the molten-metal receptacle is provided with a lining of the same material of which the plunger is composed.

Figure 1 is a part elevation and part section of a type-casting pump on line 1, Fig. 2, looking in the direction indicated by the arrow; and Fig. 2, a vertical section on line 2, Fig. 1.

A represents a casing supported on a number of feet A'; B, a reservoir or vessel in which the metal used in casting type is melted; C, the pump-plunger proper; D, the plunger-head, and E the connecting-rod of the plunger. The reservoir is supported by the surrounding casing A and extends downwardly some way on the inside thereof, as shown. The lower end of this casing is open for the introduction of a gas-burner, the relative po-

sition of which is indicated by dotted lines, for keeping the casting metal in the required fluid state.

The plunger end C is composed of a composition consisting mainly of carbon combined with some other non-metallic material, usually of a plastic nature—such as fire-clay, kaolin, and graphite—that will readily permit of being pressed or molded into the desired form.

The melting-reservoir is provided with a well-chamber F, terminating in the neck part or cylinder *a*, in which the plunger plays. The plunger being necessarily close fitting in the neck-passage to the well-chamber, it is obvious that it must be made of such material or composition as will prevent the molten metal from adhering to the bearing-surface thereof and causing it to stick in the passage.

The soft type-metal ordinarily used will not adhere to a metallic plunger, but the harder metal composition used with the improved plunger has a soldering effect on the metal plunger and rigidly fastens it in the throat-passage leading into the well-chamber and renders the pump useless.

The cylindrical contracted passage *a'* in the neck part of the well-chamber is provided with a lining *b*, which is composed of a carbon composition or substance similar to that of the plunger playing therethrough. Thus the plunger and the wall inclosing the passage in which the plunger moves being all composed of a non-metallic substance, all possibility of the parts clogging is avoided, no matter how hard the type-metal may be.

The plunger is automatically raised by a spring *d* and forced downwardly by a pressure on the bar *d'*. When the plunger is at its highest elevation, a charge of the molten metal flows into the well-chamber through a notch *d²*, Fig. 2. On the downstroke this notched opening is closed and the charge of metal is forced out through passage *g* into the casting-molds.

The harder metal type that it is possible to cast with this improved type-founders' pump is of a much more durable character and will outlast the ordinary type many times over.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A type-founder's pump, having a well-chamber and a plunger-passage communicating therewith, said passage being provided with a lining composed of a carbon composition or substance, substantially as described.

2. The combination in a type-founder's pump, of a plunger, composed of a carbon composition or substance, and a well-chamber, having a plunger-passage communicating therewith that is lined with a similar ma-

terial entering into the composition of the plunger working therethrough, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN WEST.

Witnesses:

L. M. FREEMAN,

L. B. COUPLAND.