

No. 648,025.

Patented Apr. 24, 1900.

G. A. GOODSON.
TYPE CASTING MACHINE.

(Application filed Sept. 12, 1899.)

(No Model.)

Fig. 1.

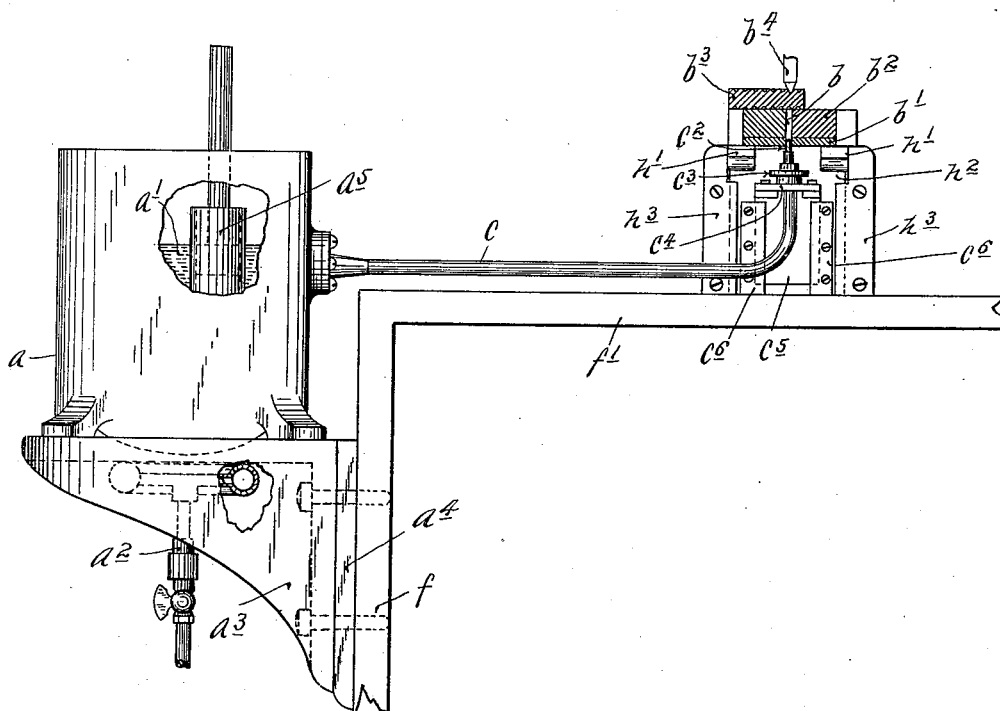


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE ARTHUR GOODSON, OF MINNEAPOLIS, MINNESOTA.

TYPE-CASTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,025, dated April 24, 1900.

Original application filed July 8, 1899, Serial No. 723,133. Divided and this application filed September 12, 1899. Serial No. 730,235. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ARTHUR GOODSON, a citizen of the Dominion of Canada, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Type-Casting Machines; 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.

My invention relates to type-casting machines, and has for its object to provide an improvement whereby increased efficiency is secured.

To this end my invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

To persons familiar with the art of type-founding it is of course well known that type-metal is an alloy. It is usually composed of lead, tin, antimony, and bismuth. It is also well known to those familiar with the art that much difficulty is experienced from the deposit of more or less of these ingredients of the alloy—especially from antimony—in some or all of the parts through which the molten metal is conducted from the melting-point to the casting-point, or, in other words, from the melting-pot to the mold. I have discovered that the said ingredients of the alloy type-metal will not adhere to aluminium. Hence by transmitting the molten metal through a conductor or conductors having an inner surface of aluminium the difficulty arising from the deposit of antimony or any of the other ingredients of the type-metal may be entirely overcome.

I have illustrated my invention as applied to a type-casting machine of the kind known to the trade as the "Goodson Type-Casting Machine." This Goodson type casting and setting machine is fully disclosed in several of my prior patents—as, for example, in my United States patents of December 4, 1894, June 21, 1898, and August 16, 1898, as made prior to my present invention. Only that portion of said Goodson machine which is concerned with the handling of the molten metal

is illustrated in the drawings, as that is sufficient for the purposes of this case.

In said drawings, Figure 1 is a view, partly in elevation and partly in vertical section, with some portions broken away, illustrating part of the Goodson type-casting machine as constructed with my present invention embodied therein. Fig. 2 is a detail showing a cross-section of the conducting-tube for the molten metal.

In the Goodson machine the melting-pot a is located remotely from the mold $b' b^2 b^3$ and the hot metal a' is conducted from the melting-pot to the mold through a suitable conducting-tube $c c'$. This conducting-tube, as shown, is made up of an outer or main tube c and an inner or lining tube c' . The outer or main tube c is preferably composed of steel, but may be made of other suitable hard metal. The inner or lining tube c' is composed of aluminium. It may be applied to the outer or steel tube c in any suitable way which will secure close contact between the two. In practice I provide an aluminium tube of smaller diameter than the outer or steel tube, and after placing the former within the latter I swage the aluminium tube to the steel tube by drawing a follower through the aluminium tube and spreading the same into close contact with the inner surface of the steel tube. The conducting-tube terminates in a nipple c^2 , which has been regarded as part of the tube, as it is made up of steel lined with aluminium in exactly the same way as the main portion of the tube.

Before my present invention I employed a conducting-tube which was composed entirely of steel. The tube-nipple c^2 is necessarily of small bore. While so using a steel tube I experienced considerable difficulty from the deposit in the tube of some of the ingredients of the type-metal, especially from the deposit of antimony. This was most troublesome at the nipple, for the reason that the small passage in the nipple could be easily clogged or closed by the antimony. Antimony is very hard, and hence very difficult to remove. The amount of deposit varied greatly, according to the character of the type-metal. If the type-metal was exactly

right, much less trouble was experienced. I have found it, however, impossible to procure type-metal of uniform quality. Different lots of the same commercial grade will frequently vary to a considerable extent. With the use of my present invention I find no difficulty whatever from the deposit of antimony or others of the ingredients or compounds of ingredients from the type-metal. The bore in the conducting-tube keeps clear, and hence the metal can be transmitted without obstruction.

While I have described the conducting-tube as being a steel tube lined with aluminium, it will be understood, of course, that I do not limit myself to this compound tube made up of steel and aluminium. Any conductor adapted to transmitting molten type-metal which may be provided with an aluminium inner surface is within the scope of my invention in the broad point of view. The steel tube lined with aluminium is preferable for my machine, because I need a spring action at the outer end of my tube. In other type-casting machines the delivery nozzle or tube from the melting-pot may be made from other kinds of metal or be of other shape, but if lined with aluminium or otherwise provided with an inner surface of aluminium corresponding good results will be secured.

Having regard to some of the details of the Goodson machine shown in the drawings, the metal a' in the melting-pot a is kept in a molten condition from a suitable gas-burner a^2 or otherwise. The melting-pot a is shown as supported by a bracket a^3 , bolted to the vertical plate f of the machine-frame, and is heat-insulated therefrom by a body of asbestos a^4 . The melting-pot is provided with a suitable force-pump a^5 for forcing the molten metal from the melting-pot into the mold-cell b at the proper times. The nipple c^2 is shown as in casting position, with its upper end seated in the nipple or guide-plate b , which is also the base-plate of the body-mold, on which the members b^2 are mounted for lateral movement for purposes not necessary here to note. The matrix-block b^3 is also shown as held in casting position for cooperation with the other elements of the mold by a suitable centering device b^4 . The nipple or base-plate b' of the mold is shown as resting on outwardly-projecting lugs h' , carried at the upper end of a vertically-movable plate h^2 , which is supported within suitable guides formed in standards h^3 , rising from the horizontal member f' of the machine-frame.

The nipple c^2 is shown as provided with a collar or yoke c^3 , resting on a plate c^4 , carried at the upper end of a slide c^5 , which is mounted for independent vertical movement within suitable guides c^6 , carried by the vertically-movable plate h^2 .

In the Goodson machine the body-mold is adjustable by means (not shown) for affording a mold-cell b of any desired width for cooperation with any selected member of the matrices on the matrix-block b^3 when the latter is properly centered and held in casting position. These details as to the mold and the mounting of the nipple, &c., have been specified simply because they are shown. So far as the present invention is concerned it is of course immaterial what may be the form of the mold or in what way the particular details may cooperate as long as type may be cast thereby from the molten metal which is forced through the conducting-tube or delivery-nozzle leading from the melting-pot to the mold.

This application is filed as a division of my pending application, Serial No. 723,133, filed July 8, 1899. Division is made at the demand of the Commissioner of Patents in his communication in said pending case, Serial No. 723,133, of date July 28, 1899.

The broad claim to my new process or method as an improvement in the art of type-founding—to wit, the transmitting of the molten metal from the melting-point to the casting-point through a conductor or conductors having an inner surface of aluminium—will be found in the said pending application. The present application is confined to apparatus or mechanism for carrying out the said process or improvement in the art.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a type-casting machine, the combination with a melting-pot and a mold, of a metallic conductor having an inner surface of aluminium, for transmitting the molten type-metal from the melting-pot to the mold, substantially as described.

2. In a type-casting machine, the combination with a melting-pot and a mold, of a conductor for transmitting the molten metal from the melting-pot to the mold, which conductor is composed of steel or other hard metal lined on its interior with aluminium, substantially as and for the purposes set forth.

3. In a type-casting machine, the combination with a melting-pot, a mold and a force-pump in the melting-pot, of a metallic conductor having an inner surface of aluminium for conducting molten metal from the melting-pot to the mold under the action of said pump, substantially as described.

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

GEORGE ARTHUR GOODSON.

Witnesses:

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