

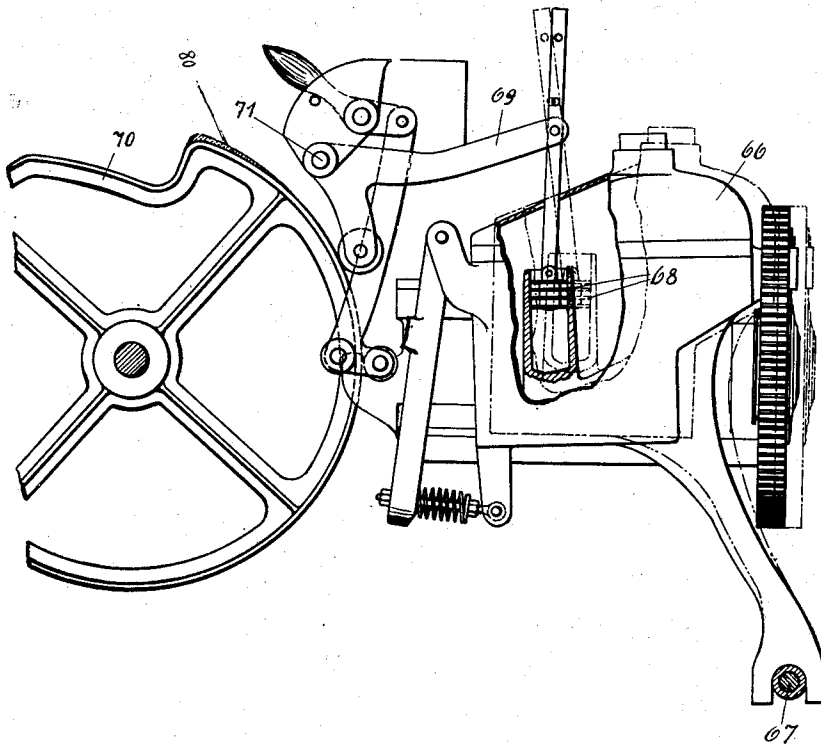
H. DEGENER.
TYPE SETTING AND LINE CASTING MACHINE.
APPLICATION FILED SEPT. 12, 1910.

1,010,401.

Patented Nov. 28, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

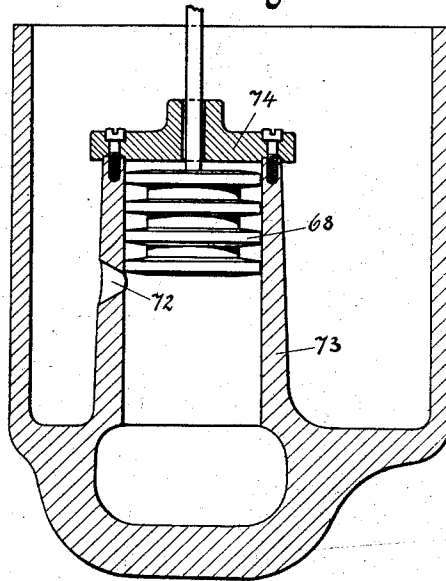
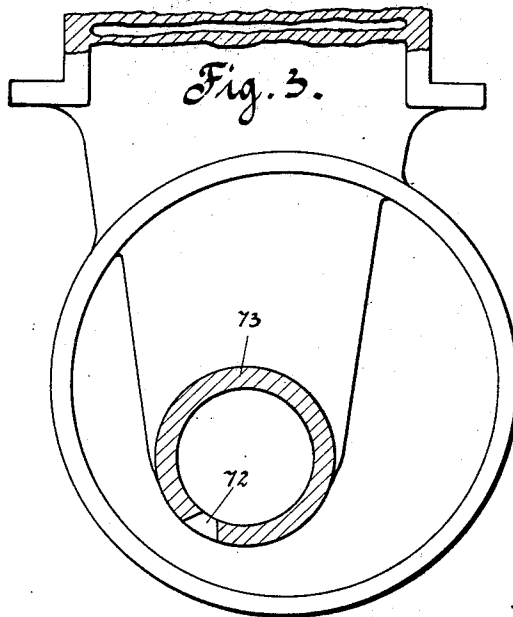


Fig. 3.



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UNITED STATES PATENT OFFICE.

HEINRICH DEGENER, OF BERLIN, GERMANY, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

TYPE-SETTING AND LINE-CASTING MACHINE.

1,010,401.

Specification of Letters Patent. Patented Nov. 28, 1911.

Original application filed April 19, 1910, Serial No. 556,441. Divided and this application filed September 12, 1910. Serial No. 581,536

To all whom it may concern:

Be it known that I, HEINRICH DEGENER, 26 Hollmannstrasse, Berlin, German Empire, manager, having invented certain new and useful Improvements in or Relating to Type-Setting and Line-Casting Machines, do hereby declare that the following is an exact specification of the same.

This invention relates to improvements in 10 matrix setting and type line casting machines of the Mergenthaler system, in which matrices are set into lines, whereupon metal castings in the shape of lines are prepared from the said set matrix lines, and the cast- 15 ings in question are used direct for printing.

The improvements relate to the casting device.

In the accompanying drawings Figure 1 shows the casting device, Fig. 2 shows in 20 vertical section the casting pot with the pump cylinder, and Fig. 3 shows it in sectional plan.

This application is divided from my application Serial No. 556,441, filed April 19, 25 1910.

The casting device proper remains the same as in the old constructions, but a disadvantage is obviated, which was due to the fact that, owing to the oscillation of the casting pot, the pump piston moved downward in the cylinder during its movement forward toward the matrix line, and in that way sometimes expelled lead from the boiler. This is avoided by the curved path 30 of movement of the pump lever, having been modified so that the pump lever is raised to the same extent as that to which the piston is moved relatively to the casting pot, so that the relative position of the pump piston and of the casting pot remains unchanged. This construction is shown in Fig. 1. The casting pot 66 is rotatably arranged in the known manner about the pin 67, and 68 is the pump piston which is 35 moved by the cam 70 by means of the lever 69. The pump lever 69 is pivotally mounted on the frame at 71.

In Fig. 1 of the drawing, the back position of the casting pot is shown in full lines, and the front position of the same in dotted lines. As will be seen from that figure, the piston in the front position would be in a lower position in the pump cylinder than in the back position, so that

there would be the above mentioned disadvantages. In reality, the difference in the position of the pump piston is about 15 mm.

According to this invention, the pump cam 70 is modified in such manner that it has a gradient 80 located along that portion 60 of its track which corresponds in time to the forward movement of the casting-pot, the said gradient being so timed and proportioned that it acts upon the lever 69 so as to elevate the pump piston to an extent 65 sufficient to counteract the relative movement between the piston and pot previously referred to. In other words, additional means are thus provided to preserve the relative relation of the piston and pot, notwithstanding the oscillatory motion of the latter. Moreover, an improvement has been made also in the pump cylinder itself. As is known the pump cylinder, is provided with an opening for drawing in the liquid 75 metal. In old constructions the opening had to be comparatively large as it was made in the shape of a cylindrical perforation and consequently the metal could enter 80 the cylinder only with strong contraction, more particularly as the opening in question was arranged on a side of the pump cylinder at which, owing to the charging of the metal the latter was not very liquid and comparatively cold. 85

According to this invention (Figs. 2 and 3), the above disadvantage is obviated by shifting the opening to a point at which the metal is not exposed to such a strong cooling, namely, to a point remote from that 90 where the solid metal is introduced, and by making the perforation of a conical shape. The perforation itself can then be made quite small, as the metal can enter the cylinder without contraction and at a higher 95 temperature. Thus, owing to the great resistance offered by the small perforation to the escape of metal from the cylinder, a strong pressure is insured from the first, and more particularly even before the 100 pump has been fully actuated, there will take place an actual forcing-in of the metal into the line, so that the casting itself becomes more compact.

The casting pot, as well as the pump, are 105 constructed in the known manner. The arrangement differs from the known arrangements, generally speaking, only by the fact

that the opening 72 through which metal is drawn into the cylinder, is moved away from the point at which the metal is introduced, and is made of a conical shape and of considerably smaller size than in the previous constructions. The pump piston 68 is normally in such a position that its lower edge is flush with the upper edge of the hole, so that it becomes operative almost at once.

10 The cylinder 73 itself can be made a little lower than before, so that there is less possibility that the dirt and sediment settling on the top of the metal, would be drawn into the cylinder; this can be prevented in a still more efficacious manner by providing the cylinder with a cover 74.

Having now particularly described and ascertained the nature of my invention and in what manner the same is to be performed,

20 I declare that what I claim is:

1. In a line setting and type line casting machine in combination a casting pot containing a pump device, means for oscillating the casting pot to casting position, a pump plunger and means for controlling the movement of the plunger, the said plunger resting in its position relatively to the casting pot during the oscillation of the casting pot.

2. In a line setting and type line casting machine in combination a casting pot containing a pump device, means for oscillating the casting pot to casting position, a pump plunger and means for controlling the movement of the plunger, the said pump plunger having an additional movement simultaneously with the movement of the casting pot.

3. In a line setting and type line casting machine in combination a casting pot containing a pump device, means for oscillating the casting pot to casting position, a pump plunger and means for controlling the move-

ment of the plunger, the said pump plunger having such an additional movement simultaneously with the movement of the casting pot as to cancel its relative movement to the pump cylinder.

4. In a line setting and type line casting machine in combination a casting pot containing a pump device means for oscillating the casting pot to casting position, a pump plunger and a cam disk for driving the pump plunger said cam disk being provided at that part of the cam which corresponds to the forward movement of the casting pot with a gradient raising the pump plunger during the forward movement of the casting pot.

5. In a typographical machine comprising casting mechanism, the combination of a movable casting-pot and a suitably actuated pump, with means whereby the relative relation of the pot and pump is preserved during the movement of the latter.

6. In a typographical machine comprising casting mechanism, the combination of a movable casting-pot, a pump, and a cam to control the action of the pump, the said cam being so formed as to control the pump during the movement of the pot in order to preserve their relative relation.

7. In a typographical machine comprising casting mechanism, the combination of the casting-pot and the pump cylinder located therein, the said cylinder being formed with an opening for the molten metal and having a gradually decreasing cross-section.

In witness whereof I have hereunder set my hand in presence of two witnesses.

HEINRICH DEGENER.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.