

No. 712,755.

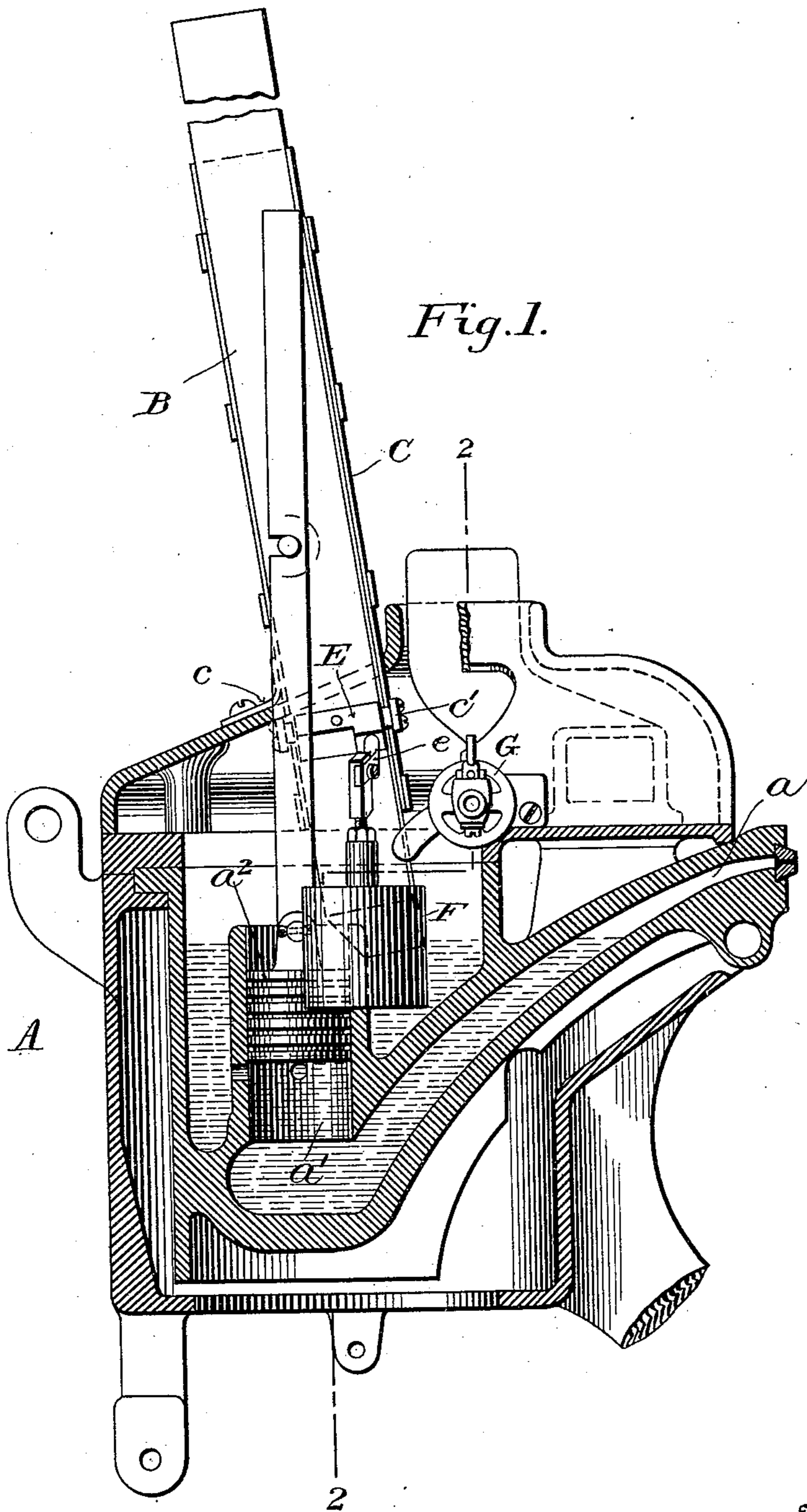
Patented Nov. 4, 1902.

G. A. BATES.
LINOTYPE MACHINE.

Application filed Mar. 17, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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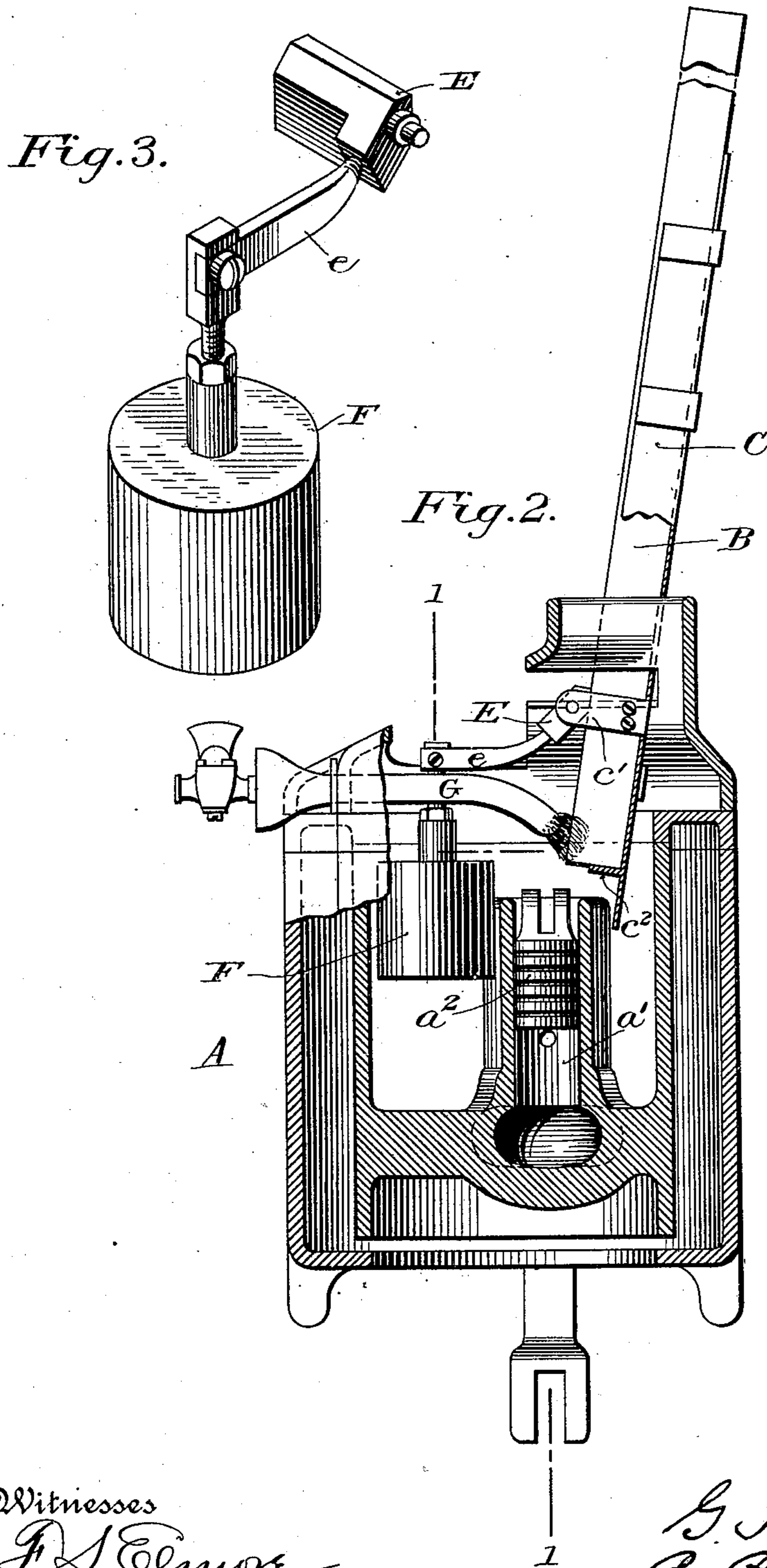
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UNITED STATES PATENT OFFICE.

GEORGE A. BATES, OF BROOKLYN, NEW YORK, ASSIGNOR TO MERGENTHALER LINOTYPE CO., A CORPORATION OF NEW YORK.

LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 712,755, dated November 4, 1902.

Application filed March 17, 1902. Serial No. 98,565. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. BATES, of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Linotype-Machines, of which the following is a specification.

In linotype-machines, now in extensive use, a melting-pot provided with a pump is employed to deliver molten metal into a slotted mold and against matrices arranged automatically against its opposite face for the purpose of producing slugs or linotypes. Owing to changes which are made in the size of the slugs produced and to variations in the speed of the machine there is a wide variation in the rate at which the metal is consumed. For various reasons unnecessary to detail it is desirable to keep the supply of molten metal in the pot as nearly as possible at a uniform height.

The object of this invention is to provide a simple means for automatically feeding solid metal to the pot in order to maintain the surface of the molten metal at a given level without regard to the rate at which the molten metal is delivered from the pot.

To this end the invention consists, essentially, in the combination of a suitable guide or support through which the solid metal in the form of bars or ingots descends by gravity into the pot and a clamping device actuated by a float to control the descent of the metal.

It also consists in combining with the metal-pot means for guiding the solid metal downward into the same, a clamp actuated by a float to control the descent, and a stop to arrest the solid metal when it has descended a definite distance.

It also consists, in combination with the metal-delivery devices, of a supplemental burner for delivering the flame against or adjacent to the solid metal to aid in fusing the same at the lower end.

While the details may be variously modified without passing beyond the limits of the invention, the device is shown herein in a form in which it has been successfully applied to the Mergenthaler linotype-machine.

As the other parts of the machine may be

of the ordinary construction, the drawings are limited to the metal-pot and feed devices.

Figure 1 represents a vertical section from front to rear through an ordinary linotype melting-pot with this improvement applied thereto, the section being taken on the correspondingly-numbered line of Fig. 2. Fig. 2 is a vertical cross-section of the pot on the correspondingly-numbered line of Fig. 1. Fig. 3 is a perspective view of the float and clamp.

Referring to the drawings, A represents the body of the ordinary melting-pot, having, as usual, a delivery throat or mouth a , a vertical cylinder or well a' , and a vertically-reciprocating plunger a^2 in said well to effect the delivery of the molten metal. The pot is provided with a cover, as usual, and in practice is subjected to the action of a heating flame or flames on the under side.

Carrying the invention into effect the linotype metal from which the slugs or linotypes are to be produced is provided in the form of bars or rods B, which may be of any suitable length and of any desired form in cross-section, a rectangular section, such as shown in the drawings, being preferred. A metal-guide C of suitable size to receive the metal bars is provided for the machine and mounted in an upright position above the pot, preferably with its lower end extended into the same, as shown, so that the bar of metal introduced through the guide from above may have its lower end directed downward into the pot and into the molten metal therein. The guide C is preferably secured by lateral arms thereon to the top of the pot, as shown at c , in order that it may move with the pot, which swings forward and backward. For the purpose of controlling the descent of the metal bar a horizontally-pivoted clamp or dog E is employed, having the journals at its ends mounted in ears c' , projecting from the guide C or otherwise supported, so that by a slight rotary motion the dog E is caused to bite against the metal bar and check its descent or to release the bar, so that it may descend by gravity. The clamping-dog E is provided with an operating-arm e , which is in turn connected to the upper end of a float F, located in the

pot and resting in the molten metal. Whenever the metal falls below the proper level the float sinks, and turning the dog causes it to release the bar of metal B, which thereupon descends into the pot. The solid metal displacing the molten metal raises its level and causes it in turn to raise the float, whereby the dog is caused to arrest the descent of the metal bar when the molten metal is at the proper level. The lower end of the metal bar is completely fused and added to the molten mass in the pot. When the surface of the molten metal again falls below the predetermined level, the dog is actuated and the solid bar permitted to descend as before. By the automatic and repeated operations of this character the solid metal is gradually fused and added to the mass in the pot, and thus the metal in the pot kept at a uniform height and at a practically uniform temperature. In order to prevent the momentum of the metal bar from carrying it too far downward, the lower end of the guide is preferably provided with a lip or shoulder c^2 , against which the lower end of the bar may abut; but it is to be understood that this is not a necessary feature of the structure. To facilitate a rapid fusing of the lower end of the bar and to avoid the necessity of raising the metal in the pot to an excessive temperature, the pot is provided with a supplemental burner G, having its forward end arranged in position to project the flame against the lower end of the bar B or upon the surface of the metal adjacent thereto. The drawings show the ordinary form of Bunsen burner introduced through and secured to the rear side of the pot. This burner may be omitted, although experience indicates that its use is desirable. While the details of construction herein shown have been found best adapted for general use, it is to be understood that the guide for the metal bar, the clamp, and the float may be varied in form and arrangement at will, provided their mode of operation herein described is retained.

It is to be noted that in my mechanism the feeding of the bar into the pot is effected wholly by gravity and that no feed mechanism or power-driven devices of any kind are employed to cause the descent of the upright bar or ingot or to control its descent. It is further to be noted that the float employed in my mechanism acts not to control a feed mechanism, but directly upon the bar or ingot to control its descent by gravity.

What is claimed as the invention is—

1. In a linotype-machine, as a means of automatically maintaining the level of the molten metal, the combination of means for guiding a type-metal bar by gravity into the pot, a clamping device arranged to act on the bar to limit its descent, and a float to actuate the clamping device.

2. In a linotype-machine, the combination of a melting-pot B, a guide C to direct a solid metal bar into the pot, a clamp E to control the descent of the bar, and a float F controlling the clamp.

3. In a linotype-machine, the combination of a melting-pot, a guide to direct a solid metal bar into the pot, and a stop or abutment against which the lower end of said bar abuts.

4. In a linotype-machine, the combination of a melting-pot, a guide to direct a solid metal bar downward into the pot, and a burner arranged to deliver its flame adjacent to the lower end of the bar.

5. In a linotype-machine, the combination of the melting-pot, a guide to direct solid metal into the same by gravity, a float, a clamp actuated thereby to control the descent of the metal bar into the pot, and an abutment to arrest its advance.

In testimony whereof I hereunto set my hand, this 3d day of March, 1902, in the presence of two attesting witnesses.

GEORGE A. BATES.

Witnesses:

G. E. GRANT,
F. E. WHARTON.