

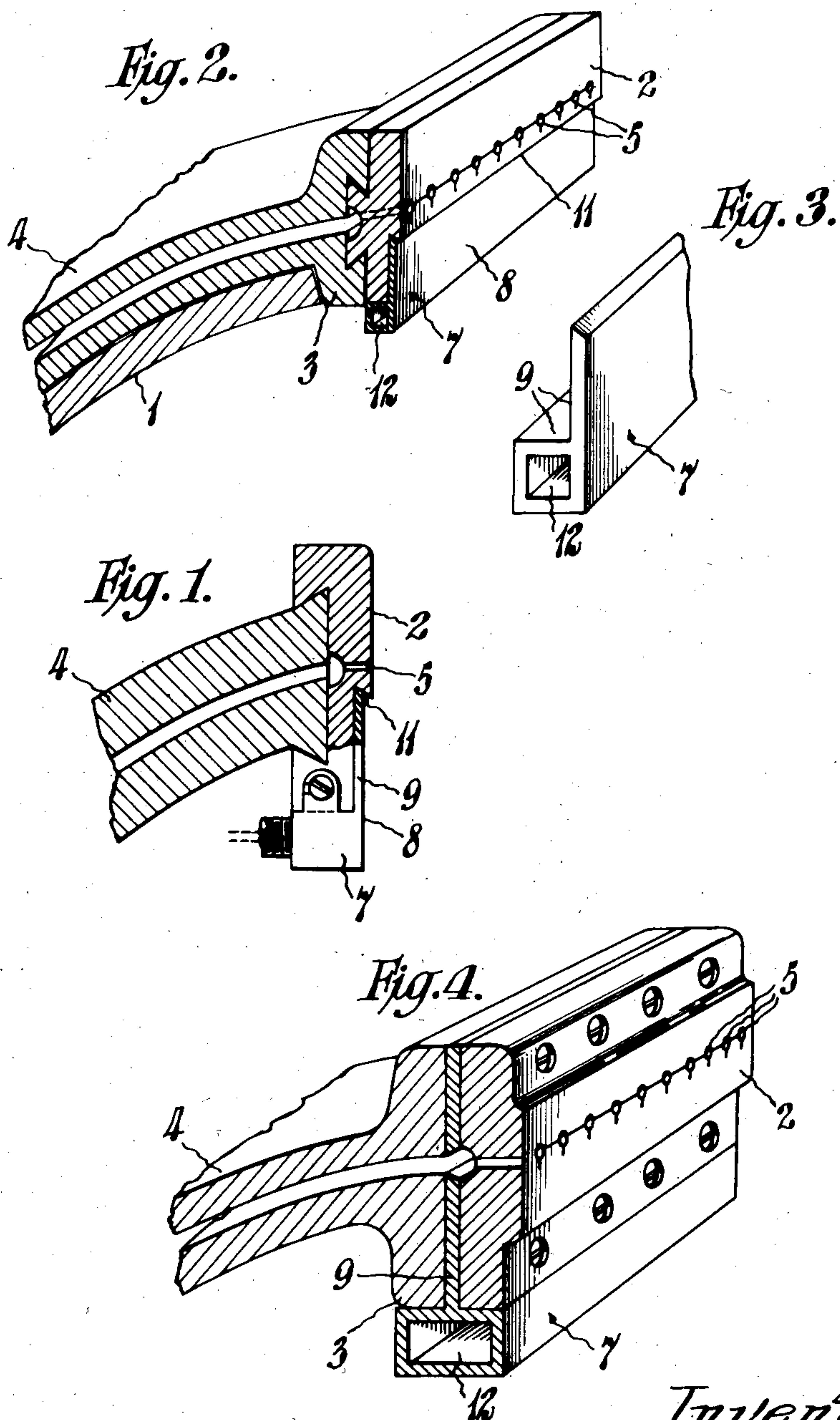
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CASTING MOUTH HEATING FOR LINE COMPOSING AND CASTING MACHINES

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## UNITED STATES PATENT OFFICE

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CASTING MOUTH HEATING FOR LINE  
COMPOSING AND CASTING MACHINES

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In the casting operation by means of the known line composing and casting machines the liquid metal is forced from the casting pot into the casting mould by a plunger or pumping action. During that operation the mouth of the casting pot is pressed against the casting mould. As the casting mould has the function of shaping the cast characters and cooling them it follows that it must be considerably cooler than the mouth of the pot and that there is a heat exchange operation between the mouth and the casting mould due to which the mouth of the pot is apt to become rapidly chilled.

For that reason in gas heated pots a relatively large number of gas jets has been placed under the mouth thereof for re-heating it after the cooling.

More recently electrical heating has however been generally adopted and the above considerations had to be particularly borne in mind.

For this purpose heating elements intended to perform the function of the gas flames have been associated with different parts of the pot. In most cases these heating bodies were controlled either directly by series resistances or by connection in series or parallel.

Where electric heating bodies are disposed on or within the neck or throat of the casting pot no matter how close to the mouth, the sections which are immediately adjacent the heating body are still apt to become materially hotter than those at the actual face of the casting terminal so that in practice the object to equalize the heat losses at the actual mouth terminal apt to occur during casting by the contact with the mould has not been properly achieved.

Now this invention relates to a device which is adapted to overcome the above defects in that it is capable of being directly associated with the terminal plate of the mouth of the pot without in any way interfering with the flow of the metal through the mouth thereof while being entirely independent of any other heating body or device that may be applied to the pot at other points.

By way of example the invention is illustrated in the accompanying drawing in which:

Fig. 1 illustrates the terminal of a casting pot for use in an Intertype machine fitted however with a heating device according to this invention.

Fig. 2 shows the same arrangement in a perspective view and

Fig. 3 is a perspective view of the heater by itself.

Fig. 4 shows a heater according to this inven-

tion adapted to be fitted to a pot terminal of modified form.

In Fig. 2 a heating body shown at 1 is arranged directly beneath the neck 4 of the pot, the terminal plate 2 containing the casting holes 5 being separated from the heater by the body portion 3 of the mouth. In Figs. 1 and 2 the face portion 10 of the terminal plate is mitred at 11 immediately below the casting holes 5 and to the face portion 8 below said edge is fitted a heating device. This heating device comprises a plate-shaped portion 9 and a housing 12 adapted to accommodate a suitable heating body. The device 7 is made of a material of a very good coefficient of heat conduction and when fitted as shown in Figs. 1 and 2 beneath the outlet apertures 5 of the casting mouth with the heated housing portion 12 situated directly beneath the end of the terminal plate thereof, the heat produced rapidly reaches the point of utilization and on the other hand the deposition of drops of metal on the face 8 is avoided because the wall of the heating body housing always has a higher temperature than the casting mouth itself.

With this arrangement the former heating body used in the throat or on the neck itself indicated at 1 in Fig. 2 can be made of considerably smaller heating power because it now has only the function of keeping the neck of the casting mouth warm. Experiments have shown that half the energy previously expended is sufficient.

Further while overheating with this device may be easily avoided it has been found that if it does occur at the actual mouth it assists rather in that the small outlet holes 5 always remain clean and a "burning" of the metal cannot take place since after casting there is in practice no metal left in the mouth, the latter in fact being always immediately ready for use.

The greatest advantage however is that the metal in the interior of the melting pot and in the neck can be kept considerably cooler than hitherto because the outlet is always clean and hot enough.

In the case of machines having a casting terminal plate screwed to the mouth of the neck as shown in Fig. 4 the fitting of the device 7 is preferably effected as shown in Fig. 4. Here the plate portion 9 of the heating device extends substantially centrally from the housing portion 12 and is fitted between the terminal casting plate of the mouth and the latter itself with the heated housing 12 directly beneath and in contact with the corresponding ends of the mouth of the pot and its terminal plate. A slot in the plate



portion is adapted to register with the channel in the neck of the pot and with the casting holes 5 for a smooth flow of the metal.

In both constructions the device can be secured by screws as shown or any other convenient manner and means can of course be provided enabling the temperature of the casting mouth to be automatically controlled by regulating the effect of the heating body in the housing without risk of continuously overheating the metal.

I claim:

1. A heating device for the mouth of a casting pot for line composing and casting machines, comprising a heating body operable independently of heating means applied to portions of the pot other than the mouth thereof, and a conducting member directly associated with the terminal plate of said mouth and adapted to house said heating body.

2. A heating device for the mouth of a casting pot for line composing and casting machines, comprising a heating member directly associated with a terminal plate for said mouth, including in combination a heating body, a housing adapted to accommodate said heating body, and a plate-like portion extending from said housing and adapted to be fitted to the casting face of said terminal plate of the mouth.

3. In a casting pot for line composing and casting machines, a heating device for the mouth of said pot, comprising in combination a heating body associated with a terminal plate for said mouth, a housing for the accommodation of said heating body, and a plate-like portion extending from said housing and adapted to be fitted between the mouth of the pot and said terminal plate thereof.

4. In a casting pot for line composing and casting machines, a heating device comprising in combination, a heating body for the mouth only of said pot, a housing adapted to accommodate said heating body, and a plate-like portion associated with said housing and shaped to fit the casting mouth on the terminal plate of the mouth immediately below metal delivery openings in said terminal plate.

5. In a casting pot for line composing and casting machines, a heating device comprising in combination, a heating body for the mouth only of said pot, a housing for accommodating said heating body, and a plate-like portion integral with said housing and shaped to fit the casting mouth on the terminal plate of the mouth and when fitted to cover the whole of the face of said terminal plate immediately below the delivery holes therein to prevent deposition thereon of dripping metal, said housing being offset there-

from and in direct contact with one end of said terminal plate.

6. In a casting pot for line composing and casting machines, a heating device comprising in combination, means for heating the mouth of said pot independently of heating means applied to other portions of the pot, a housing adapted to accommodate the first said heating means, and a plate-like portion extending substantially centrally therefrom and adapted to be secured between the mouth of the pot and the terminal plate thereof, with the housing in direct contact with the corresponding ends of both said mouth and said terminal plate.

7. In a casting pot for line composing and casting machines, a heating device for heating the mouth of said pot, comprising in combination, a separate heating body for heating the mouth of said pot independently of heating means applied to other portions of the pot, a housing adapted to accommodate said heating body, and a plate-like portion adapted to be fitted between the mouth of the pot and the terminal plate thereof and provided with an opening in register with the channel in said mouth and with the delivery openings in said terminal plate for the passage of the metal therethrough.

8. In a casting pot of a line composing and casting machine, an electrical heating device for making possible a substantial reduction of the heating of the casting pot, comprising a heating member arranged independently of the heating member or members for the throat of the pot, and a plate of good heat conducting material extending from said heating member directly to the casting mouth.

9. In a casting pot of a line composing and casting machine, an electrical heating device for making possible a substantial reduction of the heating of the casting pot, comprising a heating member arranged independently of the heating member or members for the throat of the pot, and a plate of good heat conducting material extending from said heating member to directly beneath outlet apertures for the pot, said plate covering the front of the casting mouth beneath the outlet apertures and thus preventing deposition thereon of falling drops of metal.

10. In a casting pot for line composing and casting machines, a device capable of being directly associated with a terminal plate for the mouth of the pot, comprising a housing adapted to accommodate heating means, and a plate-like portion extending from said housing and adapted to conduct heat from said housing to said terminal plate.

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