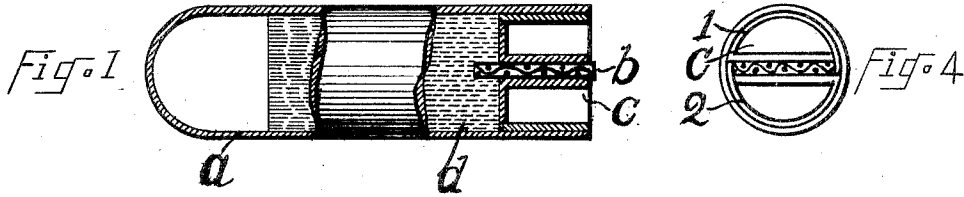
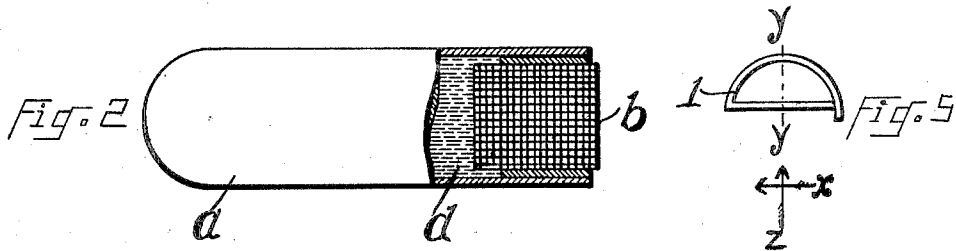
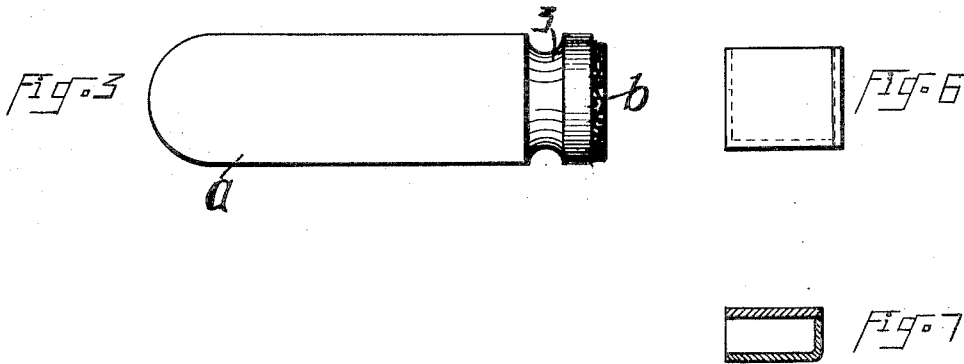


E. M. LOW.
 DEVICE FOR TREATING TYPE METALS.
 APPLICATION FILED JUNE 24, 1912.

1,082,279.

Patented Dec. 23, 1913.



WITNESSES:

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DEVICE FOR TREATING TYPE-METALS.

1,082,279.

Specification of Letters Patent.

Patented Dec. 23, 1913.

Application filed June 24, 1912. Serial No. 705,616.

To all whom it may concern:

Be it known that I, EVERETT M. LOW, citizen of the United States, residing at New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Devices for Treating Type-Metals, of which the following is a specification.

My invention relates to a device for inserting a cleaning agent into type metal or the like while in a molten state.

The object of my invention is to provide a means of treating type metal or the like whereby a cleaning agent may be inserted into molten metal and be brought gradually into contact therewith, thereby preventing the escape of the cleaning agent to the surface of the metal before it has been brought into contact with all parts of it. To accomplish this I provide a shell containing a cleaning agent, in liquid form or of such composition as to become liquid at the temperature of the molten metal in which it is to be used, the shell being provided with means hereinafter described whereby the contents may escape gradually into the surrounding metal in which it is immersed. I attain these objects by the device illustrated in the accompanying drawings in which:

Figure 1, is an elevation partly in section of a shell ready for use; Fig. 2, a plan partly in section of Fig. 1; Fig. 3 is a view of a modified form of my device; Fig. 4, an end view of Fig. 1; Fig. 5, is a view of one section of the wick holder; Fig. 6, is a view of Fig. 5, looking in the direction of arrow *z*, Fig. 5; Fig. 7, is a view of Fig. 5, in section, on line *y, y*, looking in the direction of arrow *x*.

Referring to the drawing: A, is the shell made preferably of metal; B, is the wick; C, is the wick holder made preferably in two sections, 1 and 2; and D, is the contents of the shell A. In Fig. 3, I have shown a shell adapted to hold a round wick, the shell being contracted at the point 3 to hold the wick B. In practice I prefer to use a shell of metal and a wick of cotton or asbestos, according to the degree of heat to which it is to be subjected. The shell A, is filled or partially filled with the cleaning agent *d* when in a fluid or semifluid state; the wick B is placed between the sections 1 and 2, of the wick holder C, when the wick holder C, and wick B is forced into the end of the shell A. The most common cleaning agents

are tallow, rosin and salammuniac, used separately or combined in various proportions and sometimes compounded with charcoal and other substances.

A great variety of compounds are in use for cleaning and removing the dross from type metal, some of which are in the form of a powder and some of which are liquid. All of these compounds being lighter than metal, cannot be forced into the metal but will float on the surface and do not come into contact with the body of the metal and consequently have no action upon it. In my device I inclose the cleaning agent in the shell A, and as soon as the shell A is immersed in the molten type metal the contents D, of the shell A, melts and passes through the wick B, gradually and as the shell A, is moved throughout the metal the contents D, of the shell A, is brought into contact with every part of the molten metal. If I desire to use a cleaning agent in liquid form, I would use a wick coated with wax or other suitable substance impervious to the liquid cleaning agent until melted by contact with the molten metal.

In practice the type metal, such as is used for linotyping, stereotyping and similar purposes is heated to about 600° to 650° F., when the cleaning agent is thrown on the top of the molten metal where it acts on the dross and impurities which are floating on the top of the molten metal, separating the free metal from the dross and when the cleaning agent is also a deoxidizing agent it deoxidizes some of the dross, the amount depending on the degree of heat to which the metal is subjected the dross is then skimmed off, leaving the surface of the metal exposed to the air, allowing still further oxidation and formation of dross. All of the cleaning agents are deoxidizing agents and fluxes to a greater or less degree, according to the metal in which they are used and while I have used the term cleaning agent, I wish it to be understood as a general term used for all of the substances and compounds whether cleaning agents, deoxidizing agents or fluxes employed for cleaning, refining and restoring metal to its proper condition.

In using my device, the surface of the metal may be covered with charcoal and the dross may be allowed to remain on the top of the metal while melting and pouring any number of charges, until the last charge of

metal is to be poured preparatory to allowing the furnace to cool down, when the dross and charcoal may be removed; the surface covering of charcoal and dross does not interfere with the cleaning process as my cleaning device may be plunged through the surface covering and be immersed in the molten metal and be brought into contact with all parts of it. The shell may be immersed in the molten metal by holding it in a pair of tongs or by securing it to an iron rod by a piece of wire.

One of the objectionable features incidental to the use of cleaning and deoxidizing agents is the escape of smoke and poisonous fumes into the air of the room, when used by any of the heretofore known methods; this is almost wholly obviated by my device as it is at all times during its use, wholly immersed in the molten metal and such of the cleaning agent as does rise to the surface is absorbed by the surface covering of charcoal and dross.

While I have referred to the contents of the shell A as a cleaning agent I wish it understood that I may use a cleaning agent, a deoxidizing agent, a flux or a combination of the three, either consecutively or conjunctively.

In Fig. 3, I have shown a shell of modified form in which a round wick is used and in which the shell A is reduced in diameter at the point 3, after the wick is inserted for the purpose of holding the wick, but I may if desired use the wick holder C, Fig. 1, modified to hold a round instead of a flat wick.

It is apparent that many kinds of material may be used for the shell A, as paper, coated or enameled, would have sufficient heat resisting properties to resist the action of the molten metal for a sufficient length of time to perform its function.

While my device is particularly adapted to be used for tin, antimony and lead and compositions of these metals, it is apparent that it may be adapted for other uses without departing from the spirit of my invention.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. In a device of the class described, a shell containing a deoxidizing agent adapted to be used to reduce and remove dross from molten metal, said shell having means whereby the said deoxidizing agent will escape gradually from the shell by capillary action into the molten metal in which it is immersed.

2. In a device of the class described a shell containing a metal treating agent and adapted to be immersed in molten metal, said shell being provided with an absorptive medium through which the said treating agent passes from the said shell into the molten metal in which it is immersed.

3. In a device of the class described a shell containing a metal treating agent and adapted to be immersed in molten metal, said shell being provided with means whereby the said molten metal absorbs the said metal treating agent by capillary attraction.

4. In a device of the class described, a shell containing a metal treating agent and adapted to be immersed in molten metal, said shell being provided with a wick through which said agent may be absorbed by the molten metal.

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

EVERETT M. LOW.

Witnesses:

SAMUEL B. BUSTEED,
THOMAS J. SHEPARD.