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LOW METAL ALARM

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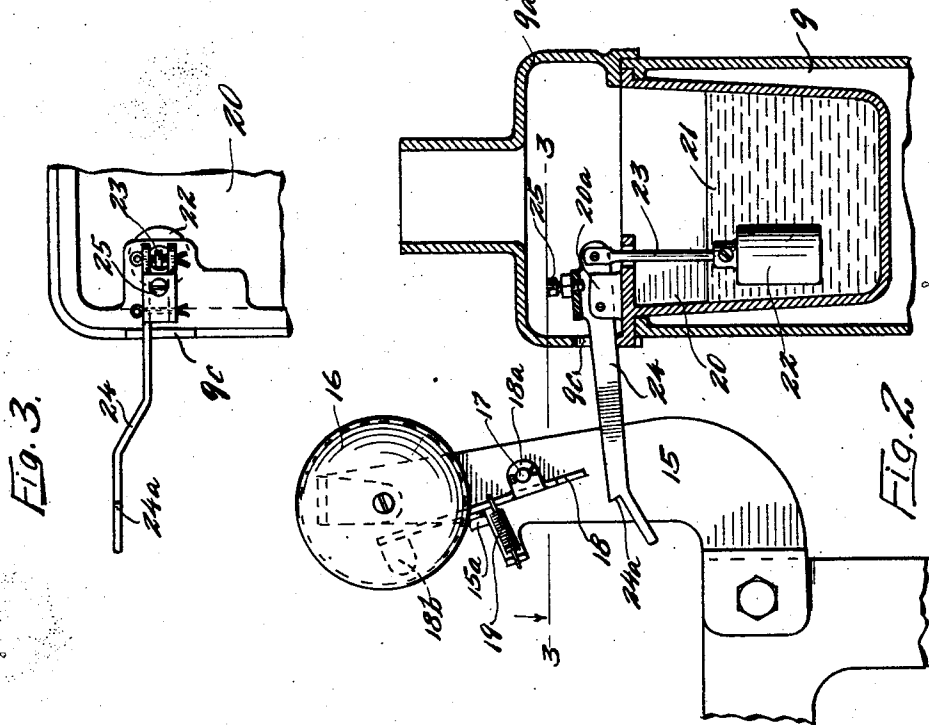


FIG. 1.

FIG. 2.

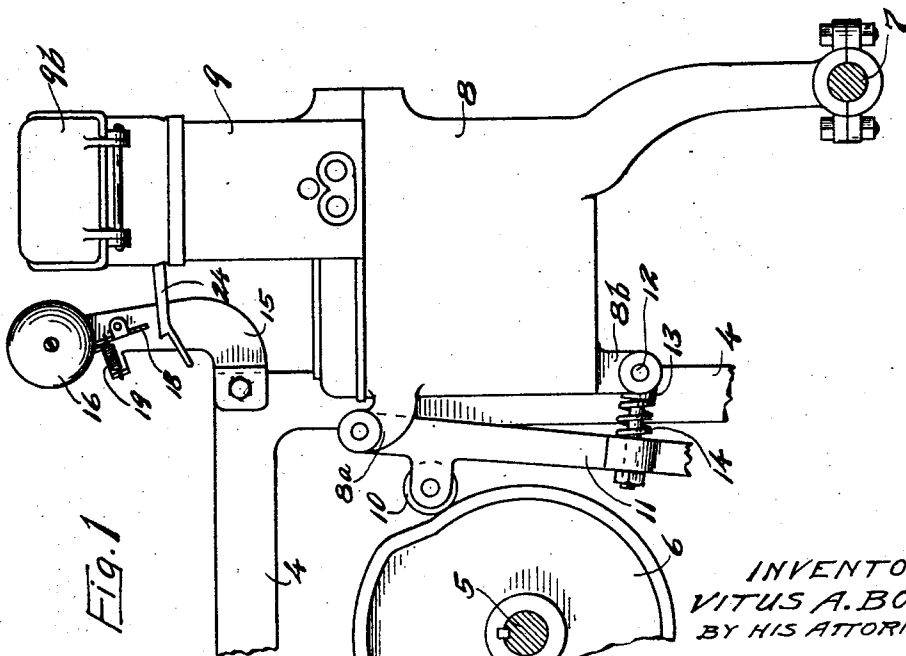


FIG. 3.

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LOW-METAL ALARM.

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This invention relates to a type casting machine, and particularly to an alarm device for such a machine adapted to warn the operator when the supply of molten metal carried in the metal pot of said machine becomes too low. It is very desirable in such machines to have a good supply of molten metal in the metal pot. If the supply of metal gets low imperfect slugs are apt to be cast and the metal is apt to be over heated.

It is an object of this invention, therefore, to provide a simple and efficient alarm device for warning the operator when the metal in the metal pot is at too low a point.

It is a further object of the invention to provide an alarm device in the movable metal pot of a type casting machine which is operated by the customary movement of the pot.

It is more specifically an object of the invention to provide an alarm device for the movable metal pot of a type casting machine comprising a member adapted to be disposed in the molten metal in said pot having a lever connected thereto and projecting at one side of a casing carrying said pot, said lever being adapted to be moved to a certain position when the supply of metal is low, in which position it will be brought into operative relation with an alarm device and will operate the same upon the movement of said metal pot.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to the same parts throughout the different views, and in which,

Fig. 1 is a view in side elevation of a portion of a type casting machine;

Fig. 2 is a view in side elevation of a portion of the machine shown in Fig. 1, a part of said portion being shown in vertical section; and

Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 2, as indicated by the arrows, Figs. 2 and 3 being shown on an enlarged scale.

Referring to the drawings, a portion of a type casting machine is shown comprising a stationary frame 4. A shaft 5 is mounted in the stationary frame and forms a cam shaft carrying thereon a cam 6. Another shaft 7 is mounted in the stationary part of the frame and forms a pivot shaft for a portion 8 of the machine. The portion 8 carries the metal from which the type are cast and in the regular operation of the machine, the portion 8 including the casing 9, is moved at intervals about the pivot shaft 7. This movement is affected by cam 6 engaging a cam roller 10 carried on an arm 11 pivoted between lugs 8^a extending from the portion 8. The portion 8 also has a downwardly extending lug 8^b carrying a pivot stud or shaft 12 about which is pivoted a bolt 13 having a threaded end extending through an apertured boss on the arm 11 and provided at the outer side of said arm with a suitable nut. A compression spring 14 is disposed between arms 11 and the head of the bolt 13 and it will be seen that this spring can be adjusted as to tension by adjusting the nut on bolt 13.

A bracket 15 is provided on the stationary part of the frame 4 having secured to its upper end an alarm bell 16. A pin 17 is secured in the side of bracket 15 and a clapper arm 18 has spaced lugs 18^a journaled on said pivot, said clapper arm normally being held against a stop lug 15^a formed on bracket 15 by a tensile coiled spring 19 secured to arm 18 at one end and at the other to a lug 15^b extending from bracket 15. The clapper arm 18 is somewhat resilient, especially at its upper end, and is provided with a clapper 18^b adapted to strike the inside of the bell 16.

The casing 9 carries therein a metal pot 20, said casing 9 having an upper flange 9^a thereon to which the lid 9^b is hinged. The pot 20 is adapted to contain molten metal 21 and a weight member 22 is provided made of steel or some other metal adapted to resist the temperature of the molten metal. Said weight 22 is carried at the lower end of a rod 23 pivotally connected at its upper

end to the inner end of a lever arm 24, said lever arm being bifurcated at its intermediate portion and pivoted to a lug 20^a up-
 standing from the top portion of pot 20,
 5 said pot being formed with an inwardly extending flange which is provided with an aperture through which passes the rod 23. A lever 24 has a web extending between its
 10 bifurcated end in which is disposed a headed screw 25 provided with a suitable jamb nut, which screw is adapted at times to contact the top of lever 24. The lever 24 extends through an aperture 9^c in the side of casing section 9^a and, as shown in Figs. 2
 15 and 3, is of flat formation, being offset laterally and having a downwardly extending portion at its outer end cut away to form a shoulder 24^a. The outer end of lever 24 is arranged to be in vertical alinement with
 20 the lower end of clapper arm 18 and normally, as shown in Fig. 2, the outer end of lever 24 is in engagement with the lower side of aperture 9^c.

In operation, the portion 8 of the machine carrying casing 9 is oscillated at intervals about shaft 7 by the cam 6, in the slug casting operation. The member 22 is submerged in the metal 21 and said metal tends to force member 22 upward therein
 30 as the specific gravity of member 22 is less than that of metal 21. When there is sufficient metal in pot 20 to cover the member 22 and the same is forced upwardly, as stated, the lever 24 will be held in such position
 35 that its outer end will not contact the clapper arm 18 when the parts 8 and 9 are oscillated by cam 6 in the slug casting operation. If the supply of metal in the pot 20 becomes low so that the weight 22 is allowed to drop,
 40 said weight would raise the outer end of lever 24. As the portions 8 and 9 swing back to their normal position after being operated by cam 6, the shoulder portion 24^a on lever 24 will engage the lower end of the clapper arm 18 and said clapper arm
 45 will be swung against the tension of spring 19, clapper 18^b being moved away from the bell 16. The shoulder portion 24^a will slip over the lower end of the clapper bar 18 so that said bar will suddenly be released.
 50 Spring 19 will then quickly pull said clapper bar against stop 15^a and clapper 18^b will strike the bell a sharp blow. This will sound the bell and warn the operator that the metal in the pot is too low. The screw
 55 25 can be adjusted so that the outer end of lever 24 cannot be raised too high by the weight 22.

From the above description it is seen that applicant has provided a very simple and efficient low metal alarm for the molten metal in the type casting machine. The device has a high degree of utility, and the parts thereof are simple and inexpensive and
 65 can readily be placed on the standard type

casting machine. The device has been amply demonstrated in actual practice and found to be very successful and efficient.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of applicant's invention, which, generally stated, consists in a device capable of carrying out the objects above set forth, such as shown and described and defined in the appended claims.

What is claimed is:

1. A type casting machine having in combination, a movable metal pot adapted to contain molten metal, a weight disposed in said pot and adapted to be submerged in said metal, means movable to operative position by said weight when the supply of metal becomes low, and an alarm device having a member adapted to be engaged and moved by said means in the movement of said pot when said means is in said operative position.

2. A type casting machine having in combination, a movable part carrying a metal pot adapted to contain molten metal, said pot having a substantially horizontal interior flange, a lug on said flange, a lever having a channel shaped portion embracing and pivoted to said lug about a horizontal axis, having a free end projecting from said pot, an adjustable screw carried by said lever adapted to engage said lug to limit the downward movement of the inner end of said lever, a rod pivotally connected to said inner end, a weight carried at the lower end of said rod adapted to be submerged in the metal in said pot, means for limiting the downward movement of the outer end of said lever, and an alarm device having a spring controlled operating arm adapted to be engaged and moved by the free end of said lever in the movement of said part and pot when said lever arm is curved upwardly by the descent of said weight and when the metal is low in said pot.

3. A type casting machine having in combination, a movable part carrying a metal pot adapted to contain molten metal, a weight disposed in said pot adapted to be submerged in said metal and normally urged upward by said metal, a lever connected to said member having an arm projecting from said pot, an adjustable stop member carried by said lever, a member in said pot against which said stop member contacts when said weight descends, said weight being adapted to move said lever arm to operative position when the supply of metal in said pot becomes low and an alarm device having a spring pressed operating arm adapted to be engaged and moved by said lever arm in the movement of said part and pot when said lever arm is in operative position.

4. A type casting machine having in combination, a movable metal pot adapted to contain molten metal, a weight disposed in said pot and adapted to be submerged in said metal, a lever pivoted within said pot and connected at one end to said weight, said pot having an aperture through which said lever projects and an alarm device having a member adapted to be engaged by and moved by the outer end of said lever when said metal in said pot becomes low and the outer end of said lever is raised by said weight.

In testimony whereof I affix my signature.

VITUS A. BOKER.