SUBMERGING INJECTOR FOR MOLTEN MATERIAL

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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This invention relates to a submerging injector for the handling of molten material and which functions by being submersed in a bath of molten material while molten material is sucked into the barrel of a chamber, after which the barrel is lifted from the molten bath and coupled to a mold for the discharge of the molten material from the mold to the cast to the shape of the interior of the mold.

Hitherto, it has been known to supply molten material to molds by pouring such material into the receiving opening or funnel-like opening characteristic of such molds. Such has been the practice in handling such metals as lead and similar materials which are readily melted at relatively low temperatures.

This invention relates to a manually operated device by which the molten metal may be drawn into a barrel and forced from the latter into a mold without waste or loss of molten material and without contact between the atmospheric air and the molten material. In this movement of the molten metal, it is drawn into the barrel and forced outwardly into a mold through a common orifice. Consequently there is absence of heat loss and a saving is effected by confining the molten material within closed walls.

The device is light in weight and is readily manipulated by an operator's two hands. By one hand the operator supports the weight of the device and positions it while charging it with molten material and moving it to the receiving opening of a mold. By the other hand the piston within the device is provided with a pull and thrust effect similar to the action of a piston within a barrel.

Another form of protecting plate is shown at 11 in FIGS. 1, 2 and 4 as being in the shape of a washer encircling the piston or plunger 3 and adjacent the end of the barrel 1.

Referring to FIG. 5, it will be observed that a removable plate 12 is shown on the end of the mold next adjacent the extreme end 4 of the barrel.

Another form of the end of the barrel having the reduced portion 4 is detachable from the main body of the barrel. In this arrangement the barrel is provided with an inwardly extending opening 13 which is adapted to receive the end of the nozzle member 4, the outer end of which is adapted to fit a mold opening. Substitute nozzle shapes may be provided for the opening 13.

The nozzle 4 may be secured within the barrel 1 by any suitable means. The nozzle and barrel may be screw
threaded or if the nozzle is simply slidable within the inner wall of the barrel, it may be secured by a suitable fastening screw mounted on the exterior of the barrel and extending through the barrel to engage the exterior surface of the nozzle.

1 claim:

1. A submerging injector for handling molten material, comprising a barrel adapted to receive and to discharge molten material through a common orifice to a mold, a supporting frame for said barrel, an upwardly extending handle secured to said frame and whereby said frame may be manipulated, a piston within said barrel adapted to draw molten material into said barrel and to force molten material outwardly through a common orifice into a mold, an upwardly extending handle connected to said piston and by which said piston may be operated manually, a baffle-like shield mounted on said piston and located at the exterior of said barrel and in the general shape of a flat washer serving to prevent rearward discharge of metal spray lengthwise of said piston, and a nozzle at the orifice end of said barrel adapted to fit into the receiving end of a mold opening.

2. A submerging injector of the type defined in claim 1 in which the piston has on its opposite sides grooves extending lengthwise thereof whereby gases from within said barrel may escape.

3. A submerging injector of the type defined in claim 1 in which the piston has on its opposite sides V-shaped grooves extending lengthwise thereof whereby gases from within said barrel may escape.

4. A submerging injector of the type defined in claim 1 in which the discharge end of the barrel is provided with a nozzle, and a shield mounted on the end portion of the barrel overhanging said nozzle to prevent scattering of molten metal.

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