Dec. 5, 1939. N. LESTER 2,182,403

MELTING POT

Filed April 7, 1937

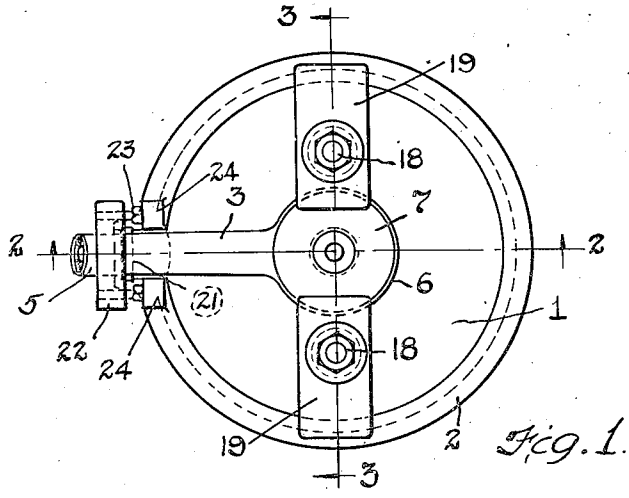


Fig. 1.

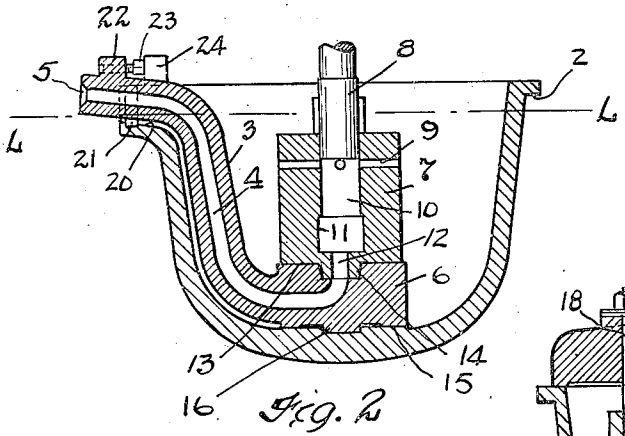


Fig. 2

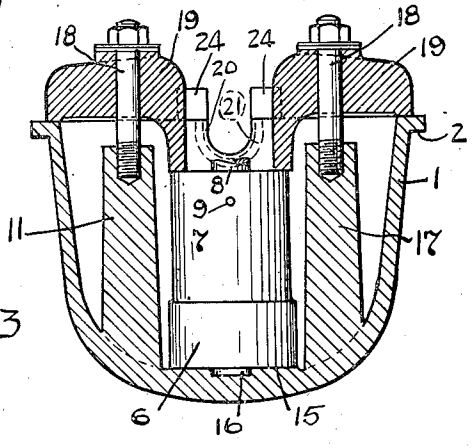


Fig. 3

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MELTING POT

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1 Claim. (Cl. 22—70)

The present invention relates to a new and improved construction for a melting pot best adapted to be used in pressure casting machines. The general object and nature of my invention is to provide a construction wherein those parts of the melting pot which are subjected to the greatest stress and severest usage are removable and replaceable so that the entire melting pot need not be discarded in the event that one or more of the parts subjected to the severest conditions of usage should fail.

Briefly outlined, my invention comprises a metal pressure casting cylinder and a pressure delivery conduit or gooseneck, both of which are made separable from the melting pot proper, but are in normal operation adapted to be mounted in the interior of such melting pot. In addition to the advantages heretofore outlined, the construction embodying the principle of my invention possesses the further advantage in that the walls of the melting pot are of uniform thickness throughout their horizontal cross sections thereby insuring uniform transmission of heat to the metal within the pot and eliminating the presence of any possible cold spots in the walls of the melting pot due to irregularities and thickness.

My invention also provides means for transmitting force directed against the discharge end of the separable gooseneck to the rim of the melting pot instead of against the bottom of the pot and the intermediate portion of the gooseneck.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claim.

The annexed drawing and the following description set forth in detail certain structure embodying the invention, such disclosed means constituting, however, but one of various structural forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a top plan view of a melting pot constructed according to the principle of my invention; Fig. 2 is a vertical cross section taken substantially along line 2—2 of Fig. 1; and Fig. 3 is a vertical cross section taken substantially along line 3—3 of Fig. 1.

Now referring more particularly to the drawing, there is shown therein a melting pot 1 having a rim flange 2. A pressure conduit or gooseneck 3 having a central passage 4 has a discharge end 5 adjacent the rim of the melting pot 1 and an enlarged annular feed end 6 adapted to rest on the bottom of the melting pot 1 and to support the pressure cylinder 7. A plunger 8 is adapted to reciprocate in the central bore 10 of the cylinder 7. Inlet passages 9 lead from the melting pot 1 into the central bore 10 of the cylinder 7. The central bore 10 is enlarged as indicated at 11 and decreased as indicated at 12 to a diameter equal to that of the passage 4 in the gooseneck 3.

The meeting faces of the annular end 6 of the gooseneck 3 and of the cylinder 7, as indicated at 13, are finished, close fitting surfaces; and a projecting boss 14, with tapered sides on the cylinder 7, extends into a correspondingly shaped recess in the top of the gooseneck feed end 6. The latter in turn has an annular bearing surface 15 on its bottom and a central projecting boss 16 fitting in the bottom of the melting pot 1. Thus the projections 14 and 16 serve as means not only for properly aligning and locating the gooseneck portion 6 and the cylinder 7, but also the projection 14, together with the finished meeting surfaces 13, serves as means for sealing the interior of the cylinder 7 and the gooseneck 3 to prevent leakage of molten metal when subjected to pressure.

Projections or lugs 17 extend from the bottom of the melting pot 1 to a point near its top and are adapted to be threadably engaged by the studs 18 which in turn hold the clamping members 19 in place. As will best be seen from Fig. 3, the clamping members 19 bear against the rim 2 of the melting pot 1 and against the top of the cylinder 7 and thereby clamp the gooseneck 3 and cylinder 7 in position in the interior of the melting pot.

The rim 2 of the melting pot has a recess 20 for the reception of the discharge end 5 of the gooseneck 3. A groove 21 is provided in the recess 20 and is for the purpose of receiving a packing or sealing material such as fire clay so that the upper end of the gooseneck 3 can be sealed so as to prevent leakage of liquid metal through the recess 20. A lug 22 on the discharge end 5 of the gooseneck 3 carries the threaded studs 23 which in turn are adapted to abut against the lugs 24 upstanding on the rim 2. Since the melting pot is carried by a supporting frame and the discharge end 5 of the gooseneck 3 is connected to a mold, such as indicated in the apparatus shown in my copending application Serial No. 66,551, filed Mar. 2, 1936, some force will be exerted against such discharge end 5. Hence the abutment means comprising the lugs 22, 24 and the studs 23, prevent such force or pressure from being transmitted through the intermediate portion of the gooseneck 3 to the bottom of the melting pot 1.

The studs 23 of course provide means for adjustably regulating the abutment point of the end of the gooseneck 3 with respect to the melting pot rim.

Furthermore, it will be seen that my above described construction possesses the advantage of lowering the discharge end of the gooseneck with respect to the rim 2 of the melting pot, so that the liquid level of the metal in the melting pot can normally extend as high as possible in the interior 4 of the gooseneck 3, thus eliminating as much air as possible therefrom. As will be seen from Fig. 2, the liquid level of the metal in the melting pot 1 is maintained substantially at the line L, L. Leakage of metal out through the opening 20 is of course prevented by the fire clay packing material in the groove 21.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the structure herein disclosed, provided the means stated by the following claim or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

In a melting pot the combination of a vertical pressure cylinder and a pressure delivery conduit, both separable from each other and from said melting pot, said conduit being entirely supported at its feed end by the bottom of said melting pot and having its discharge end directly supported by the rim of said melting pot, said cylinder being entirely supported and superimposed upon said feed end of said conduit, interfitting projections and recesses on said cylinder, on said feed end of said conduit and on said melting pot respectively, for locating and aligning them in assembled position, said recesses and projections being in alignment with each other and located centrally of said cylinder, of said feed end of said conduit, and of the bottom of said melting pot, and means for clamping said cylinder and said conduit to said melting pot in such position, the entire cross sectional area of said cylinder and said feed end of said conduit being substantially the same.

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