Nov. 18, 1941. J. F. MURPHY 2,263,309

FURNACE HOOD

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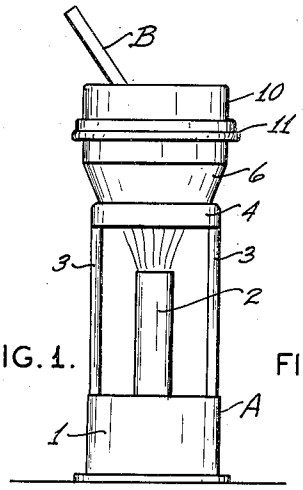
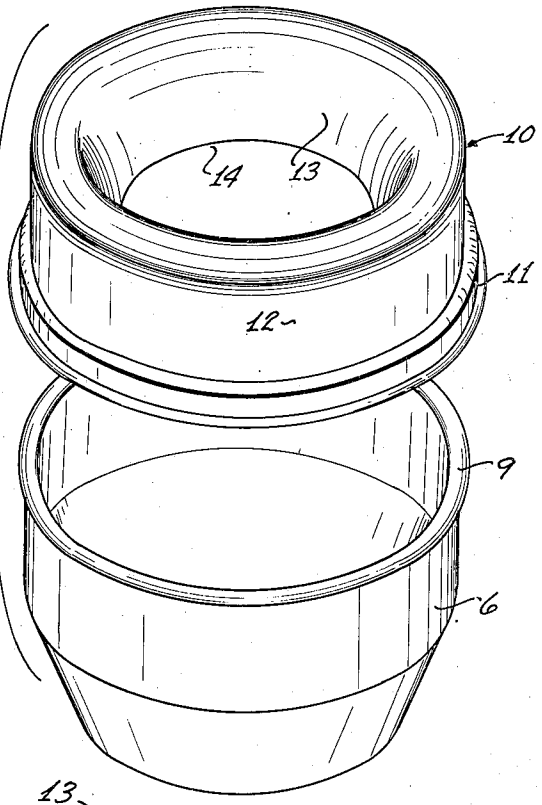


FIG. 1.

FIG. 2.



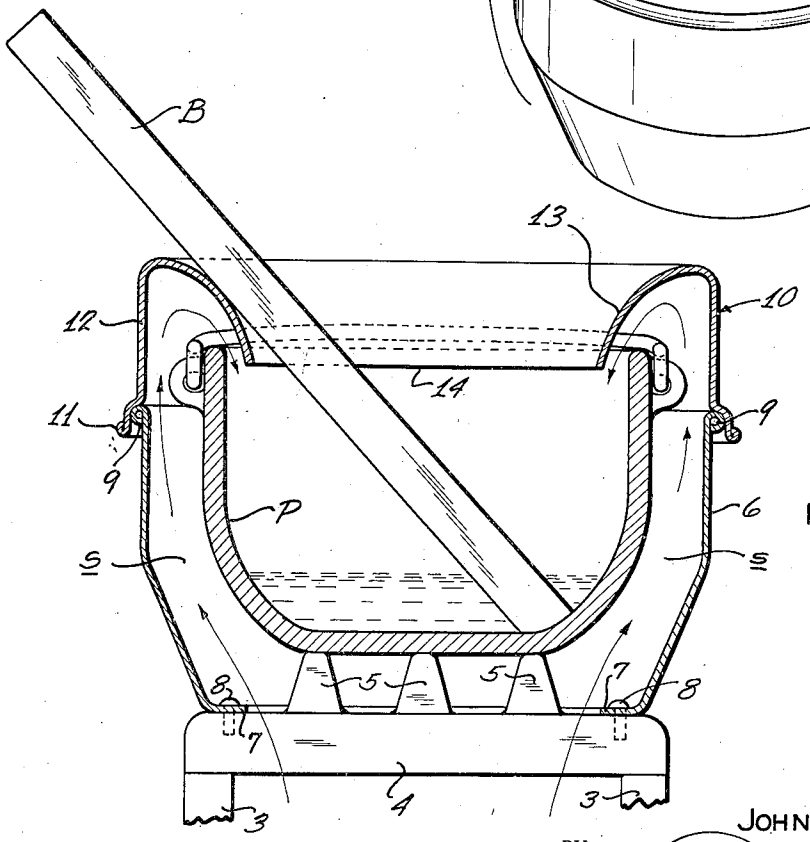


FIG. 3.

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FURNACE HOOD

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2 Claims. (Cl. 126—240)

This invention relates generally to furnace hoods and, more particularly, to a certain new and useful improvement in hoods for use on portable solder-melting furnaces and the like.

It has been common practice for many years in melting metals to employ an open-topped pot heated from beneath. Melting furnaces of the open-top or melting-pot type range from the very large sizes sunk into a foundry floor to the very small portable furnaces commonly used by plumbers and electricians for melting the solder used in wiping joints. Regardless of size or purpose, furnaces of this type are extremely difficult to heat and fuel costs are extremely high.

Furthermore, when quantities of solid metal are added to a melted batch of metal in a furnace, there is considerable danger from splashing and spattering, producing a substantial industrial hazard to the workmen. In the case of the smaller portable types of melting furnaces, this latter factor is of even greater importance, for the plumber or electrician is ordinarily working in a rather confined space. In addition, plumbers and electricians replenish the amount of metal in the pot by inserting bars of solder or babbitt and short lengths of discarded lead pipe. By reason of the length of these materials in relation to the size of the pot, it is ordinarily necessary for the workman to hold the upper end of the solder bar or pipe sections until enough metal has been melted, so that the remainder or unmelted portion will drop directly into the pot. It has been found impossible in the past to rest the bar or pipe section against the edge of the pot, for the overhanging portion will be exposed to the highly concentrated blast of heat or flame coming up around the outside of the pot and will be very quickly melted at that point, the extended portion dropping off.

My invention hence has for its primary object the provision of a melting furnace uniquely provided with a collar or hood which is simple in operation, economical in cost of manufacture, and materially reduces heat losses of the furnace, thereby effecting substantial fuel economies, which enables the melting of the metal in the furnace with unusual rapidity, which renders the furnace safe and free from occupational hazards, and which is extremely satisfactory in the performance of its stated functions.

And with the above and other objects in view, my invention resides in the novel features of form, construction, arrangement, and combination of parts presently described and pointed out in the claims.

In the accompanying drawing—

Figure 1 is an elevational view of a portable solder-melting furnace constructed in accordance with and embodying my present invention;

Figure 2 is a perspective view of the furnace hood of my invention; and

Figure 3 is an enlarged transverse sectional view of the upper section of the furnace, showing the hood in operative position around and over a solder pot.

Referring now in more detail and by reference characters to the drawing, which illustrates a preferred embodiment of my present invention, A designates a conventional gasoline-burning blow-furnace, which includes a tank 1, an upwardly projected flame nozzle 2, and a plurality of vertical uprights 3 provided at their upper ends with a horizontal grate 4 having upstanding legs 5 for supporting an open-topped pot or melting vessel P.

Mounted co-axially upon and extending upwardly from the grate 4, is an open-ended annular pot shield 6 provided at its lower extremity with an inturned peripheral flange 7 for securement by means of conventional rivets 8 upon the upper face of the grate 4 adjacent the outer periphery thereof and diametrally sized and shaped for annularly surrounding the pot or melting vessel P in outwardly spaced relationship to provide a chimney space *s*, the shield 6, along its upper peripheral margin, being preferably rolled over to provide a marginal bead or lip 9, all as best seen in Figure 3.

Provided for preferably removable disposition upon the pot shield 6 is a collar 10 integrally including a downwardly presented rounded flange 11 sized and shaped for snug-fitting engagement with the bead 9 of the pot shield 6, a preferably vertical cylindrical wall section 12 extending upwardly for a substantial distance above the lip of the pot P and an inwardly turned arcuate deflection ring or annular baffle 13 terminating in a concentric opening or mouth 14 positioned in a plane parallel to, but spaced a short distance inwardly of and having a diametral size substantially smaller than the diametral size of, the lip of the pot P.

In use, the heat and flame from the flame nozzle 2 strikes the bottom of the pot P and spreads outwardly, enveloping the pot side walls and flowing upwardly through the chimney space *s* into the collar 10. The heat and flames are deflected downwardly into the interior of the pot P by the deflection ring or baffle 13, as shown by the arrows in Figure 3, exposing the metal

within the pot P to a direct and concentrated blast of flames.

The speed with which solid metal can be melted is remarkably increased in furnaces equipped with a hood or collar constructed in accordance with my present invention. This remarkably improved melting speed results in a material reduction in fuel costs and at the same time materially reduces occupational hazards resulting from spattering and splashing of the molten metal. In addition, furnaces constructed in accordance with my present invention have been found to require much less attention. The solder bar, such as the bar B, for instance, shown in Figure 3, may be rested against the outer face of the deflection ring or baffle 13 and allowed to melt gradually into the pot P. The overhanging portion of the bar B will not be exposed to the flames flowing upwardly around the outer faces of the pot P and therefore will not melt. Instead, the portion of the bar within the pot will melt gradually at its lower end and slowly slip down into the pot until it is entirely melted. Thus, it is not necessary for the workman to spend valuable time holding the end of the solder bar until it has been substantially melted and can be safely dropped into the pot. It will, of course, be evident that this frees the workman and makes it possible for him to apply his valuable time to more profitable and constructive operations, and thereby effects a material saving in labor costs on the actual job or construction work being performed.

Finally, the hood or collar 10, when in place, holds the heat in the pot P for an extremely long time after the furnace has been shut down, thereby resulting in further fuel economy.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the furnace hood may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

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

1. A portable heat saving enclosure for use with a plumber's furnace including a grate and a removable open topped solder pot, said enclosure comprising an upstanding annular sheet metal shield sized for disposition around a solder pot in outwardly spaced annular relation thereto, and an upstanding annular hood-forming member provided at its lower end with a diametrally enlarged beaded channel for embracing engagement around the upper peripheral margin of the shield member and at its other end being curved inwardly and downwardly to provide a deflection lip, the lower margin of which is substantially smaller in diametral size than, and projects downwardly into, the mouth of the pot.

2. A portable solder-melting furnace comprising burner structure, a supporting grate above said burner structure, an open topped solder-pot having an annular side wall of appreciable height, a shield extending upwardly from the grate, said shield having an annular wall substantially concentric with and spaced from the solder-pot and being of less height than the height of the solder-pot when the latter is supported on said grate, and an annular collar fitted on the upper edge of the shield and having an inwardly turned arcuate deflecting ring presented as an annular baffle spaced above the rim of the pot and downwardly turned and terminating in a substantially concentric mouth opening in a plane below the rim of the pot, said opening being of substantially less diameter than the diameter of the pot rim.

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