

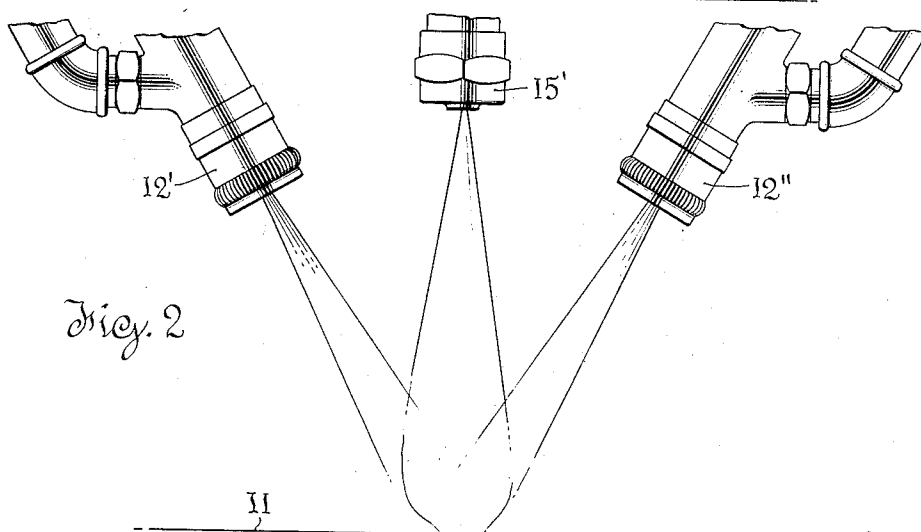
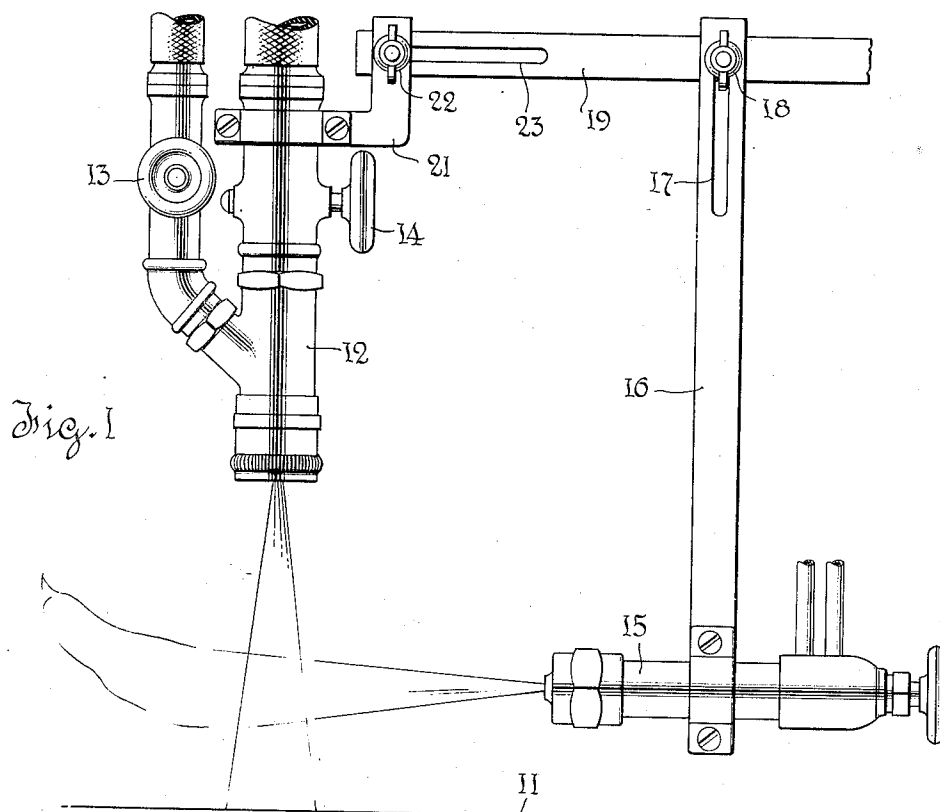
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METHOD OF COATING SURFACES

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METHOD OF COATING SURFACES

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2 Claims. (Cl. 91—68)

The present invention relates to a method of applying glazes, enamels and similar coatings to earthenware, tile, metal and other non-absorbent materials.

Specifically, the invention pertains to the application of a liquid coating to a surface by means of spray nozzles, and the evaporation of a substantial portion of the liquid carrier after it has been discharged from nozzles, but prior to impingement of the solid matter in the coating on the surface being treated.

In the application of liquid coatings to tile and similar objects, care must be exercised that the surface be maintained in horizontal position prior to firing to prevent flow of the coating and subsequent unevenness of the coating. The mixture of the carrier liquid and solid matter should not be so fluid that a coating of substantial thickness will not form on the treated surface. It is difficult, however, where spray nozzles are used for applying the coating, to reduce fluidity without interfering seriously with the operation of the nozzle. In other words, the mixture being sprayed should not be so thick that the nozzles will be clogged with solid matter. Since spray nozzles expedite the coating operation and insure uniform application thereof, it is obvious that this method of applying glaze to tile, for instance, is desirable.

One of the purposes of this invention is to permit the use of a very fluid coating mixture and spraying apparatus for applying the mixture. At the same time, means are provided for changing the consistency of the mixture in its passage from the spray nozzle to the surface being treated so that the solid material therein will adhere to the surface.

Another object of the invention is to provide for adjustment of the nozzles with respect to the surface, as well as adjustment of the evaporating means, which, in the embodiment illustrated, comprises a flame.

The invention will be more fully understood from the following description, reference being had to the accompanying drawing, in which:—

Fig. 1 is an elevation of one form of apparatus, showing the relation of the spray and flame nozzles and the means for adjusting their relative positions; and

Fig. 2 is a partial view of a modified form of the apparatus.

Referring to the drawing, the surface to be coated is indicated at 11. To simplify the description, this will be referred to hereinafter as tile, although it is intended that any non-absorb-

ent surface or article fall within the generic term "surface".

Disposed above the tile at a suitable distance therefrom is a spray nozzle 12 through which a mixture of liquid and solid glazing material is discharged onto the tile. Ordinarily, in order to insure proper flow through the nozzle, the proportion of liquid in the mixture, is such that, when it strikes the tile, it has a tendency to flow and form an uneven film thereon. The proportions of solids and liquid may, of course, be varied by means of valves 13, 14 on the spray nozzle, but not sufficiently to prevent spreading on the surface without danger of clogging the nozzle.

In Fig. 1 there is shown, to one side of the spray stream and directed at an angle to the stream, a flame nozzle 15 supported by an adjustable bracket 16 having a slot 17 therein. By loosening nut 18, bracket 16 may be raised or lowered with respect to supporting arm 19 to establish the desired relation between nozzles 12 and 15. The spray nozzle is also adjustably secured to arm 19, being held in a bracket 21 which is fixed to arm 19 by means of nut 22. Slot 23 in arm 19 permits adjustment of the spray nozzle with respect to its supporting arm.

In operation, the coating mixture is sprayed on the tile and the flame directed toward the spray at an angle thereto. The flame stream crosses the spray at some distance from the spray nozzle so as not to affect the latter nozzle. A substantial portion of the liquid in the sprayed mixture is thus evaporated. By the time the coating material reaches the tile, the consistency of the mixture has been so altered that there is but little liquid in the mixture and the tendency of the glaze to flow is greatly minimized. In fact, it is not necessary that the spray be directed downwardly against a horizontal surface since the glaze is only slightly moist when it strikes the tile and will adhere regardless of the position of the surface being treated. It is to be understood that the tile is further heated or baked in a firing oven properly to fuse the glaze on the tile.

In the modification illustrated in Fig. 2, two spray nozzles 12', 12'', are angularly disposed with respect to each other, their stream axes intersecting substantially at the surface to which the coating is applied. The flame nozzle 15' is positioned between the spray nozzles and its axis likewise intersects those of the spray stream at or near the surface 11. In this form of the invention not only is a substantial portion of the liquid evaporated, but the surface is also heated, thus facilitating adhesion of the glaze.

While a preferred embodiment of the invention has been shown and described, it is intended that modifications in the apparatus and method of operating the nozzles be included in the broad aspects of the invention.

What is claimed is:—

1. The method of applying fusible glazes, enamels and similar coatings to earthenware, tile, metal, and other non-absorbent materials, which consists in spraying a mixture of liquid and the fusible matter on the surface of the non-absorbent material and directing a hot gaseous stream towards and intersecting the stream of the sprayed mixture after it has been sprayed but prior to its impingement on the surface to alter the consistency of the mixture, thereby to effect

adherence of the mixture to said surface without further flow thereof.

2. The method of applying fusible glazes, enamels, and similar coatings to earthenware, tile, metal, and other non-absorbent materials, which consists in spraying a mixture of liquid and the fusible matter on the surface of the non-absorbent material and directing a flame towards and intersecting the stream of the sprayed mixture after it has been sprayed but prior to its impingement on the surface to alter the consistency of the mixture, thereby to effect adherence of the mixture to said surface without further flow thereof.

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