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FILM APPLICATOR

Filed July 21, 1937

Fig. 1

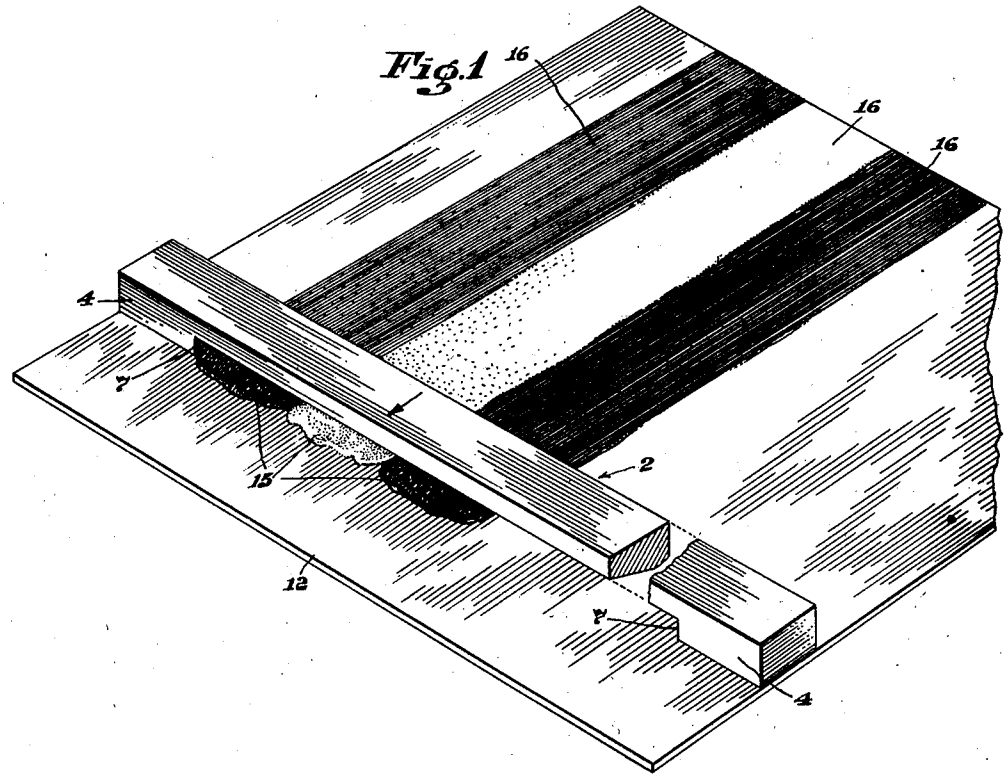


Fig. 2

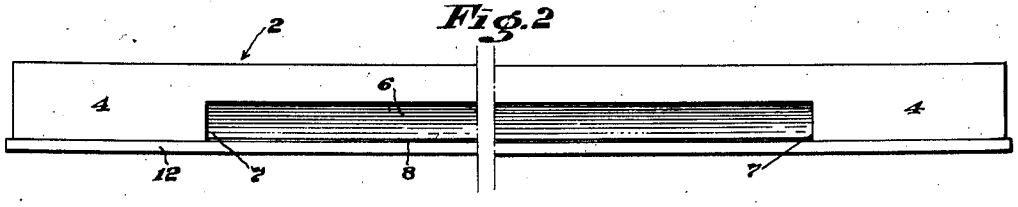
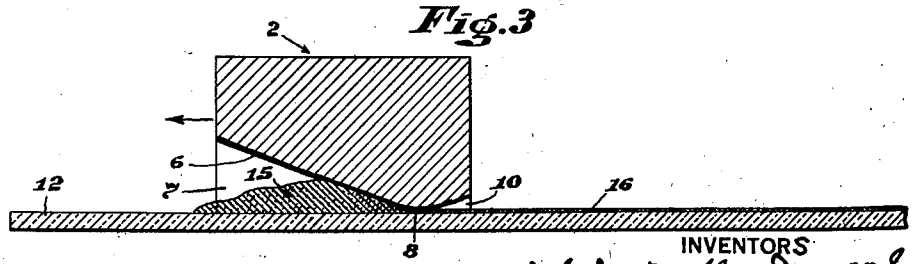


Fig. 3



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FILM APPLICATOR

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3 Claims. (Cl. 91—62.5)

This invention relates to a film applicator device for applying to a flat surface a film of liquid or plastic material,—ordinarily a hardenable film-forming material such as drying oil, lacquer, varnish, paint, or a plastic, though the device is useful in applying various other sorts of films.

In several industries, particularly those engaged in the making of protective coatings such as paint and varnish, it is desirable and necessary to apply coatings of such films to panels, commonly of glass, wood, or metal, for purposes of visual examination and various sorts of testing. It is essential that the test films be of uniform and definite thickness when comparisons or studies are to be made of such films but it has been difficult to secure films of uniform and definite thickness by means of the usual method of applying paint, varnish, or the like by spraying or brushing, and then repeatedly weighing the test surfaces together with the applied samples and from the volume and area calculating to determine the thickness of the liquid film applied. This method is both tedious and inaccurate, inasmuch as the individual operator varies in his technique of applying the coating and the uniformity of film over any area (even if the area be accurately measured) is but approximate. Other known devices are either cumbersome or complicated in operation and are very limited in area of surface which can be coated and, moreover, none of these machines can apply simultaneously two or more coatings or films.

The film applicator of our invention provides a means for applying repeatedly and uniformly to any desired number of test panels or surfaces a film or films of desired thickness. Several coatings can be simultaneously applied to a given test panel side by side and under the same conditions as to thickness and methods. Other advantages will hereinafter appear from the descriptions and drawing in which:

Fig. 1 is an isometric view illustrating the device in use applying to a test panel films of three sample materials;

Fig. 2 is a front elevation of the device in place upon a test panel; and

Fig. 3 is an enlarged cross-sectional view illustrating the device in use and the mode of application of the liquid or plastic material in a uniform layer upon the test panel.

Referring to the drawing, in which like numerals represent like parts, the film applicator device, generally designated 2, in its preferred form, is made from a rectangular bar of metal and has opposite ends 4 of rectangular form having, therebetween, an elongated section of irregular form presenting longitudinally extending working surfaces 6, 8 and 10, the ends of which terminate at the surfaces 7. As will be seen from the drawing, the device, in working position upon a panel 12, presents thereabove and converging therewith a portion presenting the surface 6 followed by a portion 8 spaced from the panel 12 a distance (see Figs. 2 and 3) approximately twice the thickness of the film it is desired to lay, the portion 8 being followed by the portion presenting the surface 10 diverging rearwardly from the panel 12 so that, as the bar is moved in the direction indicated by the arrows (Figs. 1 and 3) the film-forming material or mass 15 is pushed forward leaving behind a film 16 which is formed by the bar as it is drawn along.

Referring to Fig. 1 there are shown materials, for example, of three different colors simultaneously being applied to a panel 12 and, in this case, one of the materials, being adjacent to surface 7, has imparted thereto a straight well defined edge whereas the lines of merger and opposite edge of the three applied materials present somewhat irregular lines of demarcation. This is of some advantage particularly where different tones or shades of color are to join or merge with one another in the finished work. If it is desired to have straight lines defining divisions between various shades or tones, that they be accomplished by relatively thin divisions (not shown) built into the working portion of the bar. The thickness of the film, in the structure as shown, is fixed by the spacing of the surface 8 from the panel 12 and that is controlled, in the preferred form of structure, by the extent to which the surface 8 is carried above (see Figs. 2 and 3) the panel-contacting portions of the end sections 4. In practice it appears preferable to have a series of bars made up to apply, respectively, different thicknesses of film though it will be obvious that a given bar can be made adjustable, as by set screws or the like in the ends, to provide an adjustable fixed spacing of the surface 8 from the panel 12. As above mentioned however, it is preferred to have the recesses or clearance of the surface 8, so to speak, built into the tool so that it is always fixed and thus provides a film of definite thickness, and regardless of whether the consistencies of the materials applied vary. The thickness of material applied with any given tool is the same and uniform and is approximately half of the clearance cut of the tool.

It is found in practice that the device is of par-

ticular advantage and utility because of the uniformity produced, for example, in the testing of the dispersion of pigment in thickness. A tool formed to lay a thin film, say .0002" to .001", will clearly show the degree of fineness of the pigment. This can be used to determine whether the pigment grinding has reached a certain desired point and provides an extremely quick method so that the degree of dispersion can be accurately estimated in the wet paint, and also in comparing the degree of dispersion in pigment of various vehicles. Color matching can also be accurately done where extreme accuracy is necessary because the variations due to comparing films of different thicknesses are eliminated as it is possible to draw films of more than one color or shade simultaneously, as above mentioned. It is also found that measurements of physical, optical and chemical characteristics of any film, or comparisons between different type films, may be more accurately made.

It is of course contemplated that the device in use may be drawn over the surface which is stationary or it may be held and the surface panel or member to be coated passed beneath the tool. Also the device may be made in laboratory sizes simply for testing purposes or in larger commercial sizes for ordinary commercial manufacturing operations.

Having described our invention, what we wish to claim and secure by Letters Patent is:

1. An applicator for applying a liquid film to flat surfaces, said applicator having spaced work-contacting portions in a common plane, and an intermediate elongated cut-out section of irregular form providing longitudinally extending working surfaces, including a leading surface converging toward the plane of the work-contacting portions and a rear surface merging with said leading surface to provide a connecting surface evenly spaced from said plane a predetermined distance to lay a liquid film of desired thickness.

2. A device of the class described characterized by a member providing an elongated inclined surface on the forward side thereof adapted to confine a mass of hardenable film-forming material, an elongated inclined surface on the rearward side thereof, and a narrow elongated portion therebetween connecting said surfaces, and spacing means at the ends of said member adapted to fix the vertical distance between said portion and an opposing panel thereunder so as to provide an elongated narrow film-laying opening.

3. A device of the class described characterized by a member providing an elongated inclined surface on the forward side thereof adapted to confine a mass of hardenable film-forming material, an elongated inclined surface on the rearward side thereof, and a narrow elongated portion therebetween connecting said surfaces, and spacing means at the ends of said member adapted to fix the vertical distance between said portion and an opposing panel thereunder said surfaces, connecting portion, and spacing means being so related, constructed and arranged as to provide an elongated narrow film-laying opening defining approximately twice the thickness of a film laid therewith.

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