Nov. 3, 1931. H. VIECK 1,830,145

DESIGN APPLICATOR

Filed Nov. 25, 1927

Fig. 1

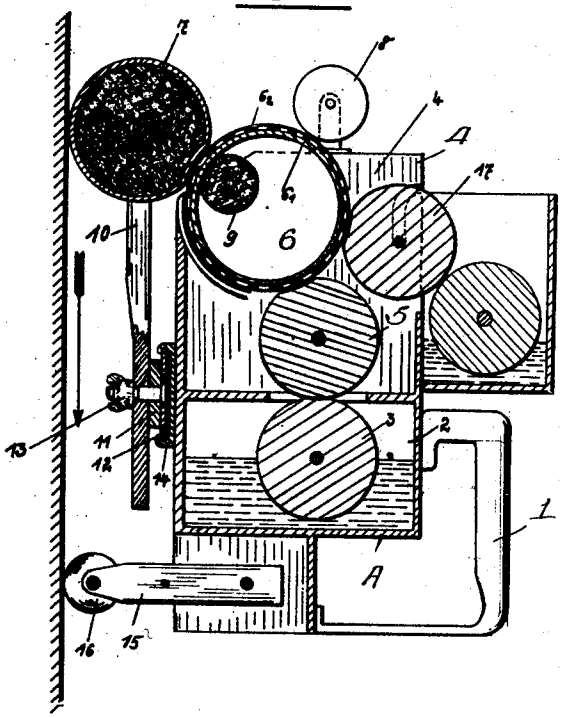


Fig. 2

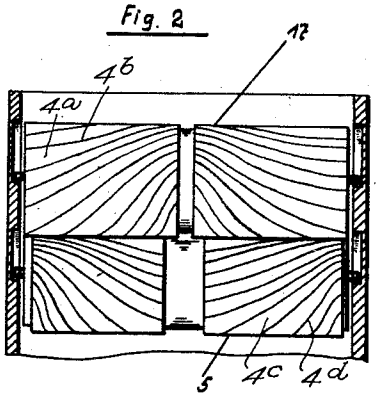


Fig. 3

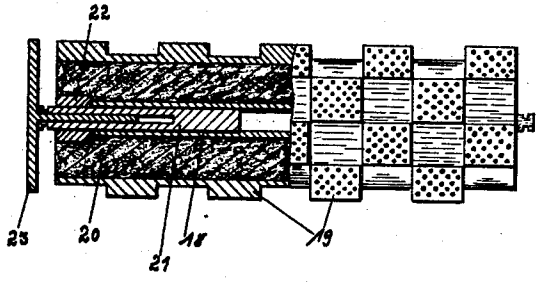
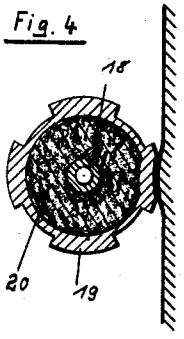


Fig. 4



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UNITED STATES PATENT OFFICE

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DESIGN APPLICATOR

Application filed November 25, 1927, Serial No. 235,711, and in Switzerland October 11, 1927.

This invention is directed to an improvement in hand-operated applicators designed more particularly for applying colors, liquid glue, or the like to any appropriate surfaces.

The primary object of the invention is the provision of an applicator by which the color or the like may be applied or distributed on the surface in a manner to shade the coloring along predetermined lines.

A further object of the invention is the provision of a construction which readily lends itself to duplication for multi-color work.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 is a vertical section, partly in elevation, showing the improved applicator in position for use.

Figure 2 is a view in elevation partly in section, showing the herring-bone grooved rollers for the uneven distribution of color in using the applicator for shading.

Figure 3 is a plan view, partly in section, of a pattern roller used with the applicator.

Figure 4 is a transverse section of the same.

The improved applicator comprises a casing A of appropriate size divided by a partition into an upper chamber 4 and a lower chamber 2, the casing being provided with a handle 1 whereby it may be manipulated. The chamber 2 is the ink or color receptacle and a feed roller 3 is rotatably mounted therein to deliver the ink or color to the surface of a roller 5 rotatively mounted in the chamber 4, the rollers 3 and 5 being in peripheral contact through an opening formed in the dividing partition.

A roller 9 is rotatably supported in the upper portion of the chamber 4 and provides, in turn, a rotative support for a core feed roller 6. The roller 6 in the form illustrated comprises an inner section of metal, as 6_1 and an outer layer of metal screen 6_2. The metal screen is in surface contact with the roller 5 hereinbefore referred to, permitting a supply of color or other liquid from the chamber 2 to the core feed roller 6.

The core feed roller is in surface contact with the printing roller 7 which is designed for direct contact with the surface being operated upon and will be hereinafter more specifically described. The roller 7 is supported in arms 10 slidably mounted on a pin 13 which projects from a plate 12 with an interposed spacing block 11. The plate 12 is slidably mounted in the guide rail 14 fixed to the casing A, the walls of the guide rail being formed as flanges to embrace to plate 12 to permit the adjustment of the plate longitudinally of the guide rail. By this means, the roller 7 may be adjusted longitudinally and transversely as desired.

A guiding roller 16 supported from a depending extension of the casing A through the medium of a bar 15 serves to guide the casing in the printing movement thereof with respect to the surface.

It is noted that the core feed roller 6 is without axial support, being held in a more or less definite rotative plane by the roller 8 supported from the casing A, the comparative freedom of the core feed roller permitting it to accommodate itself readily between the roller 5 and printing roller 7. While preferring the screen covering for the core feed roller 6, it is of course apparent that such covering or outer layer may be of fabric or any appropriate material which will transfer the ink, color, or other fluid onto the printing roller.

It is frequently desired, particularly when using the applicator with colors, to shade the colors, during the application, and for this purpose I provide an additional transfer roller 17 removably supported in the chamber 4 of the casing A, preferably by suitably slotting the walls of the casing to receive the axis of the transfer roller. The surface of this roller is formed with grooves 4*a* of the well known herring-bone type defining ribs 4*b*, the grooves, however, converging from each end toward the center of the roller. For the shading purposes, the transfer roller 5 is also formed with grooves 4*c* of a similar type, defining ribs 4*d*, the grooves in this instance, however, converging from the central portion of the roller toward the end, that is, the reverse of the arrangement shown for the roller 17. It is, of course, to be understood that the roller 17 is designed for the

application of a second color, that is, a color in addition to that supplied by the roller 5, and that, therefore, roller 17 will cooperate with a color receptacle and a feed roller corresponding to the receptacle 2 and roller 3 arranged for cooperation with the roller 5. such as generally indicated in Figure 1. It is to be understood, however, that the device contemplates the use of roller 5 alone where one color is used and rollers 5 and 17 where more than one color is used, each of said rollers 5 and 17 supplying its own independent color.

When operating the applicator under these conditions, as the channels on the upper roller 17 are closer at the central portion and of greater width toward the ends, a greater amount of color is transferred from the center of the roller 17 to the core feed roller 6 than is transferred from the ends of such roller 17. The color is thus arranged on the core feed roller in greater mass at the center of such roller than at the ends thereof. The distributing roller 5 is, however, exactly reversed in applying color to the core feed roller from the arrangement shown for the roller 17; that is to say, the roller 5 applies the color in greater mass at the ends of the core feed roller than at the center. Therefore, when these distributing rollers are operated, the color application is of maximum depth at the sides and center and shaded to the minimum depth at a point intermediate the ends and center; that is, the color is darkest at the sides of the outline and gradually shades to the lightest effect and then gradually deepens to the center portion where it is again of maximum depth of color.

The printing roller or rollers, it being understood that more than one may be used if desired, is illustrated more particularly in Figure 3 and comprises a center core 18 within which are fixed the axles 21 of the roller, which axles extend beyond the end of the core and are formed for cooperation with the arms 10. One of the axles is provided with a finger disk 23 by which the printing roller may be turned or otherwise operated by hand in the event of necessity. The printing roller includes an outer cylindrical envelope 19 of comparatively yielding material, as rubber, and on which the particular pattern is formed in any appropriate or well known manner.

Between the core 18 and the envelope 19 there is arranged a filling of sponge rubber 20 forming a cushion which will provide for the ready and convenient yielding of the envelope in the operation of the printing roller without interfering with the printing function, as clearly illustrated in Figure 4 of the drawings. A rubber sheath 22 is placed about the axles 21 immediately beyond the end of the core 18, and if desired the entire roller may be made more or less a unit by vulcanizing or like treatment.

The use of the applicator is readily apparent from the showing in Figure 1 of the drawings, it being apparent that the printing roller will function to distribute the material delivered by the feed roller 3 with this distribution controlled according to the construction of the distributing rollers 5 and 17.

When the roller shown in Figure 2 is provided with color, the latter naturally follows down the ribs into the grooves toward the center. When the roller has rotated sufficiently, the color is transferred from the ribs of the color roller onto the roller 6. The color is naturally delivered more rapidly at the central or grooved point of the color-applying roller than at the ends with respect to the roller 17, and the reverse, that is, more color at the ends of the roller than at the center with respect to the roller 5. This is due to the relative disposition of the herring-bone grooves of the respective rollers, such grooves in roller 5 being widest toward the center of the roller and gradually converging toward the ends of the roller, an in roller 17 being widest at the ends of the roller and gradually converging toward the center of the roller. In this way, the color application is shaded in each roller from the point of maximum color application to the point of minimum color application, the mass of color being gradually diminished from the maximum to the minimum point. If both rollers 5 and 17 are used, the conditions of the respective rollers as to color application is exactly reversed, the maximum color being applied to the roller 17 at the center and the minimum at the ends, while with the roller 5 the maximum is supplied at the ends and the minimum at the center. Thus the color combination is darkest at the sides and center of the outline and gradually shades to the lightest effect intermediate these points of maximum application.

What I claim to be new is:

1. An applicator for use in ink and color transferring, including a reservoir for the fluid, a printing roller to deliver the fluid onto the surface, and means intermediate the feed roller and printing roller to apply the fluid to the printing roller in varying proportions to provide for shading the design.

2. An applicator for use in ink and color transferring, including a reservoir for the fluid, a printing roller to deliver the fluid onto the surface, and transfer rollers having herring-bone type of channels intermediate the feed roller and printing roller to apply the fluid to the printing roller in varying proportions to provide for shading the design.

3. An applicator for use in ink and color transferring, including a reservoir for the fluid, a printing roller to deliver the fluid onto the surface, and transfer rollers having herring-bone type of channels intermediate the feed roller and printing roller to apply

the fluid to the printing roller in varying proportions to provide for shading the design, the herring-bone formation of one transfer roller being reversed with respect to the other.

4. A design applicator including a casing, a printing roller mounted for adjustment beyond the casing, a fluid reservoir for ink or color, a feed roller in the fluid reservoir, a transfer roller arranged above the fluid reservoir and in contact with the feed roller, and a core feed roller intermediate the transfer roller and printing roller, said core feed roller being free relative to the transfer roller and printing roller.

5. A design applicator including a casing, a printing roller mounted for adjustment beyond the casing, a fluid reservoir for ink or color, a feed roller in the fluid reservoir, a transfer roller arranged above the fluid reservoir and in contact with the feed roller, and a core feed roller intermediate the transfer roller and printing roller, said core feed roller being free relative to the transfer roller and printing roller and including a metallic inner layer and a screen outer layer.

6. A design applicator including a casing, a printing roller mounted for adjustment beyond the casing, a fluid reservoir for ink or color, a feed roller in the feed reservoir, a transfer roller in contact with the feed roller, a feed roller intermediate the transfer roller and printing roller, said feed roller being free relative to the transfer roller and printing roller, and a roller bearing against the inside of the feed roller and forcing same into contact with the printing roller.

7. A design applicator including a casing, a printing roller mounted for adjustment beyond the casing, a hollow feed roller contacting with the printing roller, means for supplying the hollow feed roller with ink or color, the hollow feed roller being free relative to the printing roller and the means for supplying the ink or color to said hollow roller, and means mounted inside the hollow roller to support and hold same in contact with the printing roller.

8. A design applicator including a casing, a printing roller mounted on the casing, a fluid reservoir for ink or color, a feed roller in the fluid reservoir, a transfer roller having herringbone channels arranged above the fluid reservoir and in contact with the feed roller, and a core feed roller intermediate the transfer roller and printing roller, said core feed roller being free relative to the transfer roller and printing roller.

In testimony whereof I affix my signature.

HEINRICH VIECK. [L. S.]