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BUTTON

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Fig. 1.

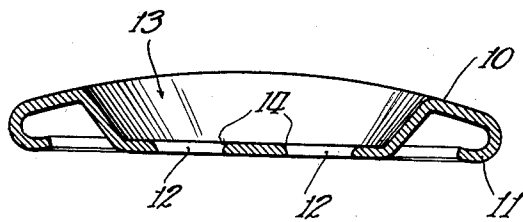
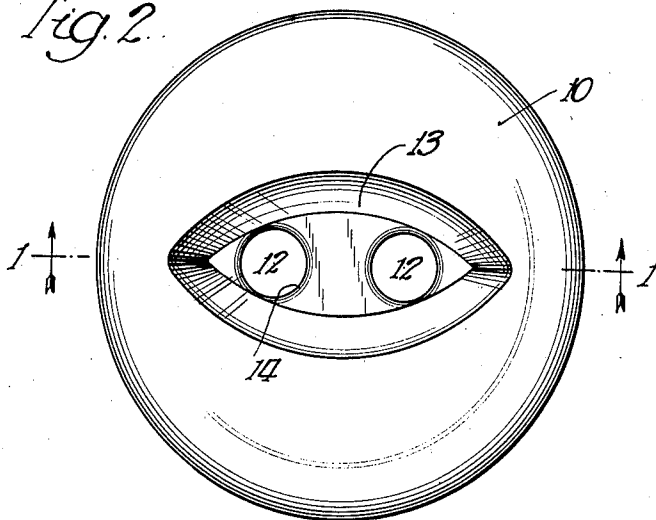


Fig. 2.



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UNITED STATES PATENT OFFICE

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BUTTON

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3 Claims. (Cl. 24—90)

This invention relates to buttons and among other objects aims to provide a decorative and inexpensive colored metal button having relatively low manufacturing cost and whose colors are sufficiently durable to resist the action of laundry fluids and hot irons.

The nature of the invention may be readily understood by reference to the following description of an illustrative button embodying the invention and shown in the accompanying drawing:

In said drawing:

Fig. 1 is a sectional elevation of the button, the section being taken on the plane 1—1 of Fig. 2; and

Fig. 2 is a top plan view of the button.

Colored metal buttons are highly desirable for many garments such as children's play suits, work shirts, and the like, but the range of adequately durable colors has been limited to the few rather dull shades produced by metal plating. However such finishes have been entirely inappropriate where it is desired to provide a button of a color to match the shade of the cloth to which it is to be attached. On the other hand, colored enamel and similar finishes have not been sufficiently durable to resist the action of strong laundry fluids and hot irons, particularly pressing irons which involve the use of steam. Moreover such finishes, as well as plated finishes, must be applied after the button has been made, and in the case of baked enamel and sprayed finishes, this requires repeated handling of the buttons and results in the production of many buttons with defective coatings. Sprayed finishes require that the buttons be manually completely separated from each other both for spraying on top and back, in order to receive a complete coating; and they must dry out of contact with each other. This excessive handling enormously increases costs. In the enameling process the buttons are likely to nest together or the enamel coating is likely to cause the buttons to stick together. In either case the finish of the button will be defective. To eliminate buttons having such defective finishes, involves another item of added cost. The sticking and nesting of buttons in the enameling process is particularly aggravated in the case of sheet aluminum buttons on account of extreme lightness of the button. Nevertheless sheet aluminum is particularly desirable because it is non-rusting and easily fabricated, and is otherwise particularly suited for buttons, especially sew-on buttons.

The foregoing and other objections to existing buttons have been obviated by the present invention not only as regards aluminum as a button material but as regards color durability and adequate range of colors. The sheet aluminum from which the illustrative button is made is colored in sheet form and the buttons which are stamped from the colored sheet are in finished form and require no further treatment. The sheet aluminum is colored by the so-called anodic process in which the sheet is made the anode in an electrolytic bath. The electrolyte may be any of a number of well known electrolytes such as ammonium hydroxide, sulphuric acid, etc. The electric potential will obviously vary and may range from a few volts to 400 or 500 volts. The flow of the electric current leaves the surface of the sheet in such a condition that the coloring material will penetrate the surface and probably be adsorbed therein,—at any rate it cannot be rubbed off even before the color has dried. Aniline dyes have been found to provide the most satisfactory color not only because of their ability to penetrate or be adsorbed in the surface of the sheet but because of the color range afforded by aniline dyes. The anodic process seems to result in a very even finish,—probably because the oxide film which is formed is electrically resistant and thereby compels an equal treatment to the entire surface of the sheet and the formation of a strong and uniform film.

To protect the dye against the action of laundry fluids, a heat resisting lacquer is then applied to the sheet and penetrates the sheet along with the dye, thus protecting the dye not only within the surface of the sheet but superficially as well. The surface of the sheet is not porous to the eye, indeed when finished it presents a surface having a very attractive satin-like finish. The color on the sheet seems to be transparent particularly as contrasted with the opaque colors on enameled or sprayed buttons. The result is that the color of the sheet may not only be made to match that of a certain cloth but the color texture more nearly harmonizes with that of the cloth. This difference in effect is particularly evident when contrasted with a button having an opaque color.

The sheet is preferably colored on both faces. The color being a part of the sheet and not merely a superficial coating, it has been found that the sheet may not only be stamped but drawn into button shape as shown in the drawing without visibly disturbing the continuity of the coloring. This makes it possible to eliminate the

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high cost of handling of the button incident to the application of enamels, spray finishes and platings heretofore employed.

As here shown the outer margin of the button 5 10 is curled by the forming dies under the button as at 11 thus concealing the cut and raw edge of the aluminum sheet. The thread holes 12 which occur at the bottom of the central depression 13 in the button are formed by a punching action 10 which leaves substantially no burrs on the upper surface which might cut the thread, any slightly rough edges around the holes are turned down as at 14 (Fig. 1) to avoid contact with the thread and to conceal the cut edge.

Obviously the invention is not limited to the details of the illustrative construction since these may be variously modified. Moreover it is not indispensable that all features of the invention be used conjointly, since various features may 20 be used to advantage in different combinations and subcombinations.

Having described my invention, I claim:

1. A protected-color metal sew-on button formed of colored sheet aluminum wherein the 25 aluminum is provided with an oxide film dyed with a penetrating dye, said dye being protected by a lacquer which also penetrates and lies partly below the surface thereby protecting the color of the button against impairment by wear and 30 laundry fluids, said button being formed with a

central depression having thread openings with the burr at the edge of the openings turned to avoid cutting the thread and to conceal the raw edges of the aluminum, and the margin of the button being curled under to conceal the raw 80 edges of the aluminum.

2. A protected-color metal sew-on button formed of colored sheet aluminum wherein the color is provided by a dye which penetrates and lies below the surface of the sheet and is pro- 85 tected by a lacquer which also penetrates the sheet thereby fixing the color against removal when the metal is bent, said button being formed with a central depression having thread open- 90 ings with the burr at the edge of the openings turned to avoid cutting the thread and to conceal the raw edges of the aluminum, and the margin of the button being curled under to conceal the raw edges of the aluminum.

3. A colored sew-on button of the character 95 described formed from a pre-colored aluminum sheet treated to permit penetration of the color into the sheet and having a protecting lacquer which likewise penetrates the sheet, whereby 100 said sheet may be stamped and drawn without marring the continuity of the color, said button having a central depression penetrated by thread holes and having its margin curled under to conceal the raw edges of the metal.

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