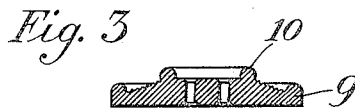
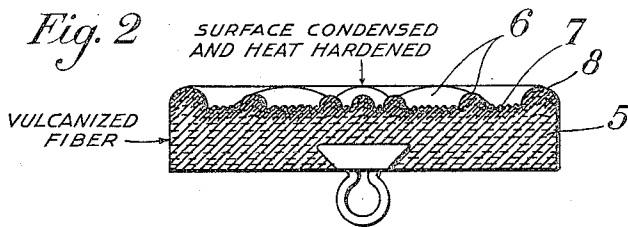
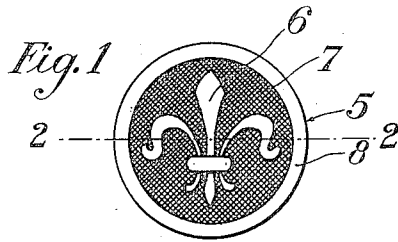


E. SHANTZ.
BUTTON.
APPLICATION FILED JULY 25, 1919.

1,322,963.

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INVENTOR
Edgar Shantz
BY
Farnum F. Dorsey
HIS ATTORNEY

UNITED STATES PATENT OFFICE.

EDGAR SHANTZ, OF ROCHESTER, NEW YORK.

BUTTON.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDGAR SHANTZ, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Buttons; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to produce a button which shall be tough, resistant to moisture, ornamental in form, and inexpensive to manufacture.

The material commonly known as vulcanized fiber is tough, sufficiently inexpensive, and is not seriously affected by occasional moisture. It has not heretofore been used in the manufacture of buttons, however, at least to any substantial extent, by reason of the fact that it has not been considered or treated as a plastic material, but has been manufactured only by cutting or bending operations.

The present inventor has discovered that buttons of ornamental character, having faces with raised or embossed ornaments or insignia, may be produced from plain blanks formed of vulcanized fiber in sheet form, by a plastic forming operation. This operation is performed by dies which are heated and are forced against the surface of the material under heavy pressure, the desired figure or ornament being produced chiefly or wholly by the flow of the material at and adjacent to the surface.

Sheet fiber, being manufactured from raw material composed of layers of paper-pulp, retains to a substantial degree its stratified structure even after the "vulcanization" or solidification of the material. In a button produced as just described the stratified structure in the body of the button is not disturbed, and the button has, therefore, great strength to resist bending strains or blows which would break a button of vegetable, ivory or ordinary plastic compositions. On the other hand, the flow of the material under the pressure of the die, and the heat imparted to the material, condense and harden the surface of the material and render it more nearly homogeneous in structure. From this there results a smooth, durable

and substantially waterproof surface, which requires no polishing or further treatment of any kind.

In the accompanying drawings Figure 1 is a front-view of a button embodying the present invention, and Fig. 2 is a section on the line 2—2 in Fig. 1, but on an increased scale. Fig. 3 is a transverse section of a button of different design, and Fig. 4 is a side-elevation of the blank from which the button of Fig. 3 may be made.

In Figs. 1 and 2 the invention is illustrated as embodied in a button having a body 5 of substantially uniform thickness, and a face ornamentation in the form of a raised figure 6 and a depressed matt surface 7, surrounded by a raised rim 8. This button is produced from a blank in the form of a disk of uniform thickness, punched or otherwise cut from a sheet of ordinary vulcanized fiber. The stratification of the material, which is due to the fact that it is made up originally of layers of paper-pulp, is indicated by broken horizontal lines.

The embossed or relieved ornamentation of the face, including the rim 8, is all produced by the pressure of a heated die against the face of the material. This may be done with the material in its normal condition, but the operation is facilitated by slightly moistening the material.

As indicated by the shading and by the distortion of the broken lines representing the strata of the material, the material adjacent to the face of the button is condensed and its stratified formation more or less broken up and rendered homogeneous, these effects resulting partly from the direct action of the pressure, partly from the flow of the material under the pressure, and partly from the effect of the heat. The heat acts to harden or vulcanize the material independently of, or in addition to, the effect of the pressure. The degree of heat depends upon the quality of the material, the amount of pressure used, and the length of time for which the button is subjected to the pressure, and should not, in any case, be sufficient to char the fiber.

Where the general thickness of the button is to be substantially uniform it may be formed, as just described, from a blank of uniform thickness requiring no preliminary machining or forming operation. Where

the thickness departs widely from uniformity, as for example the design shown in Fig. 3, it may be necessary or desirable to produce a rough approximation to the general form of the button in the blank before it is acted upon by the die. Thus, as shown in Fig. 4, the blank for the button of Fig. 3 is formed, by a suitable turning operation, with a convex surface 11 so as to provide material at the proper point for the raised center 10 of the button. The material for the raised rim 9 of this button may be pro-

vided by the flow from the depressed intermediate portion.

The invention claimed is:

1. A button consisting of vulcanized fiber with the strata thereof extending, in general, transversely, the fiber adjacent the face of the button being condensed and flowed into an ornamental embossed form.

2. A button of vulcanized fiber with an embossed condensed and hardened face.

EDGAR SHANTZ.