

June 7, 1960

S. EMSIG

2,939,191

BUTTON

Filed May 10, 1956

Fig. 1.

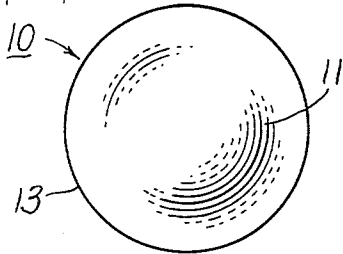


Fig. 5.

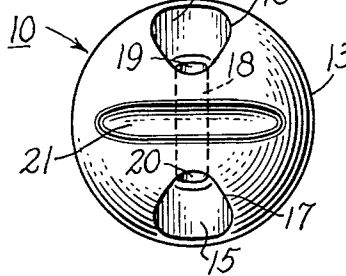


Fig. 2.

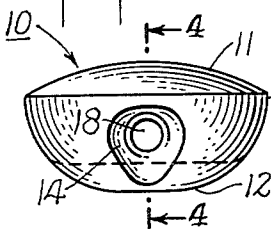


Fig. 3.

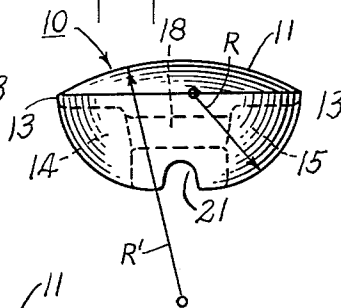


Fig. 4.

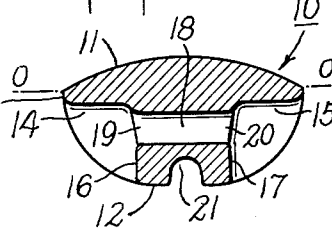


Fig. 6.

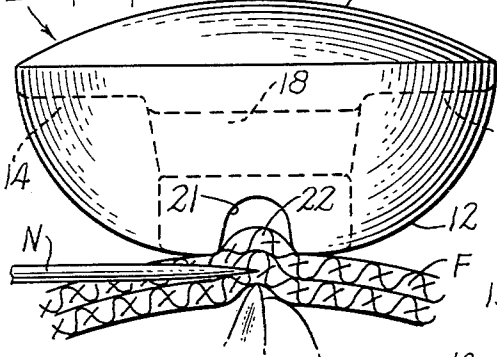


Fig. 8.

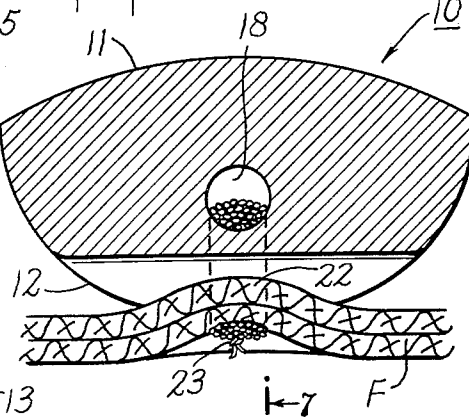
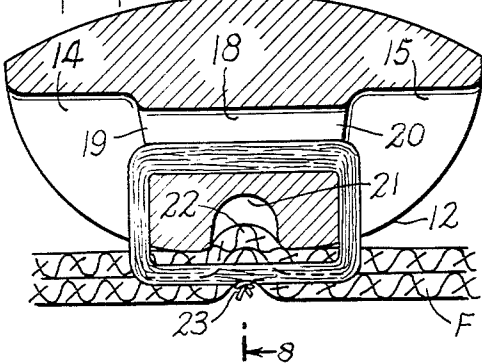


Fig. 7.



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2,939,191

BUTTON

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Filed May 10, 1956, Ser. No. 584,025

2 Claims. (Cl. 24—90)

This invention relates to buttons and more particularly to self-shank buttons.

Known to me is the provision of self-shank buttons particularly of generally spheroidal form, or approximating the same, in the nature of the shape of a lentil or similar lenticular body; still more particularly, self-shank buttons in which the shank protrudes to the rear face in the form of a semi- or parti-spheroidal contour of such small magnitude as may be considered a shankless button.

The value of buttons of such shape, particularly where they are of integral construction as secured by molding or otherwise cutting the same, is to provide an integral body resisting high crushing stresses, as well as to lie close to the material, whether for decoration or in combination with a buttonhole. Such buttons not only present a maximum ornamental face without exposure of the thread but are most effective in the complementary fastening engagement between the buttonholes with which they may be used, minimizing drooping.

As desirable as such buttons may appear to be, they are awkward to handle in sewing operations, are difficult to orient to secure proper and accurate location on the fabric for attachment in matched relation to the button-hole; are not effective for blind stitch attachment to fabric with facility to have encouraged commercial application, and present a fulcrum projection which may mar the face of the fabric or shear the thread holding the button in position, where employed in some forms of pressing operations.

In accordance with my invention, it is an object thereof to utilize substantially all of the benefits structurally incident to using a massive button body, particularly of plastic materials which may be heat hardened to a tough, relatively brittle condition characteristic of heat hardening, thermally irreversible melamine resins and other equivalent resins, without the objections heretofore experienced, particularly with self-shank buttons of spheroidal form of lentil-shaped contour with respect to the awkwardness in handling which has discouraged their use commercially.

More specifically, in accordance with my invention, it is an object thereof to provide a self-shank button characterized by a contour where the maximum massiveness is secured to resist stresses experienced in use as by pressing, facility of needle threading through a button-hole to secure a magnitude of fastening particularly characteristic of flat, sew-thru buttons, characterized by providing a mass which is of generally spheroidal contour in cross-section, or that which more closely approaches a lentil in shape in its preferred form, having a transverse thread aperture with the needle openings to each said edge between the front and rear faces, thereby providing spaced entrance and exit needle openings completely to the rear face of the button and including between the needle openings a groove on the rear face, particularly transversely directed to the axis of the thread aperture whereby many, if not all, of the deterrents to the com-

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mercial use of buttons of this general type are overcome.

Still more particularly, it is an object of this invention to provide a self-shank button where massiveness for maximum strength may be retained and maximum ornamentation secured by extending one or more thread apertures to present the entrance and exit of the needle openings completely to the rear face of the button in such close contact to the front face that the buttons may be employed "close to material" or "face contacting" sewing in a wide variety of sewing operations, including blind stitch sewing, by the provision between said needle openings of an open groove whereby button sewing operations, manual or otherwise, may be conducted with practical commercial ease, and with attendant economies in time and labor.

Still more particularly, it is contemplated by this invention to provide a self-shank button which has high ornamental value, ruggedness to resist wear and tear in use, while retaining highly desirable properties of facility of handling for attachment by either manual or mechanical means.

To attain these objects and such further objects as may appear herein or be hereinafter pointed out, reference is made to the drawing, in which—

Figure 1 is a front face elevational view illustrating a button in accordance with my invention;

Figure 2 is an end elevation thereof;

Figure 3 is a side elevation thereof;

Figure 4 is a section taken on the line 4—4 of Figure 2;

Figure 5 is a rear face view thereof;

Figure 6 is a magnified side view illustrating a sewing operation employing the button illustrated in Figures 1 to 5;

Figure 7 is a magnified sectional view along the line 7—7 of Figure 8, showing a button in sewn position;

Figure 8 is a view taken on the line 8—8 of Figure 7.

Making reference to the drawing, I exemplify the button in the preferred form of my invention as one made by molding from plastics of heat stable, thermally irreversible material, of which phenol-aldehyde condensation resins, urea-aldehyde condensation resins, melamine reaction products, unsaturated thermo-setting polyester resin reaction products are examples.

Heat curable melamine resins may be employed by me, as well as the thermo-setting resins and compositions referred to in the patent to Emsig 2,451,077 of October 12, 1948, and in the patent to Sucher 2,652,597 of Sept. 22, 1953. Natural materials, such as mother-of-pearl and thermoplastic products may, in a measure, be employed with some of the advantages, as will become apparent as this description proceeds.

Structurally, I exemplify a circular button 10, having a continuous decorative face 11 which is partly spheroidal in contour in a relatively flat arc, and has a rear face 12, described by a radius R which is less than the radius R' for the front face 11. The peripheral edge surface 13 is generally a truncated conical development, with the minor base away from the front or tapering in the direction of the rear face 12. The cross section of the mass thus described is generally lenticular, with the opposed convex surfaces of dissimilar curvature and with the edges a truncated conic surface as described. This form of button lends itself readily to compression molding, and injection molding.

The mass thus formed has shaped therein cutouts 14 and 15, lying diametrically opposite to each other rearwardly of the axis O—O', to provide funnel-shaped openings and seats 16 and 17, through which a thread receiving aperture 18 is drilled or otherwise formed, to provide needle entrance openings 19 and 20 adjacent the seats 16 and 17.

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With this construction, there is provided between the openings 19 and 20 a groove 21, longitudinally extended substantially at right angles to the axial line of the drill hole defining the aperture 18.

By the construction described wherein the cutouts 14 and 15 merge adjacent the seats 16 and 17, accurate drill holes may be formed to provide the thread aperture 18.

By the provision of the open groove on the rear face, particularly transversely directed to the axial line of the aperture 18, advantages are obtained making the use of this highly desirable massive form of button available for commercial sewing operations, manually as well as mechanically.

This is particularly illustrated in Figure 6 wherein the groove 21 is faced adjacent the fabric F and under locating pressure, as the fingernail, in clamping the button on the fabric, directs a loop 22 into the groove 21, providing a ridge of fabric at right angles to the axial line of the aperture 18. In this position, the needle N may be extended substantially tangentially to the rear face 12. This action nonetheless pierces the ridge of fabric pressed into the groove 21, thereby facilitating the forming of a blind stitch through the fabric F in passing the needle and thread alternately through the aperture 18 and through the fabric in one or more stitching operations. This stitching operation thereby provides a close contact of the button to the fabric or like material to which the button is sewn.

Thus, by the provision of the rear face groove as described, a substantial amount of the fabric may be pierced quickly and efficiently, without unduly puckering the fabric to deface the garment, if extended unduly beyond the confines of the button crown at the rear of the button.

It will also be observed that where the fabric to which the button is sewn is marked with relation to a complementary portion of the garment carrying the buttonholes, the groove accurately acts as an indicium to permit alignment of the groove with the mark on the garment. Where the button is sewn by mechanical means, such as a button sewing machine, the groove 21 not only orients the sewing holes for rapid alignment with the needle but forms a socket into which the knot 23 may be depressed, and minimizing any sharp point or fulcrum between the crown or high point of the rear surface of the button and any plate contacting the knot 23.

Likewise it will be observed that pinching the fabric into the groove 21 permits of a more effective grasp of the button and fabric, especially effective where the button is reduced to the smallest size.

In all, the construction as described retains the maximum strength to secure ruggedness in the various launder-

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ing or cleaning and pressing operations to which the garment with this button thereon may be subjected, without detracting from the ability efficiently to handle the button in subjecting it to both manual and mechanical sewing operations and the claspings operations incident to such work.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent, is:

1. A self-shank button comprising a body portion of a solid plastic, having an imperforate decorative front face and having a thread aperture extending transversely through the body, which thread aperture runs substantially between the front and rear faces of the body portion and terminates in spaced entrance and exit needle openings within the outlines of said body portion, said body portion including a groove opening on the rear face, said front and rear faces being described by radii outlining a lentil-shaped body, and said groove having a longitudinal axis normal to the longitudinal axis of said thread aperture.

2. A self-shank button comprising a body portion of a solid plastic, heat hardened to a tough, relatively brittle, thermally irreversible condition, having an imperforate decorative front face and having a thread aperture extending transversely through the body, which thread aperture runs substantially and between the front and rear faces of the body portion and terminates in spaced entrance and exit needle openings within the outlines of said body portion, said body portion including a groove opening on the rear face, said front and rear faces being described by dissimilar radii, the smaller of which outlines the rear face, and said groove having a longitudinal axis normal to the longitudinal axis of said thread aperture.

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