

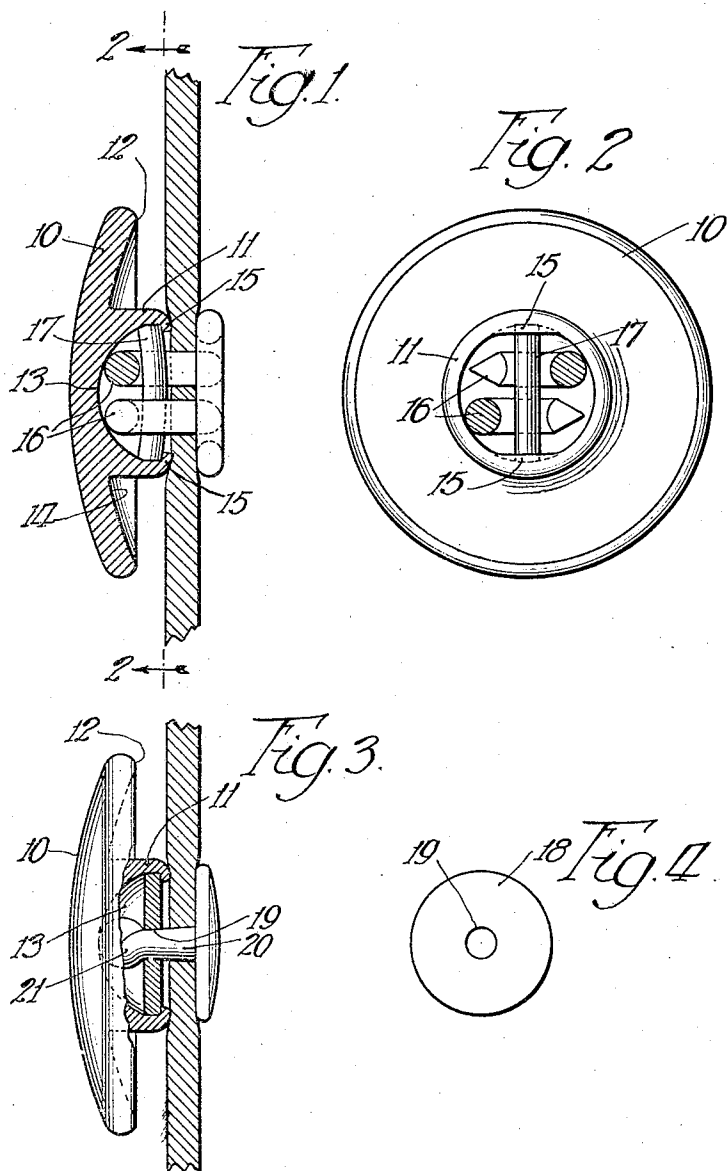
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BUTTON

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UNITED STATES PATENT OFFICE

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BUTTON

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This invention relates to shirt buttons and the like and, among other objects, aims to provide an economical metal button appropriate for use on shirts and the like and which can be attached by automatic machinery.

The invention may be readily understood by reference to one form of button embodying the invention and shown in the accompanying drawing.

In said drawing:

Fig. 1 is a sectional elevation of a button attached to a garment, a section of the fabric and an attaching fastener being also shown.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1 showing the under side of the button and a section of the attaching fastener prongs.

Fig. 3 is an elevation of the button designed for attachment by a single pronged fastener, a portion of the button being shown in section to illustrate details.

Fig. 4 is a plan view of the fastener engaging element for the single pronged fastener.

A shirt button is generally understood to be a type of button whose appearance makes it appropriate not only for use on shirts but other garments such as children's clothing. Neatness and pleasing appearance of the button are important. The illustrative button is not only neat and attractive in appearance but it is cheap, durable, and can be attached by automatic machinery. The foregoing considerations are of greatest importance in factory made garments produced in large quantities, where the margin of profit is small. The illustrative button has a solid metal body comprising a convex head 10 (with a concave under face) and a short shank 11 projecting only a short distance beyond the lower edge 12 of the button, such shank being provided with fastener engaging means by which the button may be firmly and permanently attached. The distance of such projection should be sufficient to accommodate the cloth through which the button is buttoned, which in the case of the relatively thin cloth for shirts and children's garments is relatively small.

The button may be efficiently and cheaply

made of soft steel in the form of rod or similar stock. Such stock is not only much cheaper and can be more economically fabricated than sheet metal stock customarily used in the manufacture of metal buttons, but forms a button of exceptional strength and durability. The button is formed from the rod stock by upsetting a blank or slug (i. e., a short section of the rod stock) to provide the head 10, and in the same or succeeding operation forming a recess with a curved bottom 13 in the shank to provide a die surface for upsetting the attaching fastener. The bottom of the recess 13 is substantially in alinement or flush with the under face 14 of the button head,—the thickness of metal between the bottom of the recess 13 and the top of the button need merely be sufficient to provide adequate strength and to insure against penetration of the metal by the attaching fastener. In the present case the thickness of the metal at the thinnest point (i. e., the center of the bottom of the die surface 13) is substantially that of the button head itself. The substantial coincidence of the bottom of the die surface 13 with the concave under face of the button head enables the reduction of the button shank 11 to a minimum length. The short shank coupled with the overhanging convex button head not only gives the button a flat appearance and causes it to appear to hug the cloth but results in effectively concealing the shank. The diameter of the shank may be substantially reduced as compared with hollow sheet metal buttons while still securing a shank of adequate strength. This permits the button to be buttoned through a buttonhole without resulting in any objectionable buckling of the cloth around the buttonhole. In fact the button not only gives the flat appearance of the sew-on button and hugs the cloth equally well but as regards the narrow shank it compares favorably with the action of the sew-on button.

The fastener engaging element is in the present instance seated inside the die recess and held therein by crimping over the rim of the shank at appropriate points, to hold the fastener engaging element in place. For

attachment of the button by a double pronged fastener such as that indicated at 16, a transverse bar 17 in the form of a wire is employed. The bar is seated in the die recess and held therein by crimping over the rim of the recess as at 15. As shown in Figs. 1 and 2 the curved die surface upsets the legs of the fastener and causes them to pass around the bar from opposite points and clamp the button against the cloth. Since the prongs of the double pronged fastener embrace a small strip of cloth between them and the fastener head, the latter may be made relatively small so as to embed itself in the cloth and not project substantially therefrom. This gives the flat effect produced by thread attachment with the advantage of the extremely durable, strong and effective mode of attachment secured by sewing the button on by wire.

For attachment by a single pronged fastener, a disc 18 is similarly seated in the die recess and held therein by clamping over the rim of the shank at appropriate points as at 15. The disc 18 is provided with a central perforation 19 which may advantageously be slightly smaller than the portion of the fastener prong which lies in the opening when the button is attached. This requires the fastener prong 20 slightly to enlarge the perforation 19 upon attachment, resulting in a tight fit of the disc about the fastener prong. The curved die 13 effectively upsets the fastener prong as at 21 causing it to bind tightly inside and adjacent the disc 18, thereby clamping the button tightly against the cloth. Thus, whether the button be attached by a single or double pronged fastener, it is tightly held against the cloth with no opportunity for play which might result in concentrating strain upon the cloth.

After formation of the button as aforesaid, the button is given a cleansing treatment (principally to remove the oil which may have been placed on the blank to lubricate the forming dies) and thereafter rust-proofed or enameled, or both. Being solid in construction the button contains no hollow interior recesses for retaining any of the cleansing, plating or other fluids, nor any laundry solutions which might later escape and stain the garment.

The illustrative button is not only inexpensive because it is made of relatively inexpensive material but because of the elimination of waste in its manufacture. In the manufacture of metal buttons from sheet metal there is a waste of from 10 to 33% of this more expensive material. Moreover, the design of the button, being made as it is from rod stock, permits of simple and efficient machine operations which require little or no intermediate handling of button parts. The button compares favorably in appearance with such shirt buttons as the pearl sew-on button and has the advantage of not embody-

ing exposed thread holes and attaching thread which are not particularly sightly. Moreover, the absolute uniformity of the button makes it possible to attach it by automatic machinery, something which is impossible with pearl buttons, for example, whose non-uniformity and irregularity make automatic attachment practically impossible. Even when such pearl buttons are fed by hand considerable needle breakage results because of incorrect positioning of the button, due to irregularities therein and other causes.

Obviously the invention is not limited to the precise details of the illustrative button since these may be variously modified.

Having described my invention, I claim:

1. A metal shirt button made of soft steel or the like, comprising in combination a relatively thin, solid head of generally uniform thickness formed to present a convex outer surface and a concave under surface, an integral recessed shank concealed within the concavity of the under face of the head and being relatively short so as not to project substantially beyond the plane of the edge of the button head, the said recess being concave at its bottom to provide a die surface for upsetting the prong of an attaching fastener; the thickness of said head at the bottom of said recess being sufficient to prevent penetration thereof by a fastener prong and the metal thereof being hard so as to prevent penetration by the fastener prong, and means adjacent the extremity of said shank for engaging the bent over prong to secure the button in place.

2. The method of making a metal shirt button or the like which lies closely against the cloth like a sew-on button but is attached by a metal fastener, which is characterized by upsetting a soft steel blank consisting of a section of rod stock at one end to provide a solid but relatively thin head of generally uniform thickness, concaving the under face of the head so that it curves down over and substantially conceals the remaining portion of the blank which projects centrally from the blank and provides the button shank, giving the outer face of the head a corresponding convex curvature, and forming a concave recess in the end of said shank which corresponds substantially with the concave under surface of said head to provide a die for upsetting an attaching fastener, whereby the length of the shank is minimized so that the button will lie closely to the cloth in simulation of a sew-on button.

In witness of the foregoing I affix my signature.

IRA D. FORD.