April 1, 1930. J. M. CLARK ET AL 1,752,418

BUTTON

Filed July 20, 1929

Fig. 1.

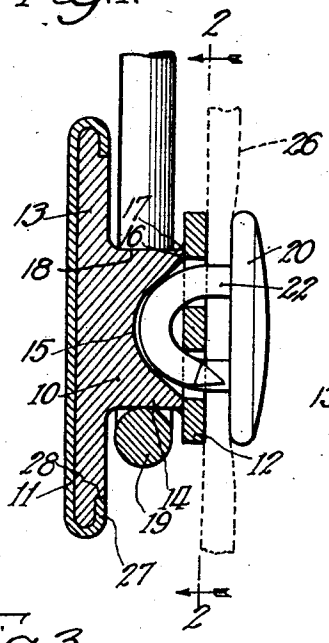


Fig. 2.

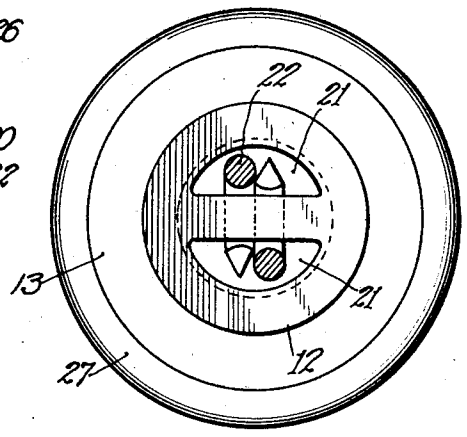


Fig. 3.

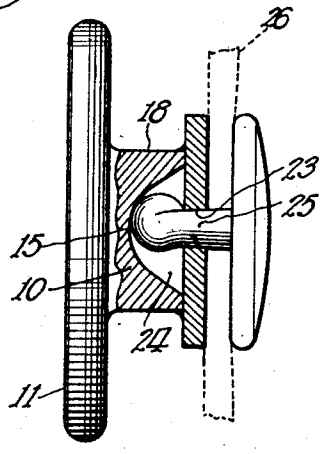
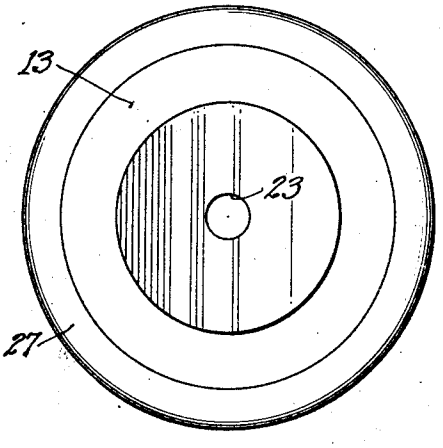


Fig. 4.



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UNITED STATES PATENT OFFICE

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BUTTON

Application filed July 20, 1929. Serial No. 379,839.

This invention relates to buttons for workmen's clothing and the like and aims to provide an inexpensive but durable button which may be made at low manufacturing and labor costs.

The invention may be readily understood by reference to one illustrative button embodying the invention and illustrated in the accompanying drawing.

In said drawing:

Fig. 1 is a sectional elevation of an illustrative button fastened to the fabric of a garment and employed in conjunction with an overall suspender loop shown engaging the neck or collet of the button.

Fig. 2 is an elevation of the back of the button showing the attaching fastener prongs in section, such section corresponding to that of the plane 2—2 of Fig. 1.

Fig. 3 is a view of a button arranged for attachment by means of a single pronged fastener.

Fig. 4 is an elevation of the back of the button shown in Fig. 3.

The illustrative button is formed in this instance by the assembly of three elements, namely, the button body 10, a covering for the top of the button represented by the decorative and protective shell 11, and a fastener engaging element 12 constituting also the button base. The button body in this instance comprises a head portion 13 and a shank portion 14, of relatively small diameter, the end of the latter being formed with a recess 15 generally semi-spherical in shape to receive the pronged attaching fastener. The body 10 is advantageously made of soft steel or other metal in the form of a rod or similar stock (which is quite inexpensive compared with sheet metal stock) and brought into the illustrated shape by one or more die pressing operations upon a blank or slug cut from the rod stock. These operations advantageously include the formation of the recess 15, leaving a relatively narrow edge 16 at the extremity of the shank forming the rim of the recess.

The fastener engaging element in the form of a perforated disc 12 is advantageously attached to the body member by a welding operation. Such operation may be conveniently performed by appropriate apparatus in which one electrode engages the fastener engaging element, causing current to flow through the thin edge 16. The concentration of the current in this thin edge raises it to a welding temperature. The pressure exerted in the welding operation is sufficient to cause the metal of the rim to flow slightly laterally as at 17, leaving the final rim thickness somewhat greater than its initial thickness. The disc 12 is advantageously made somewhat greater in diameter than that of the shank 14 to provide both a substantial button base and a neck 18 intermediate the top and base of the button. Being made of solid metal instead of in hollow form, the shank 14 may be made in a much smaller diameter with greater strength than a hollow shank button made of the more expensive sheet metal. Its small diameter permits it to be buttoned through button holes without buckling the cloth as frequently happens with buttons whose necks or collets are larger than the space in the button hole provided for their reception. Furthermore, as illustrated in Fig. 1, the neck provides a seat for the extremity of a suspender loop 19 which, among other advantages prevents it from wedging between the button base and the fabric to which the button is attached, with the possibility of loosening the button and tearing the cloth. In other words, the pull on the suspender loop is not concentrated at a point where it can impair the firmness of attachment of the button to the cloth.

As shown, the illustrative button is attached by a pronged fastener 20 upset within the recess in the shank of the button. If a double pronged attaching fastener is used, such as that shown in Fig. 2, the fastener engaging element is provided with a pair of openings 21 (semi-circular in this instance) for the respective prongs leaving an intervening bar 22. The fastener is applied with the prongs straddling the bar 22 and its prongs are upset around the bar by the action of the curved surface of the recess 15. Such clamping of the prongs is advantageously effected by a pair of cooperating dies which

press against the button and fastener heads. If a single pronged fastener, such as that shown in Fig. 3, is to be employed the button preferably is provided with a fastener engaging element having only a single opening 23 only slightly larger in size and shape than the prong, thus providing a button with an internal cavity or recess 24 substantially larger than the opening 23. Upon insertion of the prong 25 of a single pronged fastener and the application of pressure, the curved surface of the recess 15 serves to curl over or upset the end of the prong, enlarging it to a diameter substantially greater than that of the opening 23 and setting it tightly against the fastener engaging element. With either form of attaching fastener, the fabric 26 to which the button is attached is firmly clamped by the button base and the head of the fastener, which are adequate in size to grip a substantial area of cloth and avoid concentration of stress on the cloth where it is penetrated by the fastener.

After formation of the button as aforesaid, it is preferably treated superficially to improve its appearance and to provide a protective covering or coating at least for the head. For example, the decorative finish may be provided by a shell 11 formed of relatively thin metal which is either itself rustproof or treated superficially to render it rustproof. Its outer surface may be provided with any desired embossing or trademark, depending upon what the purchaser desires. It is secured to the button by crimping its marginal flange 27 underneath the head 13 of the button which in this case is recessed or rabbeted at 28 so that the outer surface of the crimped flange lies flush with the under surface of the head.

The illustrative button is not only an inexpensive button since it is made of but two relatively inexpensive elements (not including the decorative or protective finish which in this instance is provided by a separate element) but its construction is such as to lend itself well to economical manufacture, requiring little or no handling. For example, the body 10 may be formed in a series of operations which involve no manual handling, and, without intervening manual handling, the fastener engaging element or button base 12 may be formed (by a simple punching operation) and welded to the rim 16. Then without intervening handling the button may be given its protective or decorative finish. While the button is advantageously adapted to be formed economically in the aforesaid or a similar manner, its manufacture is obviously not limited to full automatic manufacture or to manufacture according to any definite sequence of operations.

Obviously the invention is not limited to the precise details of the illustrative button since these details may be variously modified. Moreover, it is not indispensable that all features of the invention be used conjointly, since various features may be advantageously employed in different combinations and sub-combinations.

Having described one embodiment of our invention, we claim:

1. A metal button of the character described comprising in combination, a solid metal button body shaped to provide a head and a shank of relatively small diameter having a curved recess in the end thereof, a button base member welded to said shank and perforated to receive a pronged fastener, said recess being constructed and arranged to upset the fastener to secure attachment, said base being relatively large in diameter compared to that of said shank whereby to provide an adequate cloth engaging base and permit the use of a button with a relatively thin shank.

2. A metal button of the character described comprising in combination, a solid metal button body shaped to provide a head and a shank having a curved recess in the end thereof, a base member welded to said shank and perforated to receive a pronged fastener, said recess being constructed and arranged to upset the fastener to secure attachment.

3. A metal button of the character described comprising in combination, a solid metal button body shaped to provide a head and a shank having a curved recess in the end thereof, a base member welded to said shank and perforated to receive a pronged fastener, said recess being constructed and arranged to upset the fastener to secure attachment, and a decorative thin metallic shell crimped over the button head.

4. A metal button of the character described comprising in combination, a solid metal button body shaped to provide a head and a shank having a curved recess in the end thereof, and a disc larger in diameter than said shank and welded to the extremity of said shank, said disc being perforated to receive a pronged fastener.

5. A metal button of the character described comprising in combination, a solid metal button body shaped to provide a head and a shank, having a semi-spherical recess formed in the end thereof of a size to leave a relatively thin rim around said recess at the extremity of said shank, and a disc electrically welded to said rim, said disc being substantially larger in diameter than said shank and being perforated to receive a pronged fastener, the curved surface of said recess serving to upset said fastener.

6. A metal button of the character described comprising in combination, a solid metal button body shaped to provide a head and a shank having a curved recess in the

end thereof, a base member welded to said shank and perforated to receive a pronged fastener, said recess being constructed and arranged to upset the fastener to secure attachment, said head being marginally recessed on its under surface and a decorative thin metallic shell covering said head and having its margins bent into said marginal recess, the latter being of a depth to bring the surface of said shell margin flush with the back of said head.

7. A metal button of the character described comprising in combination, a solid metal button body shaped to provide a solid integral head and a shank, said shank having a curved fastener upsetting recess formed in the end thereof, and a fastener engaging element secured to said shank across said recess, said button head being provided with a protective surfacing.

8. A metal button of the character described comprising in combination, a solid rod of relatively small diameter formed on one end to provide a head, and at the other end being formed with a curved concave recess to provide a fastener upsetting die, the intermediate portion of said rod providing the button shank, and a fastener engaging element secured across said recess to the end of said shank.

In testimony whereof, we have signed our names to this specification.

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IRA D. FORD.