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C. A. REHOR

1,619,541

RUBBER BUTTON

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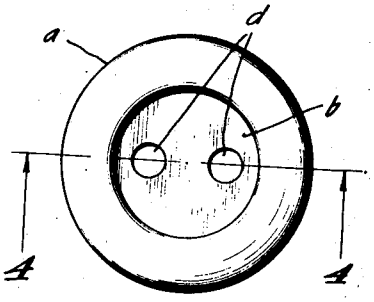


Fig. 2.

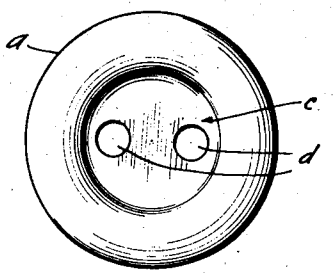


Fig. 3.

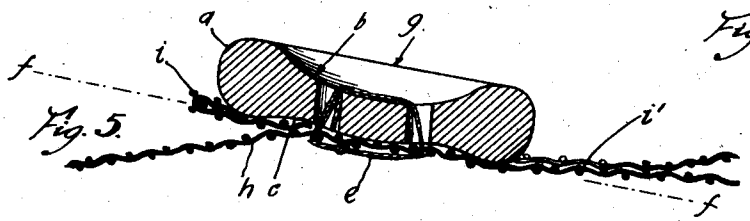


Fig. 5.

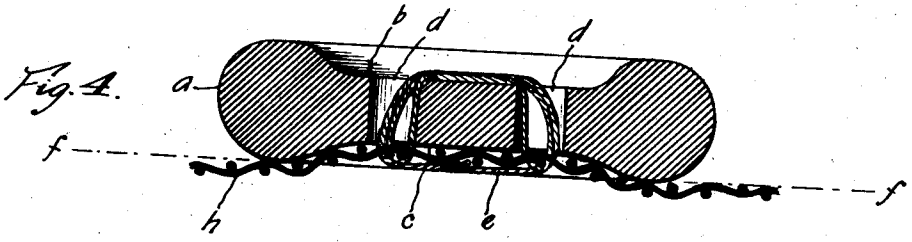


Fig. 4.

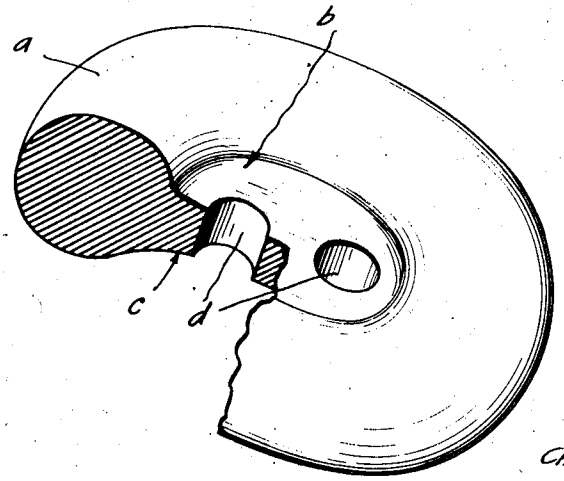


Fig. 1.

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UNITED STATES PATENT OFFICE.

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RUBBER BUTTON.

Application filed April 14, 1925. Serial No. 23,100.

The object of my invention is to provide a button which will avoid the undesirable features of those types upon which my button is an improvement.

In one of these types the rim of the button is too thin and flexible, so that it readily yields to peripheral pressure and folds or cups on a diametric line under normal strains, and then pulls out of the button hole.

In the other type the rim is hard, rigid and inflexible. When such button is used on washable garments to be run thru a wringer, and the button becomes positioned crosswise of the rollers of the wringer, either the button is torn off, or it is permanently deformed, folded in V-shape in passing thru the rollers, and tends also to mutilate the resilient covering of the latter.

I attain my object in a button made of elastic, homogeneous, non-absorbent material consisting of a relatively thick rim substantially inflexible and a thinner central web integral with the rim with the maximum thinness of the web at its centre, the rim adapted to resist bending and folding on diametric lines under normal pressures, but to yield to greater pressures.

I have tested the efficiency of my own button over the first mentioned type by using both kinds on wearing apparel; using in one instance a rubber button structurally embodying the principle of my invention, and using on the other hand a button made with a non-yielding middle portion, and having its maximum flexibility at its rim. The first mentioned button—embodying my improvement—stays buttoned; the other becomes repeatedly unfastened. Upon consideration the reason for such difference will be apparent; upon the rim of the button is imposed a great leverage of which the middle portion of the button, fastened to the garment constitutes the fulcrum; hence the rim should be adapted to offer and capable of offering sufficient resistance to such leverage action, and thus prevent the cupping, or folding, or other deformation of the button which would result in its slipping out of its button hole.

Another feature of my invention is directed to the conditions present when the garment on which my button is fastened is being ironed in the laundering thereof. In order to prevent undue wear of the strands of the threads lying across both the under and the lower faces of the button these faces should be provided with recesses in which said strands may lie, and thus not project beyond the planes of said faces by lying within the same. To this end I provide the under face of the button with a concavity or recess as well as the upper face of the button in which said strands may lie. Such construction incidentally provides for the maximum flexibility of the button at its middle portion within its said rim which by contrast renders the rim relatively non-yielding; or at all events imparts to the rim great resistance to deformation, since the strains imposed on the middle portion of the button provided with the thread receiving holes, will be to some extent dispersed and accommodated by the greater yielding and flexible middle portion of the button.

And with respect to the second above mentioned type my button has all the advantages thereof, but none of its disadvantages. When my button is used on a washable garment, the substantially inflexible rim of my button will resist bending and folding on diametric lines under such pressures as are normally imposed by the button-hole in the wearing of the garment, but will yield greater than normal pressures; and thus will permit the button to pass, under all conditions, between the rollers of a wringer without injury to the button or the resilient cover of the rollers; the button being merely temporary deformed into V-shape, in case it should become positioned crosswise of the rollers, thus facilitating the passage of the button between the latter; and after the button has passed through the rollers, it will re-assume its normal form and condition.

The construction and features of my improved button are diagrammatically illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective of my button with a portion thereof broken away, and shown in section;

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

Fig. 3 is a plan view of the bottom of my button;

Fig. 4 is a diametric section taken on the line 4—4 of Fig. 2; and

Fig. 5 is a similar section as Fig. 4 illustrating diagrammatically the leverage strains to which my button is more or less

subjected in service; and illustrates further that the substantially non-flexible rim of the button tends to resist the deformation of the button by said strains, the latter being accommodated by the more flexible middle portion of the button. As apparent the drawings of my improved button are on a very exaggerated scale.

My button is made of rubber compound of suitable resiliency, or may be made of any material which would have the same characteristics as rubber with respect to said resiliency, wear and capability of sustaining the strain of the fastening thread by which the button is fastened to the garment. The rim *a* of the button is made of substantially cross section, and its periphery substantially circular or rounding. The middle portion of the button is recessed as at *b* on its top, and the bottom of the button is concaved as at *c*. The button is provided with holes as *d* in which to receive the fastening thread, which in Figs. 4 and 5 is represented by *e*. Thus the strands of the fastening thread lying crosswise of the middle portion of the button between the thread receiving holes *d*, on the underside of the button, will be substantially contained in the space between said underside and the surface of the material to which the button is fastened; the lower face or under side of my button being diagrammatically indicated by the line *f*—*f* in Figs. 4 and 5. Thus, in laundering the garment provided with my button, the sad-iron will pass over the upper face of the button without imposing any wearing strain upon the strands of the fastening thread lying against either side of the button.

In the diagrammatic view Fig. 5, the top line *g* represents the plane of the upper face of the button, the broken line *f* as mentioned, represents the plane of the lower face of the button. *h* represents the material to which the button is fastened, and *i* and *i'* represent the lap of the material in which the button-hole is made, and which overlies the edge of the material to which the button is fastened. This view illustrates that whatever strain is imposed upon the button, tending to deform it and thus tending to permit it to slip out of its button-hole, is accommodated by the central flexible portion *b* of the button, while the rim of the button tends to retain its normal form, neither cupping nor bending under said strain.

I claim:

1. A button of elastic, homogeneous, non-absorbent material consisting of a relatively thick rim substantially inflexible and a thinner central web integral with the rim, with the maximum thinness of the web at its centre, the rim adapted to resist bending and folding on diametric lines under normal pressures, but to yield to greater pressures.

2. A button of elastic, homogeneous, non-absorbent material consisting of a relatively thick rim substantially inflexible and a thinner central web integral with the rim adapted to resist bending and folding on diametric lines under normal pressures, but to yield to greater pressures, the central portion of the web lying within the upper and lower faces of the rim.

3. A button of elastic, homogeneous, non-absorbent material consisting of a relatively thick rim substantially inflexible and a thinner central web integral with the rim adapted to resist bending and folding on diametric lines under normal pressures, but to yield to greater pressures and the upper face of the web lying below the upper face of the rim and the under face of the button being concaved.

CHARLES A. REHOR.