Aug. 7, 1928. 1,680,033

G. W. BLANK

FLEXIBLE BUTTON

Filed Oct. 7, 1927

Fig. 1.

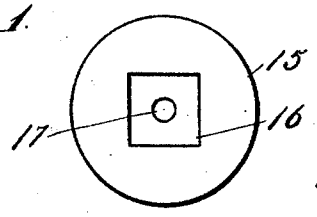


Fig. 5.

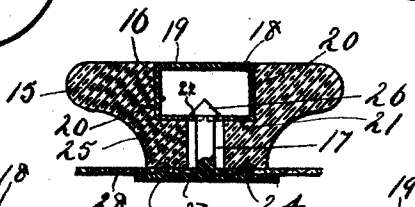


Fig. 2.

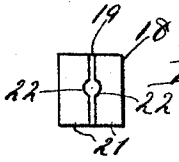
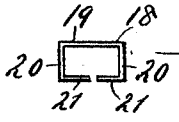


Fig. 3.



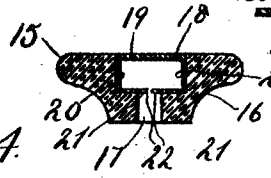
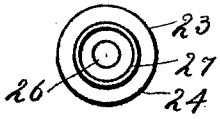


Fig. 4.

Fig. 6



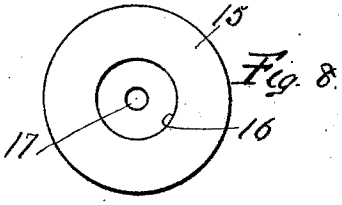
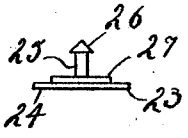


Fig. 8.

Fig. 7.



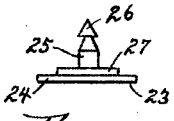


Fig. 7a.

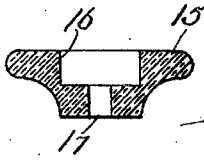
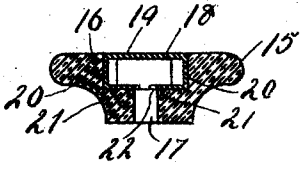


Fig. 9.

Fig. 12.



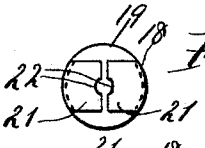


Fig. 10

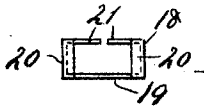


Fig. 11

INVENTOR

George W. Blank

By W. W. Williamson Atty.

Patented Aug. 7, 1928. 1,680,033

UNITED STATES PATENT OFFICE.

GEORGE W. BLANK, OF PHILADELPHIA, PENNSYLVANIA.

FLEXIBLE BUTTON.

Application filed October 7, 1927. Serial No. 224,594.

My invention relates to new and useful improvements in a flexible button and has for its primary object to produce a button having a head of rubber with a resilient or spring metal lock and metal stud.

Another object of the invention is to provide a button which will be simple in construction, inexpensive in the cost of manufacture, and strong and durable.

A further object of the invention is the provision of a button including attachable coacting elements whereby it may be readily secured or fixed to a garment or other article without the use of thread or analogous substance.

A still further object of the invention is to so fashion the parts of the button as to provide for resiliently clamping the fabric between button elements.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by numerals to the accompanying drawings forming a part of this application, in which:

Fig. 1, is a plan view of the button head per se.

Fig. 2, is an inner end view of the spring lock.

Fig. 3, is an edge view thereof.

Fig. 4, is a sectional view of the button head with the lock therein.

Fig. 5, is an enlarged sectional view of the complete button showing it attached to an article.

Fig. 6, is a plan view of the stud on a reduced scale.

Fig. 7, is a side elevation thereof.

Fig. 7a, is a side elevation of a modified form of stud.

Fig. 8, is a plan or face view of the button head showing a modified construction.

Fig. 9, is a cross section thereof.

Fig. 10, is an end view of the spring lock used in this form of the invention.

Fig. 11, is an edge view thereof.

Fig. 12, is a sectional view of the button head with the spring lock therein.

In carrying out my invention as herein embodied, 15 represents the head of the button, and while I have illustrated it as being formed as a rubber disc for flexibility, it is to be understood that I may, under some conditions, utilize metal, bone or another hard substance.

Rubber has many advantages over other materials because it is compressible and flexible, and therefore, buttons with rubber heads will not be readily damaged or broken during laundering of the garments to which such buttons are attached, and they are more comfortable to the wearer because they are soft and unlikely to cause an injury.

The head of the button is herein illustrated in rather exaggerated thickness, but this has been done to clearly illustrate the feature of the resilient clamping action between the parts.

In the outer portion of the button head is formed a chamber 16 of a size and shape which will snugly fit the spring lock as shown in Fig. 1, this chamber may be square as illustrated in Fig. 8 or it may be round, and if found desirable, any other shape may be utilized. In the inner portion of the head is formed a passageway 17 for registration with a stud and said passageway communicates with the chamber.

Within the chamber is fitted the spring lock 18 which is formed from a suitable piece or section of resilient or spring metal so fashioned or bent as to provide an outer wall 19 of a shape corresponding to the shape of the chamber 16 which may be square as shown in Fig. 2 or round as in Fig. 10, and from the outer wall 19, project the end walls 20 substantially at right angles to the wall 19, while from said end walls project the inwardly extending coacting inner walls 21, on adjacent edges of which are preferably slightly separated, although said edges might contact, and in said adjacent or inner edges are formed notches 22, preferably of semi-circular contour.

To fasten the button to an article, a stud 23 is provided which includes a base 24 and a shank 25, the latter having a pointed tapered or conical piercing head 26, the base portion of said head being of greater diameter than the shank 25 providing a shoulder for coaction with the inner walls 21 of the spring lock, it being understood that the notches 22 together form a hole of substantially the same diameter as the shank 25 of the stud. By inserting the stud shank into the passageway 17 and then force its head

between the inner walls 21, said walls will be first sprung apart until the stud head has passed beyond them, at which time the resiliency of the lock combined with the resiliency of the rubber head will cause said lock to return to its normal position and firmly grip the stud. It is preferable that the distance between the inner face of the base of the stud and the base of the head 26 of the stud be shorter than the distance between the innermost faces of the walls 21 and the lower face of the button head so that when the stud is in a locked position, it will be under pressure of the button head, since the latter must be compressed to cause the stud head to pass the walls 21 of the lock.

The inner face of the stud base is provided with an annular rib 27 which will be embedded in the button head when the stud is in a locked position, and will therefore, produce an off-set in any fabric 28 to which the button is attached so that threads of the fabric broken by the passage of the stud head and shank through said fabric will be less likely to be pulled out than where they maintain their straight lines.

To secure a button to an article, as to a garment article of wearing apparel, the head of the stud is forced through the fabric and the button head then placed over the shank of the stud and said button head and stud pressed toward each other until the stud head passes beween the inturned inner walls 21 of the lock at which time the parts of the button will be securely fastened together and fixed to the article.

The structure shown in Figs. 8 to 12 inclusive is identical with that shown in the other figures with the exception of the outer shape or contour of the spring lock and the chamber in the button head in which it is received, and therefore, the same references in numerals are used in both forms, because it is understood that any shape of lock is to fall within the scope of this invention.

Of course I do not wish to be limited to the exact details of construction as herein shown, as these may be varied within the limits of the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is:

1. A button comprising a head of flexible material, a locking spring within said head, and a stud projecting into the button head for engagement with the locking spring and including a base, a shank and a head, the distance between the inner or under face of the button head and the stud engaging portion of the locking spring being greater than the distance between the stud base and its head whereby the button head will be slightly compressed when the parts are in co-operative relation.

2. A button comprising a resilient rubber button head, a locking spring embedded in the button head so that the resiliency of said head is combined with the inherent resiliency of the spring to normally maintain the latter in operative condition, and a stud including locking spring engaging means and an element acting as a clamp in co-operation with said button head.

3. A button comprising a resilient rubber head, a locking spring fitted in said head under the compression thereof and including an outer wall, end walls and inner walls, the latter projecting toward each other for co-operative action of their inner edges, and a stud including a base, a shank projecting therefrom, a piercing head at the end of the shank opposite the base, and an annular rib on said base surrounding the shank, said shank with its head projecting through a passageway in the button head and engaging the locking spring.

4. The structure set forth in claim 3 wherein the distance between the inner or under face of the button head and the inner or upper faces of the inner walls of the locking spring is greater than the distance between the inner or upper face of the stud base and the outer or under face of the stud head.

5. A button consisting of a head having a chamber in its outer portion and a passageway in its inner portion communicating with said chamber, a locking spring including a wall disposed across the outer end of said chamber and entirely closing the latter and stud engaging means within said chamber, and a stud insertible through the passageway for coaction with said stud engaging means of the locking spring.

6. A button consisting of a compressible head, a locking member fitted in the outer end of said head, a stud projectable through the inner end of said head for engagement with the locking means and an annular rib carried by the stud to engage the inner end face of the compressible head for clamping material between the stud and said head with an off-set in the clamped material.

In testimony whereof, I have hereunto affixed my signature.

GEORGE W. BLANK.