Nov. 15, 1955 H. S. VAN BUREN, JR 2,723,433

BUTTON ASSEMBLY

Filed Nov. 25, 1949

FIG. 1.

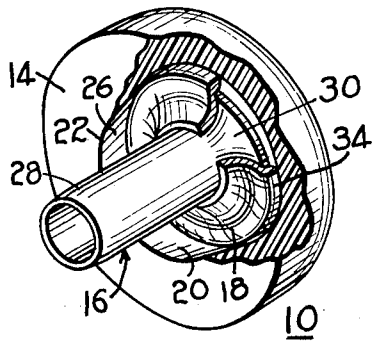


FIG. 2.

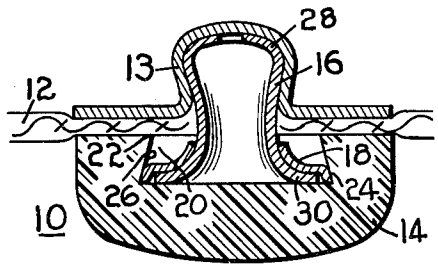


FIG. 4.

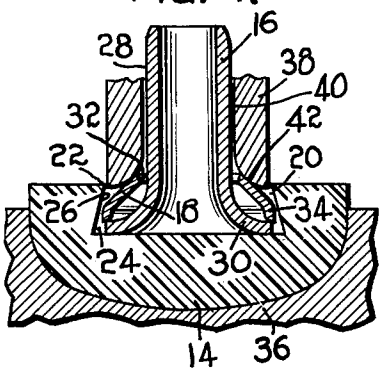


FIG. 3.

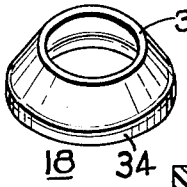


FIG. 5.

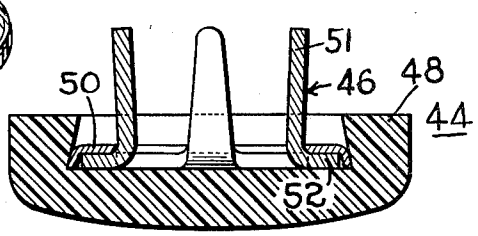


FIG. 7.

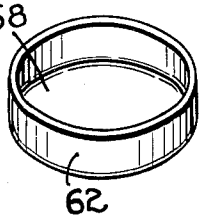


FIG. 6.

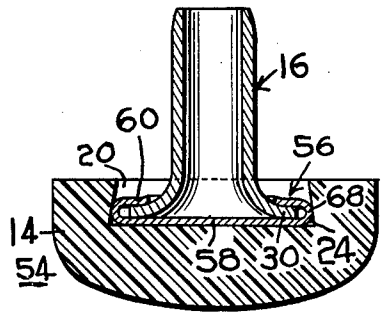
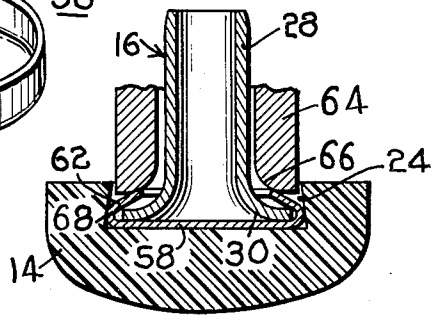


FIG. 8.



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BUTTON ASSEMBLY

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3 Claims. (Cl. 24—90)

This invention relates to button assemblies, and has particular reference to a button assembly having an improved method of securing an attaching member to a button body which is formed of brittle material.

In button assemblies in which a button body of pearl or similar brittle material is to be secured to an attaching member such as an eyelet or a pronged ring to enable the assembly to be attached to an article of clothing, it is customary to provide a rim on the attaching member to surround the button, and an inwardly extending retaining flange on the rim to engage the outer edge of the upper or exposed surface of the button body. However, in many cases it is desired that no portion of the attaching member be visible when the assembly is mounted on an article of clothing, to provide a more pleasing appearance to the assembly. In such applications the desired result has been accomplished by providing an opening in the rear face of the button which is enlarged inside the entrance to provide an internal recess, into which is forced a flanged attaching member so that the flange is expanded outwardly into the recess to retain the button body and the attaching member in assembly. However, this method of attachment is not entirely satisfactory, since when the flange is forced outwardly during the assembly operation, it frequently causes the button body to rupture at the bottom of the opening, where the walls of the body are weakest due to the enlargement of the opening beyond the entrance.

The object of the invention is to provide an improved button assembly for use with button bodies of brittle material in which an attaching member is secured to a button body in such a manner that the attaching member is not visible when the assembly is mounted on an article of clothing.

A further object of the invention is to provide a button assembly for use with button bodies of brittle material in which the component parts may be readily assembled without danger of breaking the button body.

A further object of the invention is to provide a button assembly in which a flanged attaching member is retained in an opening in a button body by a retaining member formed of relatively soft metal which is adapted to be forced into the opening after the attaching member is inserted therein.

A still further object of the invention is to provide a button assembly in which a flanged attaching member is retained in an opening in a button body by a retaining member which covers the flange and extends into a recess in the walls of the opening.

Other objects of the invention will in part, be obvious, and will, in part, appear hereinafter. For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description, taken in conjunction with the accompanying drawing, in which:

Fig. 1 is a perspective view, partly cut away, of a button assembly embodying the features of the invention;

Fig. 2 is a view in elevation, partly in section, of the button assembly of Fig. 1 attached to a supporting sheet;

Fig. 3 is a perspective view of a washer used in the assembly of Fig. 1;

Fig. 4 is a view in elevation, partly in section, of the component parts of the device in position for assembly;

Fig. 5 is a view in elevation, partly in section, of a button assembly embodying the features of the invention, having a pronged ring attaching member;

Fig. 6 is a view in elevation, partly in section, of a button assembly having certain modifications within the scope of the invention;

Fig. 7 is a perspective view of a retaining member used in the assembly of Fig. 6; and

Fig. 8 is a view in elevation, partly in section, illustrating the method of assembly of the device of Fig. 6.

Referring now to the drawing, there is illustrated a button assembly **10**, which is adapted for attachment to a supporting member **12**, such as an article of clothing or the like, by means of a snap fastener half **13**, disposed on the other side of the supporting member. The assembly **10** comprises a button body **14**, and an attaching member **16** which is held in assembly with the body by means of a retaining washer **18**. The button body **14** is commonly formed of a brittle material such as pearl or thermoset plastic or the like, and is provided with an opening **20** in one face thereof, which is enlarged beyond the entrance **22** to form an internal circumferential recess **24** in the walls **26** of the button body about the opening. The attaching member **16**, in this embodiment, comprises a shank **28**, having an outwardly extending flange **30** on one end thereof, which is of such a size as to allow it to pass through the entrance **22** and seat against the button body at the bottom of the opening. The washer **18** is preferably formed of sheet metal such as annealed brass or the like which is relatively soft and deformable in comparison to the metal of the flange **30**, and is provided with an opening **32** to receive the shank **28**, so that when the washer is assembled thereon it covers at least a portion of the flange **30**. The outer periphery of the washer extends downwardly over the edge of the flange, and outwardly into the recess **24** to lock the attaching member in assembly with the button body.

The method of assembling the component parts of the button assembly is best illustrated by reference to Fig. 4, in which the attaching member **16** is disposed in position in the button body, and the retaining washer **18** is mounted on the shank **28** in position for the final assembly operation. The washer **18** originally has the shape of the frustrum of a cone, and is so shaped that the greatest diameter of the washer while in this condition is less than the diameter of the entrance **22** of the opening, so that the washer may be placed on the shank **28** and pushed downwardly so that the outer or lower edge **34** enters the opening **20**. The partially assembled device is then placed in a die **36** which is shaped to conform to the outer face of the button body, and a punch **38**, which has an internal bore **40** and a beveled punch surface **42**, is then forced down onto the parts, so that the shank **28** enters the bore **40** of the punch, and the punch surface **42** engages the washer **18** and forces it downwardly into the shape illustrated in Fig. 2. The deformation of the washer causes the outer edge thereof to expand outwardly into the recess **24**, thereby locking the washer and the attaching member in the button body.

Referring now to Fig. 5, there is illustrated a button assembly **44** in which a pronged ring attaching member **46** is assembled in a button body **48**, by means of a retaining washer **50**, in a manner similar to that described hereinbefore in connection with Figs. 1–4. In this embodiment, the attaching member **46** is provided with prongs **51** which are adapted to pierce a piece of cloth or similar

material for engagement with a snap fastener half (not shown). The prongs extend upwardly from a base **52**, which serves as a flange to be retained by the washer **50**. The assembly of the component parts of this modification is similar to the assembly operation previously described.

Referring now to Figs. 6 through 8, there is illustrated a button assembly **54** which is similar to the assembly of Fig. 1, but has certain modifications within the scope of the invention. In this embodiment, the attaching member **16** is retained in the opening **20** in the button body **14** by means of a retaining cap **56**, which comprises a base **58** and a peripheral inwardly curled flange-engaging portion **60**.

The retaining cap **56** is originally in the form illustrated in Fig. 7, in which the base **58** has a peripheral wall **62** which extends substantially vertically therefrom. To assemble the device, the cap **56** is inserted into the opening **20** so that the base **58** is seated against the bottom of the opening. The flanged end of the shank **28** is placed in the opening in the button body and a hollow punch **64** is then forced downwardly over the attaching member **16** so that the punch surface **66** engages the peripheral wall **62** and curls it inwardly and downwardly to cover the flange **30**. During this operation, the lower portion **68** of the wall **62** tends to expand outwardly from the downward force applied by the punch, and from the flattening action imparted thereto during the last portion of the punch stroke, which forces the portion **68** into the recess **22** to lock the cap **56** and the attaching member in assembly with the button body.

By the use of the assembly methods described herein, attaching members may be rapidly and economically assembled in button bodies of brittle material without danger of breaking or damaging the button body, and the resulting assembly is capable of being attached to an article of clothing by forcing the shank of the attaching member therethrough for engagement with a snap fastener half, without danger of damaging the button in the attaching operation.

Since certain obvious modifications may be made in the device without departing from the scope of the invention, it is intended that all matter contained herein be interpreted in an illustrative and not a limiting sense.

I claim:

1. A button assembly comprising a button body of fragile material having an opening in one face thereof communicating with an internal recess having a peripheral wall extending inwardly from said opening, an attaching member having a shank substantially smaller than the size of the opening in said face with an end thereof assembled in said recess, said end having an outwardly extending peripheral flange of a size substantially equal to the size of the opening in said face, and a retaining member made of soft deformable sheet material disposed in the recess around the attaching member, the retaining member being deformed within the recess to abut the wall thereof and to overlie the flange, the contiguous surfaces of the retaining member and the flange conforming to each other and contacting over the entire area of said surfaces, the portion of the retaining member overlying the flange being spaced from the wall of the recess.

2. A button assembly comprising a button body of fragile material having an opening in one face thereof communicating with an internal recess having a peripheral wall extending inwardly from said opening, an attaching member having a shank substantially smaller than the size of the opening in said face with an end thereof assembled in said recess, said end having an outwardly extending peripheral flange of a size substantially equal to the size of the opening in said face, and a retaining member made of soft deformable sheet material disposed in the recess around the attaching member, the retaining member comprising a sheet-material cup-shaped part having a base upon which the flange of the attaching member is disposed and a peripheral wall extending upwardly from the base which is deformed within the recess to abut the wall thereof and to overlie the flange, the contiguous surfaces of the retaining member and the flange conforming to each other and contacting over the entire area of said surfaces, the portion of the retaining member overlying the flange being spaced from the wall of the recess.

3. A button assembly comprising a button body of fragile material having an opening in one face thereof communicating with an internal recess having a peripheral wall extending inwardly from said opening, an attaching member having a shank substantially smaller than the size of the opening in said face with an end thereof assembled in said recess, said end having an outwardly extending peripheral flange of a size substantially equal to the size of the opening in said face, and a retaining member made of soft deformable sheet material disposed in the recess around the attaching member, the peripheral flange of the attaching member providing camming surfaces for engaging and deforming the retaining member upon the application of pressure to the retaining member tending to force the retaining member against the flange, the retaining member being deformed within the recess to abut the wall thereof and to overlie the flange, the contiguous surfaces of the retaining member and the flange conforming to each other and contacting over the entire area of said surfaces, the portion of the retaining member overlying the flange being spaced from the wall of the recess.

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