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E. D. JANES

3,028,646

BUTTON CONSTRUCTION

Filed Nov. 13, 1959

Fig. 1

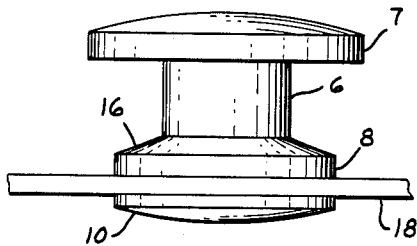


Fig. 4

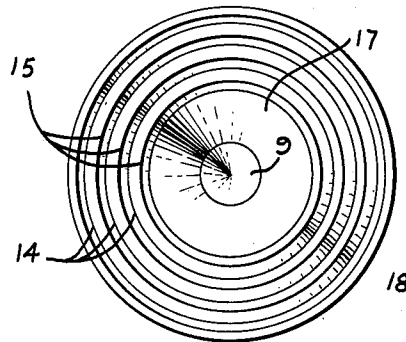


Fig. 2

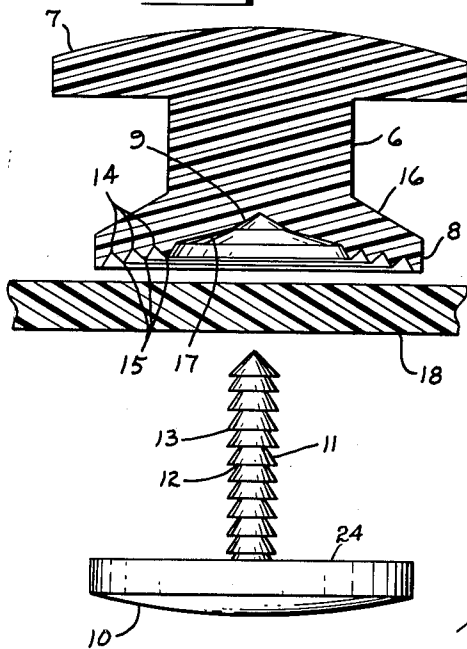


Fig. 3

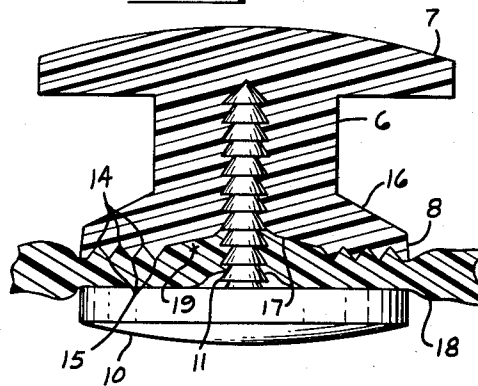
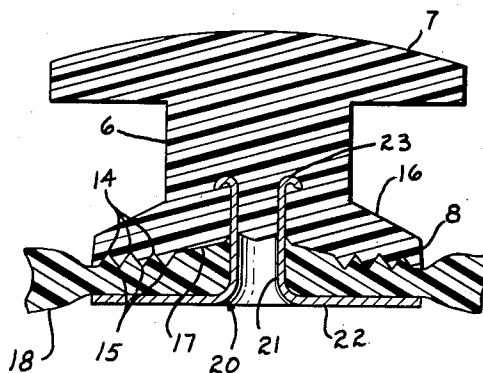


Fig. 5



INVENTOR
Edmund D. Janes
BY

H. F. Johnston
ATTORNEY

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3,028,646

BUTTON CONSTRUCTION

Edmund D. Janes, Waterbury, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut

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2 Claims. (Cl. 24-90)

This invention relates to semi-rigid plastic buttons and particularly to buttons of this class adapted to be permanently attached to a garment of flexible material.

This invention is a continuation-in-part of my prior application, Serial Number 726,162 filed April 3, 1958, which became abandoned Nov. 14, 1959.

The invention is an improvement in buttons of the kind having a shank extending from the button head with a flange at the end of the button shank adapted to bear against the flexible garment material and in which the fastener for holding the button in place is a headed tack or post extending through the garment material and into or through the button. The strength of the attachment depends upon clamping of the garment material between the button flange and the head of the fastener. In the case of buttons formed of semi-rigid plastic material, such as cellulose acetate or nylon, the button flange is somewhat flexible so that the gripping force of the fastener head tends to be localized in the area close to the shank. Accordingly, the strength of the attachment of such buttons has not been satisfactory since the flexible material of the garment will tend to slip out from between the shank and head and tear away from the button because it is clamped primarily only in a small area.

The purpose of my invention is to provide an improved construction, particularly with respect to the base flange so that the flexible garment material will be strongly gripped over the entire area of the flange and the fastener head. By actual test, buttons made according to my invention of cellulose acetate material and attached by means of a press tack will resist tearing away from the garment to a much greater degree than any such buttons known heretofore. My improved button is especially adaptable for use on light weight water-proof foot-wear now commonly made of pliable material such as vinyl. Preferably, the shank or hub of the button is molded as a solid section rather than with a cylindrical hole to receive the tack or post. It has been found that a tack or even a hollow post fastener may be driven into the solid plastic material of the button. Not only does this result in greater holding power, but avoids danger of the stretchy material of the shoe or other garment being dragged into a hole.

Other objects and advantages of my invention will hereinafter more fully appear.

In the accompanying drawings, I have shown for purpose of illustration, one embodiment which my invention may assume in practice. In these drawings:

FIG. 1 is a side view of a button assembly;

FIG. 2 shows the parts of my improved button in position ready to be assembled to a garment with the button in section;

FIG. 3 is a cross-section through the button assembled to a piece of flexible material;

FIG. 4 is a bottom plan view of the button flange; and,

FIG. 5 is a view similar to FIG. 3 showing a modified form of holding means for the button.

The button illustrated may be generally described as having a hub 6, a button head 7 of any desired shape and a flange 8 adapted to bear against the garment material 18. The fastener itself is a metal press tack having a head 10 preferably co-extensive with the flange 8 and a shank 11 having a series of annular grooves 12 and sharp edges 13.

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The bottom surface of the button flange 8 may be described as a conic surface at an acute angle to the horizontal plane perpendicular to the axis of the button, the angle being preferably of the order of 5°, and such bottom surface has a series of circular grooves 14 between triangular shaped teeth 15 extending thereacross with the apices of said teeth lying in the conic surface mentioned above. The circular grooves 14 and the teeth 15 collectively provide a roughened area or gripping surface adapted to imbed into the garment material for reasons as will appear later.

The flange 8 may be also described as tapering outwardly with the result that the angle of the upper surface 16 of the flange with respect to the horizontal plane is greater than the angle of the bottom conic surface with the flange material progressively increasing in thickness as it approaches the button hub 6. This results in a flange which has extensively greater strength than a plain flat flange. It will also be noted that the bottom surface of the button has an angular counter bore 17 inwardly of the roughened area and has at its center, a tack-guiding recess 9 in axial alignment with the hub 6. The recess 9 is preferably of conical shape and on an angle greater than the angle of the counter bore 17.

In assembling the button to a garment of flexible material, such as the vinyl overshoe above referred to, the button is placed in proper position with the flange 8 bearing against the outer surface of the garment material 18 and the tack is pressed through the material being initially guided by the conical recess 9 and then forced into the solid material of the button hub 6 far enough so that the material 18 will be tightly gripped or clamped between the flange 8 and the fastener head 10. In so doing, the flange 8 will bend upwardly so that the bottom surface is generally flat in a horizontal plane normal to the button axis, it being noted that the tack head 10 has a horizontal planar surface 24 opposed to the bottom surface of the radial flange on the button. The result is that the substantial pressure is constantly exerted by the flange on the garment material entirely across the width of the flange. Furthermore, the flexible material will be imbedded by the flange teeth 15 so as further to enhance the gripping action over a wide area, especially against any lateral separation of the material pinched between the flange and tack head.

In the assembly operation, as seen in FIG. 3, it will be observed that the edges of the material 18 around the tack shank 11 will be pushed upwardly into the counter bore 17 as indicated by the numeral 19. This is to prevent any excessive amount of garment material from accumulating around the button shank and under such compressive force as to tend to separate the tack from the button.

Although fasteners of other types, such as shown in FIG. 5, may be used, the simple metal tack here illustrated provides a strong fastening since the sharp ridges or teeth 13 of the tack shank 11 will imbed into the plastic material after the tack is once pushed home.

FIG. 5 shows another type of fastener member for attaching the button to the garment material which is in the form of a conventional post member 20 having a tubular neck 21 and a flat flange 22 of substantially the same size as the button flange 8. It is to be noted that when the tubular neck is forced into the button material, its leading end will be deformed into a more or less rolled arcuate flange 23 that provides for a suitable anchorage of the post within said button material and assures that the flange, after button assembly, will be retained in a tensioned state against the interposed garment material.

An advantage of the above post is that it can more readily pierce its way through the garment material and

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it is less liable to displace the hub material when forced therein.

As a result of my invention, it will now be clear to those skilled in the art that I have provided an improved button which can be made from semi-rigid plastic material and which may be securely held by a simple fastener, such as the press tack or the post illustrated, with the result that the attachment to the garment is much more secure than in the case of plastic buttons heretofore known or used.

Furthermore, this additional security of attachment is obtained without appreciably adding to the cost of the button or of the assembly since no parts are required other than the button itself and the fastener.

What I claim is:

1. A button assembly comprising a supporting piece of flexible material, said button being formed of semi-rigid plastic material and comprising a solid hub, a button head at one end and a radial flange at its opposite end adapted to bear against said flexible material and capable of resilient deformation, said flange having gripping means on its bottom surface lying in a conic surface at an acute angle to the horizontal plane perpendicular to the axis of the button, said gripping means having tooth-like projections with their apices lying in said conic surface and the upper surface of said flange being at a greater angle to the horizontal plane than said conic surface, said flange also having a central recess co-axial with the button axis, and a press tack having a head substantially the same size as said button flange, said head having a horizontal planar surface opposed to the bottom surface of said flange and a roughened shank presenting a series of relatively sharp edges facing toward the tack head, said shank adapted to be pressed into said hub material to a position wherein the tack head and interposed piece of flexible material will deform the flange so that the flange bottom surface will lie substantially in a flat horizontal plane thus applying a constant gripping

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pressure across the flange upon said interposed material.

2. A button assembly comprising a button of semi-rigid plastic material having a button head, a projecting solid hub and an outwardly and downwardly flaring flange at the outer end of said hub, said flange being of greater thickness adjacent the hub and progressively decreasing in thickness towards its outer edge, the outer surface of said flange having a roughened surface in the form of a series of arcuate grooves and teeth with the apices of the teeth arranged on a conical plane about 5° from the horizontal, a fastener member having a shank and head, said head being substantially the same size as the button flange and having a horizontal planar surface opposed to the bottom surface of said radial flange, said shank being driven into said hub material to a position where the fastener head and interposed material will deform the flange upwardly toward the button head to a position where the teeth apices will lie substantially on a flat plane normal to the button axis, and means for holding the fastener member shank anchored in the hub material against withdrawal due to the force imparted by the deformed flange and thus hold the interposed material under constant resilient gripping pressure with the flange teeth deeply imbedded into said material to prevent lateral slippage.

References Cited in the file of this patent

UNITED STATES PATENTS

1,375,873	Waldes	Apr. 26, 1921
2,548,004	Duefrene	Apr. 10, 1951
2,712,201	Wintriss	July 5, 1955
2,807,850	Davidson	Oct. 1, 1957
2,863,197	Statham	Dec. 9, 1958

FOREIGN PATENTS

455,099	Canada	Mar. 15, 1949
857,870	Germany	Dec. 1, 1952