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BUTTON

The present invention relates to a button including a button body and a tack member adapted to be joined with the button body for attachment of the button to a garment fabric.

- 5 Various buttons are known which generally comprise a button body and a tack member adapted to be joined with the button body for attachment of the button to a garment fabric. In this attaching, a tapering end of the shank of the tack member is caused
- 10 to pierce through the garment fabric and is then forced into a hollow hub of the button body so as to deform the tapering end of the shank, thus securing the latter to the hollow hub of the button body. Since a head of the button body is not tiltable with respect to the
- 15 hollow hub and hence the garment fabric, the button body must be tilted together with a portion of the garment fabric as the button is threaded through and removed from a button hole in the garment. Consequently, this prior art button is not suitable for a garment

of denim, which is thick and very inflexible.

Japanese Patent Laid-Open Publication

(Tokkaisho) 54-4640 discloses a button in which a head
of a button body has a spherical projection pivotably
5 received in a fixed hollow hub and is hence tiltable
with respect to the hollow hub and hence a garment
fabric. However, since the head tends to rotate or
turn on its own axis, this prior art button is no
longer useful where the head bears on its face a design
10 or emblem indicative of a direction in which the head
must be oriented.

To this end, an improvement has been proposed in
Japanese Utility Model Laid-Open Publication

(Jikkaisho) 59-128209, in which a button has a unitary
15 interior member of thermoplastic synthetic resin
received in a button body. The interior member includes
a disk-like portion non-turnably interposed between a
cap and a button back of the button body, a socket
portion joined with a tack member with a garment fabric
20 sandwiched therebetween, and a resilient connecting
portion in the form of a pair of elongate planar webs
extending between the disk-like portion and the socket
portion and normally urging the disk-like portion to
lie perpendicularly to the socket portion. The
25 connecting portion is bendable so that the disk-like
portion and hence the button body can be manually
tilted with respect to the axis of the socket portion

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and hence the garment fabric, without being rotated or turned on their own axis. However, because it is made of resilient synthetic resin, the connecting portion is liable to become ruptured or otherwise damaged, thus making the button less durable.

5 According to the present invention, there is provided a button for attachment to a garment fabric, comprising: a button body including a button back and a cap covering said button back on its front side, said button back including a hollow hub disposed remotely from said cap and extending perpendicularly to and centrally
10 of said cap, said hollow hub having a central aperture; a two-piece interior part including a disk-like member non-turnably held between said cap and said button back, and a socket member separate from said disk-like member and having a collar portion loosely received in said hollow hub and a collar-free portion extending through
15 said central aperture, said socket member having an axial through-hole extending through both said collar and collar-free portions; an eyelet member non-turnably mounted on said socket member at said collar-free portion thereof; and a tack member including a head and a central shank projecting perpendicularly from said head
20 for insertion into said axial through-hole of said socket member to be non-removably deformed in said axial through-hole; CHARACTERIZED IN THAT said disk-like member has at least one off-center unyielding leg projecting from said disk-like member, and said

socket member has in and through said collar portion at least one groove receiving therein said leg.

It is believed possible by means of the present invention to provide a button in which a button body can be manually tilted with respect to the axis of a tack member without turning about its own axis and in which an interior part of the button body is mechanically strong and hence free from rupture or other damage, thus guaranteeing a long life of the button.

It is further believed possible by means of the present invention to provide a button which is particularly useful where a head of the button bears on its face a design or emblem indicative of a direction in which the head must be oriented.

The invention will be described by way of example with reference to the accompanying drawings, wherein

Figure 1 is an exploded vertical cross-sectional view of a button embodying the present invention, with only a tack member not in cross section;

Figure 2 is a plan view of a socket member;

Figure 3 is a side elevational view of Figure 2;

Figure 4 is a top view of a disk-like member;

Figure 5 is a bottom view of Figure 4;

Figure 6 is an elevational view, partially in cross section, of the button having been attached to a garment fabric;

Figure 7 is a view similar to Figure 6, showing
5 a button body in tilted position; and

Figures 8 and 9 show alternative forms of tack members.

The present invention is particularly useful when embodied in a button such as shown in Figures 1
10 and 6, generally indicated by the numeral 10.

The button 10 generally comprises a button body 11 and a tack member 12 (joined with the button body 11 as shown in Figures 6 and 7), attaching the button 10 to a garment fabric 13.

15 As shown in Figures 1 and 6, the button body 11 includes a button back 14 having an upper annular flange (hereinafter referred to as "first flange") 15 having an annular rim 15a covered by a cap 16. The button back 14 also has a hollow hub 17 of circular
20 cross section projecting downwardly from an inner edge of the first flange 15 and terminating in an inwardly directed lower annular flange (hereinafter referred to as "second flange") 18 defining a central aperture 19. The button back 14 and the cap 16 are made of metal.

25 A two-piece interior part 20 (Figures 1 - 7) includes a disk-like member 21 non-turnably held between the cap 16 and the second flange 18 of the

button back 14, and a socket member 22 separate from the disk-like member 21 and extending through the hollow hub 17 of the button back 14. The disk-like member 21 has a pair of diametrically opposed

5 off-center legs 21a, 21a projecting substantially perpendicularly from a bottom surface of the disk-like member 21. The socket member 22 has a collar portion 23 loosely received in the hollow hub 17 of the button back 14, the remaining collar-free portion 22a

10 projecting downwardly through the central aperture 19 defined by the second flange 18. The socket member 22 has an axial through-hole 24 extending through both the collar and collar-free portions 23, 22a and having an upwardly divergent stepped portion (for a purpose

15 described below). The socket member 22 also has in and through the collar portion 23 a pair of diametrically opposed grooves 23a, 23a receiving therethrough the respective legs 21a, 21a so that the disk-like member 21 and hence the button body 11 can be manually tilted

20 with respect to the axis of the socket member 22 but is prevented from turning about their own axis, as described below in connection with Figure 7. Each of the grooves 23a, 23a has a sloping surface 23b which is engageable with a respective one of the legs 21a, 21a,

25 when the button body 11 is tilted on the socket member 22, to assist in restricting the amount of tilting of the button body 11.

In the illustrated embodiment, the disk-like member 21 and the socket member 22 are made of metal such as brass, steel or iron. Alternatively, the socket member 22 may be made of thermoplastic synthetic resin.

An eyelet member 25 (Figures 1, 6 and 7) includes a tube 25a of metal non-turnably mounted on the socket member 22, covering the collar-free portion of the socket member 22. The tube 25a has at its lower end an outwardly directed flange (hereinafter referred to as "third flange") 25b.

As shown in Figures 1, 6 and 7, the tack member 12, which is preferably of metal, includes a head 26 and a central shank 27 of circular cross section projecting perpendicularly from one face of the head 26. In use, the shank 27 is caused to pierce through the garment fabric 13 and is then inserted through the axial through-hole 24 of the socket member 22. With continued insertion of the shank 27, the tapering end portion 27a is deformed in the axial through-hole 24 so as to permanently join the shank 27 of the tack member 12 with the socket member 22, the garment fabric 13 being sandwiched between the eyelet member's third flange 25b and the tack member's head 26. At that time, the stepped portion of the axial through-hole 24 serves to prevent the shank 27 of the tack member 12 from being removed from the axial through-hole 24. The deformed end portion 27a of the shank 27 is received in

the axial through-hole 24 so as not extend beyond the upper end thereof. Thus the tack member 12 is non-turnably joined with the button body 11, attaching the button 10 to the garment fabric 13.

5 In Figure 6, for instance, if the left edge portion of the button body 11 is manually pushed downwardly, or if the right edge portion of the button body 11 is manually pulled upwardly, the button body 11 and thus the disk-like member 21 are tilted with
10 respect to the axis of the socket member 22 and thus the garment fabric 13, as shown in Figure 7. During that time, both the button body 11 and the disk-like member 21 are free from being rotated or turned on their common axis, partly because the button body 11 and
15 the eyelet member 25 are non-turnably joined with the disk-like member 21 and socket member 22, respectively, of the interior part 20, and partly because the two off-center unyielding legs 21a, 21a of the disk-like member 21 project through the respective grooves 23a,
20 23a disposed in the collar portion 23 of the socket member 22.

 In its tilted position, the button body 11 can be threaded through and removed from a button hole (not shown) in the garment with ease. Since the button body
25 11 and the cap 16 are non-turnable on their own axis, the button 10 is particularly useful when the cap 16 bears on its top a design or emblem indicative of a

direction in which the button 10 must be oriented.

Partly because the interior part 20 is divided into two separate members, i.e. the disk-like and socket members 21, 22, and partly because at least the disk-like member 21 is made of metal, the interior part 20 is mechanically strong and is hence free from rupture or other damage, thus guaranteeing a long life of the button 10.

Figures 8 and 9 illustrate alternative forms of tack members 12A, 12B. In the tack member 12A of Figure 8, a solid shank 27' has a pair of recesses 27'c, 27'c immediately below or adjacent to the border between a tapering end portion 27'a and a stem portion 27'b. When the shank 27' is fully inserted through the socket member 22, the tapering end portion 27'a is bent about the recesses 27'c, 27'c as its distal end is forced against the bottom surface of the disk-like member 21. The recesses 27'c, 27'c serve to assist in bending the tapering end portion 27'a. The tack member 12B of Figure 9 has a hollow shank 27", a tapering end portion 27"a of which is bendable or otherwise deformable when the shank 27" is fully inserted through the socket member 22.



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CLAIMS:-

1. A button for attachment to a garment fabric, comprising:

- (a) a button body including a button back and a cap covering said button back on its front side, said button back including a hollow hub disposed remotely from said cap and extending perpendicularly to and centrally of said cap, said hollow hub having a central aperture;
- (b) a two-piece interior part including a disk-like member non-turnably held between said cap and said button back, and a socket member separate from said disk-like member, said socket member having a collar portion loosely received in said hollow hub and a collar-free portion extending through said central aperture, said socket member having an axial through-hole extending through both said collar and collar-free portions, said disk-like member having at least one off-center unyielding leg projecting from said disk-like member, said socket member having in and through said collar portion at least one groove receiving therein said leg;
- (c) an eyelet member non-turnably mounted on said socket member at said collar-free portion thereof;
- and
- (d) a tack member including a head and a central shank projecting perpendicularly from said head for insertion into



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said axial through-hole of said socket member to be non-removably deformed in said axial through-hole.

2. A button according to claim 1, said disk-like member comprising metal.

5 3. A button according to claim 2, said socket member comprising metal.

4. A button according to claim 2, said socket member comprising thermoplastic synthetic resin.

5. A button according to any preceding claim, said at least
10 one leg of said disk-like member being two diametrically opposed legs. said at least one groove in said socket member being two diametrically opposed grooves.

6. A button according to any preceding claim, said groove, having a sloping surface engageable with said leg,
15 when said button body is tilted on said socket member, to assist in restricting the amount of tilting of said button body.

7. A button according to any preceding claim, said axial through-hole having a stepped portion.

20 8. A button substantially as described with reference to and as illustrated in Figures 1 to 7 of the accompanying drawings.

9. A button substantially as described with reference to and as illustrated in Figures 1 to 7 modified as in Figure 9 of the accompanying drawings.

25 10. A button substantially as described with reference to and as illustrated in Figures 1 to 7 modified as in Figure 9 of the accompanying drawings.
