

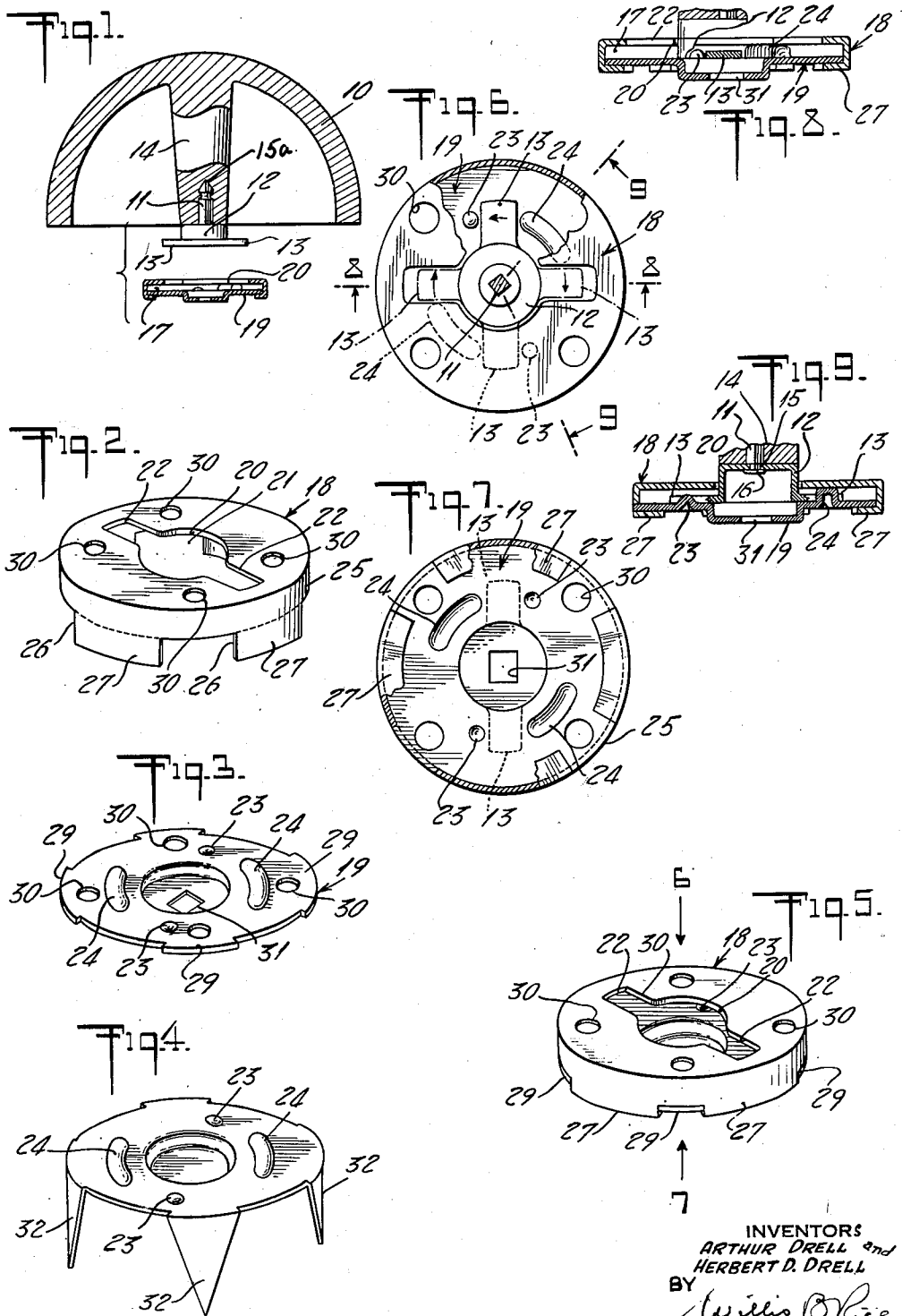
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DETACHABLE BUTTON

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DETACHABLE BUTTON

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1 Claim. (Cl. 24—109)

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This invention relates primarily to a detachable button or a similar article or ornament. While the invention is applicable to a wide variety of detachable elements, we have hereby chosen to illustrate it in the form of a detachable ornamental button such as is particularly used on ladies' suits and coats.

We shall use the word button herein as a convenient word to include any button, ornament or similar device which is to be detachably attached.

It is an object of this invention to provide an article of the character described which will remain firmly in place during use, but which can be removed simply and without undue strain when desired. It is a further object to provide an article which when in place may be held right side up, if the design be such as to require it, and which will again be held in the same position when reattached after removal.

Many modern buttons are made of plastics which will not sufficiently resist the action of cleaning fluids, or the temperatures involved, and many are of a size which make it difficult to press the garment without damage to the button.

To avoid these difficulties, it is desirable to remove the buttons before cleaning. Moreover, it is frequently desirable, for other reasons, to remove, replace or change the buttons on a garment, or to change other types of ornaments to conform to different costumes.

It has heretofore been proposed to provide detachable buttons comprising a socket portion which can be fastened upon the garment and a button portion having a stud which can be thrust into the socket far enough to pass a resilient catch which is relied upon to hold the button in place. Such buttons are removable by pulling directly outwardly along the axis upon the button to pull it out of the socket. Such buttons possess limitations, however, which make them unsuitable on ordinary garments, in that if the spring catch is sufficiently strong to hold the stud against removal in ordinary wear, then when it is desired to remove the button it imposes an undue strain upon the garment itself.

Such form of construction possesses a further limitation that the buttons turn freely about the axis of the stud and this makes them unsuitable for use with buttons or ornaments of an unsymmetrical character which should be placed upon the garment right side up.

It is a further object of this invention to provide a detachable button which in normal use cannot be removed by directly pulling it away from the fabric or by an other strain normally

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imposed in the use of the button, but which can be readily removed by proper manipulation.

This invention is particularly suitable for use with large ornamental buttons customarily applied which cannot be relied upon to pass through the process of cleaning and pressing. With this invention, all the buttons or ornaments may be readily removed from the garment before it is sent to the cleaner and readily replaced thereon. Further, the nature of this invention makes it possible, if it should be so desired in the styling of the garment, to use the button with the buttonhole far smaller than the button itself, so that the buttonhole may be completely concealed by the button.

It is a further object to make a button of the character described in which the male member of the button may be inserted in a socket by a movement along its axis and then releasably held in place by a rotary or twisted movement past a catch, so that it cannot be removed by any strain along the axis until the catch is released and it has been untwisted to bring it back to the releasing position.

It is a further object to provide a device of the character described in which all of the parts except the button itself may be fabricated of stamped sheet metal.

It is a further object to provide a detachable button of the character described in which the separable element which is attached to the cloth is sufficiently firm to resist the rotary movement involved in attaching and detaching the button, but in which nevertheless that element shall be as flat as possible consistent with secure attachment; that is, that it shall have a minimum dimension transverse to the plane of the cloth to which it is to be attached and of as small diameter as possible.

It is a further object to provide a button having a fixed degree of rotation, preferably 90°, relative to the socket so that the socket may be attached with complete reliance that buttons if they be asymmetrical will be properly placed.

It is a further object to provide a detachable button of which the socket member may be attached by machine.

It is a further object to provide a button of the character described in which the separable element attached to the button shall have a minimum of dimension consistent with firm retention of the button, so that, if desired, the button may be attached through a very small buttonhole to a socket member either upon a lower layer of the garment or concealed between two different

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thicknesses comprising a single layer. Thus the size button used upon a garment may be changed to restyle the garment, or to conform it to different costumes without alteration of the button-holes.

The Cushman Patents #1,298,016, 1,325,003 and 1,348,629 which tried to solve these problems have been unsuccessful, in part at least, because a socket member was attached to the button part. This socket member to be secure, was necessarily so large as to cause the buttonhole to gape and the cloth around the buttonhole to bunch up.

Furthermore, because the garment attached element fitted within the socket, it was relatively small and did not get a firm grip upon the garment to resist the rotary movement of attaching and detaching. This limits the effectiveness of the locking action.

The invention accordingly comprises a device possessing the features, properties and the relation of elements which will be exemplified in the device hereinafter described and the scope of the application of which will be indicated in the claim.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

Fig. 1 is the central section through a button embodying this invention. Figs. 2 and 3 are perspective views of the cup portion of the socket and of the plate portion thereof. Fig. 4 is an alternative construction of the plate portion. Fig. 5 is a perspective view of the socket as assembled. Fig. 6 is a top plan view as shown by the arrow 6 in Fig. 5 of the assembled socket partly in section and with a portion of the post in position. Fig. 7 is a bottom plan view of the same, as shown by the arrow 7 of Fig. 5. Fig. 8 is a section on the line 8 of Fig. 6, and Fig. 9 is a section on the line 9 of Fig. 6.

In the drawings the numeral 10 comprises an ornamental button, to the back of which is attached by a non-rotary connection the male element 11 of the attaching device. This element 11 comprises a cup-shaped member 12 having outstanding wings 13 attached to the rim. The member 12 is preferably attached to the button, as here shown by a square nail 15 which is forced into the pillar 14 within the button. This nail 15 attaches the member 12 to the pillar 14 and holds it against rotation. To this end the member 12 is provided with a central square opening through which a square portion of the nail 15 passes. The nail may have a smaller square end to provide a shoulder on which the member 12 may press to be riveted over, or the opening in member 12 may be of a size to receive the square body of the nail 15, and the latter may be forced into the button far enough to cause a head 16 on the nail to engage the member. The nail 15 may have transverse grooves or projections or other irregularities to enable it to be gripped firmly by the button material. Whether the nail is forced directly into the button or whether it is forced into a drilled hole will depend on the material of the button. The nail is here shown with a pointed end 15a to assist in this insertion.

The socket member is provided for direct attachment to the garment and this socket member is in the form of a disc-shaped chamber 17 formed, as shown, between a dished member 18 and a plate member 19, spaced apart by a distance only slightly greater than the thickness of

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the wings 13. The dished member 18 has a central opening 20 having the same contour as the member 12 so that the member 12 and the wings 13 may pass through it; that is, it has a central circular opening 21 to receive the cylindrical portion of member 12, and outward extensions 22 to receive the wings. The lower plate 19 does not have such an opening.

With this construction, the member 12 may be inserted into the disc-shaped chamber through the opening 20 up to the point where the wings 13 rest upon the plate 19 and no further, and in this position the member 12 may be turned within the chamber 17. Means are provided within the chamber to provide a self latching catch or detent, which may be engaged by the wings 13 to prevent them from being rotated back accidentally, yet permit it to be turned back when desired.

As here shown, the catch engages the wings resiliently so that the latter may be rotated back to release position when desired against the tension of the detent. This is accomplished by forming a projection 23 from the face of one of the plates, as for example, plate 19, to cause the metal to project into the chamber in the pathway of the wings as they rotate. We prefer to provide a pair of said projections 23 extending far enough into the chamber to press against the wings as they engage it, but to permit the wings to be moved past it so that they, by reason of the resilience of the plates, may serve as a resilient detent. We also prefer to provide a second series of projections 24 projecting so far into the chamber that the wings will not move past them, so that they may serve as a fixed stop to limit the rotation of each wing after it has passed the resilient detent.

It is desirable moreover, when the member 12 is rotated in a direction to release itself from the detent, that the rotation be stopped at a point where the wings are opposite the extensions 22, so that the wings will not move beyond the openings provided for them to be again caught by the plate at the other side of the openings. The projections 24 may be readily used for this purpose also by increasing their size or circumferential length to cause them to engage the wings when the wings are in position for removal.

The construction described, affords a practical manner of making the sockets; that is, by making one of the plates dish-shaped, having a downwardly extending rim 25, and making the other plate of a diameter to fit within this rim. The thickness of the chamber 17 measured along the axis, may be readily fixed by cutting notches 26 in the free edge of the upstanding rim of the dish-shaped member, separated by intermediate portions or tongues 27 of greater axial length and by providing upon the plate 19 radially extending projections 29 of a size and shape to fit within the cut-out portions above referred to. This socket member may be assembled by fitting the two plates together and crimping the ends of the tongues 27 of the rim of the dish-shaped member over the edge of the plate 19.

Any convenient means may be provided for attaching the socket to the garment. As shown in Figs. 2, 3 and 5, the socket member is provided with peripheral openings 30 through which it may be sewed to the garment, and, if desired, with additional openings such as a square opening 31 at the center through which various types of fastening devices may be attached. We prefer to depress the center of the plate 19 immediately

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surrounding the opening 31 to give freedom to whatever attaching means is used.

The form of socket disclosed in Fig. 4 is substantially identical with that previously described, excepting that the socket is intended to be attached to the garment in a different manner. To this end, there are provided upon one of the plates, as plate 19, prongs 32 which are formed integral with the plate and extend downwardly from the periphery of the socket in position to penetrate the fabric of a garment or of a suitable tape, and to be clamped on the other side thereon.

With any of the foregoing constructions, it will be clear that with the socket attached to the garment, the button may be attached and detached at will. Moreover, while attached it will resist any normal pull during use, because it can be released only by rotating it. The detents 23 serve as resilient detents by reason of the resilience of the plates 18 and 19, which yield enough to permit the wings to pass.

Moreover, while we have shown one form of resilient catch, in the detents 23 which are released by turning the button backward, different forms may be employed to hold the wings in the rotated position.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claim is intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

We claim:

A detachable button comprising in combina-

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tion a button body, a male element comprising outwardly extending wings, a stud portion adapted to lie against the underface of the button and to space the wings from the button and a non-circular pin fitting through a conforming opening in said element and embedded in the body of said button, a socket member comprising a pair of plates having their peripheral surface mating together to maintain said plates in spaced relation to provide a chamber between them, one of the plates having a central opening of a size to fit over the stud portion of said male element and having radial extensions to receive the wings thereof and two pairs of opposite projections extending inwardly from one of the said plates into said chamber toward the opposite plate, the projections being sufficiently close to said opposite wall of the chamber, resiliently to press the wings against said opposite wall as they pass, and the other set being so close to said opposite wall that said wings do not pass.

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