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2,947,050

SEPARABLE BUTTON

Original Filed March 10, 1949

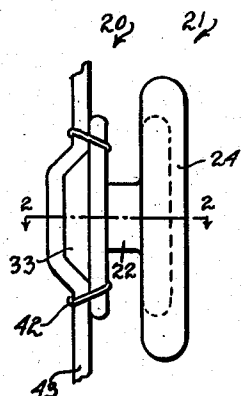


Fig. 1.

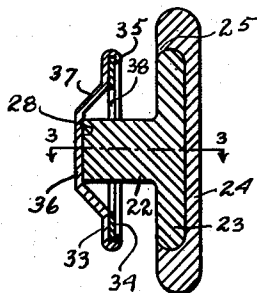


Fig. 2.

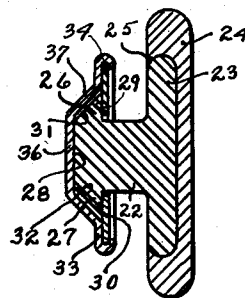


Fig. 3.

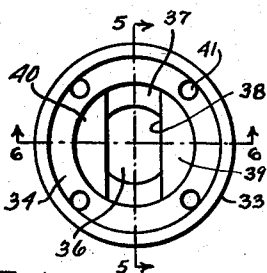


Fig. 4.

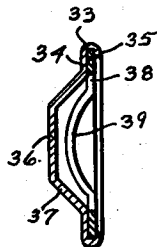


Fig. 5.

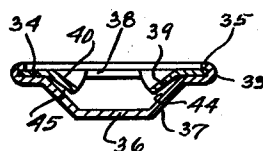


Fig. 6.

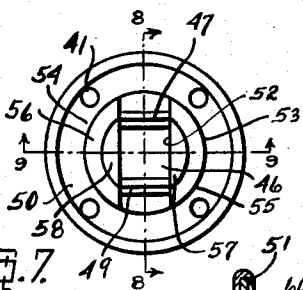


Fig. 7.

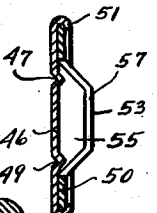


Fig. 8.

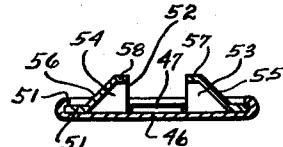


Fig. 9.

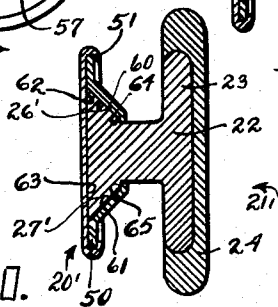


Fig. 10.

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2,947,050

## SEPARABLE BUTTON

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Original application Mar. 10, 1949, Ser. No. 80,715, now  
Patent No. 2,683,909, dated July 20, 1954. Divided  
and this application Mar. 11, 1954, Ser. No. 415,483

2 Claims. (Cl. 24-109)

This invention relates to improvements in buttons and particularly to improvements in so called "Two-part buttons," that is, buttons, per se, that are removable from garments prior to cleaning, laundering, pressing or ironing of said garments.

This application is a divisional application of my pending application filed March 10, 1949 under Serial No. 80,715, which issued on July 20, 1954 as Patent No. 2,683,909.

In the past, removable buttons have been employed in which use was generally made of a pair of parts each removable from the garment resulting in, frequently, displacement of the parts since one of them was primarily a small wire or pin that could easily be misplaced and at the same time very clumsy to use when applying the button to the garment. Furthermore, with this style of removable button it was necessary to supply the garment with an aperture or hole through which a part of the button projected and which hole was subjected to considerable wear and tear in the normal use of the button and at the same time allowed considerable free play between the parts and the garment resulting in further wear and tear on the garment and particularly around the aforementioned aperture or hole.

Attempts have also been made to provide removable buttons that included two or more parts with one of the parts permanently attached to the garment and with which permanently attached part the button was interlocked when in its operative position. With this style of button, as heretofore known, the structures were quite complicated and expensive to produce and at the same time were such as to cause friction and wear and tear on the garment fabric around the said permanently attached part thereby causing tears and other damage to the garment fabric resulting in a structure whose use was undesirable.

It is with the latter type of removable button that this application is concerned and which button of the present invention overcomes the heretofore objections thereto.

The principal object of the present invention is, therefore, the provision of a removable button that is simple to use in its application to and removability from a garment.

Another object of this invention is the provision of a removable button which includes a part or holder permanently secured to the garment and to which the button itself is readily applied and removed yet resists inadvertant disassociation from said carrier or plate.

It is also an object of this invention to provide a button to accomplish the foregoing objects that is inexpensive to manufacture resulting in economy in purchase and will be readily used because of its cheapness in price.

Other objects and advantages of the present invention should be readily apparent by reference to the following specification considered in conjunction with the accompanying drawings forming a part thereof and it is to be

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understood that any modifications may be made in the exact structural details there shown and described, within the scope of the appended claims, without departing from or exceeding the spirit of the invention.

In the drawings:

Fig. 1 is an elevational view of one form of a removable button embodying the principles of the present invention.

Fig. 2 is a transverse sectional view through Fig. 1 as seen from line 2-2 on said Fig. 1, the fabric illustrated in Fig. 1 not being shown in Fig. 2.

Fig. 3 is a cross-sectional view at right angles to that of Fig. 2 as seen from line 3-3 on said Fig. 2.

Fig. 4 is a plan view of the plate or holder of the button of Figs. 1, 2 and 3.

Fig. 5 is a sectional view through the plate as seen from line 5-5 on Fig. 4.

Fig. 6 is a cross-sectional view through the plate of Fig. 4 taken at right angles to Fig. 5 as seen from line 6-6 on said Fig. 4.

Fig. 7 is a plan view of a modified form of holding plate with which the button of Fig. 1 may be employed.

Fig. 8 is a vertical sectional view through the plate of Fig. 7 as seen from line 8-8 on said Fig. 7.

Fig. 9 is a sectional view through the plate of Fig. 7 taken at right angles to Fig. 8 as seen from line 9-9 on said Fig. 7.

Fig. 10 is a vertical cross-sectional view, similar to Fig. 3 showing a slightly modified button assembled with the holding member or plate of Figs. 7, 8 and 9.

Throughout the several views of the drawings similar reference characters are employed to denote the same or similar parts.

The removable button of the present invention will find its usefulness in connection with uniforms, aprons, skirts, dresses and similar garments which are subject to frequent cleaning, laundering, pressing, ironing and the like and can be readily and advantageously used in connection with buttons having their ornamental or exposed surfaces formed of plastic which are relatively fragile and liable to breakage during laundering, pressing, and the like, or subject to damage from the attendant heat during a pressing, ironing, or the like, operation.

Two forms of the invention are illustrated in the drawings with each form embodying the underlying principles and essential elements of the construction and the said forms will be described with reference to the modifications therein as distinguished from one another.

As shown, use is made of a holding member or plate indicated in its entirety by the reference numeral 20 with which is detachably connected a button indicated in its entirety by the reference numeral 21.

The button 21, per se, is illustrated as a solid member comprising a shank 22 preferably, but not necessarily, circular in cross-section and having an enlarged flange or head 23 at one end thereof. The flange or head 23 may be employed as the button itself or it may be employed to have connected or attached thereto a facing or exterior surface, which is indicated in the drawings by the reference numeral, 24. One such facing may be molded plastic, although this facing may be any other suitable or desirable material such as stamped metal, which could have its edges, as at 25, overlapping the button head 23. Hereinafter, the reference to the button will contemplate the button head 23 either by itself or with an overlay or attached decorative outer surface.

The button shank 22 has at its other end a pair of arms 26 and 27 which project in opposite directions beyond the shank 22 and the shank preferably has its outer edge plane or flat as at 28, and desirably so centrally of the length of the said arms 26 and 27 and immediately

ahead of the body portion of the shank 22. The said arms 26 and 27 have their other surfaces formed to substantially coincide with arcuate passageways formed in the holding member or plate 20, as will presently be made clear. For this reason the said arms are, respectively, provided immediately outwardly of the shank 22 with plane or flat upper faces 29 and 30 while the lower faces of said arms are, respectively, outwardly of the flat or plane portion 28, upwardly and outwardly inclined, as at 31 and 32. In other words, the outer faces of the arms 26 and 27 diverge with respect to one another from the end 28 of the shank 22.

The holding member or plate 20 is formed of an outer disc 33 and an inner disc 34 secured to one another by upsetting or folding the perimeter of the disc 33 onto the perimeter of the disc 34, as illustrated at 35. In this construction the outer disc 33 has the center portion of its body depressed to form a depression having a base 36 with an upwardly and outwardly or angularly projecting flange 37 which terminates in the body portion of the disc 33.

The inner disc 34 is provided with an aperture 38 which is of a width substantially equal to the width of the button shank 22 and its projecting arms 26 and 27 and of a length, at least, equal to the length of the said button shank end 28 and its arms 26 and 27 so that said button shank and arms may pass therethrough. The portion of the inner disc 34 immediately adjacent each of the sides of the aperture 38 is depressed as illustrated at 39 in Fig. 5 and at 39 and 40 in Fig. 6.

The depressed portions 39 and 40 of this modification correspond to spring fingers and in their final operative position form arcuate passageways which are substantially wedge shaped and including the wall or flange 37 of the outer disc depression.

The said holding member or plate 20 is provided through the body portions of its superimposed discs 33 and 34 with a plurality of apertures 41 through which stitching or the like 42, see Fig. 1, extends for securing the said holding member or plate to the fabric or garment, diagrammatically illustrated in the drawings at 43. It is to be understood that, insofar as the construction of the button is concerned, the fastening of the said holding member or plate to the garment may take a form other than by the use of thread or stitching 42.

By the construction just described, there is provided, as seen in Fig. 5, a plate or holding member 20 with lips 39 and 40 resulting in arcuate passageways 44 and 45, immediately beneath the said lips 39 and 40, and which passageways, transversely of the holding member or plate, are wedge shaped, being formed by the inclined flange 37 of the outer disc 33, all as clearly shown in Fig. 6.

The operation of the separable button is believed obvious from the drawings and the foregoing description since the button, per se, would be positioned to have the end 28 of the shank 22 on the base 36 of the depression in the outer disc 33 with its arms 26 and 27 projecting in the direction of the length of the aperture 38 as seen in Fig. 4. The button is then rotated in either a clockwise or counter-clockwise direction thereby passing the button arms 26 and 27 into the arcuate passageways 44 and 45 beneath the spring arms or depressed portions 39 and 40. The rotation of the button to the right or left causes the thin portion of the wedge shaped ends of the arms 26 and 27 to immediately start beneath the said spring portions, or spring arms 39 and 40, of the holding member or plate inner disc 34 to lift the said spring portions or spring arms against their normal yielding reaction. As the button is turned to its ninety degree position the spring tension will be increased so that upon reaching the said ninety degree position the button arms 26 and 27 will be tightly, yieldingly wedged in place by the said holding member or plate inner disc spring arms 26 and 27.

The modification illustrated in Figs. 7, 8, 9 and 10 is substantially the reverse of that illustrated in Figs. 1 to 6, inclusive, and is formed of two discs including a bottom or outer disc 46 which is substantially flat throughout its area except for the transverse lugs or ribs 47 and 49 which are for a purpose subsequently to be made clear. Secured to the upper surface of the disc 46 is a second or inner disc 50 held or secured to the disc 46 by upsetting or crimping the periphery of the disc 46 onto the periphery of the said disc 50, as illustrated at 51. The inner disc 50 is provided centrally with an aperture 52 which is of a transverse dimension to receive the shank 22 and arms 26 and 27 of the button. Transversely of the disc 50, and outwardly of the edges of the aperture 52, there is provided raised portions or bosses 53 and 54, each respectively, having an arcuate upwardly extending portion 55 and 56 with said portions 55 and 56 terminating in inwardly projecting lips 57 and 58.

The button 21', per se, of Fig. 10, is modified to the extent that the arms 26' and 27' of the shank 22 are inclined, as at 60 and 61, on the inner surfaces of said arms instead of on the outer surfaces thereof as illustrated in Fig. 3. This also results in the said arms 26' and 27' having their outer faces plane or flat as at 62 and 63 and in the plane of the end 28 of the said shank 22 to the extreme ends of said arms and at the same time provides flat portions for a short distance as at 64 and 65 on the inner faces of the arms to receive the inwardly projecting lips 57 and 59, all illustrated in said Fig. 10.

The operation of the modified button 21' of Figs. 6 to 10, inclusive, is substantially identical with that above described except that a slight pressure is required to start the button beneath the spring arms 61 and 62, since as seen in Figs. 8 and 9, the transverse lugs or ribs 47 and 49 must be cleared to start the button arms 26' and 27' beneath the raised portions or bosses 53 and 54. In other words, after the button shank and arms are against the outer disc, a slight downward pressure is exerted to separate the said outer disc and the raised portions or bosses 53 and 54 to permit the button arms to operate.

The button is then rotated through an angle of ninety degrees whereupon the sides of the arms 26' and 27' and contiguous edges of the shank 22 are transversely of the body portion of the holding member or plate disc 46. The button arms 26' and 27' in passing over the ribs 53 and 54 cause the said disc 46 and the raised portions or bosses 53 and 54 to spring away from one another until the transverse position of the arms 26' and 27' is reached whereupon the said disc 46 and the said raised portions or bosses 53 and 54 spring to their normal positions causing the lugs or ribs 47 and 49 of the outer disc 46 to flank the sides of the said arms 26' and 27' and the contiguous portion of the shank 22. The said lugs or ribs 47 and 49 yieldably lock the button 20, per se, to the holding member or plate and the outer disc 46.

It will be understood that to remove the button from its plate or holding member 20, in either modification, the button is merely reversed in its rotation which through the inclined walls of the lugs or ribs 47 and 49 again spring the outer disc 46 and the raised portions or bosses 53 and 54 from one another until the arms 26' and 27' are aligned with the aperture 52 in the inner disc 50 whereupon the button is free for removal.

It will be noted that the garment or fabric 43 is tightly drawn across the back side of the holding member or plate outer disc thereby securely anchoring the parts to one another and resulting in a device that is readily operable in accordance with the foregoing description, wherefore, no interference to the button, per se, its shank or arms is possible.

In view of the foregoing, it is believed now evident that there has been provided a separable two-part button which accomplishes the objects initially set forth.

What is claimed is:

1. In a device of the class described the combination

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of a holding member comprising an underlying and an overlying disc in superimposed relation secured to one another and provided with means for securing it in position on the surface of the material with which it is to be used, said underlying disc having a depression therein including a base and an upwardly, outwardly, inclined wall, said overlying disc having an aperture therein of a length equal to the greatest length of the depression but of a width less than the greatest length of the depression with portions of said overlying disc, immediately adjacent opposed sides of the aperture, depressed into said underlying disc depression to form with the depression inclined wall passageways each of said portions having a yieldably displaceable spring lip; and a detachable button having a shank projecting therefrom with diametrically disposed arms adapted to pass through the aperture in the overlying plate to have the arms disposed within the said passageways, and said shank being of such length as to be exposed between the overlying disc and button to space the button from said overlying disc.

2. In a device of the class described the combination of a holding member comprising an underlying and an overlying disc in superimposed relation secured to one another and provided with means for securing it in position on the surface of the material with which it is to be used, said underlying disc having a depression therein including a base and an upwardly, outwardly, inclined wall, said overlying disc having an aperture therein of a length equal to the greatest length of the depression but of a width less than the greatest length of the depression; portions of said overlying disc, immediately ad-

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jacent opposed sides of the aperture, depressed into said underlying disc depression to form with the depression inclined wall passageways, each of said portions having a yieldably displaceable spring lip; and a detachable button having a shank projecting therefrom with diametrically disposed arms adapted to pass through the aperture in the overlying plate to have the arms disposed within the said passageways with each arm having its outer surface upwardly inclined in accordance with the upward inclination of the underlying disc depression wall and having a wedge shape longitudinally thereof so that as each of said arms pass into its passageway the spring lips are placed under tension for yieldably securing the arms in a desired position, and said shank being of such length as to be exposed between the overlying disc and button to space the button from said overlying disc.

## References Cited in the file of this patent

## UNITED STATES PATENTS

138,107	Washbourne	Apr. 22, 1873
478,174	Sherer	July 5, 1892
1,497,806	Stenman	June 12, 1924
2,314,368	Poupitch	Mar. 23, 1943
2,622,291	Drell et al.	Dec. 23, 1952

## FOREIGN PATENTS

104,313	Switzerland	June 1923
126,545	Great Britain	May 15, 1919
228,984	Germany	Nov. 28, 1910
861,090	France	Jan. 31, 1941