No. 745,089. PATENTED NOV. 24, 1903.

C. YEOMANS.

SEPARABLE BUTTON.

APPLICATION FILED FEB. 6, 1903.

NO MODEL.

Fig. 1.

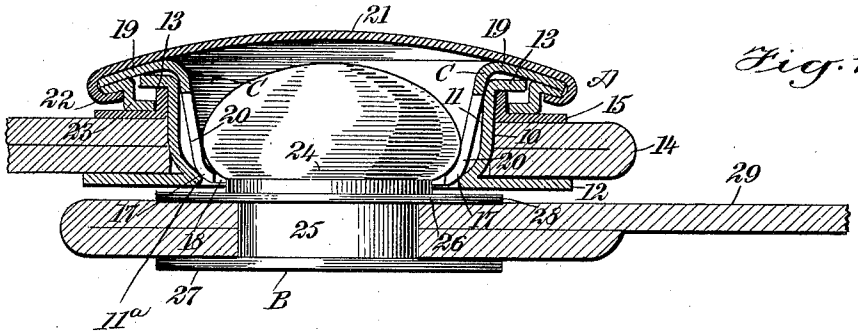


Fig. 3.

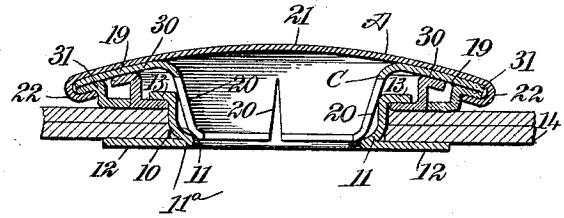
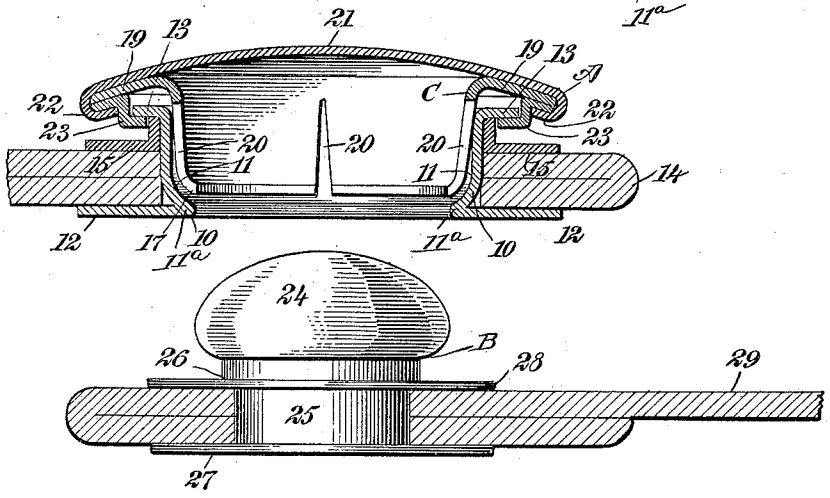


Fig. 2.



WITNESSES:

Geo. W. Naylor.

Fredk. Ackers.

INVENTOR

Clifton Yeomans

BY Munn & Co.

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 745,089. Patented November 24, 1903.

UNITED STATES PATENT OFFICE.

CLIFTON YEOMANS, OF NEW YORK, N. Y.

SEPARABLE BUTTON.

SPECIFICATION forming part of Letters Patent No. 745,089, dated November 24, 1903.

Application filed February 6, 1903. Serial No. 142,149. (No model.)

To all whom it may concern:

Be it known that I, CLIFTON YEOMANS, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Separable Button, of which the following is a full, clear, and exact description.

My invention relates to an improvement in that class of buttons consisting of a socket and a knob section, the knob-section being adapted for locking engagement with the socket-section.

The purpose of the invention is to provide a simple, durable, and economic separable button capable of being readily, firmly, and expeditiously applied, and, furthermore, to so construct the button that the more one section is forcibly drawn from the other section the more firmly will the two sections remain in locking engagement, and also to so construct the socket-section that a cap member will have limited play upon the body portion, it being necessary to move the cap member outward upon the body portion before the two sections of the button can be separated.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through the socket portion of the button, a side elevation of the knob portion in locking engagement with the socket-section, and a section through the material to which the parts are secured. Fig. 2 is a view similar to that shown in Fig. 1, except that the two parts of the button are separated; and Fig. 3 is a section through the socket portion of the button, showing a slight departure in the construction of the said part.

The invention relates particularly to the socket-section A of the button, which socket-section is used in connection with a knob-section B; but the latter section B may be of any approved type.

In the construction of the socket-section A, as is disclosed in Figs. 1 and 2, a cup-body 10 is provided which is of metal and of a rigid character, open at the bottom as well as at the top, and the inner wall of this cup-body is concaved, particularly at its bottom portion 11, where the curvature is very decided, producing an inner annular projection 11^a at the bottom portion of the said body 10, as is shown in both of the said Figs. 1 and 2.

A horizontal outwardly-extending flange 12 is made integral with the cup-body at its bottom portion, serving to form a portion of the aforesaid inner annular projection 11^a, and at the upper end of the cup-body 10 a smaller outwardly-extending horizontal flange 13 is produced. The material 14, to which the socket-section A is to be secured, is provided with a suitable opening to receive the body 10, and the bottom flange 12 of the said section engages with the under face of the said material. At the upper face of the material a washer 15 is made to engage, which washer is circular and extends around the aforesaid body 10. This washer 15 is angular in cross-section, comprising a horizontal base member and a vertical member. The vertical member is in engagement with the outer face of the body 10, and the upper flange 13 of the said body is made to firmly engage with the upper edge of the vertical portion of the said angular washer 15, as is shown in both Figs. 1 and 2. In this manner the said body 10 is securely fastened to the material 14.

An inner expansible cup member C is fitted in the outer cup-body member 10 in such manner that the inner expansible cup member C will have more or less play to and from the outer stationary body member 10. This inner expansible cup member C is constructed of a spring material, and its side portions incline more or less downwardly and inwardly from the top, being decidedly inwardly curved at the bottom portion 17, as is shown in Figs. 1 and 2, and when the socket-section A is locked to the knob-section B this lower curved portion 17 of the inner expansible cup member C is in engagement with the inner annular projection 11^a at the bottom portion of the outer fixed cup-body member 10, so that the knob-section when fitted in the socket-section will serve to hold the part 17 against the said inner annular projection of the body-section the more firmly the more an endeavor is made to separate the two sections by simply

drawing one section from the other. At the bottom of the inner expansible cup member C an opening 18 is produced, and at the top of the said inner expansible cup member C an outwardly-extending flange 19 is formed, which is preferably given a downward and outward inclination, and the body portion of the said inner expansible cup member C is provided with a series of slots 20, produced therein, permitting the said body portion of the said inner expansible cup member to expand and contract as may be necessary for the entrance or withdrawal of the knob-section B. A cap-plate 21 crowns the said socket-section A. This cap member 21 is more or less semicircular, having its outer surface convexed and its inner surface concaved, and the said cap member 21 is provided with an inwardly-directed flange 22 at its margin extending beneath the under surface of the body of the said member at its marginal portion, and this flange 22 receives the flange 19 at the upper portion of the inner expansible cup member C and likewise receives the upper member of an angular washer 23, which is practically Z-shaped in cross-section, comprising the upper member above mentioned, which conforms to the inclination of the flange 19 at the upper portion of the inner expansible cup member C, a central vertical shank, and a lower horizontal member, which rests upon the horizontal member of the washer 15, which engages with the material 14.

A space is normally provided between the lower horizontal member of the washer or ring 23 and the horizontal member of the clamping washer or ring 15 when the socket-section A is in its normal position, as is shown in Fig. 2, and when the knob-section is in locking connection with the said socket-section the lower horizontal member of the ring or washer 23, connected directly with the cap member 21, will rest upon the horizontal portion of the fixed washer 15, so that a space is then provided between the lower horizontal member of the washer 23 and the under face of the flange 13 at the top of the fixed body member 10 of the socket, and before the knob-section can be released from the sleeve-section the cap member 21 must be raised to bring the outer washer 23, connected with the cap, in engagement with the upper flange 13 of the body-cup member 10, as is shown in Fig. 2, so that by such action the lower decidedly-curved portion of the said inner expansible cap member will be carried from engagement with the aforesaid inner annular projection 11^a at the bottom of the body-cup member 10, as is also shown in Fig. 2, and only at such time can a separation between the two sections A and B take place.

The cap-section B consists of a segmental head 24 and a shank 25, which is in two diameters, thus forming a circular shoulder 26. The shank 25 is passed through a suitable opening in the material 29, to which the knob-section B is to be attached, a washer 28 having previously been placed on the shank 25 in engagement with the shoulder 26, so as to engage with the upper face of the said material 29, and a second and lower washer 27 is then made to engage with the under face of the material 29, being secured to the bottom or inner end of the shank 25 in any suitable or approved manner.

In the operation of this separable button the knob-section B can be readily and quickly forced up into the inner expansible cup member C of the socket-section A, as during such act the knob-section will force the expansible cup member C upward, and the head 24 of the knob-section can then readily enter the said expansible cup member. After such connection the knob-section B will naturally settle down and will draw the inner expansible cup member C downward, so that its convexed surface 17 will rest against the said inner annular projection 11^a at the bottom portion of the body member 10.

It will thus be observed that when an attempt is made to forcibly separate the fabric or other material connected by the two sections described such attempt will cause the head 24 of the knob-section B to force the outer convexed portion 17 of the inner or expansible cup member C so tightly against the projection 11^a of the body member 10 as to effectually prevent the said inner cup member C from expanding, and consequently prevent the head 24 of the knob-section B from leaving the socket-section A. In order to effect a separation between these two sections, it is necessary to first raise the cap member 21, bringing the parts to the position shown in Fig. 2, and thus carrying the bottom portion of the inner expansible cup member C from engagement with the bottom portion of the body member 10, whereupon as the knob-section is drawn away from the socket-section the inner member C of the latter will be free to expand and permit the head 24 to leave it.

In Fig. 3 I have illustrated a slightly-modified form of the socket-section A, in which the only difference consists in that the fixing-washer 15 is dispensed with and two substantially Z-shaped washers 30 and 31 are employed instead, the washer 31 corresponding to the washer 23, attached to the cap 21 and shown in Figs. 1 and 2. The inner Z-shaped washer 30 under this latter construction has its lower horizontal member held firmly against the material 14 by the outwardly-extending upper flange 13 of the body 10, while the outer Z-shaped flange of washer 31, being attached to the cap 21, is free to move upward and downward with the said cap, the movement of the cap being limited by the lower member of the outer Z-shaped washer 31 striking the outer member of the inner Z-shaped washer 30 on the material to which the socket is secured.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a separable button, a socket-section comprising a circular body member open at both ends, and having an outwardly-turned flange at each end, said body member being curved at one end to form an inner annular projection, and provided beneath one of its flanges with an angular washer, its other flange and the corresponding member of said washer constituting attaching means for the section to a support; and an inner expansible member open at its inner end and curved all around at such end in conformity with said annular projection, this latter member being slitted at intervals, and having movement within the body member, and being also provided with a cap having means preventing separation of the two members.

2. In a separable button, a socket-section, consisting of an outer cup-shaped body member open at its top and at its bottom, the inner wall of which is concaved decidedly at its lower portion, means for rigidly attaching the said body member to a support, an inner expansible cup member open at its bottom and inwardly curved at its bottom portion to engage under pressure with the lower inner portion of the said fixed body member, an outward extension from the upper portion of the body member, a cap secured to the upper portion of the inner expansible member, and a washer carried by the said cap and the said expansible member, having limited movement to and from the outwardly-extending upper portion of the body member, as and for the purpose set forth.

3. In a separable button, the combination with a socket-section comprising a body member open at the top and at the bottom, the inner wall whereof at its bottom portion is concaved, an inner expansible cup member open at its bottom and having its bottom portion inwardly curved, having sliding movement in the body member, and means for limiting the movement of the expansible cup member in the said body member, of a button-section including a shank, fastening devices for the shank, and a head adapted to forcibly enter the opening in the bottom portion of the expansible cup member, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLIFTON YEOMANS.

Witnesses:

J. FRED. ACKER,

JNO. M. RITTER.