Jan. 6, 1925. 1,522,139

J. V. PILCHER ET AL.

SEPARABLE BUTTON

Filed March 29, 1924

Fig. 1.

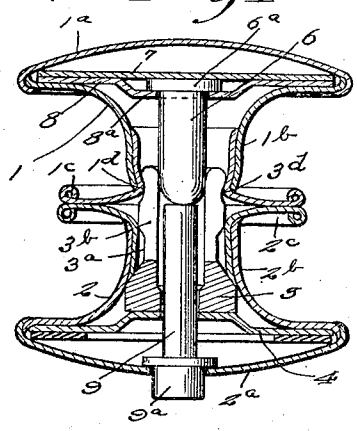


Fig. 2.

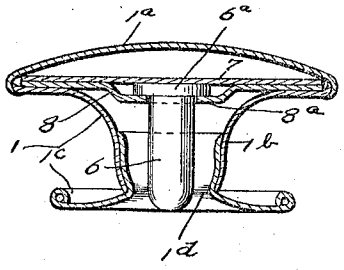


Fig. 3.

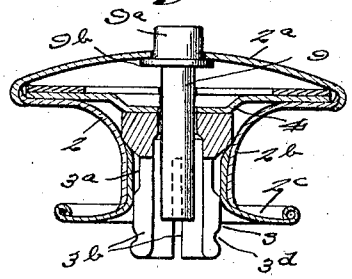


Fig. 4.

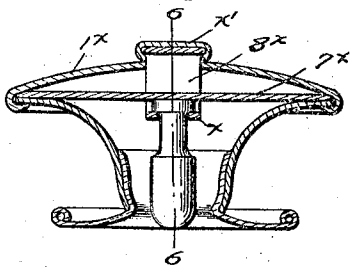


Fig. 5.

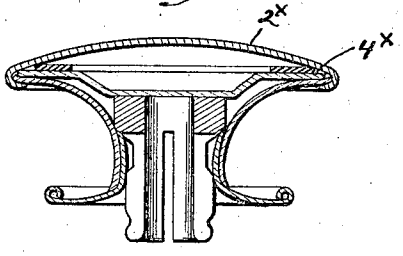
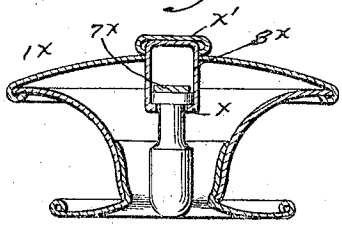


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN V. PILCHER AND JOHN F. BABBITT, OF LOUISVILLE, KENTUCKY; SAID BABBITT ASSIGNOR TO SAID PILCHER.

SEPARABLE BUTTON.

Application filed March 29, 1924. Serial No. 702,939.

To all whom it may concern:

Be it known that we, JOHN V. PILCHER and JOHN F. BABBITT, citizens of the United States, and residents of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Separable Buttons, of which the following is a specification.

Our present invention relates to improvements in buttons of the separable type and aims to provide a construction in which the parts are capable of being readily snapped together and as readily separated, but which will be securely locked in their assembled condition and prevented from accidental displacement.

The invention further aims to accomplish this in a manner which will enable the buttons to be economically manufactured and which will produce an extremely durable article.

With these and other objects in view, the invention comprises the novel features of construction and arrangement and combination of parts hereinafter described, the precise nature and scope of our invention being ascertained and defined by the claims appended hereto.

In order that the invention may be more readily understood, we have annexed hereto drawings illustrative of two embodiments thereof, in which:—

Figure 1 is a central longitudinal section through a button constituting the preferred form of our invention.

Figs. 2 and 3 are similar views showing the button parts separated.

Figs. 4 and 5 are views analogous to Figs. 2 and 3, showing a modification.

Fig. 6 is a section on line 6—6 of Fig. 4.

Referring by reference characters to these drawings, and first to the form shown in Figs. 1 to 3, inclusive, it will be seen that the button, shown as of the separable cuff button type, comprises two main parts 1 and 2 which are in the form of shells having spaced flanges to receive the cuff or other parts to be engaged thereby, and having hollow interiors to contain the cooperating engaging and locking parts. Preferably each shell comprises three sheet metal parts having overlapping edges rolled or swaged together. The member 1, for example, comprises an outer head or face member 1^a, a shank member 1^b having an outwardly flared edge which is interlocked with the edge of member 1^a and a base or inner member 1^c which has a shank portion projecting into the inner contracted end of portion 1^b and swaged or enlarged outwardly therein to hold the parts rigidly together.

Member 2, in a similar manner, comprises parts 2^a, 2^b and 2^c likewise united.

The member 1 constitutes the female member of the button or fastener, the central bore thereof being designed to receive a hollow stud 3 rigidly carried within the button member 2 and protuding therefrom.

Conveniently, the stud member may be secured in place by having its outer end secured to a plate or disc member 4, the peripheral edge of which is clamped between the interlocked edges of parts 2^a and 2^b, a filling piece or washer 5 being provided when necessary.

Stud member 3 is preferably provided with an annular groove or rebate 3^a coinciding with the shank portion of the member 2. Said shank member is provided with radially disposed longitudinal slots 3^b, conveniently four in number, and as it is made of resilient material these form annularly disposed spring tongues which are grooved on their outer faces, as at 3^d to coact with an internal annular rib 1^d formed on or carried by the bore of member 1, the free edge of said stud being rounded as shown.

To assemble the button parts 1 and 2 it is only necessary to juxtapose the parts 1 and 2 with the stud 3 aligned with the bore of part 1 and press the parts 1 and 2 towards each other, when the said parts act as a snap fastener, the spring tongue parts of the stud yielding to allow the stud to enter the bore until their outer grooves 3^d align with the rib 1^b when their spring action forces them into and holds them in engagement with said rib.

For locking the parts firmly in this position, and preventing accidental separation,

we provide the female member 1 with a plunger 6 which is yieldingly mounted in the female member and has a free end positioned to project within the hollow end of the male member 3.

A desirable manner of yieldingly supporting the plunger is to provide it with a head 6^a abutting against the inner face of a resilient plate or disc 7 and guided by a plate or disc 8 having one inwardly struck portion 8^a, between which and the plate 7 the flanged head 6^a is confined. Plates or discs are held in position by the converging and interlocking walls of parts 1^a and 1^b.

The plunger is of such diameter as to fill the hollow bore of the male member 2 (or the space between the spring tongues) when the latter is in engagement with the female member and in this position prevents inward movement or contraction of the spring tongues, and hence the two parts of the button are held securely locked together. To enable the parts to be separated, a key or push piece 9 is provided slidably guided in the hollow bore of the male member, and in an aligned opening in the plate 4, and having a head 9^a projecting through an opening in the part 2^a of shell 2, displacement of the key being prevented by the flange 9^b.

By pushing upon head 9^a, member 6 will be pushed out of the bore of the male member, whereupon the button parts can be pulled apart after the manner of the ordinary snap fastener, the spring tongues yielding to permit this action.

When the parts are to be reassembled, as the male member is entered in the socket of the female member, the spring tongues are first contracted beneath the head of plunger 6 to a diameter less than the diameter of the plunger, which prevents the plunger from entering said bore until the tongues have sprung outwardly into engagement with the flange of the female member, whereafter the plunger automatically enters the bore and locks the parts together as above described.

In the form shown in Figs. 4 and 5, instead of providing a push piece or key for operating the locking member, we provide this with means whereby it may be directly retracted. In this, the retaining plate 8^a is replaced by the internal flange x of a pull piece 8^x comprising a pair of parallel arms passing through slots in the plate 7^x, said arms passing through an axial opening in the shell member 1^x and being united in, or attached to a pull head x'. The operation is just the same as that previously described except that the button parts are unlocked by a pulling action instead of a push.

The male member shown in Fig. 5 is similar to the member shown in Fig. 3, except that the push piece 9 is omitted and the plate 4^x and shell part 2^x are made imperforate.

Having thus described our invention, what we claim is:—

1. A separable button comprising a stud member and a socket member, having spring locking means for connecting them, and an axially located pin in the stud member operated from the exterior of the button for releasing the locking means by forcing the pin in the direction of the socket member.

2. A separable button comprising a female member, a male member cooperating therewith comprising annularly arranged spring tongues, a locking plunger within said female member and adapted to enter between said spring tongues to hold them against contracting movement, resilient means tending to force said locking plunger towards the male member, and an axially movable key within the stud member arranged to impinge against the head of the locking plunger.

3. A separable button comprising male and female members, said male member comprising a tubular stud having a split end and an annular groove adjacent the end, and said female member an annular rib cooperating with said groove, a locking plunger yieldably mounted in said female member in alignment with the bore of said stud, and of a size to enter said bore only when said split end is expanded, and axially disposed means operable through and from the exterior of one of said button members for withdrawing said locking plunger from said bore.

4. A separable button comprising male and female members, said male member comprising a tubular stud having a split end provided with an annular groove and said socket member having an annular rib cooperating with said groove, a locking plunger axially mounted in said female member, spring means tending to project said plunger into the bore of the male member, and an axially arranged push key slidably located in said male member.

5. A separable button comprising male and female members, said female member comprising a hollow shell having a constricted mouth, a spring plate carried within said shell, a locking plunger carried by said plate and depending axially within said constricted mouth, and said male member comprising a stud having a split tubular end cooperating with said constricted mouth, means being provided for imparting axial movement to said locking plunger within said female member.

6. A separable button comprising a pair of complementary shells having spaced flanges and having hollow interiors, one of said shells containing a tubular stud member with a split part projecting therefrom

having an annular groove and the other shell having an internal flange to engage said groove, an axially movable spring pressed locking pin carried within said last named shell, and having its end adapted to be held within the split portion of the stud when the shells are locked together, and an axially movable push pin carried by the other and extending into said tubular stud and abutting said locking pin.

In testimony whereof, we affix our signatures.

JOHN V. PILCHER.
JOHN F. BABBITT.