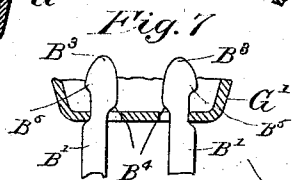
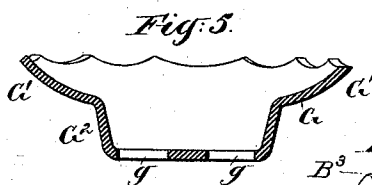
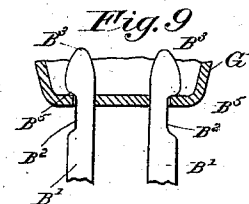
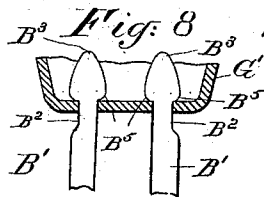
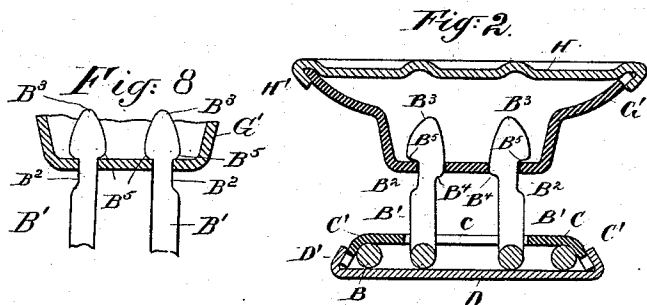
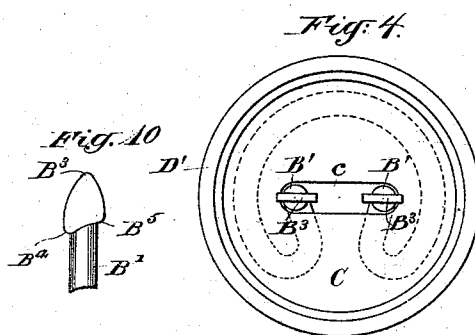
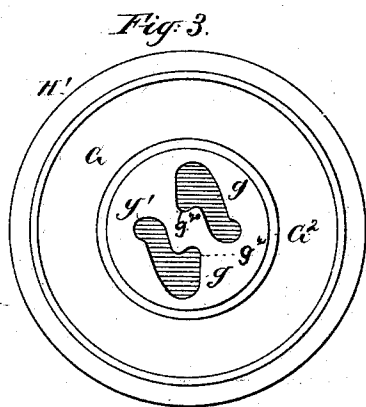
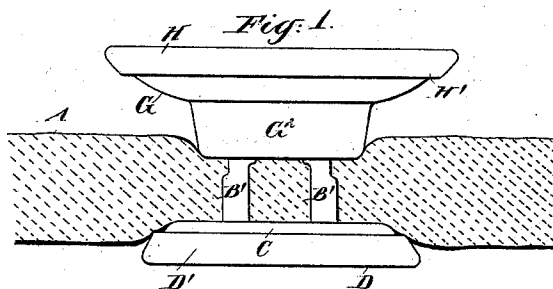


(No Model.)

J. W. BEAUMONT.
BUTTON.

No. 547,410.

Patented Oct. 8, 1895.



Witnesses:
Charles R. Searle,
M. H. Boyle,

Inventor:
James W. Beaumont
by his attorney
Thomas J. Searle

UNITED STATES PATENT OFFICE.

JAMES W. BEAUMONT, OF WATERBURY, CONNECTICUT.

BUTTON.

SPECIFICATION forming part of Letters Patent No. 547,410, dated October 8, 1895.

Application filed January 19, 1895. Serial No. 535,426. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. BEAUMONT, a citizen of the United States, residing at Waterbury, in the county of New Haven, in the State of Connecticut, have invented a certain new and useful Improvement in Buttons, of which the following is a specification.

My improved button is of the class adapted to be secured to a garment without sewing. It may be separated from the garment at will to facilitate washing and ironing and may be again securely attached with little labor. The button is in two parts applied upon opposite sides of the garment. I equip one part with two nearly parallel prongs connected by an efficient spring contained within one of the parts, which will yield to allow the prongs to be each forced inward toward the center of the button. These two prongs and springs are carried in the fastener, the part which applies on the "wrong" side or inner side of the garment, and engage with the button by locking therewith under proper conditions.

As a preparation for attaching the button, the fastener is brought into the required position on the inside of the garment and the two prongs in their easy or distended position are thrust through the garment and present their points on the right side or outer side. The body or head which applies on the outside of the garment is hollow, and its back or collet has two oblong and obliquely-arranged, or more properly, volute slots or apertures, which receive, respectively, the two prongs. Next, the fastener being firmly held, the body is turned about a quarter of a revolution and the prongs are thereby reliably engaged with the body. The button will remain engaged until the body is turned back to or near its original position relatively to the fastener and prongs. I give such a form to the parts that such a rotation of the body is resisted with sufficient force to hold the button engaged under all conditions of use. When it is desired to disengage the button from the fastener, the latter may be again held and the body turned with force in the opposite direction to that which was required to effect the engagement. A quarter-revolution carries it back to its original position, and now it can be removed, leaving the prongs free. After the removal of the body the fastener and prongs can be withdrawn in the obvious manner. The garment may then be washed

or otherwise treated without the button, and a repetition of the proper movements will again engage the two parts of the button together properly fixed to the garment, as at first. The form of the slots in the collet of the button and of the prongs which are to engage therein are carefully adapted to the requirements, so as to not only resist a pulling strain, but also to prevent accidental turning of the parts and yet allow a turning by application of sufficient force, so as to unlock when required. I scallop the edges of the collet of the button and of the corresponding inner plate of the fastener, so that when the adjacent plate is compressed thereon it will engage it to prevent its being turned.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a side elevation of the button body and fastener in place in the garment. Fig. 2 is a corresponding central cross-section. Fig. 3 is a view of the button-body alone seen from the rear. Fig. 4 is a view of the fastener seen from the front. Fig. 5 is a section through the collet alone, and Fig. 6 is a similar view of a portion of the fastener. Fig. 7 is a central cross-section showing the relation of the parts at a certain stage in the manipulations to effect the engagement or disengagement of the button. Figs. 8 and 9 are central cross-sections of portions showing modifications. Fig. 10 shows a modified form of the points of the prongs.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

The body or main portion of the button is marked G H, and will be described further on.

A is the portion of the garment to which the button is to be attached.

B is a fastener-spring, of hard brass wire or other suitable material, bent into a curve to lie on the back of the garment and having the ends B' turned at right angles and extending parallel to each other, pointed to penetrate the garment from the inside and formed with a slightly-reduced neck B² and a flattened and widened portion B³, adapted to engage by its offsets B⁵ B⁵ in the button-body. The curved portion of this spring applies against the inner face of the garment, separated therefrom only by a thin plate C of

brass, a slot c in which plate allows the required motion of the prongs together and apart when the body is partially rotated to engage and disengage the parts. The form may be given to the prongs by flattening and cutting by machinery.

C' is a flange turned up on the rim.

D is the top of the fastener, formed also of thin brass. D' is a flange formed on this cap, embracing the flange C' . These flanges are of such depth that the case $C D$, with its flanges $C' D'$, reliably incloses and protects the curved portion B of the spring-fastener, but leaves it free to exert its elastic motion.

In the manufacture of these parts the wire is first flattened to produce the radially-widened end B^3 , and the flattening to a less extent may be impressed also on the part which is to constitute the neck. Then the ends of the wire thus flattened and broadened are treated in cutting-dies, and a portion is cut out from the side of each, leaving the metal properly reduced to form the necks B^2 and to leave the proper shoulders or offsets B^5 .

The button-body is composed of two shells of metal $G H$, the collet or back being marked G and formed with the usual flange G' and usual hub G^2 . The front cap is larger and flanged over and engaged with the collet by the flange A' , in the ordinary manner. There are two smoothly-punched apertures or slots, which are the counterparts of each other, forming volute curves, as shown. The main body of each slot is marked g , a rounded offset or notch on the outer side at the inner end of each is marked g' , and a deeper notch or widening on the inner side of each slot g' near the outer end is marked g^2 . The flattened parts B^3 of both the prongs lie in the same plane. In applying the parts together, or separating them, these flattened parts B^3 coincide approximately with the slots g , and by the aid of the widenings $g^2 g^2$ they can be readily inserted and removed. The parts are engaged reliably by first applying the body in such position that the flattened parts B^3 will be received each in its respective slot g and widening g^2 and then turning the body forcibly around relatively to the fastener.

This movement transfers the prongs each into the other end of its respective slot, and by their elastic force they each spring out into the corresponding slight notch g' . In this position they are held reliably by the engagement of their offsets $B^5 B^5$ within the collet G of the main body. There is also an offset B^4 on the opposite side of each prong from the offset B^5 . The metal B^3 extends down on the neck farther on one side than on the other—that is to say, the offset B^4 is lower down or farther from the point of the prong than the offset B^5 . This contributes to the security of the locking. When the prongs are in their most distended condition, the button-body is applied in the position to engage the prongs in the outer ends of the slots g , and the body and fastener being forced strongly together the prongs are

inserted into the body beyond the offset B^4 . Holding them thus compressed together the parts are turned relatively to each other and the necks B^2 are each transferred by sliding along in their respective slots till each reaches the offset or notch g' , which lies on the outer side of the respective slot g at the inner end. Now the elastic force of the spring B snaps the prongs apart and presses the necks $B^2 B^2$ each into its respective notch g' . Now the pull on the fastener, due to the elastic resiliency of the fabric A , will draw the prongs slightly out from the body, this outward movement obtaining to the limited extent due to the difference in position of the offsets $B^4 B^5$. In this movement the offset B^4 is drawn into a position a little within the thickness of the metal of the collet G . The offset B^5 now asserts itself and by striking against the inner face of the collet G prevents any further withdrawing of the fastener. Now the button is fastened. It cannot be drawn out farther by reason of the offset B^5 , and the parts cannot be turned back to their original positions until the two prongs are moved nearer together, so that the necks B^2 can escape from the notches g' . Such drawing together of the prongs cannot be effected, because the flattened portion of each immediately adjacent to its offset B^4 strikes the opposite side of the slot g and prevents such movement. The locking thus effected is very efficient. In order to unlock the button, the fastener must be again forced inward or into the body, again compressing the fabric (not shown) until the offset B^4 is again within the interior of the button; then holding the parts in that condition and applying sufficient force the slight engagement of each neck B^2 in the corresponding rounded notch g' may be overcome, and the prongs being sufficiently moved together in opposition to their elastic force the necks can be traversed outward, each in its respective slot g , and when each is at or sufficiently near the outer end of its slot the flattened portion B^3 will again coincide with the aperture, and the parts of the button can be separated.

In fastening the button to a garment the prongs are first thrust through and are allowed to protrude at the required points on the front or outer face of the garment and the body $G H$ is brought into position so that its apertures or volute slots g receive the prongs, one in each, after which we proceed as above described. The button may be used in all the ordinary ways and with the ordinary effect. A feature of much importance is involved in the fact that the breadth of each tapering flattened portion B^3 is greater than the entire width of the aperture $g g'$, as it is presented while the parts are in the locked position. Even if the offsets $B^4 B^5$ in the prongs are not "squarely" cut, and there is a sufficient force impressed on the button by a direct pull and a shaking motion or by any other means to force the prongs inward toward the axis of the button against the re-

distance of the spring B, the prongs cannot make such movement until the button-body is turned a quarter-revolution relatively to the back or fastener, and this cannot be so turned inward until the body and fastener have been forcibly compressed together facewise. This is due to the breadth of the flat portion beyond the offset B⁴ being greater than the breadth of the aperture g g'.

In applying together the parts C D, which form the casing of the fastener, and the parts G H, which form the larger and conspicuous portion of the button, the dies should be so formed and operated that the parts will take a sufficiently firm hold on each other—that is to say, the flange D' should be compressed down upon the flange C' with sufficient force to allow the fastener to be held by grasping the cap alone, and the flange H' must be pressed down upon the flange G' with sufficient force to allow the entire body to be turned in either direction with the required force by grasping the cap. To facilitate the turning of the interior part by the exterior, I scallop the flanges G' G', and when the dies impress their force on the outer flanges D' H' the metal of the outer flange is sufficiently distorted and compressed into these scallops. The slot c extends diametrically across the center of the inner plate C of the fastener. Its length corresponds with the greatest distance to which the prongs B' are to be allowed to separate. The spring B may have a force tending to hold the prongs farther apart, so that they shall tend to move apart reliably to that extent. The offsets or slight notches g' should be carefully proportioned, so as to allow the necks B² of the prongs to be received, and hold the parts with gentle force against being accidentally turned, but allow them to be turned by the application of a sufficient force when the button-body and the fastener are sufficiently compressed together facewise, in order to separate the parts of the button.

Modifications may be made by any good mechanic without departing from the principle or sacrificing the advantages of the invention. I have shown the points of the prongs as sufficiently sharp to be thrust by a proper force through the fabric. For some purposes, as cuff-fasteners, where this duty is not required, the ends may be blunt. Parts of the invention can be used without the whole. Instead of making the offsets B⁴ lower than the offsets B⁵, with the advantage of giving the increased locking due thereto, as described, I can make the offsets B⁴ B⁵ exactly in line, and the button can always be released by applying sufficient force to bring the necks out of their notches against the considerable elastic force of the spring B. Fig. 8 shows such a modification. I can dispense with the offsets B⁴ and make the entire length of each prong straight on the innerside. Fig. 9 shows such a modification. I can, if preferred, flat-

ten the points B³ alone, leaving the necks full size. Such necks are stronger and turn better in the slots. Fig. 10 shows such a prong.

I claim as my invention—

1. In a separable button, a spring fastener carrying two prongs having offsets, in combination with a body having two volute slots each having two notches, one near each end adapted to engage and release the prongs by a partial revolution of the button, as herein specified.

2. In a separable button, the spring B, carrying two prongs B', each having a neck B², a flattened end B³ with two offsets B⁴ and B⁵ at different depths, in combination with a body G, H, having slots g arranged obliquely, and rounded notches g', adapted to be locked by both a partial turning and an axial movement and to be held engaged until both movements are again imparted in the reverse direction, all substantially as herein specified.

3. In a separable button, the spring B carrying two prongs B', having flattened ends B³ with offsets B⁴ B⁵, inclosed in a casing C, D, having a slot c to allow the prongs to move apart to a definitely limited extent, in combination with the body G, H, having two slots g arranged obliquely, each having a notch g' at the outer side of their inner ends, arranged to engage and release the prongs by turning and to hold them gently against being turned by accident, and to allow them to be released when required, all substantially as herein specified.

4. In a separable button, the spring B, carrying two prongs B', having flattened ends B³ with offsets B⁴, B⁵, inclosed in a casing C, D, having a slot c to allow the prongs to move apart to a definitely limited extent, in combination with the body G, H, having two slots g arranged obliquely, each having a rounded notch g', at the outer side of their outer ends, arranged to engage and release the prongs by turning and to hold them gently against being turned by accident and to allow them to be released when required, and also a widening g² on the inner side of its outer end, all substantially as herein specified.

5. In a separable button, having locking means, as the prongs B' on the fastener and slots g in the body, adapted to be engaged and disengaged by forcibly turning the body and fastener relatively to each other, the scalloped flanges C' and G' embraced by the caps D and H respectively, and compressed together with sufficient force to imprint the scallops on such caps and thereby insure the turning of such parts by turning the caps, as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

JAMES W. BEAUMONT.

Witnesses:

HENRY W. ATWOOD,
FRANK H. TROWBRIDGE.