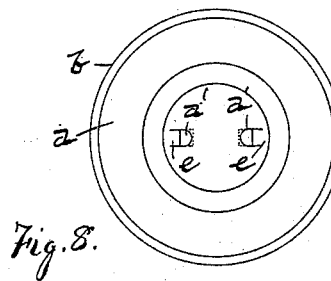
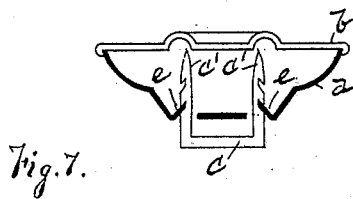
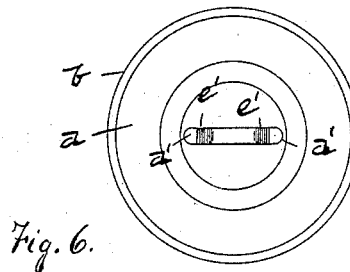
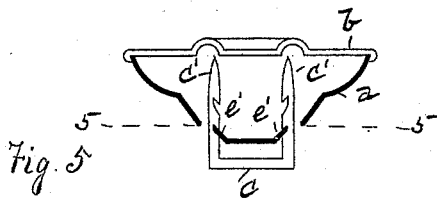
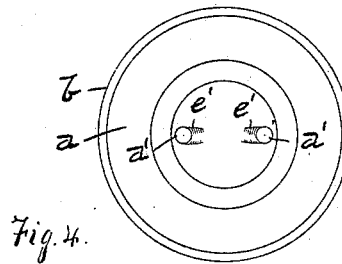
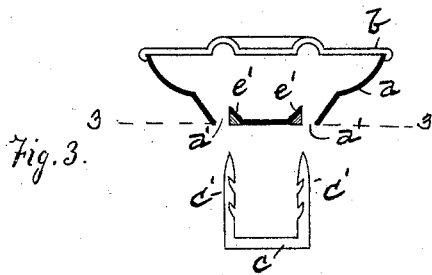
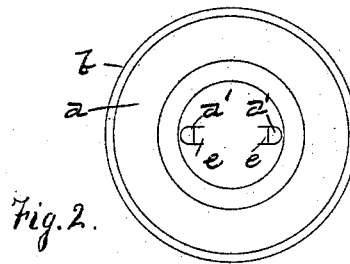
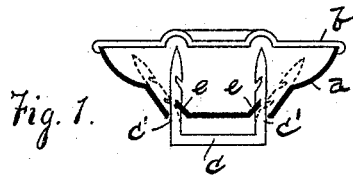


(No Model.)

N. D. INGRAM & E. M. CHAPMAN.
BUTTON.

No. 422,789.

Patented Mar. 4, 1890.



Witnesses:
C. H. Harner.
J. E. Chapman

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UNITED STATES PATENT OFFICE.

NATHAN D. INGRAM AND EUGENE M. CHAPMAN, OF HOLYOKE,
MASSACHUSETTS.

BUTTON.

SPECIFICATION forming part of Letters Patent No. 422,789, dated March 4, 1890.

Application filed October 9, 1889. Serial No. 326,413. (No model.)

To all whom it may concern:

Be it known that we, NATHAN D. INGRAM and EUGENE M. CHAPMAN, of Holyoke, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Buttons, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

Our invention relates to buttons for garments, and particularly to that class of buttons composed of a front part or button proper and an independent fastening device or shank, which are adapted to be secured to a garment without the use of thread.

The object of our present invention is to improve the construction of such buttons by providing engaging means between the front part and the shank of such a nature that while the action of locking them together is greatly facilitated the button is capable of resisting a greater strain without being loosened, and can be manufactured at a less cost than similar buttons as heretofore constructed.

To this end our invention consists in the button constructed as hereinafter fully described, and particularly pointed out in the claim.

In the accompanying drawings, in which like letters designate like parts in the several figures, Figure 1 is a central vertical section of a button constructed according to our invention. Fig. 2 is a plan view of the inner or rear side of the outer portion thereof. Figs. 3 and 4, 5 and 6, and 7 and 8 are similar views of slightly-modified forms of the invention.

In each of the figures, the letter *a* designates the collet; *b*, the cap, which is rigidly secured to the collet by means of its overlapping edge, and *c* the fastening device or shank, which has the pointed and barbed prongs *c'* arranged at a right angle thereto, or substantially so. The collet is provided with holes *a'* to receive said prongs of the shank and with a trough-shaped depression in its inner or front side adjacent to each of said holes to receive the end of the barbs on said prongs and prevent the withdrawal of the latter from the collet. As shown in Figs. 1 and 2, we form said trough-shaped depression in the collet by making two short slits in

the metal composing the collet at the inner side of each of the holes *a'*, which slits are parallel, and by bending inwardly the short strips of metal thus formed. Said strips thus form the inclined sides of the depression and are designated by the letter *e*. We are thus enabled to form by one stamping operation, with a suitable punch and die, the holes *a'* and the slit extending therefrom, the intermediate strip of metal *e* being cut off transversely substantially midway between its ends to form the hole at the same operation.

By reference to Fig. 2 it will be obvious that while the holes *a'* are or may be of less diameter than the prongs of the shank when the strips *e* lie in a flat position after said strips have been bent inwardly, as shown in Fig. 1, openings are formed through which said prongs can be thrust by spreading the latter so that they stand at a slight angle to each other, as represented by broken lines in Fig. 1. As soon as the prongs *c'* have been thus inserted within the front part of the button their resiliency causes them to again assume their former parallel position, thereby causing one of the barbs thereon to overlap the edges of the strips *e*, as shown in Fig. 1, and locking the front and rear portions of the button together. As thus locked together, it is impossible for any outward strain upon the front part of the button to disengage it from the shank, since if the strain should be sufficient to bend the strips *e* inwardly or toward the fabric a very slight amount of such movement would bring the outer sides of the prongs *c'* into engagement with the outer edge of the holes *a'*, and thereby prevent any further yielding movement of the strips and render the engagement of the shank with the front portion of the button even more secure than before. By thus causing the outer edges of the holes in the collet to serve as positive stops to the yielding movement of the sides of the trough-shaped depression in the collet we derive a great advantage in the strength and durability of the button over such buttons as depend wholly upon the rigidity of spring-lips or other outwardly-bent devices in the front part of the button to retain the latter in engagement with the shank or rear portion thereof.

In the form of the invention shown in Figs. 3 and 4, instead of forming the sides of the trough-shaped depression in the collet by slitting the latter and bending inwardly, the intermediate strip, we form it by drawing the metal inwardly at the inner side of the holes a' , as shown at e' . An opening is thus formed for the insertion of the prongs of the shank at a slight angle to each other, and when said prongs spring back to a parallel position one of the barbs thereon overlaps the inwardly swelled or drawn portions e' of the collet, and is prevented from being disengaged therefrom by the outer edges of the holes a' in the same manner as in the first-described form. This form of the button is even stronger than the first-described form, inasmuch as the sides of the depression in the collet, being formed upon an unbroken curve, cannot be made to yield outwardly or toward the fabric by any strain which can be exerted upon the button.

It will be observed that the sides of the trough-shaped depression in the form of the invention shown in Figs. 3 and 4 project above the base of the collet, the plane of which is indicated by the line 3 3. The form shown in Figs. 5 and 6 differs from that shown in Figs. 3 and 4 only in that the central portion of the collet is depressed sufficiently to cause said sides of the depression to lie below the plane of the base of the collet, the latter being indicated by the line 5 5. The operation of the two forms is the same.

In Figs. 7 and 8 we have shown a form of the invention similar to that shown in Figs. 1 and 2, except that the slits in the collet are made at the outer instead of the inner side of the holes a' , thus causing the strips e to be correspondingly located. The barbs in the prongs of the shank are also located in the outer instead of the inner side of said prongs. Two trough-shaped depressions in the collet are thus formed, one of which is located adjacent to and at the outer side of each of the holes a' , the adjacent side wall of each of which depressions is composed of a projecting portion of the collet itself, as is true of all of the forms of the invention shown.

The operation of the form shown in Figs. 7 and 8 is the same as that of the form shown in Figs. 1 and 2, except that the prongs of the shank are sprung slightly toward each other instead of away from each other as they enter the collet, and as they return to their parallel position engage the strips e with their barbs upon their outer instead of their inner side. The inner edges of the holes a' in this form serve as stops to limit the yielding movement of the strips e toward the fabric in the same manner as previously described of the outer edges thereof in the form shown in Figs. 1 and 2.

The edges of the holes a' opposite to the strips e can be made round, as shown in Fig. 2 and by full lines in Fig. 8, or angular, as shown by broken lines in the latter figure, as

may be desired, the operation being the same in either case.

The button made in either of the forms shown can be secured to a garment by simply inserting the prongs of the shank through the fabric from the rear side, starting the ends of said prongs into the openings in the collet, and pressing the outer portion of the button and the rear portion or shank together. The use of a needle to get the prongs of the shank through the fabric and of a press or other tool to make the locking-connection between the two portions of the button is entirely obviated, the pressure of the thumb and finger being all that is required.

While we have shown the front portion of the button as being provided with a cap b of well-known form, we do not wish to limit ourselves to such construction, inasmuch as our invention is applicable to all forms of buttons having a collet and a shank which passes through the fabric and engages said collet.

We prefer to form the shank from a continuous piece of wire and to bend the base thereof to an S shape or other irregular form to increase the area of the fabric engaged thereby, but do not limit ourselves thereto, as any form of base having pointed and barbed prongs projecting therefrom can be employed. We have also shown each of the prongs as having two barbs to provide for different thicknesses of fabric; but the locking action of a single barb would be the same.

We are aware that buttons composed of a shank having pointed and barbed prongs, and a front portion having holes for receiving said prongs, and cross-bars or other devices to be engaged by the barbs on the prongs to lock the two portions of the button together have been heretofore devised; but all such previous constructions, when they have been provided with rigid devices to engage the barbs, have been composed of so many parts and have been so expensive to manufacture as to render them practically useless as a popular button; and when they have been provided with springs or other yielding devices to engage the barbs they have depended entirely upon the resisting strength of such device to prevent the separation of the two parts of the button—in other words, have not had a positive stop to limit the yielding action thereof—and as a consequence but a slight strain upon the button is required to separate its front and rear portions from each other, and it is thrown away or lost. In the button devised by us, on the contrary, the entire locking action is secured between the collet itself and the prongs of the shanks, no additional parts being required; thus enabling the button to be manufactured at a minimum cost, and any yielding action of the sides of the trough-shaped depression in the collet which might result from extraordinary strain upon the button is

limited by a positive stop at such a point as to absolutely prevent the disengagement of the barb of the prongs therefrom. The button will therefore wear as long as the garment itself.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

The button herein described, composed of three parts—viz., a fastener, a collet, and a cap or covering secured to the latter, said fastener being staple-shaped, and having each

of the legs thereof pointed and provided with a series of barbs, and said collet having inwardly-bent flanges struck up therefrom, leaving independent holes to receive the legs of said fastener, said flanges being adapted to engage the barbs on the fastener, substantially as set forth.

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EUGENE M. CHAPMAN.

Witnesses:

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