(No Model.)

E. PRINGLE.

SEPARABLE BUTTON.

No. 573,532. Patented Dec. 22, 1896.

Fig. 2.

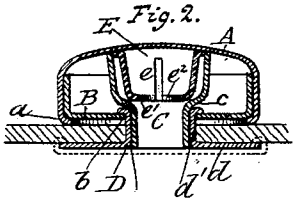
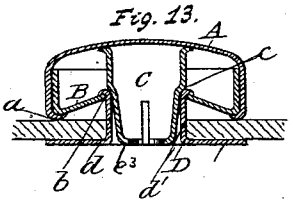


Fig. 13.



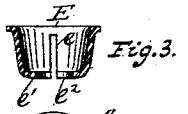


Fig. 3.

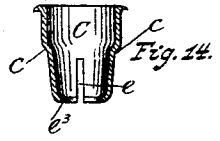


Fig. 14.

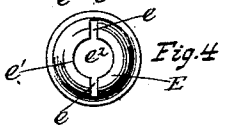


Fig. 4.

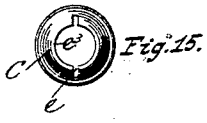


Fig. 15.

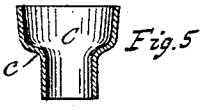


Fig. 5.

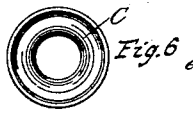
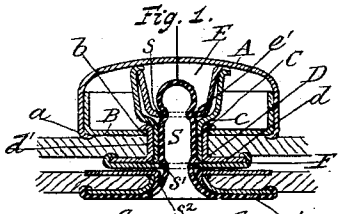


Fig. 6.

Fig. 1.



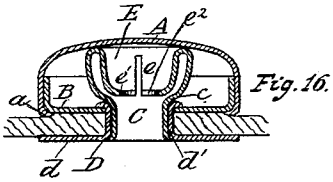


Fig. 16.

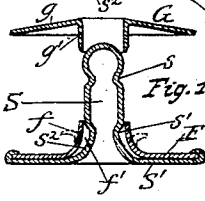


Fig. 11.

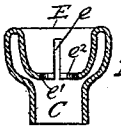


Fig. 17.

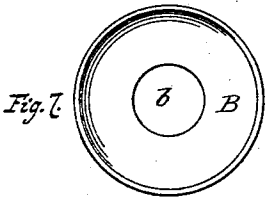
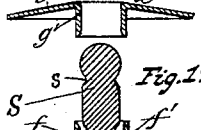


Fig. 7.



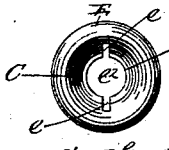


Fig. 18.

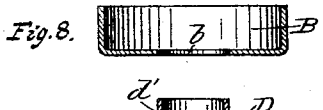


Fig. 8.

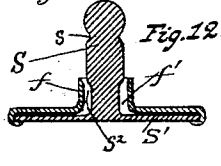


Fig. 12.

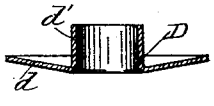


Fig. 9.

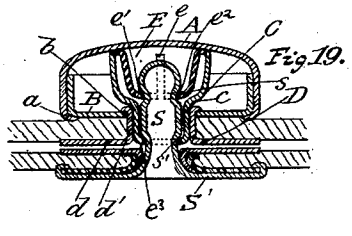


Fig. 19.

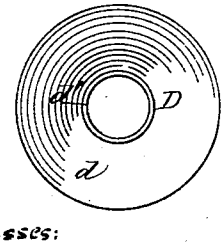


Fig. 10.

Witnesses:
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Louis M. Selkirk.

Eugene Pringle
Inventor.

UNITED STATES PATENT OFFICE

EUGENE PRINGLE, OF GLOVERSVILLE, NEW YORK, ASSIGNOR TO MADISON D. SHIPMAN AND CHARLES E. BRADT, OF DE KALB, ILLINOIS.

SEPARABLE BUTTON.

SPECIFICATION forming part of Letters Patent No. 573,532, dated December 22, 1896.

Application filed March 20, 1888. Serial No. 267,862. (No model.)

To all whom it may concern:

Be it known that I, EUGENE PRINGLE, a citizen of the United States, residing at Gloversville, in the county of Fulton and State of New York, have invented certain new and useful Improvements in Separable Buttons, of which the following is a specification.

My invention relates to separable buttons; and it consists in the devices or elements and combination of devices and elements hereinafter particularly described, and specifically set forth in the claims; and the objects of my invention are to provide in a separable button a button-head which will be strong, durable, and simple in its parts; also, to provide in the button-head stud-holding devices which will engage with a stud by its annular grooves or depressions holding with the angular flanges of a slitted stud-receiving tube; also, to provide in the button-head dual stud-holding devices which will engage with the stud at two points in its length; also, to provide in the head a support to the stud-receiving tube which also operates to turn the clenching end of the eyelet-fastener; also, to provide in a separable button a stud having two engaging grooves or contractions in its stem portion projecting from the fabric, whereby the stud will be adapted to engage with a head of a separable button having two corresponding catching devices; further, to produce means by which the stud will be securely fastened to the fabric with the latter tightly clamped, whether the material be thick or thin or of varying thickness. I attain these objects by the means illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional elevation of the button-head and stud parts of my improved separable button with said parts secured to the material and illustrating my invention. Fig. 2 is a sectional view of the button-head embodying some of the improvements in this invention. Fig. 3 is a sectional view of one form of elastic stud-holding tube employed in the head. Fig. 4 is a plan view of the same. Fig. 5 is a sectional view of the piece supporting the stud-receiving tube. Fig. 6 is a plan view of the same. Fig. 7 is a plan view of the head-closing piece. Fig. 8 is a sectional view of the same. Fig. 9 is a sectional view of the eyelet for fastening the head to the material. Fig. 10 is a plan view of the same. Fig. 11 is a sectional view of the stud and its preferred adjuncts for fastening the same to the material. Fig. 12 is a sectional view of the same, illustrating modifications of parts. Fig. 13 is a sectional view of a button-head containing a stud-receiving tube of modified form of construction with the second stud-holding device omitted. Fig. 14 is a sectional elevation of a modification of the stud-receiving tube. Fig. 15 is a plan view of the same. Fig. 16 is a sectional view of a button-head containing improvements in this invention and illustrating some of the parts thereof made with a modified form of construction. Fig. 17 is a sectional view of the stud-receiving tube and its coacting stud-holding device shown in Fig. 16. Fig. 18 is a view of the same from its upper end. Fig. 19 is a sectional view of a separable button and its engaging stud, both secured to the fabric and connected together.

The same letters of reference refer to similar parts throughout the several figures.

In the drawings, A represents the outer shell-cup of the button, and B is the lower side closing-piece, which is secured in place by the lower margin edge *a* of the outer shell being clenched on the lower side of the latter, as shown. This closing-piece is provided with a central perforation *b* for receiving the lower end portion of the stud-receiving tube and also the clenching end of the tubular portion of a fastening-eyelet, which clenches on the metal of the margin edge of said perforation.

C is a stud-receiving tube contained partly within the chamber of the pieces A and B, with its upper end sustained against the top wall of piece A and its lower end projecting to a short distance below the plane of the bottom of closing-piece B. This stud-receiving tube has made with it, at some point in its length between its lower and upper ends, an annular concave form of shoulder *c*, which will be calculated to turn the clenching end of an eyelet-fastener.

D is an eyelet for fastening the button-head to the upper side of the material and is shown

to have a clamping-flange portion *d* and clenching-tube portion *d'*. This eyelet is shown in its normal condition, before being used to fasten the button-head to the fabric, in Fig. 9, in which the clamping-flange portion *d* is made to incline outwardly and upwardly as it is extended all around from the tube portion *d'*, as shown. When the tube portion *d'* of this eyelet is passed through the fabric and its clenching end has been passed over the contracted end portion of the stud-receiving tube C and forced upward, so that its end will enter the central perforation *b* in piece B and moving against the annular shoulder-surface *c* of the tube C, the said end will be turned outwardly, so as to clench on the margin edge of the opening *b* of piece B, and thereby securely hold the button-head to the material. When the material on which the button-head is clenched is thick, the flange *d* of the eyelet D will be forced from its original inclination to nearly a horizontal line, as shown, while with thin material this original inclination of the flange will be less reduced.

C is the stud-receiving tube, which is made with a length which is about equal to the depth of the button-head and the added thickness of the fabric. Its lower end portion is made with a diameter slightly less than that of the perforation *b* in the closing-piece B, while its upper end portion is made with a larger diameter for receiving within it an auxiliary stud-holding piece, as E, and also for providing on the exterior of this stud-receiving tube a suitable annular concave surface, as at *c*, for turning the clenching end of the tube portion of the fastening-eyelet on the margin edge around the central opening *b* at the closing-piece B.

E is the stud-holding piece, which is made elastic by having its side wall slitted by one or more slits *e*, and it is provided with the annular internal holding-flange *e'*, made with its lower end as shown. This holding-flange is annular to the central perforation e^2, which is of a diameter a little less than that of the head of the coacting stud S, so that when the bulge of the head of the stud has passed the internal holding-flange *e'* the latter will spring back to its normal position and engage with the neck or groove *s* below the head of the stud, while the body of the stud below the head will engage with the lower portion of the stud-receiving tube C.

The stud-receiving tube C may have some of its portions varied in their forms without omitting the essential features which it embodies, as it is evident that the lower end or portion of this tube may be made plain throughout its length, as shown in Figs. 1 and 2, and hold with the body of the stud between its head and the fabric, as in Fig. 1, or the lower end of the lower or contracted portion of the tube C may have made with it an annular form of lip, as lip e^3, when said lower portion is slitted, as illustrated in Figs. 13 and 14, to render said portion elastic, so as to hold with the lower one of two holding grooves or contractions in the stud, as illustrated in Fig. 19. The annular shoulder *c*, serving as a means for turning the clenching end of the fastening-eyelet outwardly, can be located at any suitable point in the length of the tube C and have its extension in a lateral direction made to project more or less outward past the line of the wall of the contracted lower portion of said tube, as may be preferred, or as the diameter or form of construction of the auxiliary stud-holding piece E may require. The upper end of this stud-receiving tube may be turned inwardly to bind on the upper end edge of the auxiliary stud-holding tube E, as shown in the left-hand side of Fig. 1, or said upper end of said tube can be turned outwardly, as shown in the right-hand side of the same figure, to receive on it the outwardly-turned flange of the piece E when provided, as shown in said right-hand side of Fig. 1, or this upper end may be turned outwardly for a more extensive bearing on the shell A of the button-head, as shown in Fig. 13, or the turning of the said upper end of said tube C may be wholly omitted, as shown in Fig. 2.

The stud-holding piece E is omitted in Figs. 13 and 14 from the stud-receiving tube C, which is shown to have its lower portion slitted and provided with an annular inwardly-projected lip e^3 for holding with a groove made in the lower portion of the body of the stud. Yet in this stud-receiving-tube C, in Figs. 13 and 14, is shown the annular concave form of shoulder *c*, which is an essential element in this invention for turning outwardly the clenching end of the tube of the fastening-eyelet, as before described.

It is to be understood that the stud-holding piece E can be held from shifting within the upper and enlarged portion of the chamber of the stud-receiving tube C by any of the means illustrated in the drawings or otherwise, as preferred.

S is a stud adapted to be used with the button-head above described. This stud is shown in Figs. 1 and 11 to be made shell form or hollow, while it is shown in Fig. 12 to be solid, but in both cases the flange S' of the stud is shown to have secured to it from its upper side the fastening-eyelet F'. In Figs. 1 and 11 this eyelet is shown to be secured to the base of the stud by having the margin edge portion of its flange S' clenched on the margin edge of the flange of the washer F, while in Fig. 12 the margin edge of the eyelet is shown to be clenched to the margin edge of the flange S' of the stud, and in either case the central upturned tubular portion *f* of this eyelet F' is adapted to engage with the tubular portion of the coacting eyelet, Figs. 11 and 12, which clamps on the upper side of the fabric, as shown in Fig. 1. When the tubular portion *f* of the eyelet F' is made sufficiently long, it will be turned outwardly and be

made to extend beneath the flange of washer G and fold on the upper side of the margin of the fabric surrounding the hole receiving the tubular portions *f* of the eyelet F′ and clench hard down on the fabric when the two eyelets F′ and G are forced together.

The button-head is secured to the fabric by means of the fastening-eyelet D. (Shown in Figs. 1, 2, 13, 16 and 19.) This eyelet is shown in Fig. 9 with its normal form of flange *d* before being applied to the fabric and button-head for securing the latter with the former. In the form shown in Fig. 9 the flange *d* is made to be with an angular form of concave on its side toward the tube portion *d* for the purposes before described. The stud-fastening eyelet G, before referred to, is also made to embody the same element of an angular concave form of flange, as shown and described as being an element in the eyelet D for securing the button-head to the fabric, and by the use of the element of the concave form of flange *g* in eyelet G the same advantages result of a secure holding of the stud with fabrics of differing thickness can be had as is had by the use of eyelet D for securing the button-head to fabrics of varying thicknesses.

When the stud S has been passed through the material with the lips *f* of the eyelet F′ also passed through the material, the eyelet G will be passed over the body of the stem of the stud with the inclined flange *g* of the same over the fabric and the tube G′ passing down within the upturned central lips *f* of eyelet F′ and between it and the concave surface s^2 of the stud, as shown in Figs. 1 and 19, and when force is applied to crowd the base-flange of the stud and eyelet G toward each other the end of tube *g* of eyelet G will be turned outwardly by the concave surface s^2 of the stud, so as to clench the said tube on the inner side of the central lip *f*, which latter lip will itself be turned outward from the stud and so as to clench on the material at the margin of its central perforation, and when the adjunctive parts of this stud are set together the stud will have strong attachment with the fabric, and the lowermost stud engaging groove or contraction *s′* will be produced for engagement with the holding-piece opposite when connected with the button-head.

Although the auxiliary stud-holding piece E is shown in Figs. 1, 2, and 19 to be separate, as a piece from the stud-receiving tube C, yet it may be made intergral with the same, as shown in Figs. 16 and 17. It is not essential in all cases to make both the lower portion of the stud-receiving tube C and that of the auxiliary stud-holding piece elastic by means of slits, as described, as one of these devices, when slitted and provided with an annular holding-lip for engagement with a groove of the stud, will coöperate with the lower terminal end of the stud-receiving tube; but it is to be understood that the lower end portion of the stud-receiving tube C can be provided with annular holding-lips e^3, as shown in Figs. 13, 14, 15, and 19, when said lower end portion, including said lip, is slitted, as shown in Fig. 13, as such slitted lip will engage with the lower groove at the base of the stud.

By these above-described improvements I am enabled to produce a separable button which will be strong and readily attached to the fabric, while the connection of the stud with the button-head will be stronger than heretofore, because of the dual engagement of the said two parts, and, further, by the secure holding of the stud from being canted when a pulling strain is exerted on the fastening in a lateral direction.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A button-head for a fastening device comprising an outer shell or cap connected to an inner closing-piece B having an inwardly-extending annular flange and a central opening, a stud-catch within the cap, and a flanged eyelet passed through the material or fabric from the opposite side into the cap and upset or clenched between the edge of the orifice of the closing-piece and the outer wall or surface of the stud-catch.

2. A post or stud for a separable button having a base-flange, a washer connected to said flange and having an upturned neck surrounding a portion of the stud, and a fastening-eyelet passed over the head of the stud and clenched between the neck of the washer and the outer surface of the stud.

3. A button-head comprising a cap or shell containing a stud-catch having the catch-lips thereof turned down within itself, and said parts secured to the material, substantially as described.

4. A button-head comprising a cap or shell containing a stud-catch having the catch-lips thereof turned downward within its body and its lower end clenched to hold the parts to the material, substantially as described.

5. In a separable button-stud the combination of a post as S having a depression or groove at or near its base-flange, a washer secured to said base-flange and having a central upturned rim encircling said groove or depression with a fastening-washer as G, having a neck *g′* adapted to be buried within the cavity at the base of the stud, thereby securing the same to the fabric, substantially as and for the purpose set forth.

EUGENE PRINGLE.

Witnesses:
WILLIAM F. SELKIRK,
CHARLES SELKIRK.