

Oct. 3, 1939.

H. F. KORS

2,174,518

BUTTON FASTENER

Filed June 22, 1936

Fig. 2

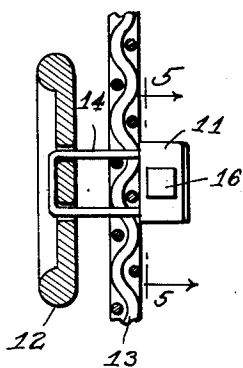


Fig. 3

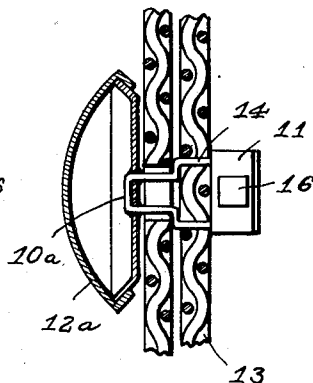


Fig. 4

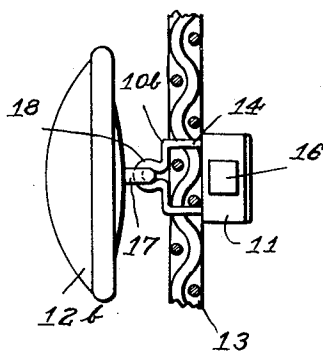


Fig. 1

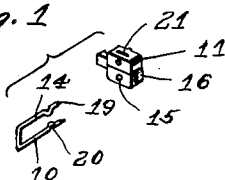


Fig. 6

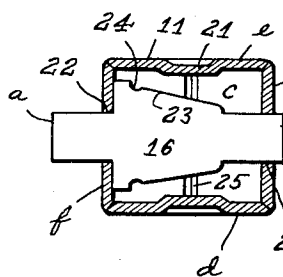


Fig. 5

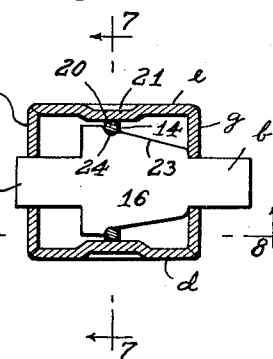


Fig. 7

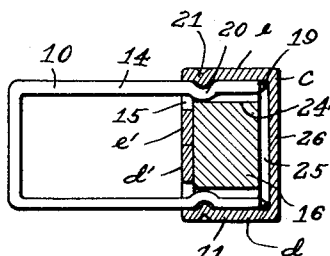


Fig. 8

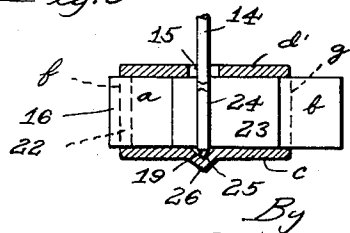
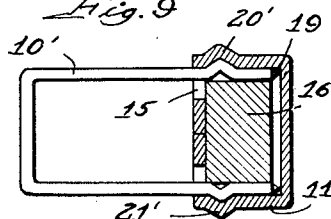


Fig. 9



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UNITED STATES PATENT OFFICE

2,174,518

BUTTON FASTENER

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Application June 22, 1936, Serial No. 86,554

22 Claims. (Cl. 24-110)

This invention relates to button fasteners suitable for all types of garment buttons, especially uniform buttons, and also suitable for emblems.

The principal object of my invention is to provide a metal staple-like fastener which will permit quickly putting a button on a garment or taking it off, without sewing and without damage to the goods.

I am aware that various forms of wire staples have been proposed for button fasteners, but they have invariably contemplated the use of fairly heavy wire so as to permit notching the wire to receive keeper means, or else have involved the heading of the end of the wire to cooperate with the keeper means. In either event, such fasteners were too heavy and too large and resulted in damage to the fabric. The fastener of my invention involves the use of light wire staples pointed on the ends so as to facilitate passing the same through the fabric and avoid damage thereto, besides affording the requisite degree of flexibility, which is taken advantage of in the locking of the staples to their retainers. The retainers, in accordance with my invention, are of small size to be inconspicuous when in place abutting the fabric on the inside and have therein slidable keepers adapted for quick and easy operation with a finger-nail or any convenient small object. The retainers are so designed that although the keepers may be operated easily they nevertheless fasten the buttons securely against accidental removal.

The invention further aims to provide a fastener for buttons, emblems, and the like, the parts of which are susceptible of manufacture in large quantities at low cost, the retainer being designed for production from sheet metal by simple blanking and forming operations, and the keepers and staples used in connection therewith being likewise designed for economical production.

In the accompanying drawing illustrating the invention—

Figure 1 is a perspective view, approximately actual size, of a typical staple and its cooperating retainer;

Figs. 2, 3, and 4 are sections showing three kinds of buttons all using the same form of retainer but different staples of generally similar form;

Fig. 5 is a cross-section on a larger scale through the retainer, taken on the line 5-5 of Fig. 2;

Fig. 6 is a view similar to Fig. 5, but showing the keeper in a moved position with the staple removed;

Figs. 7 and 8 are cross-sections on the correspondingly numbered lines of Fig. 5, and

Fig. 9 is a section similar to Fig. 7, showing a modified or alternative construction.

Referring first to Fig. 1, 10 is the staple and 11 is the retainer therefor, both made in accordance with the invention. The staple shown happens to be one adapted for insertion through an ordinary two-holed button 12 (Fig. 2) in the fastening of the button to the garment fabric, indicated at 13. The retainer 11 is designed as hereinafter described to receive the prongs 14 of the staple in the holes 15 and to lock the prongs therein by means of the keeper 16, which, as will presently appear, is slidable back and forth in the retainer 11 to and from locking position. Where it is desired to have the staple rigid with the button, as in Fig. 3, a staple like that shown at 10a is secured to the back wall of the button 12a in any suitable or preferred manner, but is formed so as to provide the same prongs 14 as on the staple 10 for cooperation with the keeper 16 in the retainer 11. Also where a button like the uniform button 12b shown in Fig. 4 has an eyelet 17 projecting from the back thereof, my invention is applicable by simply forming a loop 18, as indicated on the staple 10b, to receive the eyelet 17, the staple being otherwise similarly formed as the staple 10 to provide prongs 14 for cooperation with the keeper 16 in the retainer 11. Manifestly, an emblem may be equipped with a staple rigid with the back thereof similarly as the button 12a, so that my invention enables the fastening of emblems quickly and easily and, as will soon appear, the prongs of the staple being pointed and of small cross-section, no damage is done to the fabric so that the emblem or button, as the case may be, can be put on and taken off repeatedly without any perceptible damage to the material. This is particularly advantageous in the case of fancy buttons, which, as is well known, have to be removed from a garment when it is sent to the cleaners. With my invention, such buttons can be removed and replaced readily, and all of the work of cutting off and re-sewing buttons is eliminated, and, besides, no damage is done to the material. It will soon appear that while a two-pronged staple is generally preferred, it would be possible to fasten buttons with a single-pronged staple, where, for example, as in the case of an ornamental button, there would be no particular objection to the buttons turning. Ordinarily, however, two-pronged staples are preferred.

The staple 10, as well as the staples 10a and 10b, is formed from a single piece of spring wire

of small cross-section to provide the two substantially parallel prongs 14 pointed on the ends, as indicated at 19, to facilitate passing the prongs through the fabric. The prongs are crimped, as at 20, in a predetermined spaced relation to the pointed extremities 19 to provide offset portions used in the locking of the staple in the retainer 11 on the abutments 21 provided in said retainer for that purpose. Now, the small cross-section of the wire employed not only facilitates forming the staples in the manner described, but it is of advantage from the standpoint that it reduces the weight of the assembly proportionately, makes for still easier passage of the prongs through the fabric when a button is being fastened, and increases the flexibility of the prongs to facilitate locking the same in the retainer. The staples may be made either so that the prongs 14 as they are entered through the holes 15 have to flex inwardly toward each other slightly in order to pass the abutments 21, or else the prongs will be arranged to pass the abutments 21 without flexing inwardly toward each other as the prongs are entered through the holes 15, and then these prongs will be arranged to flex outwardly to engage the offset portions 20 with the abutments 21, under the action of the keeper 16. The latter is guided in the holes 22 to slide back and forth in the retainer 11, and has its intermediate portion enlarged to keystone shape to provide the inclined cam surfaces 23, which, upon movement of the keeper transversely with respect to the staple and between the prongs 14 thereof, are arranged to engage the prongs from the inside and move the same outwardly to engage the offset portions 20 with the abutments 21 and thus lock the staple against removal from the retainer. At the "high" points of the surfaces 23, slight depressions are formed, as indicated at 24, to accommodate the prongs 14 and thus lock the keeper releasably in its operative position, that is, the prongs 14 at the extreme point of their spreading toward the abutments 21 are permitted to drop back a trifle into these recesses 24, just enough to resist movement of the keeper back toward its retracted position in which it appears in Fig. 6. The keeper, it will be noticed in Figs. 5 and 6, has the two ends thereof reduced for projection through the holes 22 and to provide operating ends a and b, one of which projects from the retainer when the keeper is in either of its two extreme positions, so that it is at once apparent to the user which way the keeper must be moved to fasten or unfasten a button, as the case may be. Thus, when the button is fastened, as in Fig. 5, the operating end b projects, and one may unfasten the button by simply depressing this end with the finger nail, or any small object suitable for this operation. In the other extreme position, the end a projects as in Fig. 6, and when this end is depressed after the prongs of a staple have been entered in the retainer, the prongs will be locked as previously described. One can easily tell by the slight "click" which is audible when the prongs 14 snap into the recesses 24 at the end of the movement of the keeper 16, so that there is no danger of leaving a button only partially fastened. In passing, attention is called to the transverse groove 25 provided in the retainer 11 opposite the holes 15 and in alignment therewith. This groove receives the pointed ends 19 of the prongs, and not only protects the same from damage, but holds the ends of the prongs against side-wise movement with respect to the retainer, so that the sta-

ple is firmly held in right-angle relation to the retainer. This is of advantage from the standpoint that the button is always properly supported and will not sag untidily, and it is moreover of advantage because the staple is held in the proper relation to the keeper so that there is less likelihood of the staple becoming accidentally unlocked.

In Fig. 9, the staple 10' is shown as formed like the staple 10, but with its offset portions bent outwardly as at 20' instead of inwardly as in Fig. 7. The abutments 21' on the retainer 11' for cooperation with these offset portions are correspondingly shaped. Similar results are obtainable with such a construction, although at present I prefer the one previously described.

In conclusion, it will be seen that I have provided a fastener for buttons, emblems, and the like, of unusually simple and economical construction and one which is moreover extremely light and compact. A saving in cost is realized by reducing the construction to three parts, to wit: The staple 10, retainer 11, and keeper 16. Furthermore, the fact that the staple can be formed in a simple way from spring wire and the keeper 16 can be stamped from sheet metal to the form desired in a single operation, makes for greater economy. Then too, the retainer is made from a single piece of sheet metal which is first blanked to provide a central portion c, destined for the back wall of the retainer, and contiguous portions d and e for the bottom and top walls, and other contiguous portions f and g for the opposite end walls. Now, the portions d and e are longer tabs than the portions f and g, so that when all of these contiguous portions are bent at right angles to the central portion c they define the four walls of the retainer, and the keeper 16 can be assembled in the holes 22 which open from the outer ends of the tabs f and g, whereupon the portions d' and e' of the tabs d and e, respectively, can be bent inwardly at right angles thereto to complete the assembly. In the first forming operation, a rib 26 can be formed in the central portion c to provide on the inside thereof the groove 25, previously described. At the same time, the abutments 21 can be formed in the portions d and e. Then only two additional forming operations are required, one to bend the portions d, e, f, and g at right angles to the central portion c, and another to bend the portions d' and e' at right angles to the portions d and e, respectively, as previously described. The fact that expensive machining operations are eliminated, obviously makes for the most economical construction.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention. The appended claims have been drawn with a view to covering all legitimate modifications and adaptations.

I claim:

1. In a fastener for buttons, emblems, and the like, the combination of a staple member adapted to extend from a button through the fabric of the garment onto which the button is to be fastened, and a retainer adapted to engage the inside surface of the fabric and to releasably secure the protruding portion of the staple member therein, said staple being of spring wire of small cross-section and pointed on the end so as to pass easily through the fabric, said staple having the protruding portion bent to provide a round shouldered offset portion of the same cross-section as the rest of the staple spaced from the pointed

extremity thereof, the retainer having an abutment provided therein, and a keeper slidable in said retainer in transverse relation to the staple and arranged when moved in one direction to engage the staple and hold the offset portion on the abutment in said retainer, whereby to releasably lock the staple, said staple being removable from said retainer when the keeper is moved in the opposite direction.

2. A fastener as set forth in claim 1 wherein said keeper has an operating end protruding through an opening provided in said retainer, whereby to permit manual movement thereof to locking position by depression of said protruding operating end, the keeper having its opposite end accessible from the outside of said retainer for unlocking operation thereof.

3. A fastener as set forth in claim 1 wherein said keeper has an operating end protruding through an opening provided in said retainer, whereby to permit manual movement thereof to locking position by depression of said protruding operating end, the keeper also having another operating end which in the locking operation is projected through another opening provided in said retainer, whereby to facilitate unlocking operation.

4. In a fastener for buttons, emblems, and the like, the combination of a staple member adapted to extend from a button through the fabric of the garment onto which the button is to be fastened, and a retainer adapted to engage the inside surface of the fabric and to secure the protruding portion of the staple member therein, said staple being of spring wire of small cross-section and pointed on the end so as to pass easily through the fabric and also be easily flexible in said retainer, said staple having the protruding portion bent to provide a round shouldered offset portion of the same cross-section as the rest of the staple spaced from the pointed extremity thereof, the retainer having an abutment provided therein and a keeper slidable in said retainer in transverse relation to the staple and arranged when moved in one direction to flex the staple so as to engage the offset portion on the abutment in said retainer, whereby to lock the staple.

5. In a fastener for buttons, emblems, and the like, the combination of a two-pronged staple member adapted to extend from a button through the fabric of the garment onto which the button is to be fastened, and a retainer adapted to engage the inside surface of the fabric and to releasably secure the protruding portion of the prongs of said staple member therein, said staple being of spring wire of small cross-section and having both prongs pointed so as to pass easily through the fabric, said staple having the protruding portion of each prong bent to provide a round shouldered offset portion of the same cross-section as the rest of the staple spaced from the pointed extremity thereof, the retainer having abutments provided therein, and a keeper slidable in said retainer between and in transverse relation to the prongs of said staple and arranged when moved in one direction to engage the prongs so as to hold the offset portions on the abutments in said retainer, whereby to releasably lock the staple, said staple being removable from said retainer when the keeper is moved in the opposite direction.

6. A fastener as set forth in claim 5 wherein said keeper has an operating end protruding through an opening provided in said retainer,

whereby to permit manual movement thereof to locking position by depression of said protruding operating end, the keeper having its opposite end accessible from the outside of said retainer for unlocking operation thereof.

7. A fastener as set forth in claim 5 wherein said keeper has an operating end protruding through an opening provided in said retainer, whereby to permit manual movement thereof to locking position by depression of said protruding operating end, the keeper also having another operating end which in the locking operation is projecting through another opening provided in said retainer, whereby to facilitate unlocking operation.

8. In a fastener for buttons, emblems, and the like, the combination of a two-pronged staple member adapted to extend from a button through the fabric of the garment onto which the button is to be fastened, and a retainer adapted to engage the inside surface of the fabric and to secure the protruding portion of the prongs of said staple member therein, said staple being of spring wire of small cross-section and having both prongs pointed so as to pass easily through the fabric and also be easily flexible in said retainer, said staple having the protruding portion of each prong bent to provide a round shouldered offset portion of the same cross-section as the rest of the staple spaced from the pointed extremity thereof, the retainer having abutments provided therein, and a keeper slidable in said retainer between and in transverse relation to the prongs of said staple and arranged when moved in one direction to flex the prongs so as to engage the offset portions on the abutments in said retainer, whereby to lock the staple.

9. A fastener as set forth in claim 1 wherein said retainer has an opening provided therein for the entry of the protruding portion of said staple, and also has a recess provided therein in alignment with said opening to receive the pointed extremity of said staple to hold said staple against displacement from an operative position relative to said retainer.

10. A fastener as set forth in claim 5 wherein said retainer has openings provided therein for the entry of the two prongs of said staple and also is recessed in alignment with said openings to receive the pointed extremities of said prongs to hold said staple against displacement from an operative position relative to said retainer.

11. A retainer for a button fastener staple comprising a substantially rectangular casing having two holes provided in spaced relation in the front wall thereof adjacent two opposite end walls of said casing, and a slide member in said casing between said holes having an end portion slidably received in another end of said casing for reciprocatory movement transversely to a line passing through the aforesaid holes, said slide having a substantially keystone shaped intermediate portion inside said casing the opposite sloping longitudinal sides of which move relative to the holes in said front wall, and shoulders on the first-mentioned end walls of said casing in a predetermined spaced relation to the holes in said front wall.

12. A retainer for a button fastener staple comprising a substantially rectangular casing having two holes provided in spaced relation in the front wall thereof adjacent two opposite end walls of said casing, and a slide member in said casing between said holes having end portions slidably received in the opposite ends of said cas-

ing for reciprocatory movement transversely to a line passing through the aforesaid holes, said slide having a substantially keystone shaped portion inside said casing the opposite sloping sides of which move relative to the holes in said front wall, and shoulders on the first-mentioned end walls of said casing in a predetermined spaced relation to the holes in said front wall, one end of said slide member projecting from said casing for depression when the slide is in one extreme position, and the opposite end projecting from said casing for depression when the slide is in the other extreme position.

13. A retainer as set forth in claim 11, including means in said casing opposite the holes in the front wall providing recesses aligned with the holes for the purpose described.

14. A fastener of the character described comprising a staple made of wire of small cross-section so as to pass through fabric substantially as readily as an average sewing needle, the wire of the staple being formed adjacent the staple's extremity to provide an offset arcuate retaining portion of the same cross-section as the rest of the staple and substantially as readily passable through fabric in either direction as the rest of the staple, a retainer to receive said retaining portion and having a shoulder therein disposed for abutment with said retaining portion, and a keeper in the retainer movable into staple holding engagement with said retaining portion to hold it interlocked with said shoulder.

15. A retainer for a button fastener staple comprising a casing having a hole provided in the front wall thereof adjacent an end wall of said casing, and a slide member in said casing having an end portion slidably received in another end of said casing adjacent the last mentioned end wall for reciprocatory movement relative to the aforesaid hole, said slide having an inclined portion inside the casing movable relative to the hole, and a shoulder on the first mentioned end wall of said casing in a predetermined spaced relation to the hole in the front wall, said casing having a recess in the back wall thereof opposite the hole in the front wall, for the purpose described.

16. A retainer for a button fastener staple comprising a casing having a hole provided in the front wall thereof adjacent an end wall in said casing, and a slide member in said casing having end portions slidably received in opposite ends of said casing for reciprocatory movement in a line substantially parallel with the aforesaid end wall, said slide having an inclined portion inside the casing movable relative to the hole, and a shoulder on the first mentioned end wall of said casing in a predetermined spaced relation to the hole in the front wall, one end of said slide member projecting from said casing for depression when the slide is in one extreme position and the opposite end projecting from said casing for depression when the slide is in the other extreme position.

17. A retainer as set forth in claim 15 including a recess in the back wall of said casing opposite the hole in the front wall, for the purpose described.

18. A retainer for a button fastener staple comprising a casing having a hole provided in the front wall thereof adjacent an end wall of said casing, and a slide member in said casing having an end portion slidably received in another end of said casing adjacent the last mentioned end wall for reciprocatory movement relative to the aforesaid hole, said slide having an inclined portion inside the casing movable relative to the hole, and a shoulder on the first mentioned end wall of said casing in a predetermined spaced relation to the hole in the front wall, the slide member having a transverse recess provided therein in the inclined portion thereof and in a predetermined relation to the hole in the front wall for the purpose described.

19. A retainer as set forth in claim 16 wherein the slide member has a transverse recess provided therein in the inclined portion thereof and in a predetermined relation to the hole in the front wall for the purpose described.

20. A lockable pin device comprising a pin portion including parallel legs connected together by a bight portion, a hollow head slidable over the ends of the legs, at least one of the legs having an offset arcuate retaining portion of the same cross-section as adjacent portions of the staple and substantially as readily passable through fabric in either direction as the rest of the leg, the head having a shoulder therein disposed for abutment with said arcuate retaining portion, and a keeper in the head movable to a position holding the arcuate retaining portion of the pin interlocked with the shoulder.

21. A fastener comprising, in combination, a staple made of wire of small cross-section to permit passing the same through fabric substantially as readily as an average sewing needle, the wire of the staple being formed intermediate the ends thereof to provide an offset arcuate retaining portion of the same cross-section as adjacent portions of the staple and passable through fabric substantially as readily in either direction as the rest of the staple, and a two-part retainer into which the staple is adapted to be entered freely when the parts are in one relationship, the parts in another relationship serving to hold the staple by its arcuate retaining portion.

22. A fastener comprising, in combination, a staple made of flexible spring wire of small cross-section to permit passing the same through fabric substantially as readily as an average sewing needle, the wire of the staple being formed intermediate the ends thereof to provide an offset arcuate retaining portion of the same cross-section as adjacent portions of the staple and passable through fabric substantially as readily in either direction as the rest of the staple, and a two-part retainer into which the staple is adapted to be entered freely when the parts are in one relationship, the arcuate retaining portion of the staple being so formed in relation to the retainer as to require flexing of the staple to enter the arcuate retaining portion therein, the retainer parts in another relationship preventing flexing of said staple whereby to hold the staple by its arcuate retaining portion.

HENRY F. KORS.

CERTIFICATE OF CORRECTION.

Patent No. 2,174,518.

October 3, 1939.

HENRY F. KORS.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 4, first column, line 65, claim 17, for the claim reference numeral "15" read 16; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 31st day of October, A. D. 1939.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.