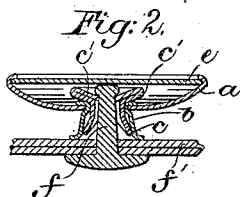
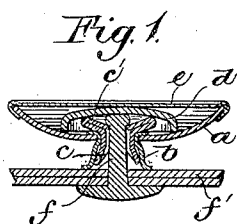


(No Model.)

S. W. SHOREY.
BUTTON.

No. 474,150.

Patented May 3, 1892.



Witnesses:

Fred. S. Greenleaf
Frederick L. Ewing

Inventor:

Samuel W. Shorey,
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UNITED STATES PATENT OFFICE.

SAMUEL W. SHOREY, OF BOSTON, MASSACHUSETTS.

BUTTON.

SPECIFICATION forming part of Letters Patent No. 474,150, dated May 3, 1892.

Application filed May 15, 1890. Serial No. 351,903. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. SHOREY, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Buttons, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve the construction of buttons—such, for instance, as shown and described in United States Patent No. 421,441, granted to me February 8, 1890. In the patent referred to the shank of the button was made quite large and was filled with lead to strengthen it, and the tack was driven through the lead, and the point of the tack, having forced its way through the lead, was clinched and turned back upon the lead. This answered for light work; but when used in connection with heavy work where very considerable strain was put upon the button, especially in its use with rubber clothing, the lead lacked the necessary holding power and the tack was pulled back through the lead. In my experiments to obviate this difficulty I devised, instead of the lead, a reinforce made as a tube having a diameter externally of a size to substantially fill the hollow shank, and I so constructed this reinforce at its upper end as to enable the overturned or clinched end of the tack to bear against and be restrained from outward movement by the said reinforce; but I found that to enable the button to be readily applicable to material of different thicknesses I had to provide means whereby the end of the tack might pass for a greater or less distance into the space bounded by the back and front of the button, the point of the tack entering farther into said space according as the thickness of the material to which the button was to be attached decreased. This feature is essential, for thereby it becomes possible to use a tack of the same size and length for all thicknesses of material, instead of having tacks of different lengths to correspond with different thicknesses of material. The importance of this will be readily apparent when it is understood that the tacks are commonly fed automatically to the material to be driven therein and into the button. In order to enable the point of the tack to pass, as stated, more or less beyond the inner side of the but-

ton-back, I have made the clinching-surface independent of the reinforce referred to, for with a reinforce provided with a hole made through it from one to its other end and with an independent clinching-surface it becomes possible for the point end of the tack to pass readily beyond or out of the open inner end of the reinforce and to be clinched entirely outside of the said reinforce or in a concavity in its open end. By making the reinforce with a hole through it from end to end and leaving the tack a chance to clinch wholly beyond the open inner end of the reinforce, it becomes possible to always hold the button firmly in place, for when driving the tack the clinching may be kept up and the body of the tack be permitted to follow the shortening-point until the under side of the head of the tack becomes firmly seated upon the material, and thereafter by continued pressure the point receives its final firm upsetting, so that the point seats itself upon the tubular reinforce or in an open concavity at the upper end thereof. This action of the tack in clinching will be readily apparent to those conversant with the behavior of rivets when being upset in the manufacture of boilers, &c.

The reinforce referred to and through which the tack is extended may be composed of several prongs or arms, or it may be a continuous tube or cylinder, and, as shown, the reinforce is placed within the shank of the button with its flanged upper end or head resting against the inner side of the back of the button, while the opposite end of the reinforce is shown expanded or enlarged, so as to engage the interior of the tubular shank of the button to reinforce the button-shank. In practice I prefer to make this reinforce of steel or some other hard metal.

Figure 1 in vertical section shows a button embodying my invention in one practical form, and Fig. 2 shows in vertical section a button embodying my invention in a modified form.

The button-back *a*, the button-front *e*, and the shank *b* are and may be of usual or suitable shape. The tubular shank, in accordance with this invention, receives within it a reinforce *c*, of tubular form and open from end to end, the said reinforce, as represented, having a flanged upper end or head *c'* of greater size than the hole made through the

button-back or the hole through the tubular shank *b*. The reinforce herein represented has its flanged head composed of two thicknesses of metal, the upper thickness having a small central hole for the passage of the tack therethrough; yet it is not intended to limit this invention to the employment of a flange of the kind shown. The outer end of the reinforce *c*, as herein shown, is supposed to present several prongs; but if desired the prongs may be omitted, thus constituting a continuous tube or cylinder. The reinforce, as represented, substantially fits the tubular shank *b*, to thus reinforce or stiffen the same, and at the same time a part of the reinforce, enlarged or flanged beyond the inner side of the button-back, aids in keeping the reinforce in place.

In Fig. 1, I have shown a riveting plate or cap *d*, placed in the button-shell between its front and back, the said cap covering the open inner end of the reinforce, thus leaving between the upper end of the reinforce and the cap a cavity or space in which the end of the tack *f* may be upset or clinched when driven through the material *f'* and through the reinforce. The inner end of the reinforce is shown as countersunk to afford space for the upset end of the tack; but it will also be understood that the cap or anvil surface *d*, against which the point end of the tack *f* strikes, is detached from the reinforce, so that the tack when driven through the material and through the reinforce held in the shank and may by its action on the cap, in case the tack is long, spring or move the same away from the open end of the reinforce, if need be, to let the underside or head of the tack come to a proper firm seat upon the material and so as to clamp the material firmly between the head of the tack and the end of the shank *b* of the button. In this way it is possible for a tack of a uniform length to be used in connection with material of varying thickness and yet insure the upsetting of the point of the tack at such a distance as will effectually cause the material *f'* to be clamped firmly between the head of the tack and the end of the shank *b* of the button. During the final operation of upsetting or riveting the point end of the fastening is effectually clinched back to and so as to contact firmly against the inner end of the reinforce, and, as shown, lies in the concavity at the inner open end of the reinforce.

In Fig. 2 the cap or anvil *d* is omitted and the front plate of the button is made sufficiently thick to constitute an anvil of sufficient thickness to withstand the pressure of the point of the tack against it and insure the clinching of the point of the tack. It will be understood that while the tack is being driven through the reinforce and being clinched the top or face of the button *e* is supported upon a supporting-surface. Were the reinforce made simply as a cylinder closed at its end within the button, it would not answer the purpose of my invention, because

with such a reinforce tacks of different lengths would be required for different thicknesses of material and the tack driven through the material and into the button could not be depended upon to firmly clamp the button to the material, for the reason that the upset of the point end of the tack could not be thrown back toward the head of the tack and seated firmly against the concavity of the reinforce, for there would be no anvil-surface to first yield and then follow back, as practiced in the usual method of riveting where a tight fit of a rivet is desired in a hole or where it is desired that a rivet shall firmly clamp together two things.

I do not claim a button-back connected to the material by a long eyelet, one end of which engages the button-back while the other end, extended loosely through and beyond the end of the button-shank, is upset at the back of the material in connection with a washer.

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

1. A button composed of a front and a back, a tubular shank, and a tubular reinforce within said shank, the reinforce being open from end to end, the inner end of the reinforce overlapping the inner end of the shank, the outer end of the reinforce terminating within and supporting the interior of the shank, substantially as described.

2. A button composed of a front plate, a back plate, a connected tubular shank, and a reinforce made tubular and open from end to end, combined with a fastening having a head at one end and adapted to be driven through the material and out through the inner end of the reinforce and to be clinched backwardly and against the inner end of the reinforce, substantially as described.

3. A button composed of a front plate, a back plate, a cap or anvil contained between the same, and a shank, as *b*, combined with an open-ended tubular reinforce having a concavity at its inner end and adapted to reinforce and stiffen the shank, and with a tack or fastening adapted to be driven through the material entirely through the said reinforce and to be clinched upon the anvil, detached from the reinforce, whereby the clinched end of the tack may be upset and the upset portion be made to follow back to and be firmly seated upon the open inner end of the reinforce, thus drawing the inner side of the head of the tack and the outer end of the shank of the button firmly toward each other to clamp the material between them, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL W. SHOREY.

Witnesses:

BERNICE J. NOYES,
EMMA J. BENNETT.