(No Model.)

G. J. MURDOCK & A. L. LESHER.

BUTTON AND BUTTON FASTENER.

No. 422,962. Patented Mar. 11, 1890.

Fig. 1.

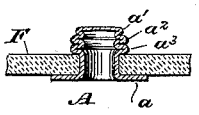


Fig. 2.

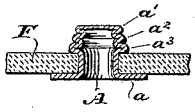


Fig. 3.

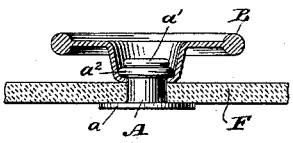


Fig. 4.

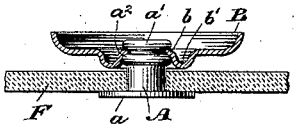


Fig. 5.

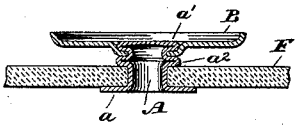
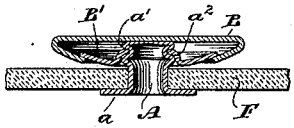


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE J. MURDOCK AND ARTHUR LAWRENCE LESHER, OF NEW YORK, N. Y., ASSIGNORS TO SAID LESHER, OF SAME PLACE.

BUTTON AND BUTTON-FASTENER.

SPECIFICATION forming part of Letters Patent No. 422,962, dated March 11, 1890.

Application filed November 11, 1889. Serial No. 329,894. (No model.)

To all whom it may concern:

Be it known that we, GEORGE J. MURDOCK and ARTHUR LAWRENCE LESHER, citizens of the United States, and residents of the city, county, and State of New York, have invented certain new and useful Improvements in Button-Fasteners, of which the following is a specification.

The invention relates to that class of button-fasteners in which the body or button proper is secured to the fabric by means of a hollow or tubular metallic fastener or rivet, and particularly to that class in which the button-body is secured after being placed in position upon the rivet by means of a head, which is thrown or formed upon the rivet by mechanical means.

In the ordinary form of button-fastener above referred to there are in practice many very great disadvantages. If in the method or fastening a rivet is used with a split head or a split shank for the purpose of facilitating attachment and strengthening the relation of the body to the rivet, the initial expense in making the rivet is very great and out of all proportion to the strength gained. If an ordinary hollow or tubular rivet is used and a head is struck or formed on it by mechanical means, the head so formed is usually so weak that the button is constantly in danger of being pulled off from the rivet.

The object of the present invention is to produce a cheap, simple, and durable device for fastening the button; and therefore the invention consists, first, in the peculiar means used for securing the button to the fabric, and, second, in the particular means resorted to for attaching the button-body to the rivet. These latter means consist, substantially, in each case in so pressing down the shank of the rivet or fastener at any desired point or points into a desired number of folds, corrugations, or heads of suitable size and thickness that the button will be held firmly in any desired position with reference to the shank of the rivet.

It will be obvious from the foregoing that the invention will be in no wise limited to the use of a particular button-body, but may be used with other forms of buttons than the particular form shown in the drawings, which in practice will be found most advantageous, whether composed of a single body or a double body, without reference to size.

The invention will be best understood by reference to the accompanying drawings, in which—

Figures 1 and 2 are each vertical sections of the rivet, showing the general principle of fastening. Fig. 3 is an elevation, partly in section, of a button attached by one application of the principle of fastening which is the subject of the invention. Fig. 4 is an elevation, partly in section, of a button attached by a different application of the aforesaid principle. Fig. 5 is a vertical section of a button of the ordinary shape attached between two corrugations or folds on the rivet. Fig. 6 is a vertical section of a double-bodied button attached in the same manner.

Similar letters refer to similar parts throughout the several views.

The gist of the invention is, as above indicated, the application of a new principle of fastening or clinching an ordinary hollow or tubular rivet to a button-body of any convenient dimensions and thickness. The rivet may be open or closed at the top, according as may be found most convenient. It may be more or less pointed, and it will be found preferable to have it of graduated thickness. It is provided with a retaining-flange *a* at the base, and in the views is shown provided with a closed point. In practice a rivet drawn from a single piece of metal (preferably brass) in the ordinary manner will be found most convenient; but it is immaterial how the rivet is made, provided it is hollow and conforms to the essential requisites of our fastener. If, now, two or more corrugations or folds are formed upon the upper end of the rivet in the manner shown theoretically in Figs. 1 and 2, after a button-body B has been put in position on the rivet, as shown in Fig. 3, it will be found almost impossible to tear the button-body from the rivet by any ordinary amount of force.

In Fig. 1, A represents the rivet, F the fabric, and *a* the flange upon the open end of the rivet. a', a^2, and a^3 represent three folds in the walls of the upper end of the rivet, which serve to form the head and retain the button-

body upon the rivet. The technical word for the feature which has been referred to by the words "folds or corrugations" is believed to be "head," and therefore it may be said that the rivet is struck or pressed down into two or more distinct and separate heads. During the operation of forming the heads the metal composing the rivet becomes slightly thinner by being drawn out, the result being that the thickness of the metal of the rivet is somewhat less in the heads than in the unfolded part of the shank and less in the upper heads than in the lower, as will be apparent by reference to Fig. 1. Fig. 2 shows a similar rivet with similar folds or heads, but formed in such a way that the diameter of the heads is smaller as they ascend on the shank of the rivet. It will be obvious from the views that this "multiple" heading is applicable to rivets of a large variety of construction, provided they are hollow or tubular. It will also be made apparent that the multiple heads may be of any desired diameter by the use of suitable dies, and may be formed on the shank of the rivet at any desired point with reference to its length. These heads may be formed or struck upon the rivet in any convenient manner.

Figs. 4 and 5 show a modified arrangement, where the button-body is so placed with reference to the shank of the rivet that when heads are formed it is folded down with and between them. In this case very great additional strength is secured, for the top fold is larger than it would be if no second head were formed, and is practically of the same size as the lower one, and all vertical motion of the body is prevented, for the reason that if any force is exerted to pull the button-body over the top fold or head that same force will tend to force its lower face against the lower fold, which will afford a counteracting resistance to the strain upon the top fold.

Fig. 6 shows the same modified form of attaching applied to a double-bodied button composed of two pieces B and B′. In this case the manner of attachment is precisely the same as before, the only difference being that the operation of striking the folds or heads caused the horizontal top of the button B to be firmly pressed against the top fold or head a^2, as shown in the figure.

An additional advantage of the multiple head above described consists in its obviating the necessity of any exact proportion between the length of the rivet and the thickness of the button-body or the thickness of the fabric, as the formation of each head adapts itself in a greater or less degree to the surrounding surface, for as the shank of the rivet will be pressed down it will throw into folds or heads all the exposed portion of the same, thus always making a tight rivet, and thus a much lighter rivet in proportion to its strength can be used than in ordinary cases.

To facilitate the formation of the multiple heads, it may be found desirable in certain cases to draw to some extent the temper of the metal composing the rivet, or, if desired, the shank of the rivet may be perforated, grooved, fluted, or otherwise weakened or adapted so that it may bend at any desired point; but this is not essential. It may also be found desirable, under certain conditions, to strengthen the retaining-flange a of the rivet by corrugating or fluting it radially or concentrically.

It will also be obvious that the invention is not necessarily limited to a cylindrical rivet; but on the contrary any form of rivet may be used, provided it has a hollow interior and conforms to the essential requirements of this method of fastening; nor is it necessary to employ a rivet composed of a single piece. Thus, for example, a rivet may be employed provided with an additional flange spun upon the retaining-flange a or corrugated or fluted, as above set forth, or with a linen or metal cover over it.

Another advantage of our improved fastener is that it necessitates no set shape in which the top of the two-part button must be made, but leaves that top entirely free for advertising or ornamental purposes.

We claim as our invention—

As an improved article of manufacture, a button-fastener comprising a hollow rivet adapted for use with a centrally-perforated button, provided with two or more peripheral folds swaged in close proximity to each other at one end and a retaining-flange at the other end, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 7th day of November, 1887.

GEORGE J. MURDOCK.
ARTHUR LAWRENCE LESHER.

Witnesses:
JOHN R. L. SNIFFEN,
WILLARD PARKER BUTLER.