No. 799,924. PATENTED SEPT. 19, 1905.

W. G. MURPHY.

EYELET AND THE LIKE.

APPLICATION FILED FEB. 2, 1905.

Fig. 1.

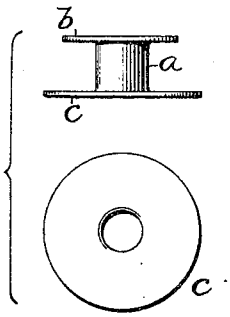


Fig. 2.

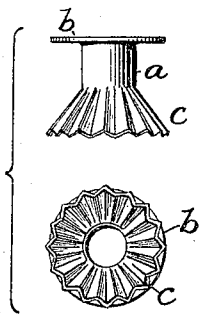


Fig. 3.

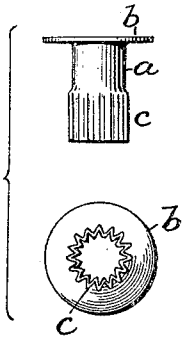


Fig. 4.

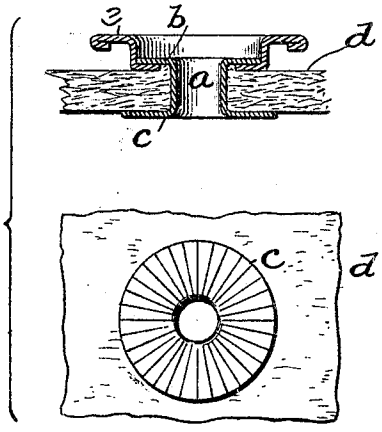


Fig. 5.

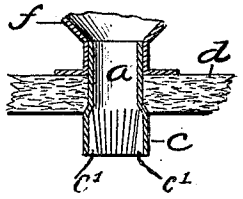
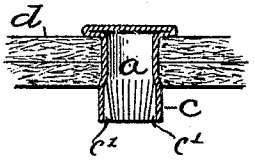


Fig. 6.



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UNITED STATES PATENT OFFICE.

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EYELET AND THE LIKE.

No. 799,924. Specification of Letters Patent. Patented Sept. 19, 1905.

Application filed February 2, 1905. Serial No. 243,820.

To all whom it may concern:

Be it known that I, WILLIAM GARDINER MURPHY, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Eyelets and the Like, of which the following is a specification.

This invention relates to the class of securing devices known as "eyelets," "hollow rivets," and the like employed either for securing fabrics or plies of material together or for securing an article to a fabric. Where the device is open through, it is usually called an "eyelet;" but if the bore does not extend through it is called a "hollow" or "tubular" rivet. The present invention may be applied to either of these forms of fastening devices.

In all forms of eyelets and hollow rivets the shank or body is passed through a hole in the material and the portion which extends out beyond the material is spread and then clenched or riveted down on the material in the form of a flange. As such securing devices are usually made from metal, this spreading of the tube and flattening into a flange with its plane at right angles to the axis of the eyelet is apt to split the metal and give it a ragged and unsightly appearance, and this weakens its hold on the material. For this reason in some constructions great care is taken and considerable expense resorted to in order to conceal the clench of the rivet.

The object of the present invention is to provide a fastening device of this character wherein that portion of the tubular body which is to be spread and laid flat in the clenching is longitudinally folded in the manufacture of the eyelet or rivet, so that enough metal will be supplied to form the flattened flange without putting undue strain on the metal. Thereby the clenched end of the eyelet will present a complete and perfect retaining-flange and also one having an ornamental appearance.

In the accompanying drawings, which serve to illustrate several embodiments of the invention, Figure 1 includes a side elevation and under side view of the eyelet in its primary stage. Fig. 2 includes a side elevation and under side view of the same in its second stage, and Fig. 3 includes a side elevation and under side view of the same in its finished condition ready for sale and use. Fig. 4 includes a sectional view and an under side view of the eyelet when set and clenched or riveted down. Figs. 5 and 6 illustrate other slightly different forms which will be hereinafter fully described.

Referring primarily to Figs. 1 to 4, Fig. 1 shows the eyelet drawn to its primary shape by suitable dies. The body *a* is tubular and is herein shown as provided at one end with a head-flange *b*, although this flange is not essential to the present invention and may be omitted or varied in form and size to suit requirements. At the other end (the lower end as seen in Fig. 1) is formed another flange *c*. The second shape or stage of the eyelet is illustrated in Fig. 2, wherein it will be seen that the flange *c*, which is destined to be the clenching-flange, is drawn into a conical shape by forming in it folds which take up the surplus metal. The final or finished shape or stage is illustrated in Fig. 3, wherein it will be seen that the flange *c* has been brought into a substantially cylindrical form by folding the metal more closely and bringing this portion into line with the shank or body *a*. This is the form the eyelet has when sold to the trade. Fig. 4 shows how the eyelet may be applied in use, and in this view the eyelet is shown as employed for securing to the material *d* a metal part *e* with the aid of the head-flange *b*. After the eyelet is placed the folded portion *c*, which projects through the material, is spread with a proper setting-tool and clenched down flat on the material, the fan-like folds flattening out and leaving merely radial markings, as seen in the lower view in Fig. 4, which markings add to the beauty and finish of the clenched flange.

Fig. 5 is a sectional view showing a form of the eyelet where the integral head-flange *b* is wholly omitted, the upper end of the tubular body being secured in a part *f* of any kind and for any purpose. This view shows the eyelet in position, but not yet clenched.

Fig. 6 shows a hollow rivet—that is, an eyelet closed at the head or upper end. This view also shows the rivet in place, but not clenched.

It will be understood that with suitable dies in the factory there will be no difficulty in forming the flange *c* primarily; but in the use of the article it is not easy to perfectly spread and clench down the tubular extremity of the ordinary form of eyelet, but forming folds in the flange and bringing it to a tubu-

lar form there will be no difficulty in effecting this.

The invention is well adapted for a gromet, which is a form of eyelet used in tents, awnings, and the like.

The manner of forming the longitudinally-folded portion *c*, which is to be expanded in clenching the eyelet, may of course be effected in any manner desired. Figs. 1 and 2 illustrate one method of effecting what is sought.

The term "eyelet" as used herein is meant to include all tubular forms of securing-devices which are to be clenched after they are placed. It must be understood, also, that the tubular part of the eyelet is integral and not split into segments by longitudinal slits

According to this invention **V**-shaped folds, like those of a fan, are formed in the part *c*, and these folds are proportioned in width to the amount of metal of the flange to be taken up. In the finished fastener, (seen in Fig. 3,) where the portion *c* is brought to a cylindrical form, the folds will be brought close together, with the surplus metal in the folds turned inward, as seen at *c'* in Figs. 5 and 6. These sectional views also show the taper of the folds, the latter being widest at the extreme end of the portion *c* and tapering gradually to the point where this portion of the fastener joins the portion *a*. Thus the metal to form the clenching-flange is disposed properly, so that in expanding the folds the metal will not be torn or drawn. This forms a full circular clenching-flange without radial slits or spaces, as the construction is designed especially to produce an enlarged disk-like flange from the solid or seamless tubular body.

Having thus described my invention, I claim—

1. An eyelet or like fastening device, having a seamless tubular body, said tubular body having the portion thereof which is to be expanded in clenching composed of longitudinally-extending **V**-shaped folds, and each of said folds varying in width to a degree corresponding to the amount of metal required to form a full, unbroken, circular clenching-flange.

2. An eyelet, or like tubular fastening device, having a portion of its tubular body which is to be expanded in clenching composed of a plurality of longitudinally-extending **V**-shaped folds, each of said folds being widest at that part which is to form the margin of the clenching-flange and tapering gradually to that part where said flange joins the plain cylindrical portion of the body.

3. An eyelet, or like fastening device, having a seamless tubular body, said tubular body having the portion *c* thereof, which is to be expanded to form the clenching-flange, composed of longitudinally-extending, **V**-shaped laterally-compressed and tapered folds, the metal in the folds being turned inward and occupying the hollow of the body and the outer contour of said portion *c* of the body being substantially cylindrical.

In witness whereof I have hereunto signed my name, this 20th day of January, 1905, in the presence of two subscribing witnesses.

WILLIAM GARDINER MURPHY.

Witnesses:

HENRY CONNETT,

WILLIAM J. FIRTH.