(No Model.)

J. L. THOMSON.

LACING STUD.

No. 481,124. Patented Aug. 16, 1892.

Fig. 1.

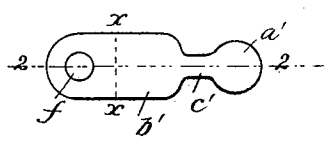

Fig. 4.

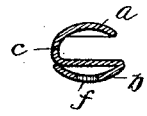

Fig. 2.

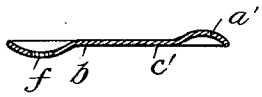

Fig. 5.

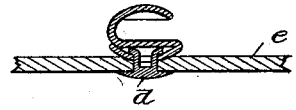

Fig. 3.

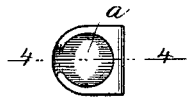

Fig. 8.

Fig. 6.

Fig. 7.

Witnesses.
A. D. Harrison
B. A. McShane

Inventor
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by Wright Brown Quinby & Otis
Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JUDSON L. THOMSON, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO THE JUDSON L. THOMSON MANUFACTURING COMPANY, OF SAME PLACE.

LACING-STUD.

SPECIFICATION forming part of Letters Patent No. 481,124, dated August 16, 1892.

Application filed March 17, 1892. Serial No. 425,229. (No model.)

To all whom it may concern:

Be it known that I, JUDSON L. THOMSON, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Lacing-Studs, of which the following is a specification.

This invention has for its object to provide a sheet-metal lacing-stud adapted to be more firmly and neatly applied to the article with which it is used than the ordinary lacing-studs which are provided with attaching-prongs integral with the stud.

The invention consists in a lacing stud or hook constructed as hereinafter described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a plan view of the blank from which my improved hook may be made. Fig. 2 represents a section on line 2 2, Fig. 1. Fig. 3 represents a top view of the hook formed by bending the blank shown in Figs. 1 and 2. Fig. 4 represents a section on line 4 4, Fig. 3. Fig. 5 represents a similar section showing, in addition to the hook or stud, the article to which it is applied and the rivet which secures the stud to said article. Figs. 6, 7, and 8 represent perspective views of different forms of rivet which may be employed.

The same letters of reference indicate the same parts in all the figures.

Referring to Figs. 3, 4, and 5, *a* represents the head, *b* the foot, and *c* the neck which unites the head to the foot, said head and neck constituting a hook which is or may be similar in form to that of the ordinary sheet-metal lacing-hook. In making the hook shown in the figures last referred to I employ a blank, such as is shown in Figs. 1 and 2, *a'* representing the part of the blank which forms the head, *b'* the part which forms the foot, and *c'* the part that forms the neck. In preparing said blank I prefer to give the part *a'* and a portion of the part *b'* a concavo-convex form, as shown in Fig. 2, the curvature of the part *a'* being the reverse of that of the part *b'*. The concavo-convex portion of the part *b'* occupies about half of the length of said part, the remaining portion of the part *b'* being preferably left flat. In forming the foot I bend the part *b'* upon itself along the line *x x*, Fig. 1, so that the concavo-convex portion of the foot is covered by the flat portion, as shown in Figs. 4 and 5, a recess being thus formed within the foot for the reception of the prongs or turned-over portions of the rivet *d*, which unites the foot to the article *e*, as shown in Fig. 5, the concavo-convex portion having an orifice *f* for the reception of the rivet. The rivet *d* may be of any suitable form. I prefer in all cases to provide a rivet with a head of considerable diameter and preferably of circular form, said head being made comparatively flat, so that it will not form an objectionable protuberance on the under side of the article *e*.

In Fig. 6 I show the rivet as composed of a flat head *h* and a shank *h'*, which is slotted from its outer end partly to the head to form two independent prongs h^2 h^2.

In Fig. 7 I show a rivet having a solid shank, which may be engaged with the foot of the hook or stud by the upsetting of its upper end.

In Fig. 8 I show a rivet formed as an eyelet, its shank being tubular and its head a flange projecting outwardly from one end of the tubular shank. It will be seen that the construction shown in Figs. 3, 4, and 5 conceals the clinched portion or portions of the rivet, the same being between the flat and concave parts of the head.

It will be seen that in the constructions above described the attachment of the hook or stud to the article is made very secure, the heads of the rivets at the same time giving the under side of the article a much neater appearance than that presented by the prongs of the lacing studs or hooks attached as usual.

I claim—

1. A sheet-metal lacing hook or stud comprising a head, a foot, and a neck uniting the head and foot, the said foot having an upper and a lower plate, the lower plate having an orifice for engagement with an attaching-rivet and the upper plate covering said orifice.

2. The combination, with a sheet-metal lacing-hook comprising a foot bent or doubled upon itself, a head, and a neck, of a rivet hav-

ing a head adapted to bear on the under side of the article to which the hook is applied and a shank adapted to be engaged with the said foot, the end of said shank entering the space between the two parts of the foot, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 14th day of March, A. D. 1892.

JUDSON L. THOMSON.

Witnesses:
C. F. BROWN,
A. D. HARRISON.