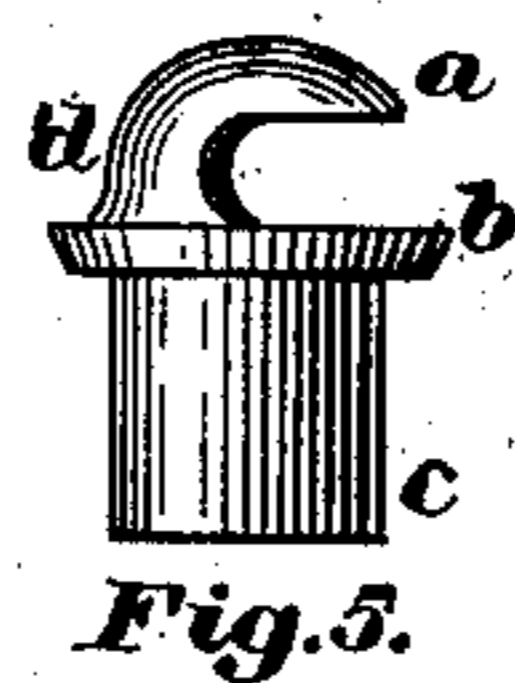
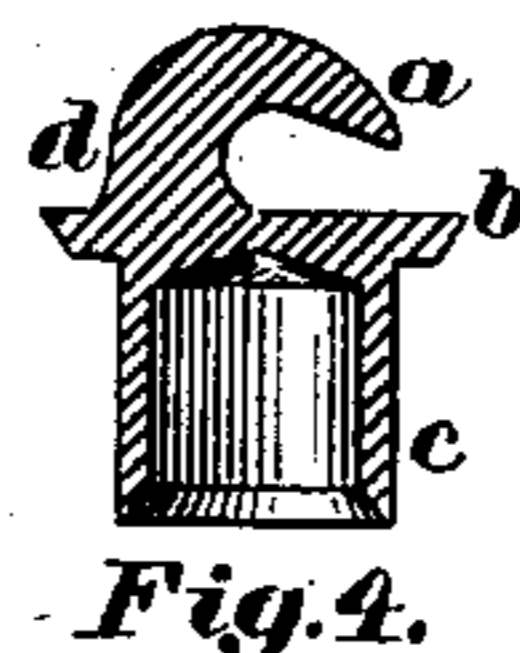
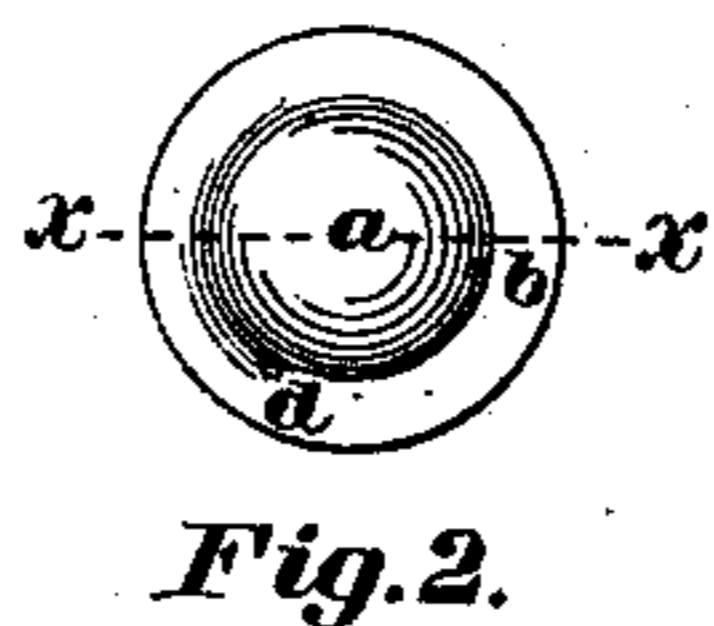


(No Model.)

M. BRAY.  
LACING STUD.

No. 244,737.

Patented July 26, 1881.



**Witnesses:**

G. A. Hemmenway.  
Walter C. Lombard.

**Inventor:**

Mellen Bray  
by N. C. Lombard  
**Attorney.**

# UNITED STATES PATENT OFFICE.

MELLEN BRAY, OF NEWTON, MASSACHUSETTS.

## LACING-STUD.

SPECIFICATION forming part of Letters Patent No. 244,737, dated July 26, 1881.

Application filed April 16, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, MELLEN BRAY, of Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Lacing-Studs, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to a process of forming lacing-studs for use on boots, gloves, and other articles; and it consists in the process of manufacturing lacing-studs from solid metal by shaping the stud by means of cutting-tools which cut away the surplus stock and form a groove eccentric to the shank of the stud, the sides of said groove being parallel to each other, and then bending the neck so as to throw the edge of the head which is farthest from the eccentric neck nearer to the inner head or collar, thereby contracting the entrance to said groove, so that the lacing-cord will have to be somewhat compressed or distorted in shape before it can be brought into contact with the surface of the neck of the stud in the inner portion of the groove, as will be further described in connection with the description of the drawings, in which—

Figure 1 is a side elevation of a lacing-stud manufactured by my improved process, designed more especially for use on ladies' side-lace boots and for lacing gloves. Fig. 2 is a plan, enlarged. Fig. 3 is a side elevation, enlarged. Fig. 4 is a vertical section on line  $x$  on Fig. 2, and Fig. 5 is a side elevation of the stud as it leaves the cutting-tools and before the bending operation takes place.

In applying lacing-studs to ladies' side-lace boots and to gloves it has been found necessary to make the groove to receive the lacing-cord of a depth not greater than the diameter of said cord, to prevent the interlocking of the studs when applied to the ladies' boot, or the catching of laces, fringes, and other articles of clothing into the stud; but when this is done with the stud heretofore formed from solid pieces of metal by cutting an eccentric

groove therein having parallel contiguous faces the lacing-cord falls away from the studs too easily, and becomes disengaged therefrom as soon as the end becomes unfastened.

To overcome these difficulties I construct by my improved process a stud, as shown in the drawings, in which  $a$  is the outer head,  $b$  is the inner head or collar,  $c$  the shank, made hollow by drilling out the metal from the center, and  $d$  is the neck, located eccentrically to the head  $a$  and collar  $b$ , and connecting them together, as shown.

The process for constructing said stud is as follows: The stud is first shaped, as shown in Fig. 5, with the contiguous faces of the head  $a$  and collar  $b$  parallel to each other, by cutting away the stock to form the eccentric neck  $d$ , turning the outer surface of the stud to give the desired shape to the head  $a$  and collar  $b$  and the shank, and then that portion of the head  $a$  which is farthest from the neck  $d$  is bent inward or toward the collar  $b$ , as shown in Figs. 1, 3, and 4. This bending inward of the head  $a$  is effected by placing a piece of steel that is thinner at one edge than at the other between the head  $a$  and the collar  $b$ , and then applying pressure to the head  $a$ , while the shank of the stud is properly supported upon an anvil for the purpose.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

The process of forming lacing-studs from a piece of solid metal, which consists in shaping the stud to the form shown and described, by cutting away the surplus stock and then bending the head or neck so that the groove for the lacing shall be narrowest at its mouth, substantially as set forth.

Executed at Boston, Massachusetts, this 14th day of April, 1881.

MELLEN BRAY.

Witnesses:

E. A. HEMMENWAY,  
WALTER E. LOMBARD.