

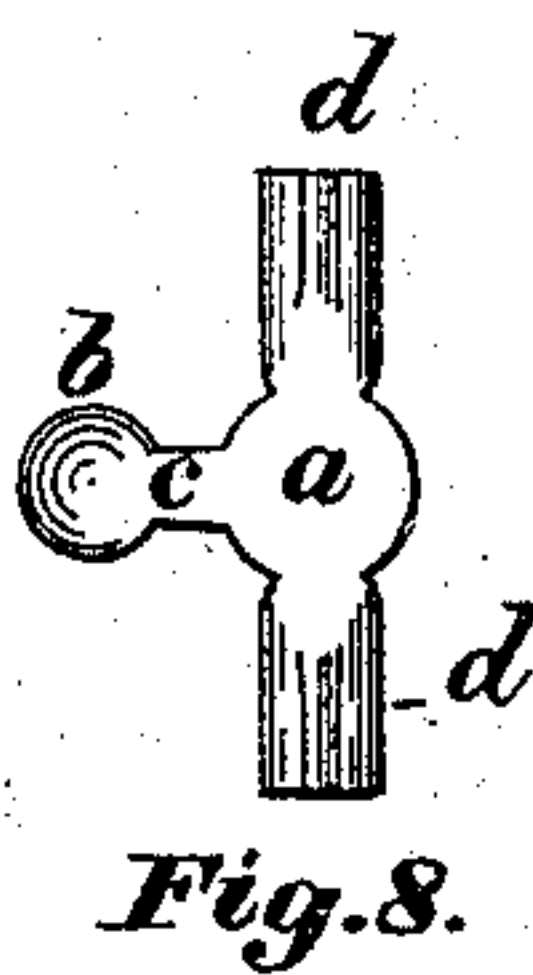
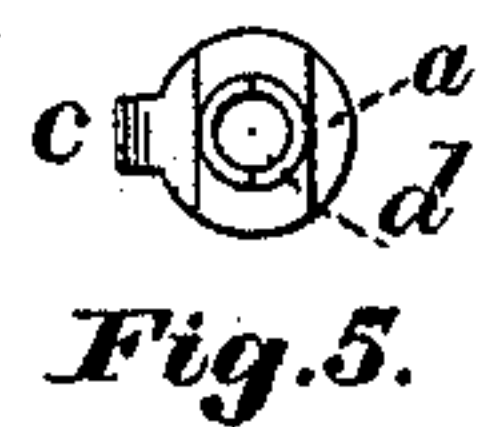
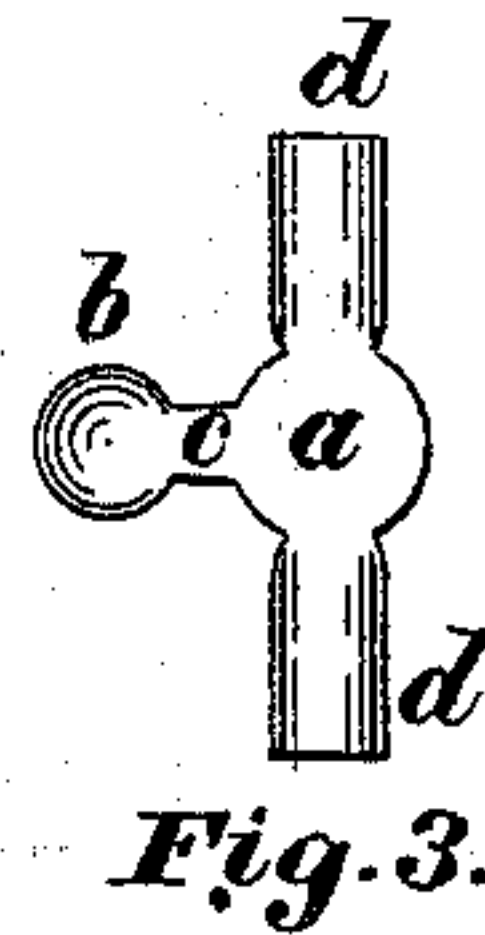
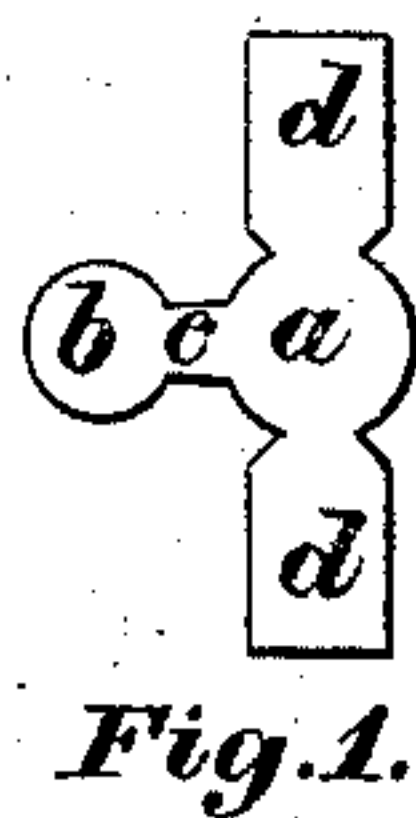
C. I. HUMPHREYS.
Sheet-Metal Lacing Hook.

No. 229,253.

Patented June 29, 1880.

b c d
Fig. 2.

b c a
Fig. 4.



Witnesses:

W. W. Swan
H. G. Olmsted

Inventor:

Chas I Humphreys

UNITED STATES PATENT OFFICE.

CHARLES I. HUMPHREYS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO
MELLEN BRAY, OF SAME PLACE.

SHEET-METAL LACING-HOOK.

SPECIFICATION forming part of Letters Patent No. 229,253, dated June 29, 1880.

Application filed January 30, 1880.

To all whom it may concern:

Be it known that I, CHARLES I. HUMPHREYS, of Boston, in the State of Massachusetts, have invented a new and useful Improvement in Sheet-Metal Lacing-Hooks for Boots and Shoes, of which the following is a specification.

The invention relates to lacing-hooks made from sheet metal; and it consists in so forming a lacing-hook from a single piece of sheet metal that it has an unbroken disk for a head, an ordinary hook projecting therefrom, and a cylindrical shank made up of sections.

In the drawings, Figure 1 is a plan, and Fig. 2 an edge, view of a sheet-metal blank used in the construction of my improved lacing-hook. Figs. 3 and 4 are similar views of the blank in a certain stage of the process of manufacture; and Figs. 5, 6, and 7 are views of the completed lace-hook, Fig. 5 being an inverted plan. Fig. 8 is a modified form of the blank at the stage of the process of manufacture represented by Figs. 3 and 4; and Fig. 9 is a view of the modified lace-hook resulting from the same.

My improved lacing-hook is made as follows: I first cut from sheet metal a blank of the form shown in Figs. 1 and 2, consisting of a disk, *a*, with head and neck *b c*, and two arms, *d d*, projecting therefrom, and then, in suitable dies, bring the head *b* and arms *d d* to the shape shown in Figs. 3 and 4, the head *b* being concavo-convex and the arms *d d* semi-tubular for almost their entire length. I next, in suitable dies, fold the arms *d d* underneath the disk *a*, so that they together form a tubular shank, as shown in Figs. 5, 6, and 7, the portions of the arms adjoining the disk being flattened against it, and then bend the neck *c* so as to bring the head *b* over the face of the disk, opposite the face from which the tubular shank now projects, thus producing the finished article.

This improved lacing-hook can be made from sheet-iron as well as from sheet-brass.

The economy resulting from forming lacing-hooks from sheet metal in a single piece, rather than from solid metal or wire, is already well known; but heretofore no lacing-hook formed from a single piece of sheet metal has had a cylindrical shank and at the same time what may be termed a "button-head" with a hook projecting therefrom—that is, a head like that of an ordinary tack or rivet, with a hook projecting therefrom.

Heretofore, when the sheet-metal rivet has had a button or tack head, its shank has consisted of two or more prongs, and consequently its shank has been weak in comparison with a cylindrical shank; and when, on the other hand, a sheet-metal rivet has had a cylindrical shank, its head, if closed to resemble that of a tack or rivet rather than that of an eyelet, has been divided in two parts by a seam, as shown in the patent to Storer, No. 217,494, July 15, 1879, and has accordingly been weak in comparison with the tack or button head, and of little assistance in keeping the sections of the cylindrical shank together when the hook is driven or is in wear.

In Figs. 8 and 9 are shown a lacing-hook embracing the above-described invention, but whose tubular shank is corrugated for greater strength. I however make no claim to the corrugations.

I claim—

A lacing-hook made from sheet metal in one piece, and consisting of a button-head with a hook projecting therefrom and a cylindrical shank formed in sections, substantially as described.

CHAS. I. HUMPHREYS.

Witnesses:

W. W. SWAN,
H. G. OLMSTED.