(No Model.)

F. R. WELTON.

LACING HOOK AND METHOD OF MAKING THE SAME.

No. 419,982. Patented Jan. 21, 1890.

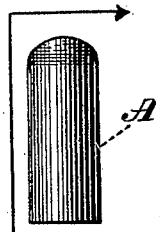


Fig. 1.

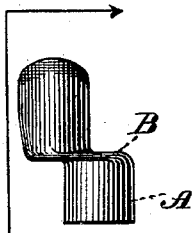


Fig. 2.

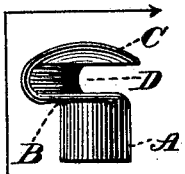
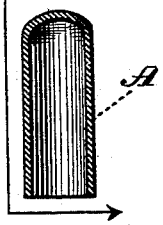
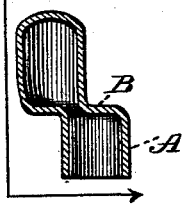


Fig. 3.





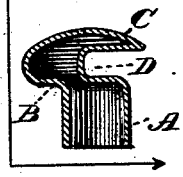


Fig. 4.

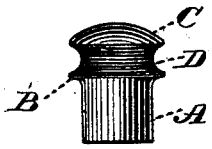


Fig. 5.

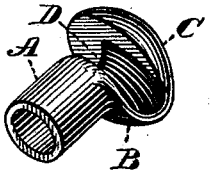


Fig. 6.

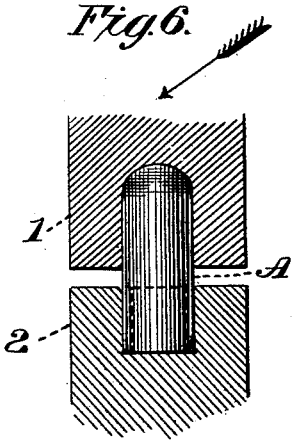


Fig. 7.

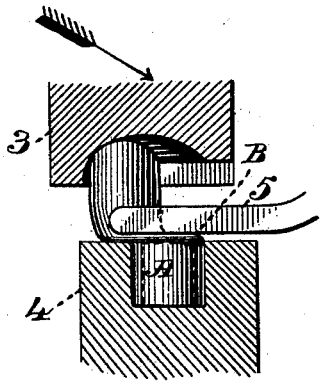
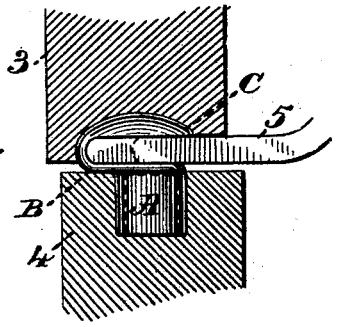


Fig. 8.



Witnesses
Wm. J. Banner
A. J. Banner.

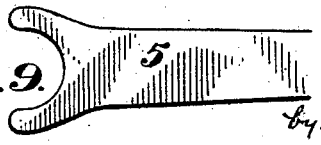


Fig. 9.

Inventor
Frank R. Welton
by his attorney
D. H. Hubbard.

UNITED STATES PATENT OFFICE.

FRANK R. WELTON, OF WATERBURY, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO GEORGE S. PEARSON, OF SAME PLACE.

LACING-HOOK AND METHOD OF MAKING THE SAME.

SPECIFICATION forming part of Letters Patent No. 419,982, dated January 21, 1890.

Application filed August 20, 1889. Serial No. 321,416. (No model.)

To all whom it may concern:

Be it known that I, FRANK R. WELTON, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Lacing-Hooks and Method of Making the Same; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain novel and useful improvements in lacing-hooks, such as are used upon shoes, gloves, and like articles, and to an improved method whereby said hooks may be simply and cheaply produced. Heretofore beaked lacing-hooks have been produced either by stamping from sheet metal, the beaks being bent over toward the top of the shank, or they have been turned up from a metallic rod and the shanks, where they are required to be tubular, bored out from the lower end.

My invention has for its object the production of a hook from a sheet-metal shell, the walls of said hook being double throughout, the shape of said hook being substantially the same as that of the hooks now generally in use, and having also the smooth outer surface free from sharp corners and the great rigidity and strength characteristic of hollow metal constructions; and with these ends in view my invention consists in the article of manufacture and the method of producing the same, hereinafter to be fully set forth, and then recited in the claims.

In order that those skilled in the art to which my invention appertains may fully understand its construction and the method of its manufacture, I will describe the same in detail, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 shows an elevation and central vertical section through the drawn shell from which my device is constructed; Fig. 2, a similar view after the offsetting operation; Fig. 3, a similar view showing the hook after its head has been swaged down; Fig. 4, a front elevation; Fig. 5, a perspective; Fig. 6, a sectional view through a pair of dies holding the shell, by means of which the first or offsetting process may be accomplished; Fig. 7, a sectional view showing a pair of dies containing the offset-shell and by means whereof the swaging down may be effected; Fig. 8, a view similar to Fig. 7, but showing the swaging operation as completed; Fig. 9, a detail plan view of a former, over which the swaging operation may be performed advantageously. All figures are three times normal size for better illustration.

It is to be understood that the apparatus herein shown is merely illustrative of one practical means and forms no essential part of my invention, since the method may be carried out by several different mechanical devices.

In the drawings like letters of reference denote the same parts in all the figures, and the arrows shown upon Figs. 6 and 7 indicate the direction of movement of the upper die relative to the lower die.

A is a shell drawn up from a flat blank and preferably rounded at its closed end, although that is not essential. In this shell I first form an offset B as it appears at Fig. 2, and one method of so offsetting is illustrated at Fig. 6 as accomplished by a pair of dies 1 2, adapted to receive and hold the respective ends of the shell with a space between their faces. The upper die is then given a sidewise and downward movement, which completes the first operation. The offset-blank is then subjected to the action of a second pair of dies 3 4, the lower of said dies adapted to hold the tubular lower end of the blank, and the upper die having a recessed face of substantially the shape of the beak C of the finished hook. This last operation is preferably performed over a former 5, laid upon the offset portion of the blank, (see Fig. 7,) and the upper die moved across and downward to the position shown at Fig. 8, whereby the upper end of the blank is both conformed to the shape of the face of the die and is bent over upon the former, the thickness of which determines the size of the hook-opening D.

In carrying out my method the steps may

be reversed—that is, the offsetting may be performed subsequent to the swaging down of the head without departing from the spirit and aim of my invention.

The hook herein described possesses many advantages; but its strength and smooth surface and the simplicity of its manufacture make it especially desirable.

I claim—

1. A lacing-hook having a tubular shank and a hollow eccentric head, both being formed complete from a tubular sheet-metal blank as a new article of manufacture.

2. The hollow lacing-hook, as described, the same having the tubular shank, and the hollow head eccentrically connected to said shank, substantially as described.

3. A lacing-hook formed from a single tubular blank, the same having the hollow shank, the offset neck portion, and the hollow overhanging head, substantially as set forth.

4. The method of making lacing-hooks from tubular sheet-metal blanks, which consists in first offsetting said blank and then swaging and bending down its upper portion to form the head, substantially as set forth.

5. That method of making lacing-hooks from tubular sheet-metal blanks which consists in first offsetting said blank at or about its center, then laying a former adjacent to said offset portion, and then forcing the top of the blank downward and forward into contact with the former, whereby the head is formed, substantially as set forth.

6. A method of making lacing-hooks from tubular sheet-metal blanks, consisting in forming an offset in the blank and bending or swaging the top portion downward and forward into finished position.

7. A lacing-hook, as described, having an enlarged head and a tubular shank, the whole formed integral and complete from a tubular sheet-metal blank, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK R. WELTON.

Witnesses:
S. H. HUBBARD,
M. C. HINCHCLIFFE.