

(No Model.)

G. HAVELL.
METHOD OF FORMING BUTTON HOOKS.

No. 492,607.

Patented Feb. 28, 1893.

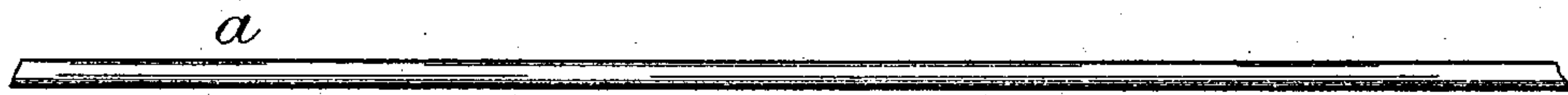


Fig. 1.

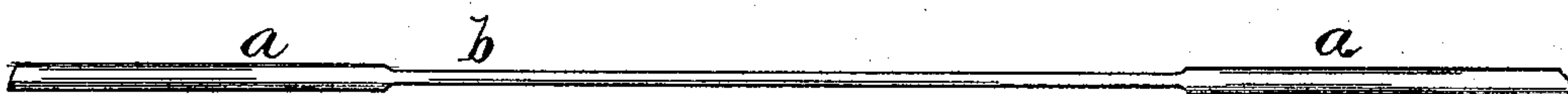


Fig. 2.



Fig. 3.

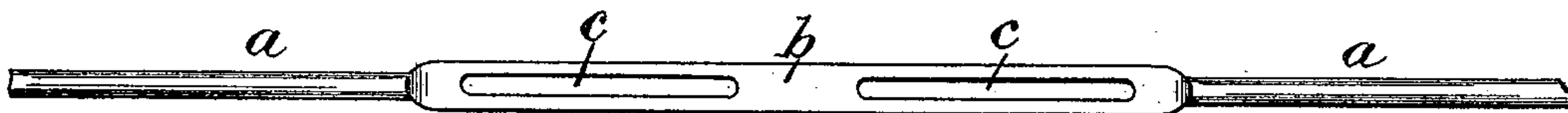


Fig. 4.

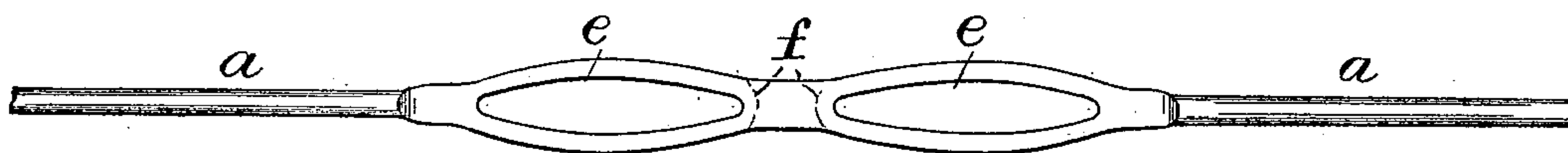


Fig. 5.

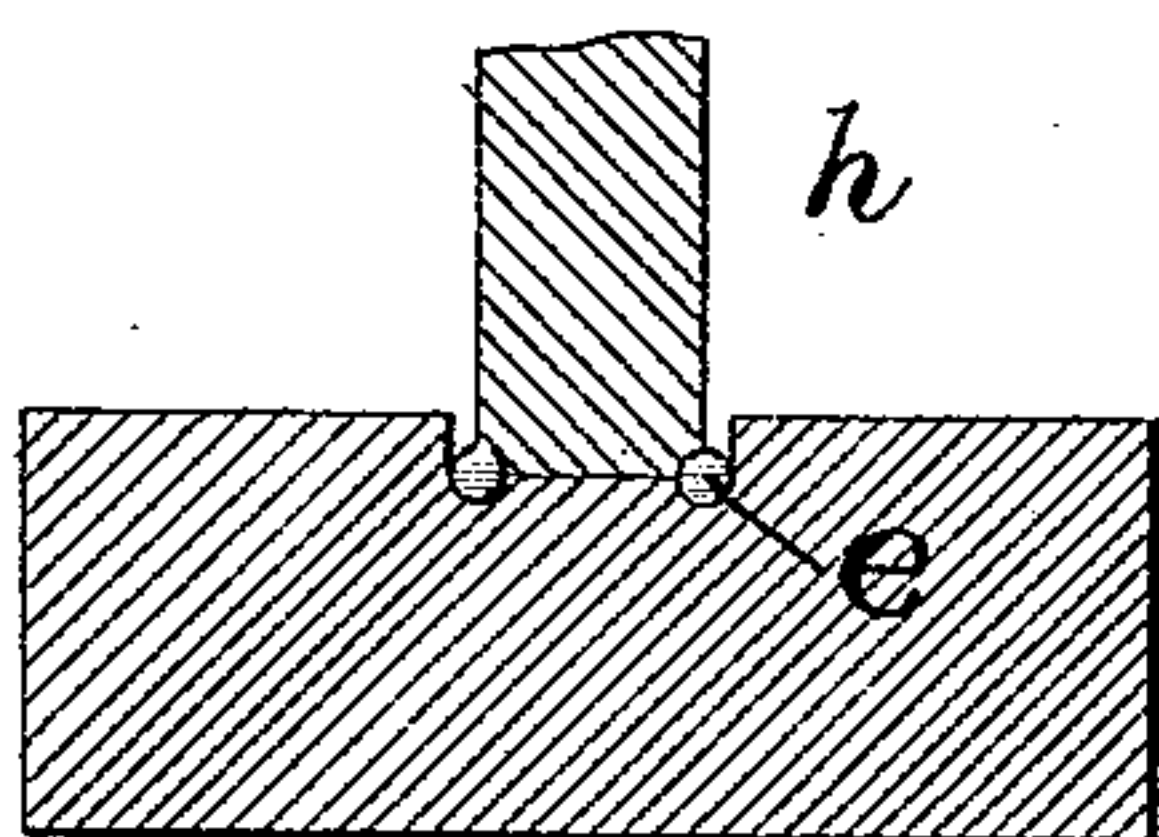


Fig. 6.

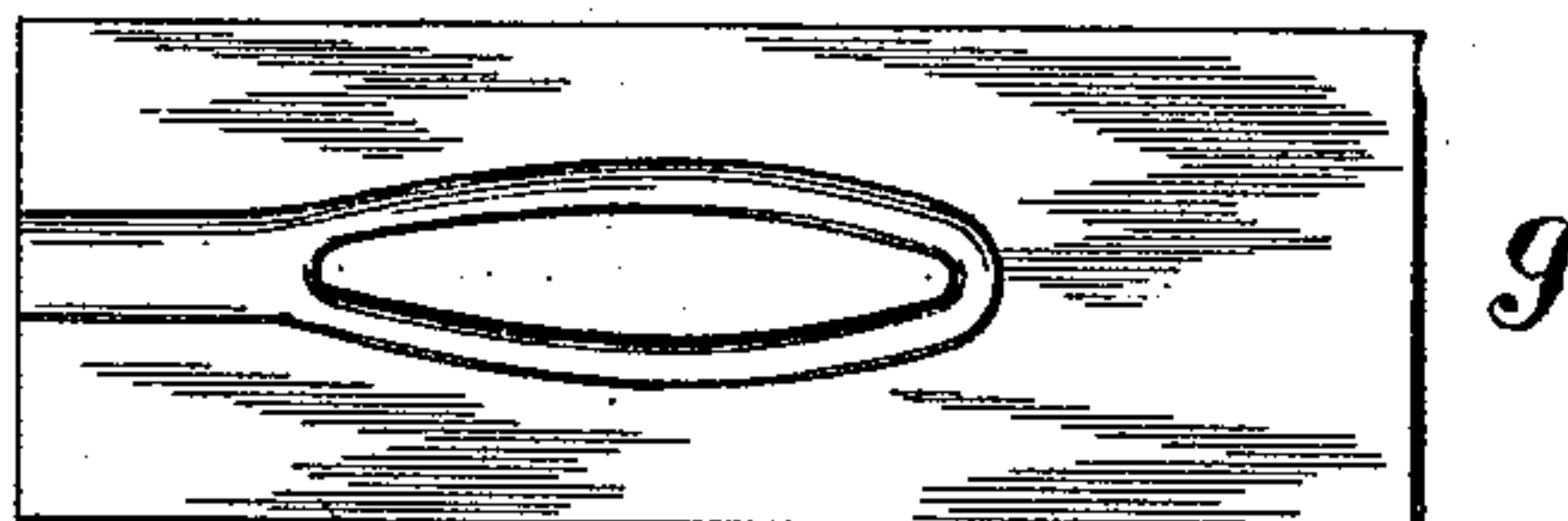


Fig. 7.



Fig. 8.

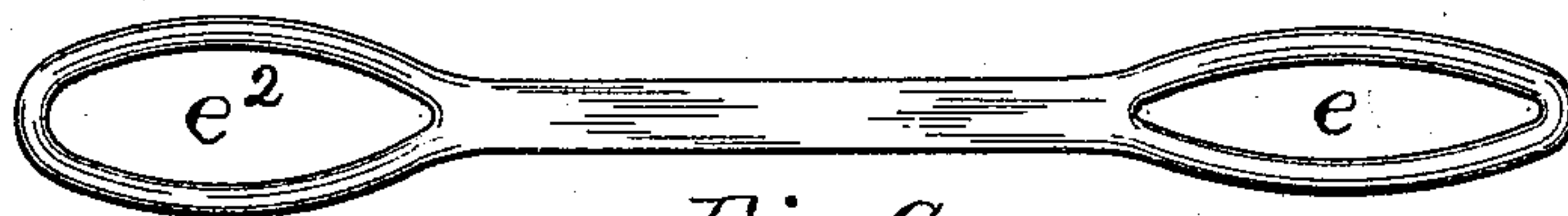


Fig. 9.

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UNITED STATES PATENT OFFICE.

GEORGE HAVELL, OF NEWARK, NEW JERSEY.

METHOD OF FORMING BUTTON-HOOKS.

SPECIFICATION forming part of Letters Patent No. 492,607, dated February 28, 1893.

Application filed March 4, 1892. Serial No. 423,725. (No specimens.)

To all whom it may concern:

Be it known that I, GEORGE HAVELL, a citizen of the United States, residing at Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Processes of Making Button-Hooks, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 The object of this invention is to produce a button hook with an integral oval eye from a piece of metal narrower than the eye. A button hook having solid oval eye is considered the most desirable for practical use and
15 durability, and such button hooks have always heretofore been stamped from sheet metal, and in such case have required a piece of metal as wide as the exterior of the eye. It has therefore been common to stamp a
20 considerable number of such button hooks from a large sheet of metal, and in so doing to waste a considerable proportion of the metal. In the present invention I avoid such waste by employing a piece of metal of the
25 same width as the ends of the eye, and after punching a parallel slot in the metal I expand the middle of the slot to form an oval or diamond shaped eye of suitable width. The oval eye is thus formed from a much
30 narrower and lighter piece of metal, and the amount of metal punched from the parallel slot, and thereby wasted, is very much less than that which would be punched from the oval eye. To form a round shank upon the
35 eye, I prefer to use a piece of wire of suitable size, and I flatten the same where the eye is punched, and thus prepare the metal to receive the slot and form the margin of the eye. By this method of manufacture I wholly
40 avoid the punching of the article from a sheet of metal, and also avoid the waste that is involved in removing the metal, by a punching operation, to form the exterior of the article.

45 The invention will be understood by reference to the annexed drawings, in which I have shown the means of forming two slots and eyes at a single operation; but a single eye may be made by the same process.

50 Figure 1 represents the piece of wire before it is flattened; Fig. 2 an edge view, and Fig. 3 a plan of the wire flattened for a suitable space to receive the slots. Fig. 4 represents

the flattened portion of the wire with two parallel slots therein. Fig. 5 represents the wire with the slots expanded to an oval form. 55 Fig. 6 is a cross section of the dies for rounding the edges of the eye. Fig. 7 is a plan of the lower die, and Fig. 8 a plan of a finished button hook; Fig. 9, a hook with expanded eyes at both ends. 60

a is the wire, *b* the flattened portion, *c* the parallel slots formed in the same, *d* the oval openings formed by pressing the metal at each side of the slot outward, and thus forming an oval eye *e*. The flat portion of the 65 wire is shown of sufficient length to receive two slots, and such slots are readily expanded to the oval shape shown in Fig. 5, by means of a suitable punch. The metal between the slots is then cut off upon the curve indicated 70 by the dotted lines *f* in Fig. 5, thus rounding the outer ends of the eyes as desired.

Dies *g* and *h* are shown in Figs. 6 and 7, shaped to press the edges of the eye internally and externally into a rounded form indicated by the letter *e'* in Fig. 6, thus finishing the eye and adapting it for use as desired. 75 The entire article is then smoothed in a tumbling barrel, or polished and finished by any suitable means. 80

In Fig. 5 the eye is shown of a pure oval form, and the die in Fig. 7 is shown of corresponding shape; while the eye upon the finished article in Fig. 8 is more nearly of a diamond shape; and either of these forms may 85 be produced with equal facility by expanding the slot *c* in the manner described, and both are equally adapted to admit the button at the wider part of the eye, and to pull the button through the button hole when slipped 90 down to the end of the eye.

It is obvious that the interior of the eye may be rounded by hand-tools, or by other means than that shown in Fig. 6, and it is not essential therefore to my invention how the 95 inside of the eye be rounded, although I consider the use of the dies as the preferred method. The essential part of my invention consists in forming the button hook from a metallic blank of the same width as the narrow 100 end of the eye, by first punching a slot in such metallic blank, and then expanding the slot to form an eye of the desired shape. The blank, if made of wire, may be flattened

for the purpose described above; but it is obvious that the blank may be made of wire flattened throughout its entire length, in which case it would not require any special flattening to fit it for the punching of the slots.

Fig. 9 shows a button hook formed of a blank flattened throughout its entire length, and having oval eyes formed at both ends, the eye e^2 being a little larger than the eye e to serve as a handle.

It is obvious that the blank may be slotted and the slot expanded upon both ends of the blank as readily as upon one end, and a handle thus formed by the same means as the opposite end. By the use of a blank formed of soft steel, the eye may be expanded without difficulty into the shape of the handle shown in Fig. 9.

The invention may, if desired, be used ex-

clusively to form the handle of the button hook.

What I claim as new, and desire to secure by Letters Patent, is—

The method of making button hooks, which consists in flattening a wire for a suitable space, punching a slot having parallel sides in such flattened portion, then expanding the slot into suitable shape to form the eye, and finally rounding the inside of the eye, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of the two subscribing witnesses.

GEORGE HAVELL.

Witnesses:

THOMAS S. CRANE,
HENRY J. MILLER.