

(No Model.)

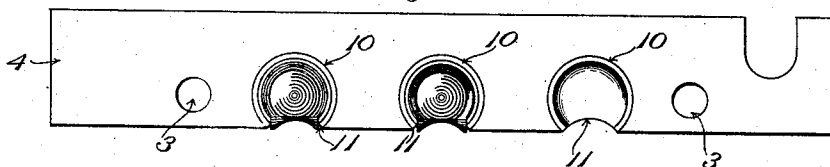
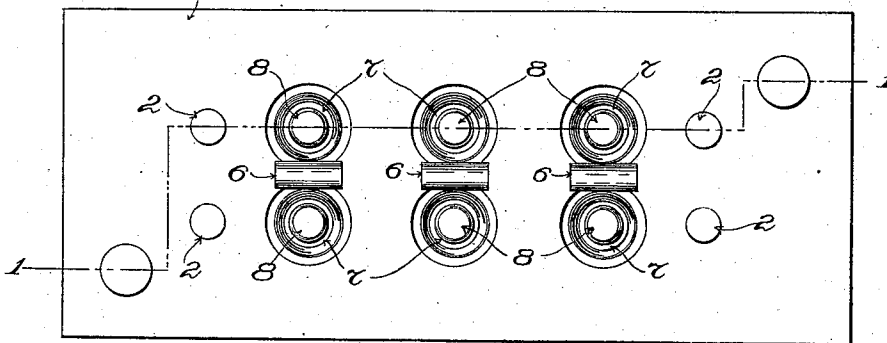
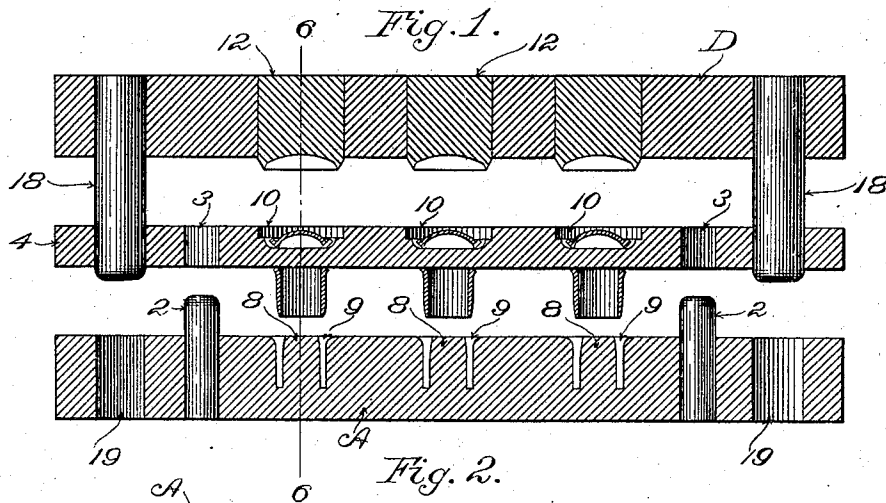
2 Sheets—Sheet 1.

A. C. ESTABROOK.

DEVICE FOR COVERING LACING HOOKS WITH PLASTIC MATERIAL.

No. 576,045.

Patented Jan. 26, 1897.



Witnesses:

Oscar F. Gill

Robert Wallace.

Inventor:

Alanson C. Estabrook.

by Macdonald Calvin Randall

Attorneys.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

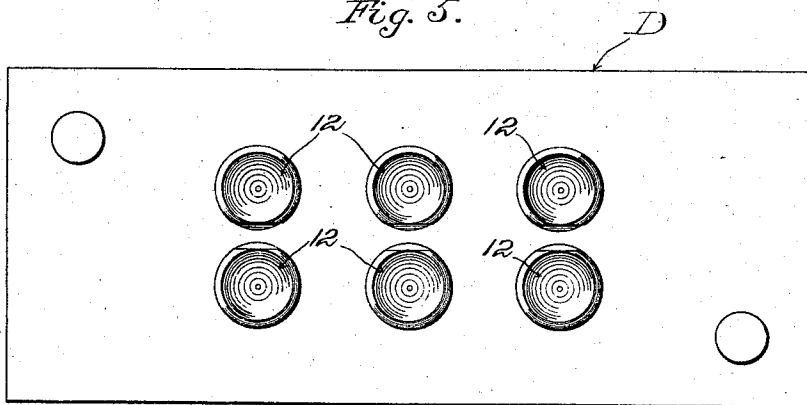


Fig. 6.

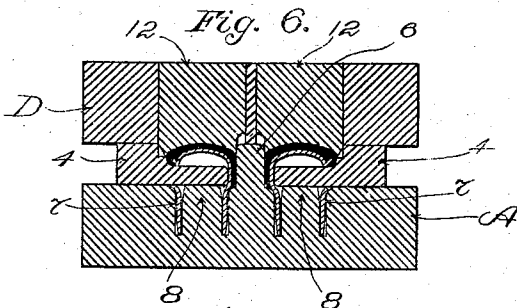


Fig. 7.

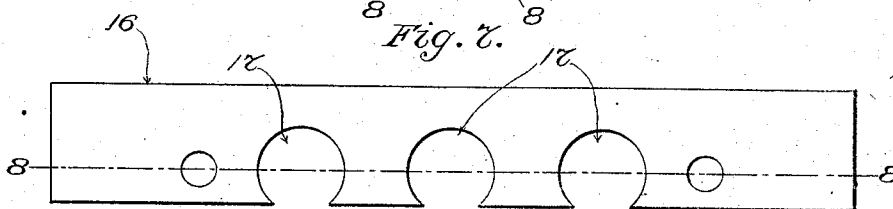


Fig. 8.

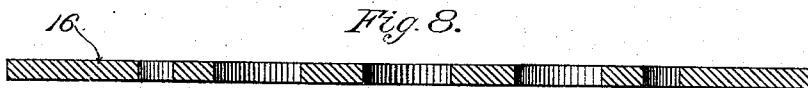


Fig. 9.

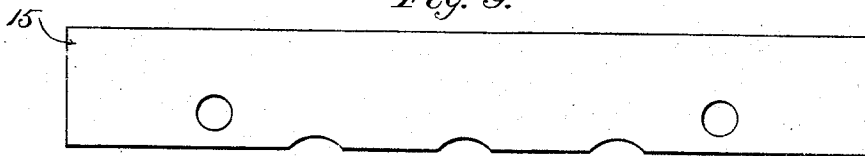
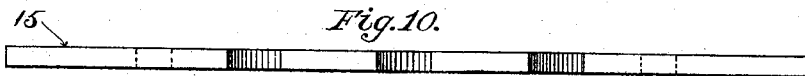


Fig. 10.



Witnesses:

Oscar F. Gill  
Robert Wallace.

Inventor:

Alanson C. Estabrook  
by Macleod Calver Randall  
Attorneys.

# UNITED STATES PATENT OFFICE.

ALANSON C. ESTABROOK, OF NORTHAMPTON, MASSACHUSETTS.

DEVICE FOR COVERING LACING-HOOKS WITH PLASTIC MATERIAL.

SPECIFICATION forming part of Letters Patent No. 576,045, dated January 26, 1897.

Application filed May 23, 1896. Serial No. 592,702. (No model.)

*To all whom it may concern:*

Be it known that I, ALANSON C. ESTABROOK, a citizen of the United States, residing at Northampton, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Devices for Covering Lacing-Hooks with Plastic Material, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide an improved mechanism for producing "covered" lacing-hooks, that is, lacing-hooks the crown or crown and neck of which have been covered by a plastic material, such as celluloid or the like.

My invention is fully set forth in the following description, and the novel features thereof are particularly pointed out and clearly defined in the claims at the end of this specification.

In the following description reference is made to the accompanying drawings, showing mechanism embodying my invention, and in which—

Figure 1 is a view of the device with the parts separated in order to more clearly show the construction and operation thereof. Fig. 2 is a plan of the base-plate detached. Figs. 3 and 4 are a plan and elevation of the lower die-strip detached, lacing-hooks being shown in two of the dies therein. Fig. 5 is a view of the upper die-plate reversed to show the dies in the said plate detached. Fig. 6 is a cross-section of the device closed and showing lacing-hooks in position with the covering molded thereon. Figs. 7, 8, 9, and 10 show a modified form of lower die-strip, in which the said strip is formed in two parts, as hereinafter described.

In the manufacture of covered lacing-hooks it is of great importance that the mechanism employed be such as to render it possible to avoid handling the hooks, either before they are covered or after, as also the covering material. The handling of the hooks individually, as also the material with which each of the hooks is to be covered, not only increases the expense of manufacture, but in the case of the material, if the latter be colored or white, there is great danger of soiling the goods. The handling of the finished hooks

is also liable to deaden the luster of the covering material. It is therefore obviously important to provide mechanism which shall not only be of high efficiency in the molding operations, but by the employment of which all handling of the goods is avoided or reduced to a minimum.

The device hereinafter described is simple and will be readily understood from the following description, in which reference is made to the accompanying drawings.

At A is shown a base-plate, which preferably is a flat plate of metal of a size which will be governed chiefly by the number of hooks to be covered at one operation and having, preferably, at each end thereof guide-pins 2, which are received in holes 3 in the lower die-strip 4 and serve to properly position the latter. The upper die-plate D has guide-pins 18 at each end thereof, which register with holes 19 in the base-plate A to properly position the upper die-plate. By this means the three parts of the device may be brought together in the proper position relatively to each other to effect the covering of the hooks. However, any well-known means for properly positioning the parts may be employed in place of the guide-pins 2.

What I have termed the "base-plate" A is provided with a series of projections 6. These are so disposed upon said base-plate that when the lower die-strip, which carries the hooks which are to be covered, is in position on said plate A the necks of the hooks on said die-strip will be opposite and quite or nearly in contact with the flat faces of said projections 6. (See Fig. 6.) Each projection 6 will thus serve as a backing for two hooks when the latter are in position to be covered, as will be clear from Fig. 6. The base-plate A is provided on each side of each of said up-rights 6 with a hole or socket 7 of a size adapted to receive the barrel of the hook, and within the hole or socket 7 is located a pin 8, which extends upwardly to about the level of the upper surface of the plate A. Said pins 8 are of less diameter than the sockets or holes 7, thus affording a sufficient space in the said socket or hole around the pin 8 for the insertion of the barrel of the hook. The top of the hole or socket 7 is preferably slightly flaring or countersunk, as shown at 9, to ac-

commodate the flange at the top of the barrel of the hook. When the hook is in position on the said pin 8, and the lower die-strip is also in position, the upper end of the pin 8, which projects upwardly within the barrel of the hook, will bear against the under side of the said lower die-strip directly underneath the crown of the hook when the latter is in position, and thus the said pin 8 will serve as a support for the said die-strip while under pressure and will take a portion of the strain transmitted from the die in the molding operation, thus reinforcing and strengthening the lower die-strip and preventing it from becoming bent or impaired. The pin 8 also serves to locate the hook in the dies. When the dies are together, with the hook in position, the neck of the hook will bear against the vertical face of the post or projection 6, and the hook is thus prevented from rotating or turning on the pin 8. The crown of the hook is in this way centered and held in correct position in the cavity in the lower die-strip. The upright post or projection 6 serves, therefore, not only to hold the hook in such position that its crown will be centered in the lower die-cavity, but also serves as a wall or face against which the covering material which flows down and over the neck of the hook is molded, thus determining the thickness and shape of the molded covering on the neck of the hook.

The lower die-cavities or recesses 10 are formed, preferably, in the surface and at one edge of the lower die-strip 4, the said cavities 10 being open at one side, that is, the cavities 10 extend to the edge of the said strip. At the mouth or opening of the said cavity the floor or bottom thereof is provided with a notch or recess 11 to receive the neck of the hook. The size and shape of the lower die-cavity 10 will depend upon the size and shape of the crown of the hook, the said cavity being slightly larger than the said crown to afford room for the proper working or molding of the plastic material in the lower die.

The open side of the lower die-cavity 10 is nearly or quite closed by the projection or post 6 on the plate A, which, as heretofore stated, serves to confine and shape the plastic material when it is molded onto the neck of the hook. The space thus formed between the post 6 and the neck of the hook will serve as a sprue-hole through which any excess of the plastic material or covering-stock may escape, and the cavity 10 may be reduced somewhat in diameter and formed almost the exact size of the finished hook, since the excess of stock will escape at the mouth or open side of the lower die between the mouth of the die and the projection 6.

The upper die-plate D is provided with a series of dies 12, one for each of the lower dies, said upper dies being so disposed on the upper die-plate as to register with the lower dies. The operative faces of the said upper dies 12 are concaved or formed to correspond

in shape with the top or crown of the finished covered hook. In the molding operation the dies are subjected to pressure by the use of a press or any well-known device for this purpose.

After the molding operation is completed the upper die-plate is removed and the lower die-strips may then be raised from the base-plate A and will carry with them the covered hooks. The hooks on the die-strip may then be set down on pins set in a board provided for this purpose, or said board, instead of pins, may have recesses or cavities in which the barrel of the hooks may be set. The die-strip may then be moved sidewise out of the hooks, and the hooks are thus, without handling, ready for inspection or subsequent finishing operations.

The lower die-strips 4 may be filled with hooks ready to be covered either by hand or by the employment of a machine provided for this purpose. I contemplate the filling of these die-strips by the employment of a machine. By the employment of a number of die-strips they may be filled and placed on racks or other suitable holding devices, where they may be readily taken by the operator using the dies and placed in position on the base-plate A, the empty strips after the molding operation being returned to the filling-machine to be again filled. After the lower die-strips 4, which have been filled with hooks, have been placed in position on the plate A the covering material may be placed in the lower dies on the crown of the hook, ready for the molding operation, either by taking the separate pieces of covering material which have been cut to the proper size and laying one in each die, or the pieces of covering material may be placed in the lower dies directly from the machine by which they are cut to shape. This latter method I prefer.

At Figs. 7, 8, 9, and 10 I have shown a modified form of lower die-strip in which the strip is formed of two parts 15 and 16, the lower part 15 being simply a flat strip which forms the bottom of each lower die-cavity, while the strip 16 is designed to be placed upon the strip 15, and is provided with holes or openings 17, which, when the strip 16 is in position on the strip 15, forms the sides of the lower die-cavity. By thus dividing the lower die-strip the diameters of the lower die-cavities may be varied by simply changing the strip 16 and substituting another strip having holes or openings 17 of a different size or shape. As will be clear, suitable means must be provided for securely holding the strip 16 in position on the strip 15. Any well-known devices, such as guide-pins or the like, may be provided for this purpose.

In the use of the molding-dies hereinabove described the metal hooks may be quickly filled onto the lower die-strips by a machine provided for the purpose, and by the employment of a considerable number of said strips the operator who uses the dies may be kept

constantly employed without necessitating any delay in the operations, and the said lower die-strips, when removed after the molding operation, serve as a means of quickly removing a large number of covered hooks from the dies and placing them in a position to be inspected or subjected to further finishing operations. The arrangement of the parts, especially of the projections 6, which serve as a backing for the necks of the hooks, and pins 8 in the plate A, are very efficient as means for accurately positioning the hooks which are to be covered, while the pins 8 also serve to support the lower dies when under pressure, rendering the parts durable and reducing to a minimum the liability of the lower die to become bent or impaired. The disposition of the lower dies also is such as to enable the said dies to be quickly and easily filled with covering material.

For the above reasons in particular the construction and arrangement of my device is such that it lends itself readily to the manufacture of covered hooks by the use of a minimum of hand-labor, rendering the operation speedy and freeing it from the objections which exist to the handling of the goods, thus reducing the cost and improving the quality of the articles produced.

What I claim is—

1. A device for covering lacing-hooks with plastic material, comprising a base-plate hav-

ing a series of openings therein with pins centrally located in said openings, said pins serving to locate the hooks in the dies, and their upper ends receiving thereon the under surface of the die-strip and supporting said die-strip during the operation of molding, and projections at one side of said openings, a lower die-strip containing a series of lower dies each for the reception of the neck and crown of a lacing-hook, and a series of upper dies coöperating therewith and corresponding in shape to the crown of the covered hook, substantially as set forth.

2. In a device for covering lacing-hooks with plastic material the combination with a plate having an opening to receive the barrel or attaching portion of the hook and a fixed projection against which the neck of the hook bears to position the latter and hold it in proper position in the dies, of a lower die to receive the neck and crown of the hook and the covering material and an upper die coöperating therewith to mold the material on the crown of the hook, substantially as set forth.

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

ALANSON C. ESTABROOK.

Witnesses:

GEORGE H. RAY,  
HOMER C. BLISS.