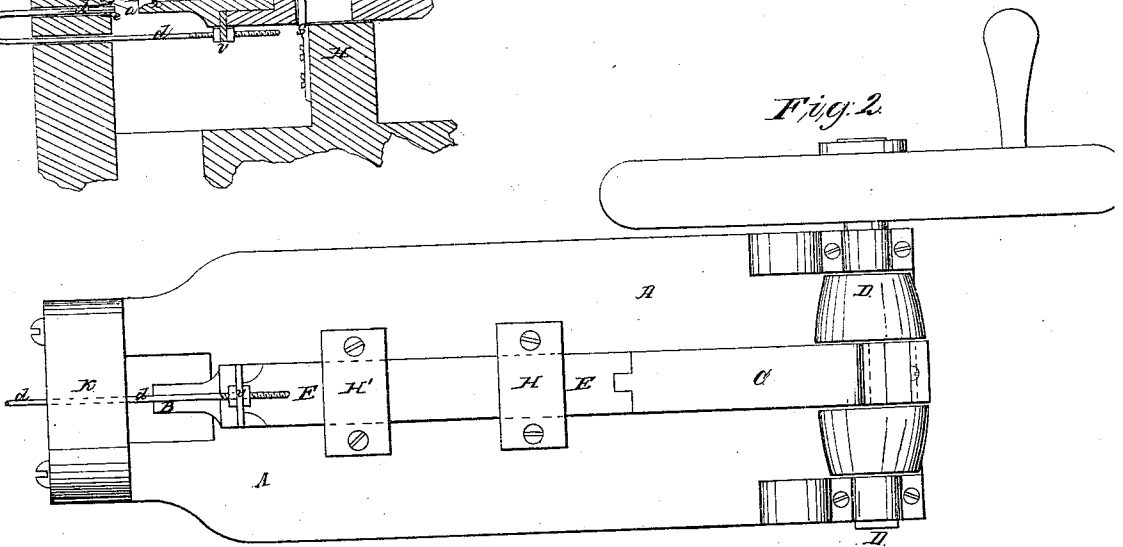
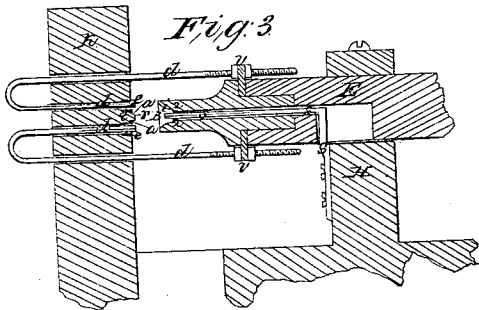
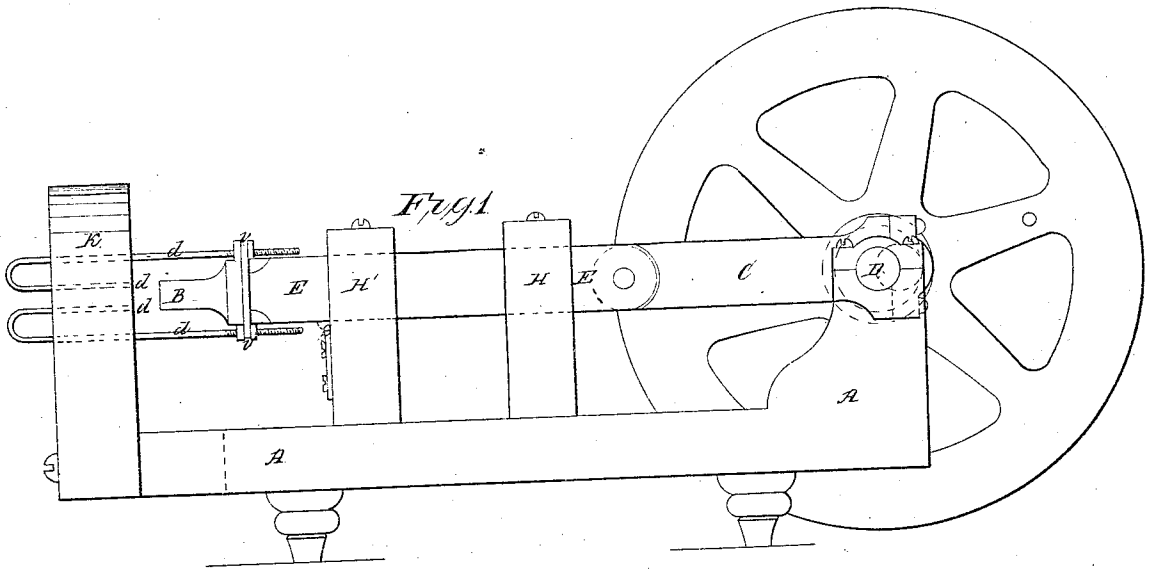


T. Garrick.

Making Eyelets.

N^o 53,807.

Patented Apr. 10, 1866.



Witnesses;
Isaac A. Brownell.
C. L. Lowland.

Inventor,
Thomas Garrick

UNITED STATES PATENT OFFICE.

THOMAS GARRICK, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN MACHINES FOR MAKING EYELETS.

Specification forming part of Letters Patent No. 53,807, dated April 10, 1866.

To all whom it may concern:

Be it known that I, THOMAS GARRICK, of the city and county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Machines for Making Eyelets; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of an eyelet-machine embodying my improvement. Fig. 2 is a plan of the same, and Fig. 3 is a cross-section of the eyelet-forming instruments.

Similar letters of reference indicate corresponding parts in all the figures.

The first part of my invention relates to the mode of constructing the hub and cutting-punch which shapes the interior of the eyelet and punches out the closed end, and is intended to correct a difficulty which I will mention. When the end of the cutting-punch is flat the metal bends sharply across its cutting-edge, and can only stretch from the cutting-edge to the periphery of the disk, which makes the metal so much thinner at this end of the eyelet that it is most liable to split when it is stretched to insert it in the usual way, and for remedying this difficulty my invention consists in forming on the end of the cutting-punch a rounded protuberance or teat that pushes the center of the metal disk beyond the end of the punch and keeps it from bending so sharply across its cutting-edge as to prevent the metal from stretching evenly from the center to the periphery of the disk until the operation of forming it into an eyelet is completed, and also enables the cutting-edge to sever the metal squarely between it and the cutting-cavity in the mold, to punch out the closed end.

The second part of my invention relates to the means employed to remove the completed eyelet from the cavity of the cutting-die, where it would otherwise remain and prevent the operation from being repeated; and it consists in combining with the stationary cutting-die and fixed hub and cutting-punch, constructed as described, two or more small punches or clearers that pass from the rear between the sides of the cutting-die and the said hub and punch, and by striking against the expanded edge of

the eyelet expel it from the cavity of the die after each operation.

In the drawings, B is the movable cutter or punch, fitted and secured in the sliding plunger E, which slides horizontally in suitable stands H, forming part of the frame A, by means of a crank on the shaft D and a connection, C, connecting the two parts in a manner to convert the rotation of the shaft into a reciprocative movement of the said plunger and cutter or punch. This cutter or punch is cylindrical in form at the end, and of the diameter required for the disk of sheet metal from which the eyelet is formed or converted. In the end of the punch is formed a mold, *i*, of the size and form of the exterior of the proposed eyelet, as shown clearly in Fig. 3, and in the center of the contracted portion of the said mold is formed a cutting-shoulder, 2, where the end of the eyelet is cut out and retained until the operation is completed, and then expelled therefrom by means of the stationary clearer S, secured to the stand H', and driving out the end punching when it comes in contact with the end of the clearer with the retreating movement of the plunger.

In the stand K, forming part of the frame, is placed the cutting-die *e*, of a diameter to receive the end of the cutter or punch B, and being in the form of a cylindrical cavity, in the center of which is fixed a conical hub, *t*, corresponding in form and size to the interior of the proposed eyelet, and having at its apex a small rounded protuberance or teat, *r*, which pushes the center of the metal disk beyond the cutting-edge *a* of the punch *t*, and thereby keeps it from bending sharply across the cutting-edge and thereby becoming excessively stretched and thinner at the edge, where the closed end is punched out, than at the expanded end.

It will be seen that the mold in the movable punch B has at its small extremity a shoulder, 2, with a cutting-edge of a diameter to receive the end and cutting-edge of the fixed hub or punch *t*, and that the width of said shoulder provides for a definite thickness of the metal at this edge of the eyelet, between the surface of the mold and that of the hub or punch *t*, when the two parts are brought together, and also provides for cutting out the closed end definitely just within the thickness of the metal

beneath said shoulder; and it is by means of this construction, in connection with that of the hub and punch *t*, that I am enabled to limit and control the stretching of the metal within the mold, to preserve a definite thickness thereof at the small end of the eyelet, and to cut out the closed end at a definite period of the operation, and thereby to mold each eyelet uniformly alike in every particular, which is an important advantage in this manufacture.

It should be understood, however, that I do not claim, broadly, the said mold, which is in the punch with a cutting-shoulder on the inside, as I am aware that the same has been previously known and used, and is not my invention.

The eyelet, after it is formed, remains in the cavity of the cutting-die, clinging to the hub *t*, and is removed therefrom preparatory to the forming of another eyelet by means of the clearer *d d*, consisting of two bended rods secured to two lugs or ears, *v v*, on the sliding plunger, and passing down through the stand *K* at a suitable distance from the cavity of the cutting-die *e*, and then bent inward toward each other and passing up through the stand *K* between the sides of the cutting-die *e* and the hub *t*, as shown in Fig. 3; and the rods are adjusted by means of screw-nuts on each side of the lugs or ears in such a position that as the cutter or punch *B* advances to cut the disk of metal and convert it into an eyelet the ends of the clearer retreat into the cavity of the die out of the way, and when the cutter or punch retreats after the eyelet is completed the clearer ends follow and expel the eyelet from the cavity of the die. Both the clearers, *s* and *d*, it will be seen, are split lengthwise,

and the divided part is made to expand outward so as to fill the cavity in which they operate and compensate for any wear upon them.

By means of the construction of the eyelet-forming parts, as above described, the eyelet is made in perfect form and delivered therefrom by the action of the combined formation of the parts with one operation or movement, in lieu of a series of movements or operations, requiring greater complication of machinery, and the advantage gained is greater rapidity of movement and a cheapening of the cost of constructing and repairing the parts which are most liable to wear.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the protuberance or teat *r* on the end of the hub or punch *t* with the cutting-edge *a* of said punch, substantially as described, for the purpose set forth.

2. The combination of the cutting-die *e* and fixed hub and punch *t*, constructed substantially as described, with the moving clearers *d d*, constructed and operating substantially in the manner and for the purpose set forth.

3. The combination of the mold in the movable punch, for shaping the exterior of the eyelet, and the cutting-shoulder *2*, constructed as described, with the fixed hub or punch *t*, constructed and operating in connection, substantially as described, for the purpose set forth.

In testimony whereof I have hereunto set my hand this 21st day of December, A. D. 1865.

THOMAS GARRICK.

In presence of—

ISAAC A. BRUMELL,
E. L. HOWLAND.