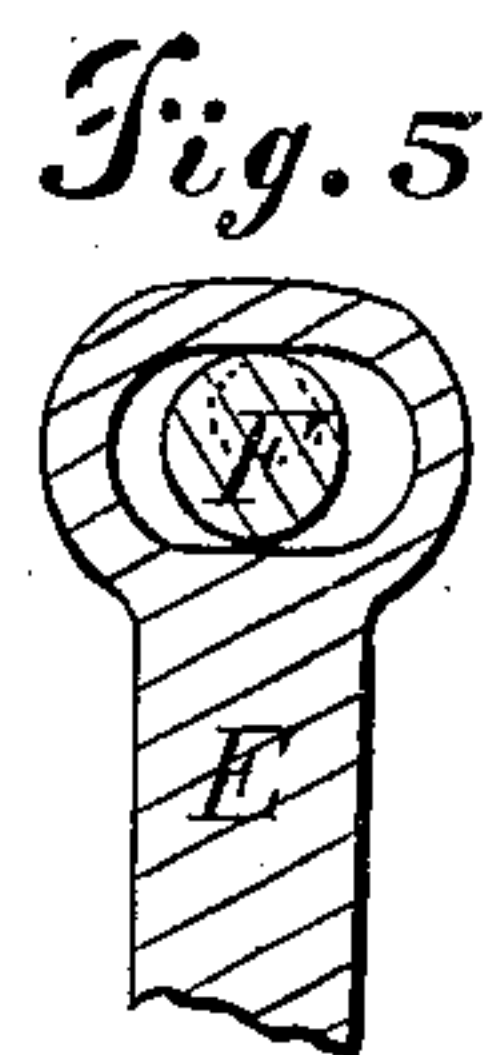
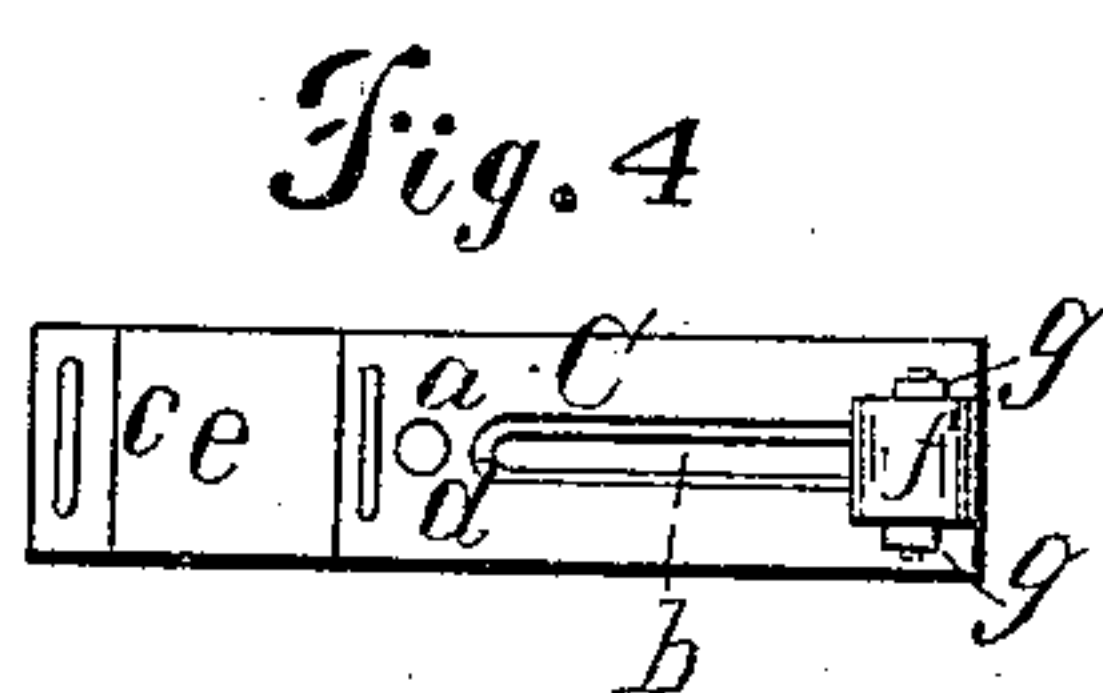
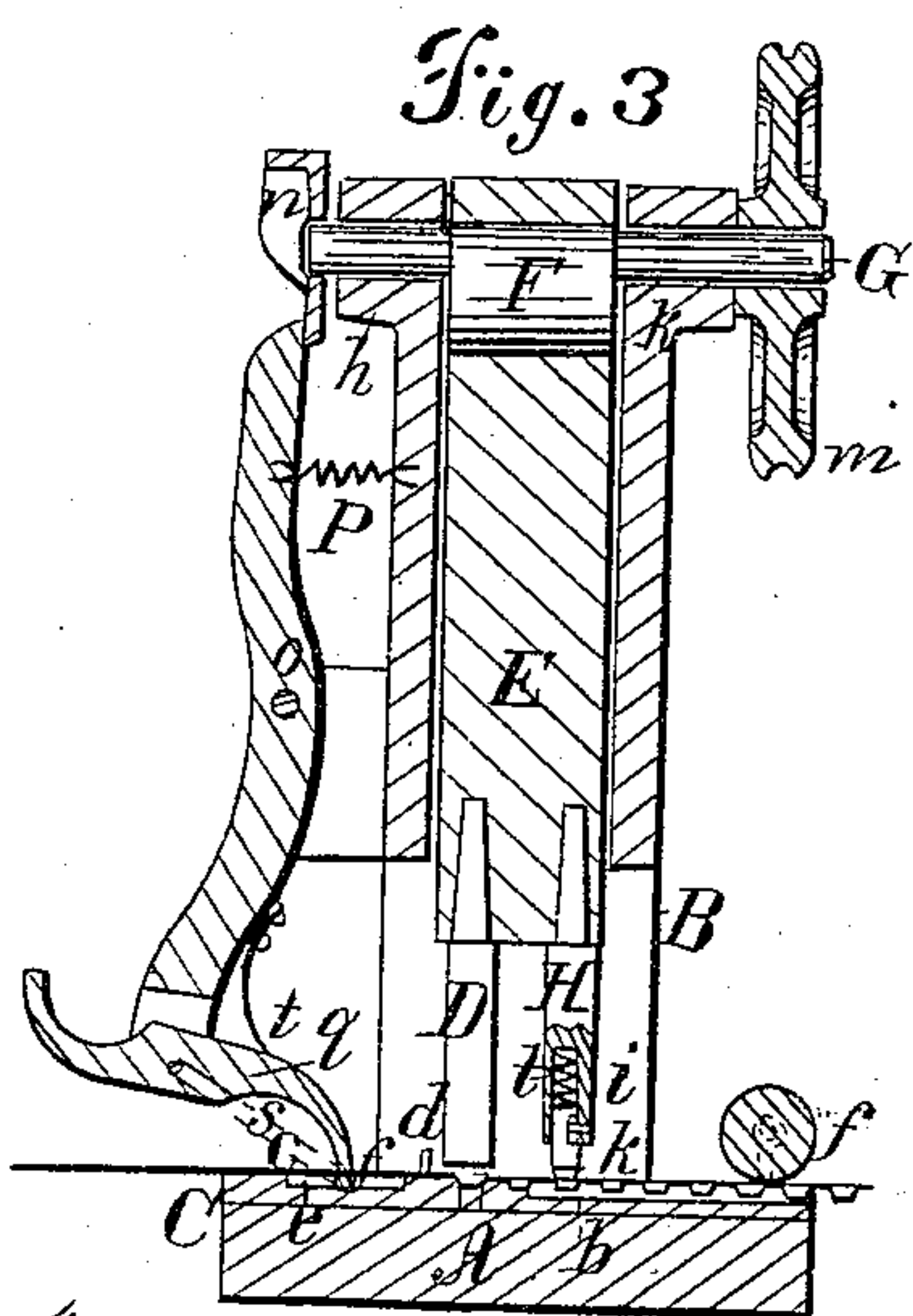
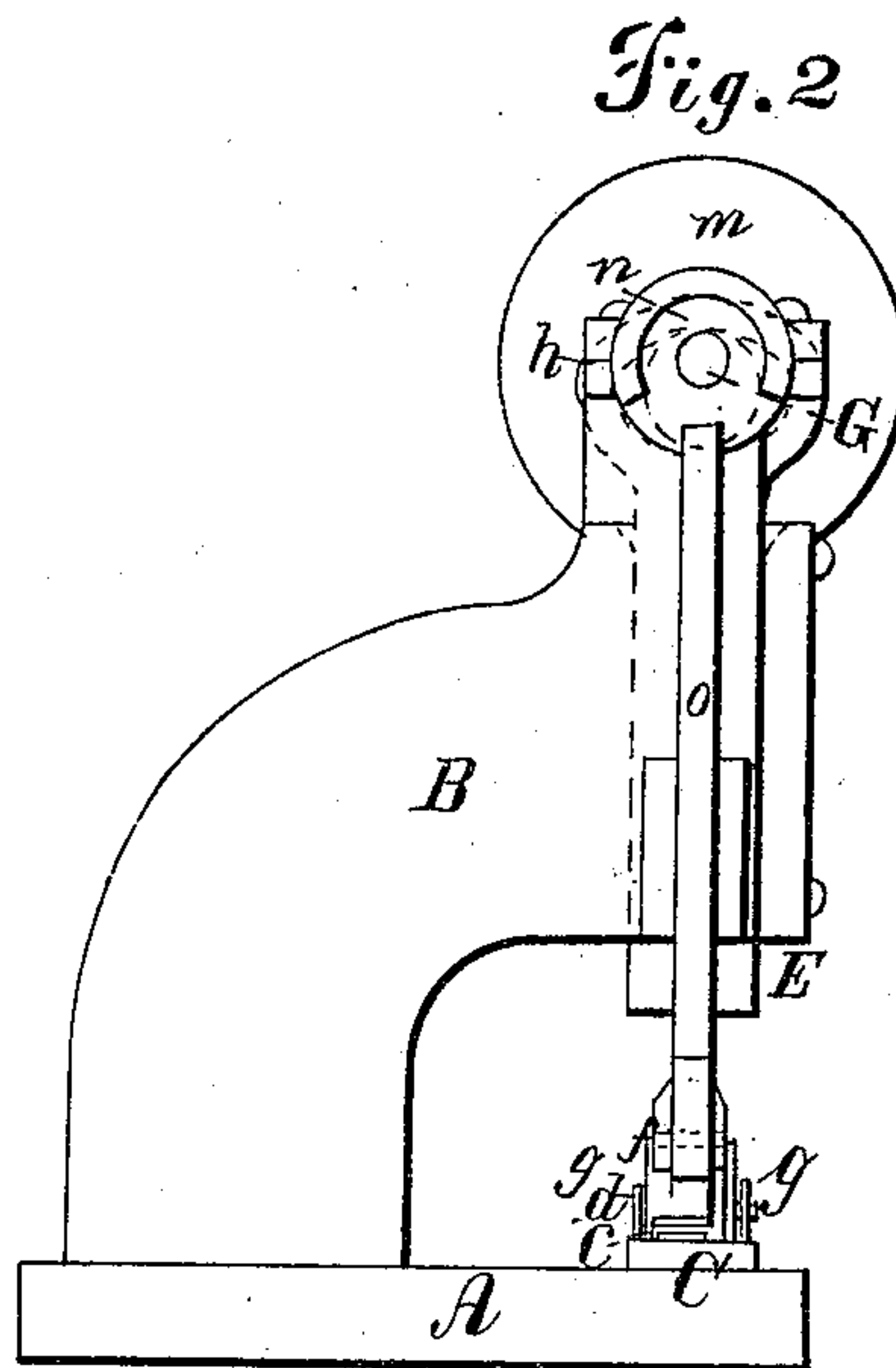
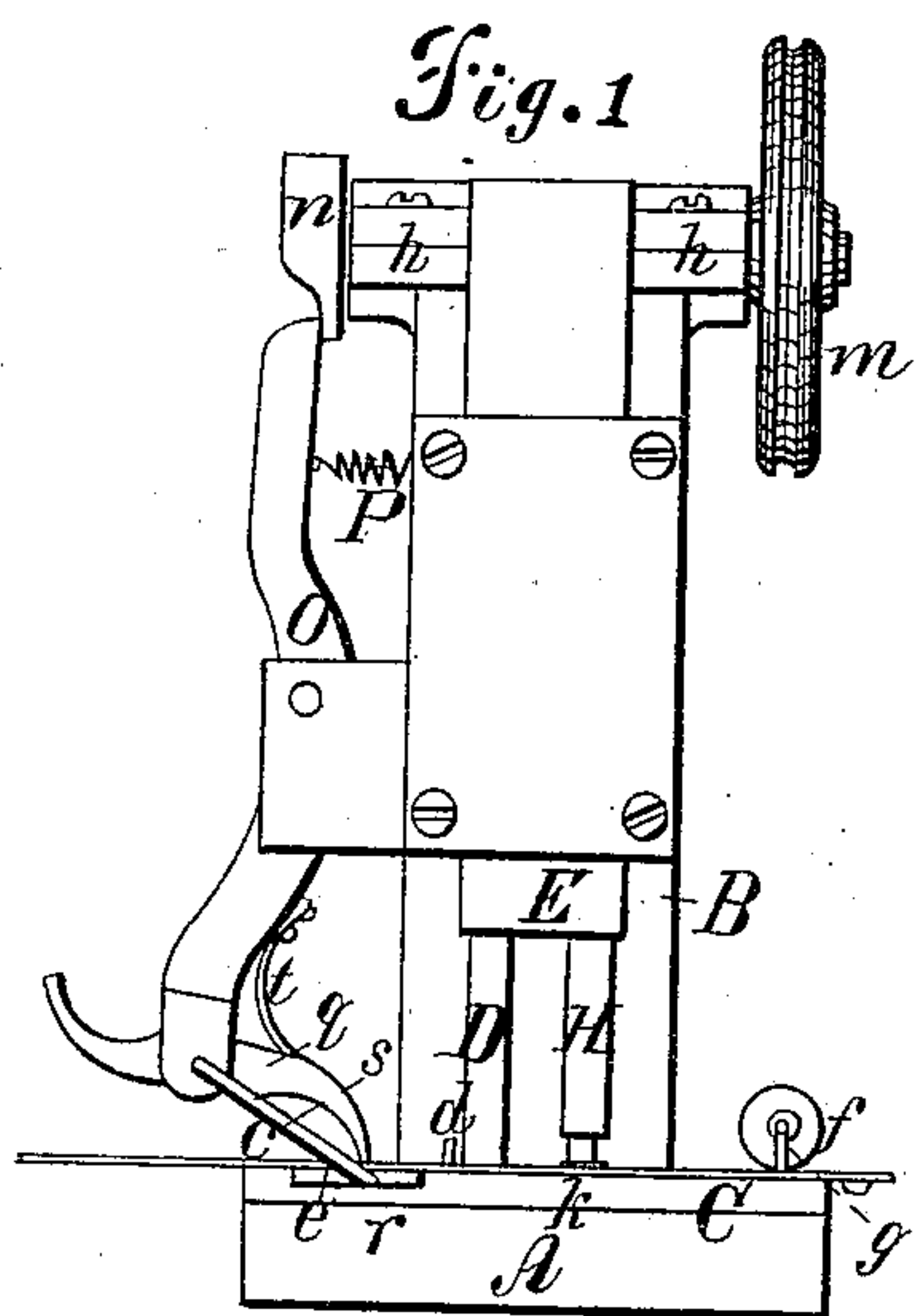


S. W. YOUNG.  
Making Eyelets.

No. 65,036.

Patented May 21, 1867.



Witnesses;  
Geo H. Andrews  
Samuel St. Pierre

Inventor:  
S. W. Young  
by his attorney.  
R. V. Mady.

# United States Patent Office.

SOLOMON W. YOUNG, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO  
HIMSELF, J. W. HOARD, AND R. A. DENISON, OF SAME PLACE.

*Letters Patent No. 65,036, dated May 21, 1867.*

## IMPROVEMENT IN MACHINES FOR MAKING EYELET STOCK.

*The Schedule referred to in these Letters Patent and making part of the same.*

TO ALL PERSONS TO WHOM THESE PRESENTS SHALL COME.

Be it known that I, SOLOMON W. YOUNG, of the city and county of Providence, and State of Rhode Island, have invented a new and useful Machine for Making what is termed "Eyelet Stock," such as constitutes the subject of the United States Patent No. 54,646, granted May 8, A. D. 1866, to John W. Hoard; and I do hereby declare my said invention to be described in the following specification, and represented in the accompanying drawings.

Figure 1 of such drawings is a front elevation; and

Figure 2, a side elevation of such machine.

Figure 3 is a vertical section, taken through the punch-die, the guide-groove, and strip-retainer, to be hereinafter described.

Figure 4 is a top view of the die-plate and strip-guide.

What is meant by "eyelet stock" will be fully comprehended by reference to the patent of the said Hoard, and therefore its description does not herein become requisite, further than to state that it is a thin strip of brass, or other proper metal, having a series of frusto-conical cavities punched in it at equal distances asunder, and in one side of it, so as to form corresponding projections from its opposite side. This eyelet stock, after having been thus formed and subsequently annealed, is to be introduced into an eyelet-punching machine, which completes the eyelets, and separates each of them from the remainder of the strip.

In the drawings, A denotes a base-plate, and B a curved standard raised thereon. On the said base-plate, and beneath the front part of the standard, is a die-plate, C, having made in it a concavity or die, *a*, of the form of a frustum of a cone, or an approximation thereto. In advance of this die there is a channel, *b*, formed in the die-plate, such channel being open at one end; but at the other, or that next the die, it terminates in a concave semi-frustum, like one-half of the die, such as would be on either side of a vertical plane passing through the axis of the die. The distance between the die and the guide-channel *b* is equal to that which is to exist between each two next adjacent convexities of the eyelet stock, when made. The guide-groove has a transverse section corresponding to that of one of the concavo-convex frusta of the eyelet stock. Just preceding the die are two strip-guides or staples, *c d*, between which there is a rectangular depression, *e*, such guides and depression being formed and arranged as represented. Over the channel *b*, and near its front end, is a roller, *f*, having its journals duly supported by standards *g g*. The purpose of this roller and the staples *c d* is to keep the strip of metal in its due relation to the die-plate C, but still to allow it to rise above the die sufficiently to enable such strip to be advanced by the feeding mechanism to be described. The staple *d*, next to the die, also serves to detach the strip from the punch while the latter is in the act of being raised out of the die. The closed extremity of the guide-groove serves as an abutment for an eyelet projection to rest against while the next one is in the act of being formed by the punch and die, and it operates to prevent the metal of the made eyelet projection from being strained or bent out of shape by the punch and die. Over the die-plate is a punch, D, which projects from a plunger, E, that slides vertically within the standard B, and has a reciprocating rectilinear motion imparted to it by a cam, F, fixed upon a shaft, G, arranged as represented. Such shaft is provided with a driving-pulley, *m*, and is upheld by boxes *h h*. The cam works in an elongated eye made through the plunger, (see fig. 5,) which is a section of the plunger-head and the cam or eccentric. Furthermore, the plunger supports what I term the retainer, H, which consists of a tubular projection, *i*, and a piston, *k*, supported against a helical spring, *l*, arranged within the part *i*. The head of the piston is a conic frustum, corresponding in form with the interior of an eyelet blank of the strip. This retainer moves with the punch, and, preparatory to the descent of the latter upon the strip of metal, enters one of the concavities of the strip, and holds the strip down in its proper position for the punch to act upon it and punch another such cavity in it. A feeding apparatus is employed to feed the strip along the requisite distance preparatory to each depression in it being formed. This feeding apparatus may be thus described: On one end of the shaft G is a cam, *n*, of suitable form. This cam acts against an arm of a lever, *o*, provided with a spring, *p*, for drawing it toward the cam. The lower arm of the said lever supports two jaws, *q r*, the upper of which is a lever, formed as represented, and jointed to the lever *o*, so as to be capable of being turned vertically on the joint-pin which goes through the two, and has the shank *s* of



of the other jaw *r* extending from it. The jaw *r* projects from the shank horizontally and at right angles to it, and rests and moves on the bottom of the depression *e*. A spring, *t*, fixed to the lever *o*, presses upon the inner arm of the lever-jaw *q*. By pressing down on the outer arm of the lever *q*, we can turn the lever so as to facilitate the insertion of a strip of stock between the jaws and through the inner staple.

In introducing a strip of metal into the machine, such strip is to be forced through the staple and between the jaws. On the plunger being set in motion, the strip will have an intermittent movement imparted to it, and will have a series of the eyelet-concavo-convex projections made in it successively.

I claim as my invention in the said machine, the following, viz :

1. I claim the die-plate, as constructed with the groove or channel *b* and the depression *e*, as and for the purposes set forth.
2. I also claim the combination of the retainer *H* with the die and the punch, or the same and the guide-channel, such retainer to operate with the punch, substantially as specified.
3. I also claim the feeding apparatus, made substantially as described.
4. I also claim the combination as well as the arrangement of such feeding apparatus or its equivalent, with the punch and die and the retainer, as specified.
5. I also claim the combination of the feeding apparatus, the punch and die, the retainer, and the guide-channel, to operate as specified.
6. I also claim the combination as well as the arrangement of either or both the guide-staples with the die-plate, the punch, and the feeding mechanism, as explained.
7. I also claim the combination of the roller *f*, the guide-channel, the retainer, the punch and die, one or more staples, and the feeding mechanism.

SOLOMON W. YOUNG.

Witnesses:

CHARLES SELDEN,  
ALBERT M. HEWITT.