(No Model.)

L. P. BOSWORTH.

MACHINE FOR SECURING METAL POINTS TO LACINGS.

No. 599,548. Patented Feb. 22, 1898.

Fig. 1.

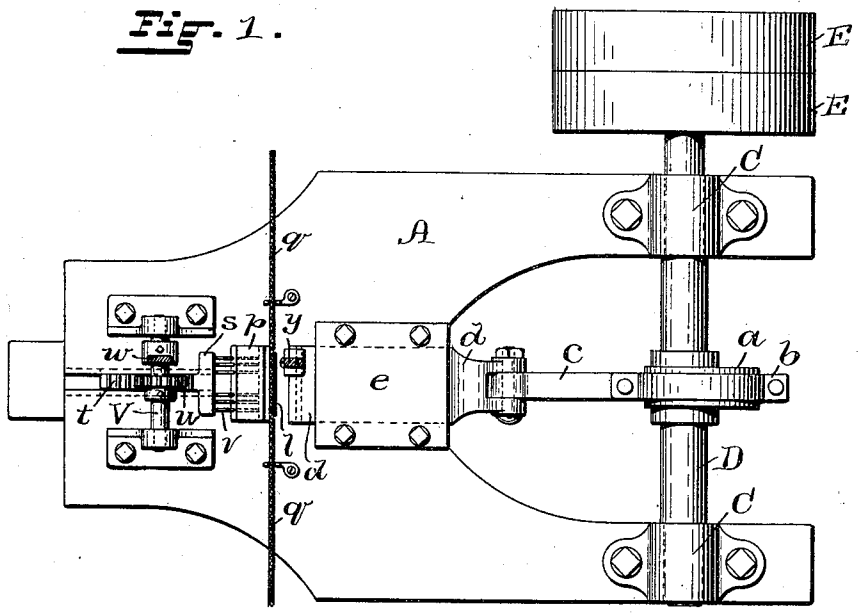


Fig. 2.

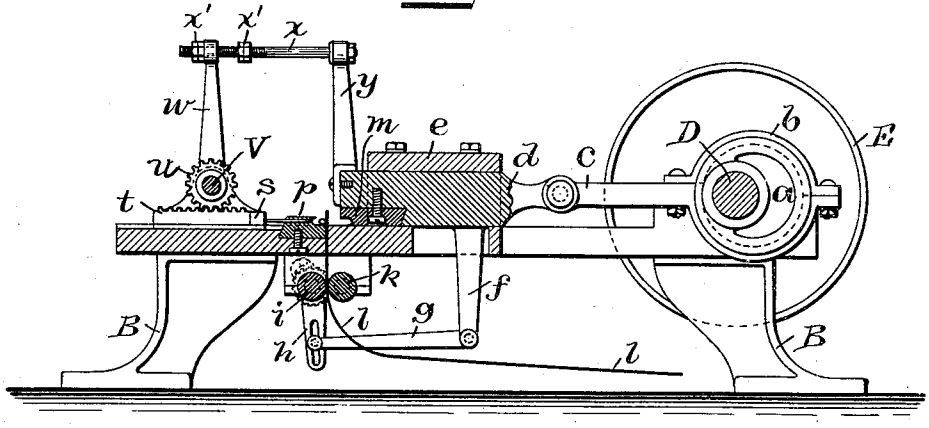


Fig. 3.

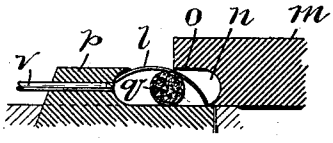
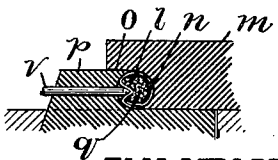


Fig. 4.



WITNESSES:

W. F. Bligh.

Chas. H. Luther Jr.

INVENTOR:

Lorenzo P. Bosworth,

by Joseph N. Miller & Co.,

Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C

UNITED STATES PATENT OFFICE.

LORENZO P. BOSWORTH, OF PAWTUCKET, RHODE ISLAND.

MACHINE FOR SECURING METAL POINTS TO LACINGS.

SPECIFICATION forming part of Letters Patent No. 599,548, dated February 22, 1898.

Application filed May 6, 1897. Serial No. 635,301. (No model.)

To all whom it may concern:

Be it known that I, LORENZO P. BOSWORTH, of Pawtucket, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Machines for Securing Metal Points to Lacings; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in a machine for binding shoe and other laces with sheet-metal strips and securing the same to the lacing-string, so that the sheet metal forms a metallic tip for the lacing.

The invention consists in the peculiar and novel construction of the machine and the combination of parts, as will be more fully set forth hereinafter.

The tips of shoe, corset, and other lacing-strings are usually made of thin sheet metal bent around the lacing and then cut in two, so as to form two tips, which, owing to their rigidity, can be readily passed through eyelets or holes of shoes, corsets, or other articles requiring to be secured by the laces.

The object of this invention is to supply the required length of the sheet metal, bend the same around the lacing, and secure the sheet metal to the lacing at predetermined intervals automatically.

Figure 1 is a view of the top of the machine. Fig. 2 is a longitudinal sectional view of the machine. Fig. 3 is a sectional view, on an enlarged scale, of the cutting and bending dies shown in the position they occupy when the sheet-metal strip has been cut from the band of sheet metal and is in the act of being bent around the tape or string. Fig. 4 is a sectional view of the cutting and bending dies shown in the position they occupy when the sheet-metal strip has been bent around the lacing, cord, or string and is secured by the pointed rods.

In the drawings, A indicates the bed-plate of the machine; B B, the support for the bed-plate A; C C, the pillow-blocks, in which the driving-shaft D is journaled; E E, the loose and tight pulley on the driving-shaft; *a*, an eccentric secured to the driving-shaft; *b*, the eccentric-strap, the arm *c* of which is pivotally secured to the carriage *d*, sliding in the ways *e*, so that at each revolution of the driving-shaft D the carriage *d* is moved away from and then toward the driving-shaft. The arm *f* extends from the carriage *d* downward and is adjustably connected to the slotted arm *h* by the rod *g*. The slotted arm *h* is pivotally supported on the shaft of the roller *i* and is connected with the roller by a spring-clutch of the usual construction, so that the roller *i* is turned when the carriage *d* moves toward the driving-shaft D. A ratchet-gear and pawl (indicated in broken lines in Fig. 2) prevent the rotation of the roller *i* when the carriage *d* moves outward from the driving-shaft. *k* is a pressure-roller, and the strip of sheet metal *l* is fed by these rollers through a slit in the bed-plate A of the machine. The cutter-die *m* is secured to the carriage *d*. It has the concaved end *n* and the overhang *o*. The bending-die *p*, which has a concave face, is secured to the bed-plate A. The bending-die *p* is perforated for the passage of the pointed rods *v*, which are secured in the slide *s* and project from the same into the perforations of the bending-die *p*. The rack *t* forms part of the slide *s* and slides in suitable ways in the bed-plate A. The pinion *u* engages with the rack *t*. The pinion is secured to the shaft V, supported in suitable bearings, and from the shaft V extends the lever *w*. The rod *x*, secured to the arm *y*, which is connected to and moves with the carriage *d*, extends through an eye in the upper end of the lever *w* and is provided with the two stops *x' x'*, consisting each of two nuts secured on the screw-threaded end of the rod *x*. The tape, cord, or string *q* is passed through suitable guides across the bed-plate of the machine.

I will now more fully describe the operation of the machine. As shown in Fig. 2, the carriage *d* has reached the extreme end of the traverse toward the shaft D. In moving into this position the arm *f*, through the rod *g* and slotted arm *h*, has turned the roller *i* sufficiently to feed the metal strip *l* a suitable distance above the bed-plate A to supply the necessary sheet metal to inclose the cord *q*. The carriage *d* is now moved by the eccentric *a* forward. The overhang *o* of the die *m* bends the sheet metal, so that the upper end passes over the cord *q* and enters the concave face of the bending-die *p*. The cutting edge

of the die m separates the sheet-metal wrapper from the strip l, and the parts are as shown on an enlarged scale in Fig. 3. As the dies m and p continue to approach each other the sheet metal is bent around the cord, one of the stops x' comes in contact with the lever w, the pinion u is partially rotated, and the rack t operates the slide s to force the pointed ends of the rods v against the sheet-metal envelop and then into the body of the cord, as is shown in Fig. 4, which figure represents the position of the dies and pointed rods at the extreme end of the traverse of the carriage. On the return movement of the carriage to the position shown in Fig. 2 the dies separate, the outer stop x' on the rod x operates the lever w to draw back the slide s and the pointed rods v, the cord q is drawn forward to the next place where the metal tip is required, the strip l is fed through the slit in the bed-plate, and the operation is repeated. At each revolution of the shaft D a tip-strip of sheet metal is secured to the cord, tape, or string.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a machine for securing metal tips to lacings, in combination, a bed-plate and suitable supports therefor, a driving-shaft, a carriage reciprocatingly operated from the driving-shaft, a cutting and bending die secured to and moving with the carriage, a stationary perforated bending-die, a strip-feeding device operated by the carriage, pointed rods sliding in the perforations of the stationary bending-die, and mechanism, substantially as described and operated by the carriage, for projecting the pointed rods; whereby the sheet metal is separated from the strip, automatically bent around the lacing and secured, substantially as described.

2. In a machine of the nature described, the combination with the fixed perforated die p having a concaved face, the reciprocating die m having the concaved face n and overhang o, of the slide s, the pointed rods v, and mechanism, substantially as described, for operating the slide s; whereby the sheet-metal strip is bent around the lacing and secured to the same, as described.

In witness whereof I have hereunto set my hand.

LORENZO P. BOSWORTH.

Witnesses:

JOSEPH A. MILLER, Jr.,

M. F. BLIGH.