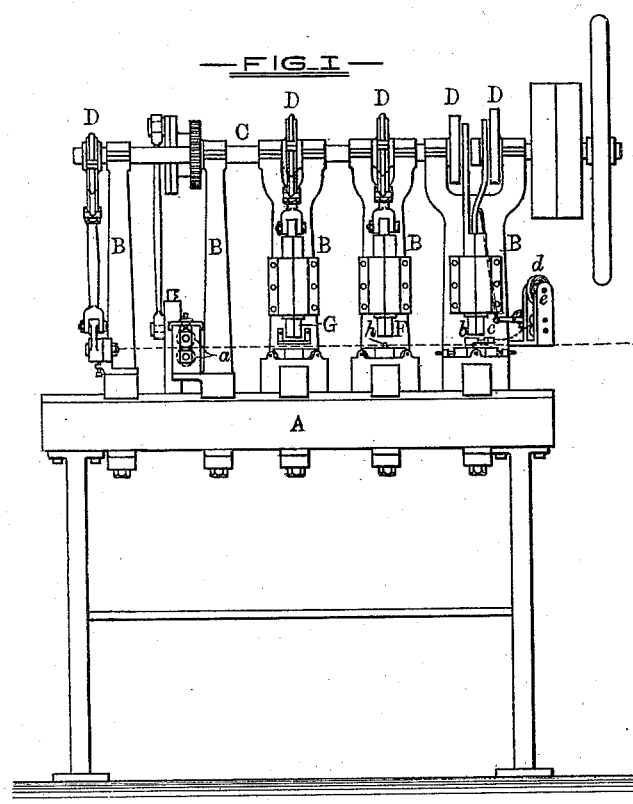
2 Sheets—Sheet 1.

H. D. MENTZEL.

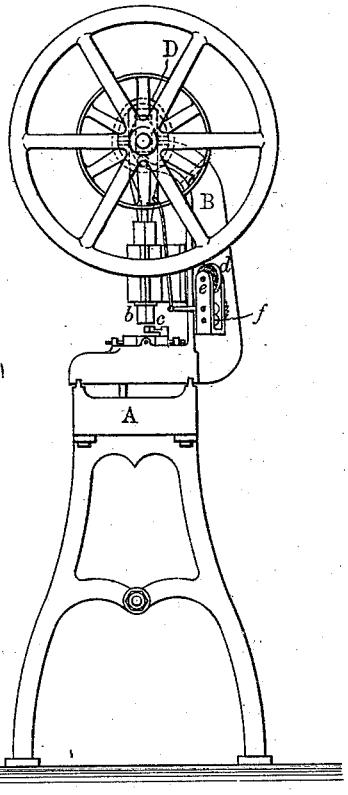
TAG-MACHINE.

No. 190,506. Patented May 8, 1877.

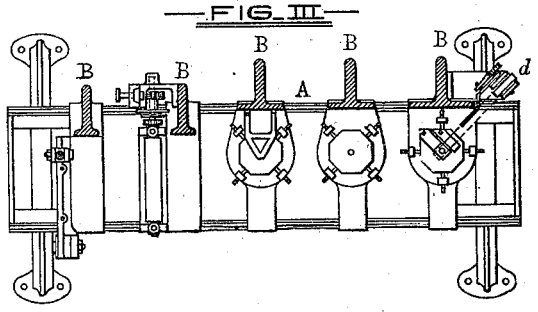
—FIG. I—



—FIG. II—



—FIG. III—



—WITNESSES—

Wm. H. Towson

Edwin H. Howard.

—INVENTOR—

Henry D. Mentzel.

by G. H. & E. T. Howard

Attys.

2 Sheets—Sheet 1

H. D. MENTZEL.

TÁG-MACHINE.

No. 190,506. Patented May 8, 1877.

FIG. I.

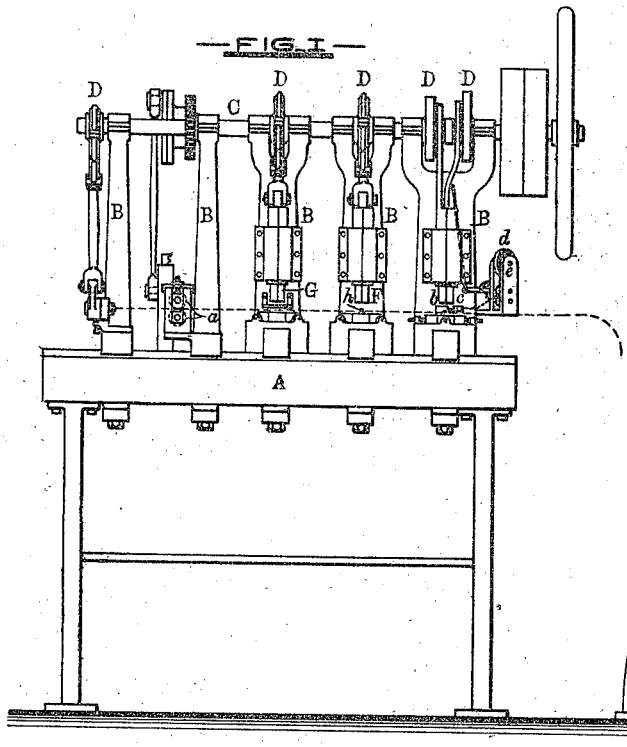


FIG. II.

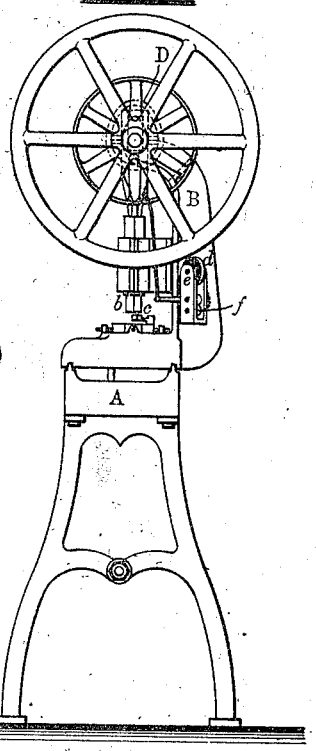
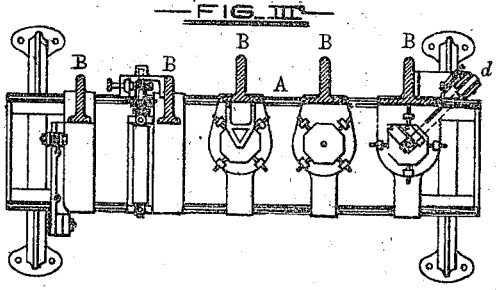


FIG. III.



WITNESSES.

Wm. M. Towson

Edwin A. Howard.

INVENTOR.

Henry D. Mentzel.

by G. H. & E. F. Howard

Attys.

UNITED STATES PATENT OFFICE.

HENRY D. MENTZEL, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN TAG-MACHINES.

Specification forming part of Letters Patent No. **190,506**, dated May 8, 1877; application filed April 5, 1877.

To all whom it may concern:

Be it known that I, HENRY D. MENTZEL, of the city of Baltimore and State of Maryland, have invented certain Improvements in the Art of Making Shipping-Tags, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention has reference to certain improvements in the manufacture of shipping-tags, made from a strip of paper of a width equal to the length of the tag, and which are re-enforced or strengthened at their perforated ends by the attachment thereto of a piece of sheet metal cut from a metallic ribbon or strip, and fastened to the said tag by the duplication of the burr or introverted edge formed around the fastening-aperture in the metallic piece, in the punching of the same by means of a pointed punch.

In carrying out my present invention I employ a machine described in Letters Patent No. 165,109, granted to me June 29, 1875, to which machine certain additions are made, not, however, herein claimed as a part of my present invention. A description of the machine and the additions made thereto is given herein, in order that the nature of the improvements claimed may be the better understood.

In the description of the said invention which follows, reference is made to the accompanying drawing, forming a part hereof, and in which—

Figures 1, 2, and 3 are, respectively, a side view, an end view, and a sectional plan, of a tag-machine embodying the said improvements. Figs. 4 and 5 illustrate parts of the machine on an enlarged scale.

Similar letters of reference indicate similar parts of the invention in all the views.

A represents the bed of the machine, supported upon suitable legs bolted to the under side thereof. B B are stands or frames, the upper ends of which are adapted to carry the horizontal revoluble driving-shaft C. Certain of the stands or frames B are forked at their upper ends, to admit of the rotation of the irregularly-shaped eccentrics or cams D, secured to the shaft C, and which communicate motion to punches and cutters of various kinds, hereinafter fully described.

The driving-shaft C is grooved its entire length, and the eccentrics fitted with keys, which rest within the said groove, and serve to give to the eccentrics and shaft a conjoined rotary movement. This manner of connection also admits of the longitudinal movement of the eccentrics, and the stands between the forked ends of which the said eccentrics are confined.

The paper strip illustrated by a dotted line, from which the tags are made, is fed longitudinally of the bed A of the machine by means of rollers *a*, having an intermittent rotary movement transmitted thereto through the medium of a system of gearing, which actuates a ratchet-wheel connected therewith.

The first of the series of punches or cutters operated from the cams is represented by *b*, and consists of a bar having a cutting-edge, and adapted to move vertically within a guide secured to the front face of its stand. The said bar, during a portion of its movement, passes in close proximity to the sharpened edge of a plate, *c*, or through a circular or other shaped perforation in the same, and thereby shears off or punches out a portion of the metallic ribbon *d*, which is fed thereto, and thereby forms the strengthening or re-enforcing piece for a tag. The metallic ribbon is coiled around a small shaft, *e*, situated in any convenient position, and is fed under the punch *b*, at any desired angle with the longitudinal center-line of the bed, by means of rollers *f*, intermittently revolved by suitable mechanism from some moving part of the machine.

The ribbon is fed to the upper face of the paper strip, which is supported yieldingly by a spring, *g*, extending from the bed, and is depressed as the punch descends after shearing or punching the metallic ribbon. The spring also serves to elevate the re-enforced paper strip after its perforation by the pointed punch E, hereinafter described, and removes the burr caused by the perforation of the ribbon from the cavity in the bed, into which it has been forced by the said punch. The pointed punch

E receives its motion from a cam or irregular eccentric in like manner as the shearing-punch *b*, and slides within the said shearing-punch, which is hollow for the purpose. The eccentrics operating these two punches are so constructed as to cause independent and different movements of the same, the shearing-punch holding the re-enforcing piece firmly in contact with the paper, while the pointed punch descends and perforates the tag.

In the perforating operation, the metal displaced by the entering punch forms a burr, which passes through the paper; and in order to prevent the irregular tearing of the introverted part of the metal, or the burr, the said punch is polygonal in shape at its point, and thereby cuts the burr into as many segments as there are angles to the punch, which segments are turned up or clinched in a subsequent step in the tag-making operation.

After the perforation of the re-enforced paper strip, the said strip passes longitudinally of the bed A to the next punch, which consists of a hollow-faced vertically-moving bar, F, adapted, when down, to pass over a conical projection, *h*, on the bed A. This conical projection is provided with a spring, *i*, similar to the one, *g*, underneath the punch *b*, which extends above the said projection when the hollow-faced punch is elevated. The perforated paper, when brought under the punch F, rests upon this spring, and directly over the conical projection aforesaid. Upon the descent of the punch F the spring yields, thereby allowing the conical projection to enter the perforation in the tag and turn the edges of the burr over the paper. As the punch F reaches the bed, the burr is flattened and the securing of the re-enforcing piece completed. Upon the return or elevation of the punch F, the spring *i* lifts the paper clear of the conical projection *h*, and allows it to pass to the next punch or cutter G. The cutter G has a triangular cutting-face, and at each downward stroke cuts a V-shaped notch in the paper strip aforesaid. After this operation the paper passes to the last cutter H, which divides or shears the paper strip centrally of the V-shaped notch, and allows the severed end of the strip to fall as a completed tag.

As before said, the stands B are capable of being moved longitudinally of the bed, and with this view are grooved at their lower ends to fit over the upper edges of the bed. The frames, when placed in their desired positions, are secured thereat by means of a bolt, *k*, and a bar, *l*.

From the foregoing it will be seen that, although the width of the tags is primarily regulated by the distance which the paper is moved at each revolution of the shaft C, and which distance may be varied by a change in the relative positions of the several parts of the feeding mechanism, the locations of the cutters have to correspond with the distance fed to form a perfect tag, and that this location of the cutters is easily arranged in view of the fastenings of the stands, as above described. The stands with their attachments being interchangeable, the stand to which the gearing and other portions of the feeding mechanism are connected can be placed either next to the one having the shearing-cutter, as shown, or in such position with reference to the other cutters or punches as to force the paper toward the said shearing-cutter.

Tags re-enforced or strengthened at their perforated ends, as described, are fully as strong as tags in which eyelets are inserted; and as the re-enforcing pieces are made, punched, and secured to the tags without the tags being removed from the machine, the cost of manufacture is greatly reduced.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

As an improvement in the art of manufacturing shipping-tags, the method of re-enforcing the same during the process of manufacture, as follows, viz: by cutting a piece of sheet metal from a ribbon, and affixing the piece to the tag by perforating the said piece and the tag by one stroke of the perforating-instrument, and by clinching the introverted burr forced through the tag, the whole operation being continuous and completing the tag, substantially as herein described.

In testimony whereof I have hereunto subscribed my name this 9th day of March, in the year of our Lord 1877.

HENRY D. MENTZEL.

Witnesses:

WM. T. HOWARD,

JNO. S. MADDOX.