

2 Sheets—Sheet 1.

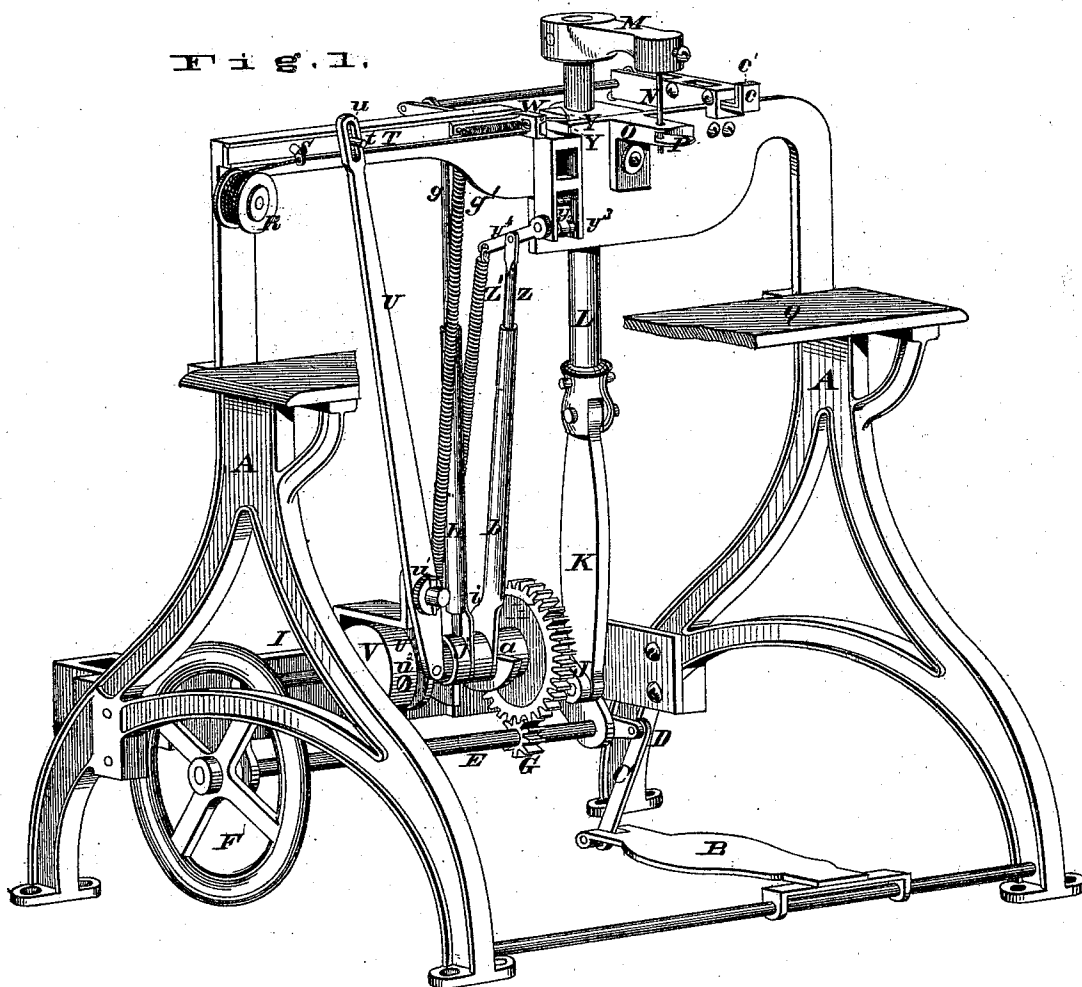
J. EMERY.

MACHINE FOR STRINGING TAGS.

No. 172,103.

Patented Jan. 11, 1876.

Fig. 1.



ATTEST,

Charles Pickles
Robt Burns

INVENTOR,

Jonathan Emery
By *Wm. H. Wright*
Atty.

J. EMERY.

MACHINE FOR STRINGING TAGS.

No. 172,103.

Patented Jan. 11, 1876.

Fig. 2.

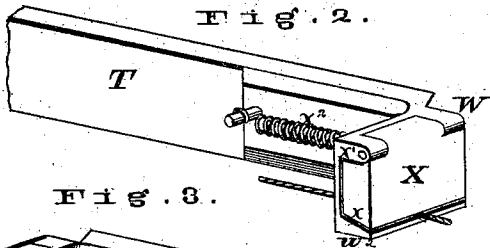


Fig. 3.

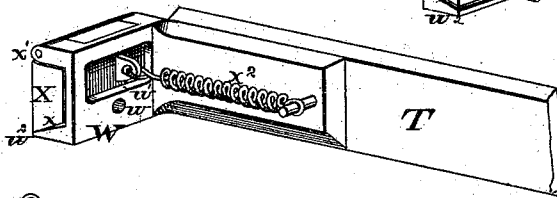


Fig. 4.

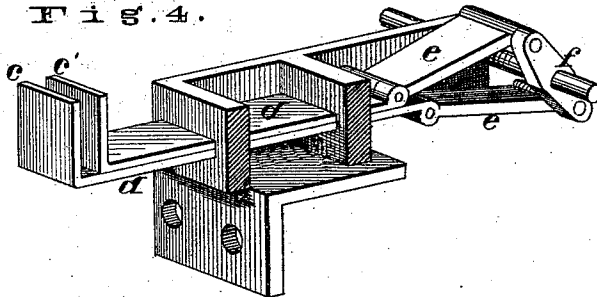


Fig. 6.

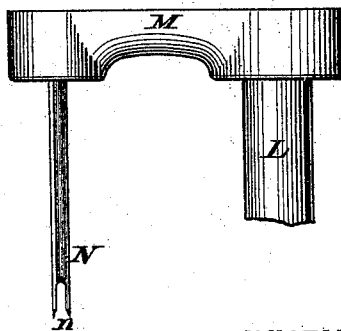
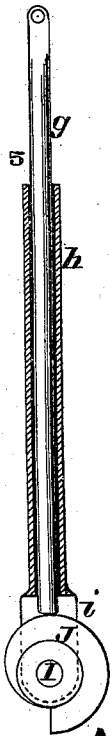


Fig. 5.



ATTEST.

Charles Pickles
Robt Burns

INVENTOR.

Jonathan Emery
Raythrighton
Atty.

UNITED STATES PATENT OFFICE.

JONATHAN EMERY, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF HIS RIGHT TO DANIEL P. KANE, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR STRINGING TAGS.

Specification forming part of Letters Patent No. **172,103**, dated January 11, 1876; application filed August 23, 1875.

To all whom it may concern:

Be it known that I, JONATHAN EMERY, of St. Louis, of the county of St. Louis and State of Missouri, have invented a new and useful Improvement in Machines for Stringing Tags, &c., which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

My improvement relates to a machine for the insertion of the short pieces of twine or cord in tags, pamphlets, &c., by which the ends are attached or suspended.

My improvement consists in a machine having a carriage to carry forward the cord, with tension-nipper, to hold it; a bracket with recess, to hold the object to be strung; a forked punch to engage the cord, and to perforate and carry the cord through the object; a holding-nipper to seize and retain one end of the cord while the other end is carried down; a shears to cut the cord, and actuating devices to give these motions to the parts.

In the drawings, Figure 1 is a perspective view of the machine. Fig. 2 is a front perspective view of the tension-slider, through which the cord passes, and Fig. 3 is a rear perspective view of the same. Fig. 4 is a perspective view of the nipper by which the end of the cord is held while it is drawn through the tension-head. Fig. 5 is a longitudinal section of a cam-rod. Fig. 6 is a side elevation of the inserting punch and head.

A is the frame of the machine. B is a treadle, connected by a pitman, C, to a crank, D, on a shaft, E, having a balance-wheel, F. The shaft E has a spur-pinion, G, engaging a spur-wheel, H, on cam-shaft I. This shaft carries a crank, J, connected by pitman K to the lower end of the vertically-sliding rod L, to whose upper end the punch-head M is attached. The punch N as it descends passes through the bracket O, which has a recess, P, extending in past the punch-hole, so that any article—such as a pamphlet or tag—may have a corner or end inserted in the recess P, when it will be perforated by the punch. The lower end of the punch has a notch, which engages the cord as it (the punch) descends, and the cord is carried through the tag or other object. Q is a table for the articles to be strung. R

shows the cord-spool, turning freely on its arbor. The cord passes from the spool through an eye, S, and then through the tension-nipper and to the holder-nipper. The tension-nipper is on the end of a sliding bar, T, which has a pin, t , working in a slot, u , of an oscillating arm or lever, U, fulcrumed at u^1 , and having a pin, w^2 , entering a cam-groove, v , in a cam, V, on the shaft I. The tension-nipper W has a thread-eye, w , extending through from the rear side to the recess w^1 , whose lower side w^2 is beveled to fit the lower beveled edge x of the tension-plate X. This tension-plate is hinged at x^1 , so that the lower edge may swing outward or inward to nip the cord (which passes between w^2 and x^1) with less or greater pressure, according to the strength of the spring x^2 , by which the plate is drawn into the recess.

The arrangement of the tension-nipper is such that when the cord is drawn forward, it relieves the pressure of the parts w^2 x^1 , (by drawing the tension-plate outward from its recess;) but when the tension-slide is moving forward to draw the cord from the spool, whatever strain there may be on the cord increases the gripe of the nipper. As the tension-nipper moves forward it passes between the jaws Y Y', forming a cutter or shears, by which the length of cord (for one tie) is cut off after the tension-nipper has passed back from between the jaws. Each of these jaws is on a sliding plate, y , and these plates are hinged to the opposite ends of a cross-bar, y^2 , on a rock-shaft, y^3 . The rock-shaft has an arm, y^4 , which is connected to the top of a cam-rod, Z, whose lower end rests on a snail-cam, a . The cam-rod passes through a bearing-tube, b , at whose lower end is a flat plate, through which the shaft I passes, so that the plate has bearing on the shaft, which forms the axis on which the tube b and rod Z oscillate.

The arrangement is such that the jaws Y Y' move simultaneously away from each other from a point level with the cord, so as to allow the tension-nipper to pass between them, and on approaching meet at the point, so as to divide the cord without straining it out of its line. The jaws are drawn together by a spring, Z'.

The holding-nipper has two jaws, c c' , which

nip the end of the cord as it is carried between them by the tension-nipper, and hold the cord end while the tension-nipper is retreating along the cord. The jaws *c c'* move horizontally, and are operated in a manner substantially similar to those *Y Y'*. Each jaw is attached to a sliding plate, *d*, hinged to the end of the cross-bar *e* of the rock-shaft *f*, connected to a cam-rod, *g*, sliding in a bearing-tube, *h*, with bearing-plate *i*, on the shaft *I*, and the rod operated by a cam, *j*—the arrangement being similar to that described for working the jaws *Y Y'*. The jaws are drawn and held together by a spring, *g'*, connected to arm *f*.

The operation of the machine is as follows: The shafts *E* and *I* are kept in motion by the treadle *B*. The tension-nipper *W* moves forward and unwinds the cord from the spool *R*. At this time the shears *Y Y'* and the holding-nippers are open, so that the tension-nipper passes between the shears and carries the end of the cord between the jaws *c c'* and beneath the raised punch *N*. The jaws *c c'* then close upon and hold the end of the cord, and the tension-nipper travels back, the nipper *c c'* retaining its hold of the cord, which is drawn through the tension-nipper, so as to extend beneath the punch, which descends, and the fork *n* at its lower end engages the cord. At this time the shears *Y Y'* cut off the cord at a little distance from the tension-nipper, so as to leave a projecting end to be seized by the nippers *c c'*. The punch continues to descend and carries the loose end of the tie completely through the object inserted in the recess *P*, the other end being still held by the nippers *c c'*. The nippers *c c'* then open, and the punch

raises, and the object is drawn out of the recess *P* and carries the cord-tie with it, one end of the tie projecting from each side.

I claim as my invention—

1. The combination of the reciprocating punch *N* with fork *n*, holding-bracket *O*, having a recess, *P*, and perforated with punch-holes, substantially as set forth.

2. The tension-nipper *W*, having a beveled spring-plate, in combination with the holding-nippers *c c'*, substantially as set forth.

3. The combination of the holding-nippers *c c'*, moving simultaneously to and from a central point, and the reciprocating bar *T*, with suitable nipping device *W*, to carry the thread to nippers *c c'*, and allow the thread to slip in the nipping device *W* on its retreat from the nippers *c c'*, substantially as set forth.

4. In combination with the reciprocating tension-nipper *W*, the shears *Y Y'*, opening simultaneously in opposite directions from a central point, substantially as set forth.

5. The tension-nipper *W*, embracing the combination of recess containing a plate, *X*, hinged at *x¹*, and beveled at the free edge *x*, threaded eye *w*, and spring *x²*, forming a gripping device in one direction, and a tension in the other direction, substantially as set forth.

6. The cam-rods *Z* or *g*, working in tubes *b* or *h*, having bearing at the lower end upon the shaft *I*, and combined with the cam *J* or *a*, substantially as set forth.

JONATHAN EMERY.

Witnesses:

SAML. KNIGHT,
HAROLD HUTCHINS.