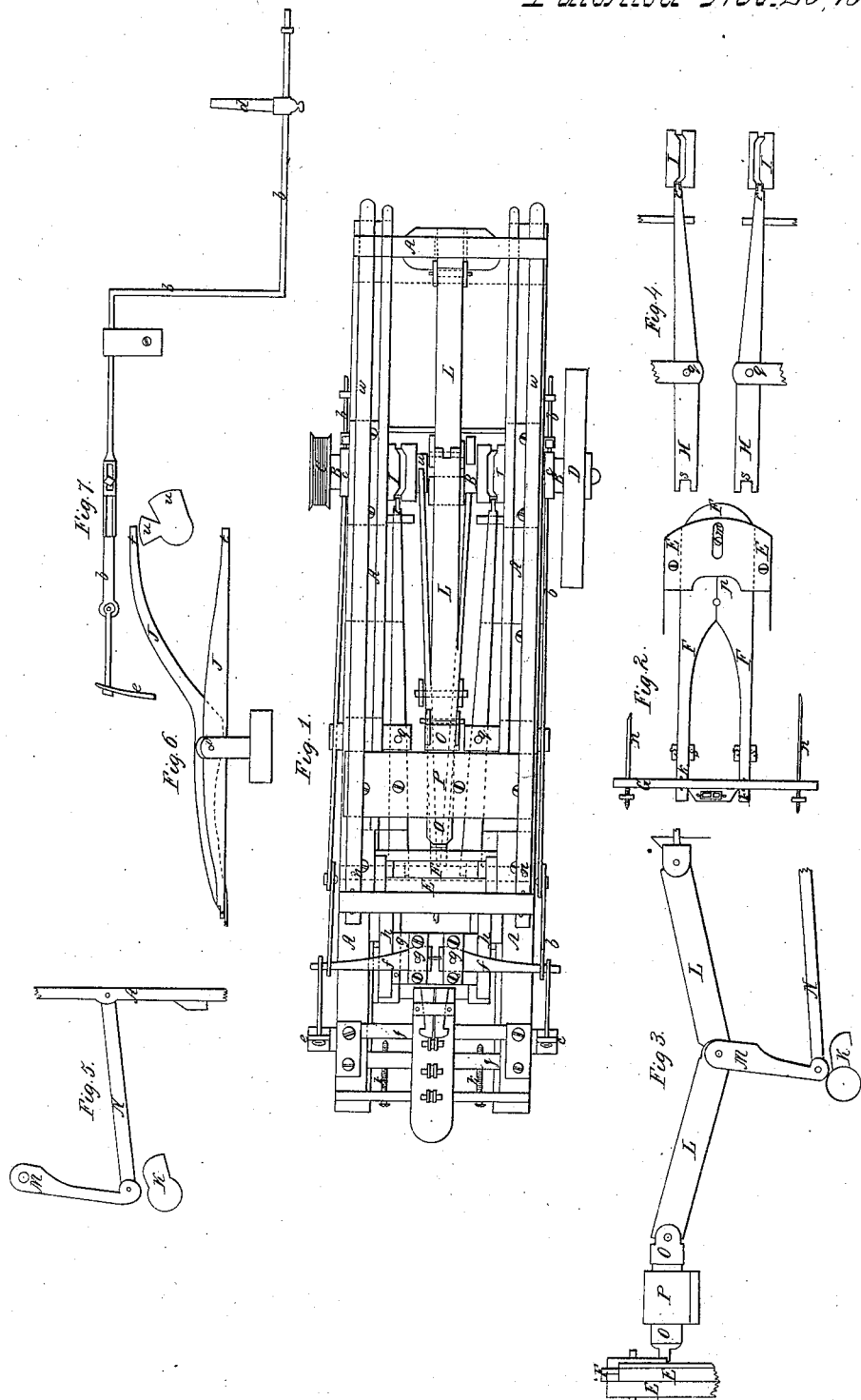


J. H. Pierson,
Nicking Bolt and Screw Heads,
Patented Nov. 26, 1836.



UNITED STATES PATENT OFFICE.

JEREMIAH H. PIERSON, OF RAMAPO, NEW YORK.

MACHINE FOR CUTTING AND HEADING WIRE FOR MANUFACTURING WOOD-SCREWS AND RIVETS.

Specification forming part of Letters Patent No. 86, dated November 26, 1836; Reissued March 8, 1848.

To all whom it may concern:

Be it known that I, JEREMIAH H. PIERSON, of Ramapo, in the county of Rockland and State of New York, have invented a new and useful Machine for Cutting Wire into Suitable Lengths and for Heading the Wire or Blank so Cut for the Purpose of Manufacturing Wood-Screws and Rivets; and I do hereby declare that the following is a full and exact description thereof, reference being had to the drawings which accompany and make part of this specification.

Drawing No. 1 gives an elevation of the machine on one side, and Figure 1 in Drawing No. 2, is a plan, or top view. The other figures on this sheet, show such parts in detail as is thought necessary so to represent.

In each of the figures corresponding parts are designated by the same letters of reference.

In the Drawing No. 1, the frame A, is represented by red lines, which are not allowed to interfere with a view of those parts within it which would be in view were it removed, they are not therefore drawn in dotted lines. The coil of wire from which the blanks are to be cut, is placed on a reel, and is straightened as it enters the machine by passing alternately over and under the straightening rollers *a, a, a*. The wire is drawn into the machine, cut off, and headed by the action cams, and eccentric grooves upon levers which guide and control the apparatus used for these purposes, in a way to be now described. A main shaft B, revolving in suitable boxes, is turned by means of a band pushing round the whirl, or pulley C, or by any suitable gearing, and on the opposite end of this shaft there is a fly wheel D, which is not shown in the elevation drawing No. 1, as it would obscure parts which it is important to show. The wire is drawn into the machine by means of rods *b, b, b*, (shown separately in Fig. 7,) which are acted upon by the cams C C on the outside of the frame, the cam as shown in Drawing No. 1, pressing as it revolves against the vertical arm A, which is adjustable on the rod, by means of a tightening screw. A similar cam, and rod are placed on the opposite side of the machine, the rod is strengthened by oblique braces to give it the requisite stiffness, but these braces are not shown in drawing. A reacting spring

e, is used to draw the rod back when not held by the cam.

f, f, are nippers which seize the wire, and draw it forward to the extent desired by the action of the rod *b, b*, the wire passes through a hole in the block E, where it is cut off by the cutting dies to be presently described. The nippers *f, f*, rest, and have their fulcra upon a sliding plate *g, g*, the ends of which move freely in grooves under the plates *h, h*. The wedges *i, i*, hold the wire in its place ready to be drawn forward by the nippers *f, f*, they are closed upon the wire by the retracting of the nipper plate which is thereby brought into contact with them, and when the wire drawn forward by the nippers loosened. The wedges, and straightening rollers are affixed to the same sliding frame *j, j*, which is adjusted by the set screws *k, k*, that the wedges may be correctly acted upon by the upper plate to cause this plate to slide back when not held forward a spring similar to those at *e, e*, rises from the middle of the frame, and acts upon the under part of it, this spring is seen at *e*, in the elevation. The head block E, contains the cutting tongs which open, and close, and slide up, and down within it. The head of these tongs is seen at F, Fig. 1, the opening or mortise, within which they slide being designated by the continuous line surrounding that letter, and also F, Fig. 2, in this figure that side of the head block, E, which is toward the heading die shown. The shanks of the cutting tongs extend down through the cross bar G, the mortises in this cross bar through which they pass allowing them to open, and close to the requisite distance, but the tongs rise, and fall with the rising, and falling of this bar, having checks, or notches which bear against its upper and lower sides as shown by the pins *k, k*.

l, is the joint pin of the tongs which projects into, and slides in a slot *m*, through either side of the head block, thus serving to guide it up, and down. *n, n*, are guide rods to guide the bar G, and *o, o*, are mortises, or openings which receive the ends of the levers by which it is raised, and lowered at the proper period. The tongs are represented as closed, and the cutting dies are not shown, they being situated on the opposite face of the tongs, and being made in the ordinary way. When the wire is fed in it passes be-

tween the dies, the tongs being then open, and the space *p*, being opposite to the hole through which the wire passes in front of the head block. When the wire has been
 5 drawn in the tongs are closed and it is cut off. The tongs are then raised, and the wire is carried up within the opening *p*, so as to bring its projecting end opposite to the heading die while the opposite end rests
 10 against the solid part of the head block, which is there formed of steel to sustain, and resist the pressure of the heading die, when the heading is completed the tongs again descend, and a new piece of wire being fed in pushes the headed blank out, and occupies its place, for ordinary blanks. The
 15 opening *p*, is countersunk to form the under side of the head.

The levers *H, H*, Fig. 4, serve to open, and
 20 close the tongs, *q, q*, being their fulcra, their ends *r, r*, being guided by the zigzag grooves in the wheels *I, I*, on the main shaft, *B*, as shown also in Fig. 1. The notches at their ends *S, S*, embrace the shanks of the tongs
 25 which slide up, and down freely within them. The levers *J, J*, Fig. 6, are for raising, and lowering the tongs their ends *t, t*, being alternately acted upon by the cams *w, w*, seen in place in the shaft *B*, in Fig. 1.
 30 Their ends *o, o*, pass into the mortises *o, o*, in the rail of the tongs their fulcra are at *v*, in a standard placed to receive them. When the wire has been cut, and the tongs raised so as to present its projecting end to the
 35 heading die a cam *k*, Figs. 3, and 5, on the center of the shaft *B*, raises the progressive levers or toggle joint *L, L*, by its coming into contact with the lower end of the descending joint piece *M*. A guide piece *N*,
 40 is jointed to *M*, and to the frame to govern the motion of the togglejoint.

O, is a sliding belt passing through the socket head *P*, and carrying the heading die, which is to be either flat, or hollow according
 45 to the form to be given to the head of the

blank. There are iron braces extending from the front head block *E*, to the back end of the frame to bind them together, and sustain them against the force of the toggle joint in the heading process, these are shown in
 50 the top view Fig. 1, and are marked, *w, w*, but they are omitted in the elevation, in order to afford a clearer view of the working parts.

A machine of this kind will vary so materially in size, and in the proportion of its parts according to the size of the blank, to be cut, and headed, that I have deemed it
 55 superfluous, to give any scale, or estimation of these, nor will they be found necessary by any competent machinist who would not fail
 60 to construct it with the requisite strength, which is the main point in these particulars.

Having thus fully described the construction of my said machine, and the manner in
 65 which the same operates, I do hereby declare that I do not intend to claim as my invention any of the individual parts of which the same is composed separately, and distinctly
 70 from the purposes for which I have employed them, and the manner in which I have combined them together. Cams, zigzag wheels, levers, toggle-joints, and the
 75 other individual parts described are the elements of numerous other machines. But

What I do claim as my invention is—

The mode of feeding in the wire, combining the action of the nippers, and their sliding plate, with the wedges for holding the wire, and their adjustments, also in conjunction therewith the manner of cutting
 80 off the wire, and raising, and depressesing the cutting tongs, with a concurrent action of the heading die, produced, and operating substantially in the manner herein set forth.
 85

JERM. H. PIERSON.

Witnesses:

ANTHONY HAUSTON,
 JAMES H. ROSS.