H. A. WILLIAMS.

Machine for Making Crimping-Tacks, Awls, &c.

No. 167,046. Patented Aug. 24, 1875.

Fig. 1

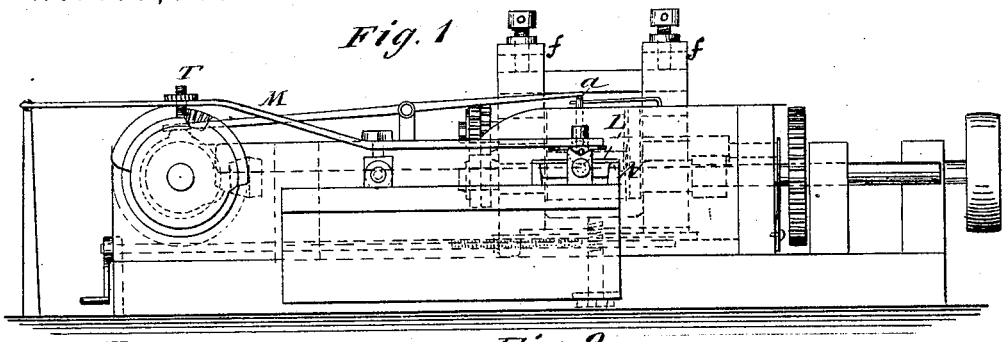


Fig. 2

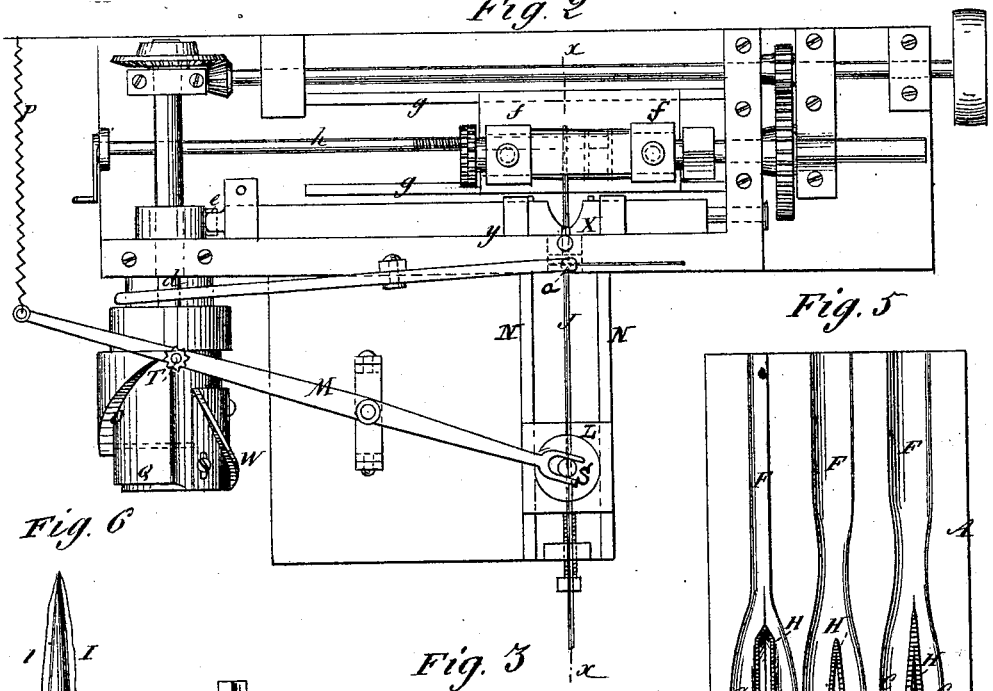


Fig. 5

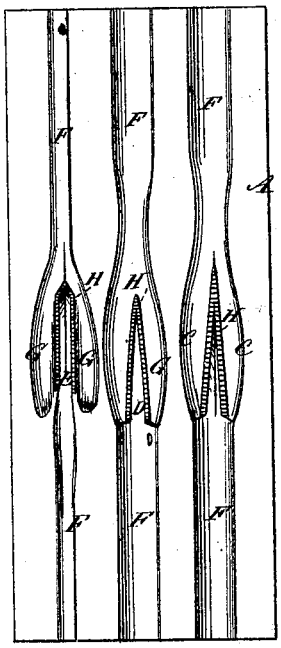


Fig. 6

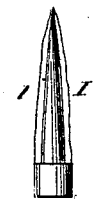


Fig. 3

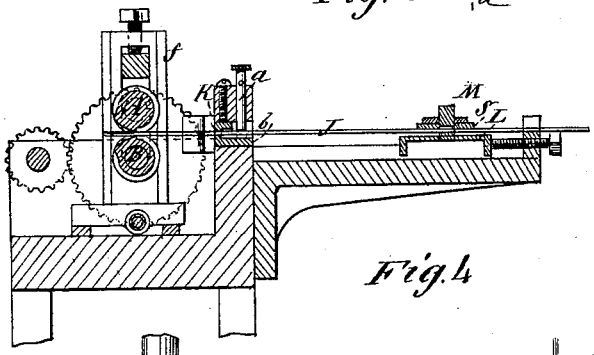
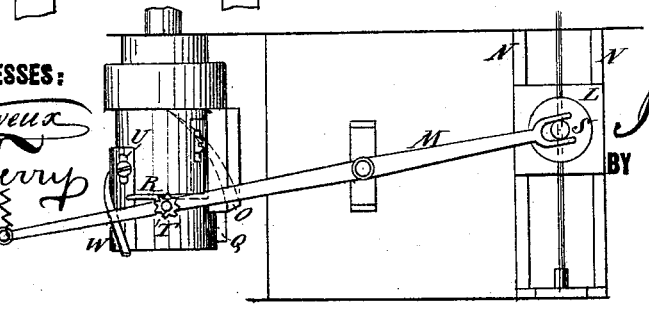


Fig. 4



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HENRY A. WILLIAMS, OF WEST MEDWAY, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR MAKING CRIMPING-TACKS, AWLS, &c.

Specification forming part of Letters Patent No. **167,046**, dated August 24, 1875; application filed July 17, 1875.

To all whom it may concern:

Be it known that I, HENRY A. WILLIAMS, of West Medway, in the county of Norfolk and State of Massachusetts, have invented a new and Improved Machine for Rolling Crimping-Tacks, Awls, and other Articles, of which the following is a specification:

My invention relates to roller-die machinery for shaping shoemakers' awls, also crimping-tacks; and it consists, first, of notches in the surface of the rollers surrounding the dies, and between the dies, and the cavities outside of the dies, for clearance, the object being to utilize the holding-back tendency of the notches on the metal expelled from the sides in the form of fins, to counteract the longitudinal strain which the metal is subject to by the drawing action of the rollers. Second, the invention consists of feed mechanism, in combination with die-rollers contrived to automatically feed a long rod or wire forward between the die-rollers, hold it until the dies gripe it, and, after the blank is formed, draw the rod back to the cutters, and then leave it and slide back to take hold for feeding again. Third, it consists of gripers contrived to seize the rod as soon as the dies have performed their office, and hold it while the carrier continues to go back for a new hold, and while the cutters detach the rolled piece; and, fourth, it consists of the rollers contrived for shifting laterally along the feed mechanism, and provided with mechanism for so shifting them to utilize one feed for all the different dies of a set of rolls having different sizes or forms for different articles.

Figure 1 is a side elevation of a machine contrived according to my invention. Fig. 2 is a plan view. Fig. 3 is a section on line *x x* of Fig. 2. Fig. 4 is a plan of the feed mechanism. Fig. 5 is a plan of one of the roller-dies projected on a plane, and Fig. 6 is a plan of a blank for a crimping-tack as it comes from the machine.

Similar letters of reference indicate corresponding parts.

A and B represent a pair of die-rolls of ordinary form, having dies C D for shaping tacks of different sizes; also dies E for shoemakers' awls, in advance of which dies the rollers have the large grooves F, in which to present the rods preparatory to their being griped by the dies when they meet by the revolution of the rolls. G represents the grooves for clearance of the excess of metal to be removed by the dies, and H represents the notched roller-faces surrounding the dies, and forcing off the excess of metal in fins I, to be subsequently trimmed off in another machine.

I have found, in practice, that the longitudinal strain on the blank caused by the rolling of these faces together frequently parts the metal, particularly when rolling an article of the form of a tack, which, in consequence of the large head required, must have a good deal of metal removed by these faces H. This strain is concentrated on the blank at the apex of the angle formed by the faces of the two rolls, where the blank is the weakest.

By having the notches in the faces the metal is pressed into them throughout the whole length of their contact with the metal, and thus the strain is distributed in like extent, and so reduced upon any one point that breakage from that cause is wholly avoided.

J represents the steel or iron wire rod from which the articles are to be made. It is presented to the rollers through the guide K by the carrier L and lever M, the carrier being arranged to slide along the ways N, and the lever being worked for so sliding it by the cam O. The cam is contrived to throw the rod forward into the rollers just the length required for the blank, and the circumferential flange R holds the lever at rest after cam O passes it, until the dies gripe the rod, also while they are pushing it back. There is also a cam, Q, in connection with the cam O, which lifts the lever M by stud-pin T just before cam O throws it, and presses washer S down, so as to gripe the rod on the carrier with sufficient pressure to feed it. The cam releases the lever at the same time that cam O passes it, leaving the rod free for a short time, to be moved back in the feeder by the rollers. As soon as the tack or awl has been formed the lever is again lifted by a cam, U, so as to gripe the rod, after which a cam, W, pushes the lever, so as to draw the wire back to bring the head to the cutters X Y, where it is held by the gripers *a b* to be cut. The carrier is then

moved back still farther by the spring P after its gripe on the wire has been relaxed by the escape of the stud T from the cam U, to take a new hold for again feeding the wire to the rollers. The cams O and W are adjusted along the drum, on which they are carried, so as to regulate the throw of the lever to suit the length of tack or awl to be made. The movable cutter Y is operated by the cam *e*, and the movable griper *a* by the cam *d*. The housing-frame *f* of the rollers is arranged on ways *g*, to shift laterally along the feeder, and it is provided with an adjusting-screw, *h*, by which any one of the grooves can be brought into line with the feed, thus enabling one feed mechanism to answer for all the grooves.

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

1. The combination of the rollers, having the coincident dies or grooves for forming tacks, &c., provided with the raised notched surfaces forming the sides and edges of said dies or grooves, as shown and described.

2. The combination, with roller-dies A B, of the feeder S L, lever M, and cams O and Q, substantially as specified.

3. The combination of cams U and W with lever M, feeder S L, and the die-rollers, substantially as specified.

4. The cams U and W, arranged in combination with lever M and its spring P, and in relation to cam O, whereby the feeder is enabled to shift back on the wire for a new hold, as described.

5. The gripers *a b*, combined with the die-rollers and the feeder S L, substantially as specified.

6. The combination of gripers *a b*, cutters X Y, and the feeder S L with the die-rollers, substantially as specified.

7. The roller-housings, mounted on ways and provided with an adjusting-screw, in combination with automatic feed mechanism, substantially as specified.

HENRY A. WILLIAMS.

Witnesses:

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