(No Model.)

T. CONNERS.

WIRE CUTTING AND CRIMPING APPARATUS.

No. 375,312. Patented Dec. 20, 1887.

Fig. 1.

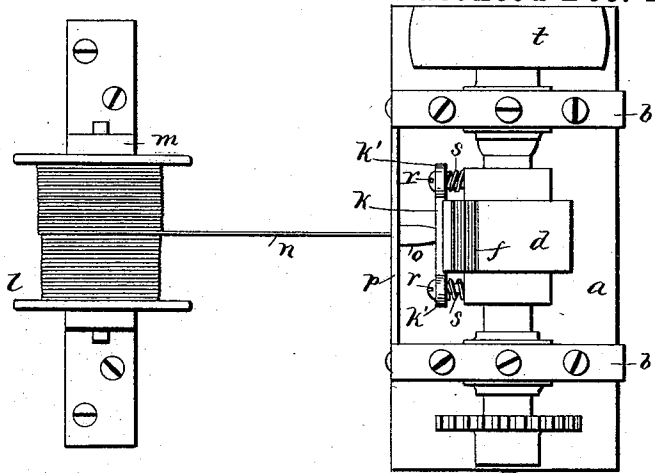


Fig. 2.

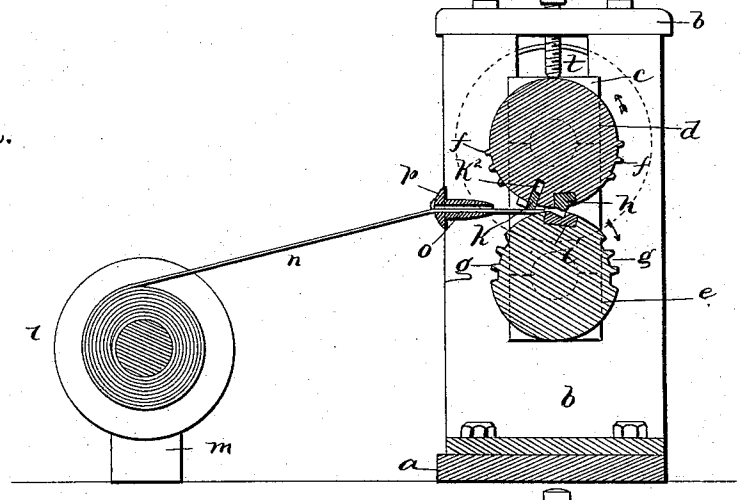


Fig. 4.

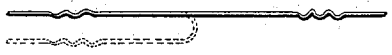


Fig. 3.

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UNITED STATES PATENT OFFICE.

TIMOTHY CONNERS, OF PORTLAND, CONNECTICUT, ASSIGNOR TO REBECCA ELY INGERSOLL, OF NEW YORK, N. Y.

WIRE CUTTING AND CRIMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 375,312, dated December 20, 1887.

Application filed September 14, 1887. Serial No. 249,703. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY CONNERS, a citizen of the United States, residing at Portland, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Wire Cutting and Crimping Apparatus, of which the following is a full, clear, and exact description.

The object of this invention is to provide machinery for rapidly turning out the shackles or wires for lead seals; and the invention relates more particularly to a machine for making that class of shackles or wires for lead seals in which those portions of the limbs of the shackle or wire which are received within the holes in the lead seal proper are crimped or otherwise provided with projecting surfaces, which tend to more firmly anchor the shackle or wire in a seal and prevent the fraudulent stripping of the seal from the wire and its replacement thereon without readily visible evidences of fraud in the damaged condition of the lead or seal proper.

As hereinafter more particularly set forth and claimed, the invention consists of a pair of rollers provided with means for feeding the wire, other means for crimping or corrugating or otherwise producing projections on the wire at intervals, and other mechanism for severing the thus crimped wire into shackle lengths.

As a convenient illustration of my invention, I have shown in the accompanying drawings a machine for crimping or corrugating the wire in the manner shown in Figure 4; but I wish it understood that it is within the purview of my invention to substitute for these crimping devices any other dies or devices for producing any other desired shape or kind of projection on the wires or shackles, many forms of such projections being now known; and with this understanding I will now proceed to fully set forth my invention, and finally particularly claim the same.

In the drawings referred to, in the several figures of which like parts are similarly designated, Fig. 1 is a top or plan view; Fig. 2, a vertical section through the rollers; Fig. 3, a side elevation, and Fig. 4 a diagram of the shackle produced by the machine.

Upon any suitable bed or foundation, *a*, I mount housings *b*, of ordinary construction, and in these housings I arrange the boxes *c* for the journals of the two rollers *d* and *e*. These rollers may be described as male and female, respectively. The roller *d* is provided with the male members *f* and the roller *e* is provided with the female members *g* of the crimping devices, these being herein shown as a series of projections on one roller and a series of sockets or matrices on the other, placed, say, at about something over one hundred and eighty degrees apart, and either formed in or attached to the rollers. Between these crimping devices are arranged the male and female members *h* and *i* of the cutters, and on the roller *d* is arranged a yielding gripper, *k*, in the rear of the cutters, the office of which is to engage the end of the wire from which the shackle has been severed and continue to feed it into the machine. Of course this gripper will serve, in the first instance, also to introduce the wire between the rollers to be acted upon by the said rollers; and in Fig. 2 I have shown the parts in position either for the introduction of the wire to begin operations or as the parts will be after the shackle has been formed and cut off.

I may coil the wire upon a reel, *l*, which is mounted to turn in bearings *m*, and the wire *n* is led from this reel through the eye or guide *o*, which, for convenience, may be mounted upon a cross-bar, *p*, secured to the housings *b b*, the said eye or guide being, by preference, arranged substantially in the central vertical plane of the rollers.

It will be understood that the crimping devices *f g* are in duplicate upon the rollers, so as to crimp the wire in two places or at opposite ends before the shackle is severed. With this in mind, it will be understood that, supposing the machine to start from the position shown in Fig. 2 and the rollers to rotate in the directions of the arrows shown in said figure, the wire would be crimped by the crimping devices *f g*, (shown at the left-hand side,) and would be then drawn on through the rollers toward the right, and, finally, the crimping devices shown at the right in said figure would get around to the left of the machine, and then crimp the wire again at that end, and

thereafter the knife members *h i* would come into position and sever the thus crimped shackle from the body of the wire *m* and throw it out of the machine to the right in a finished condition, ready for application to the seal or lead.

In a machine of sufficient power more than one reel of wire may be acted upon at one time.

The gripper *k* is herein shown as a bar having at its ends eyes *k'*, the body of the bar between the said eyes working in the groove or recess k^2 in the roller *d*. The eyes *k'* are fitted to headed posts *r*, secured to the shaft of the roller *d*, with springs *s* interposed between said shaft and the eyes and tending normally to throw and retain the bar against the heads of the posts *r*, so that the yielding of the gripper will be inward toward the center of the roller. Any other form of gripper may be substituted for that herein shown and described, although I have found the one illustrated very simple and efficient.

The boxes of the rollers *d* and *g* may be of any approved construction, such as are commonly employed for mounting rollers similar in operation to these.

It will be understood, of course, that the rollers *f* and *g* are geared together in any suitable manner—as, for example, that shown in Figs. 1 and 3. The rollers may be driven from the shaft of the upper roller through the medium of a belt or crank applied to the wheel *t*.

It is proper to direct attention to the fact that in Fig. 1 the parts are so placed as to present the gripper in elevation, while in Fig. 2 the parts are shown as rotated about an eighth of a turn or a little over.

What I claim is—

1. A machine for making the shackle or wire of lead seals, the same comprising matched rollers provided with feeding devices, such as spring-grippers, crimping or corrugating or other projection-producing devices, such as teeth or lugs and matrices therefor, arranged upon said rollers, and a cutter, all arranged in the order specified, and designed to introduce the wire between the rollers, provide one end with projections, feed the wire thence onward between the rollers and impart to the other end similar projections, and, finally, sever the wire to form a shackle ready for use, substantially as set forth.

2. In a machine for making crimped or corrugated wire shackles for lead seals, the combination of housings and boxes therein, with rollers arranged in said boxes and geared together, and provided with the spring-gripper *k*, the crimping devices *f g*, and other crimping devices *f g* distant from the first-named crimping devices about as specified, and a cutter, *i h*, all arranged in the order named, and designed to operate substantially as described.

In testimony whereof I have hereunto set my hand this 8th day of September, A. D. 1887.

TIMOTHY CONNERS.

Witnesses:

THOMAS O'CONNELL,

MICHAEL WALL.