No. 111,837. PATENTED FEB. 14, 1871.

L. GODDU.

MACHINE FOR NAILING SHOE SOLES WITH WIRE.

2 SHEETS—SHEET 1.

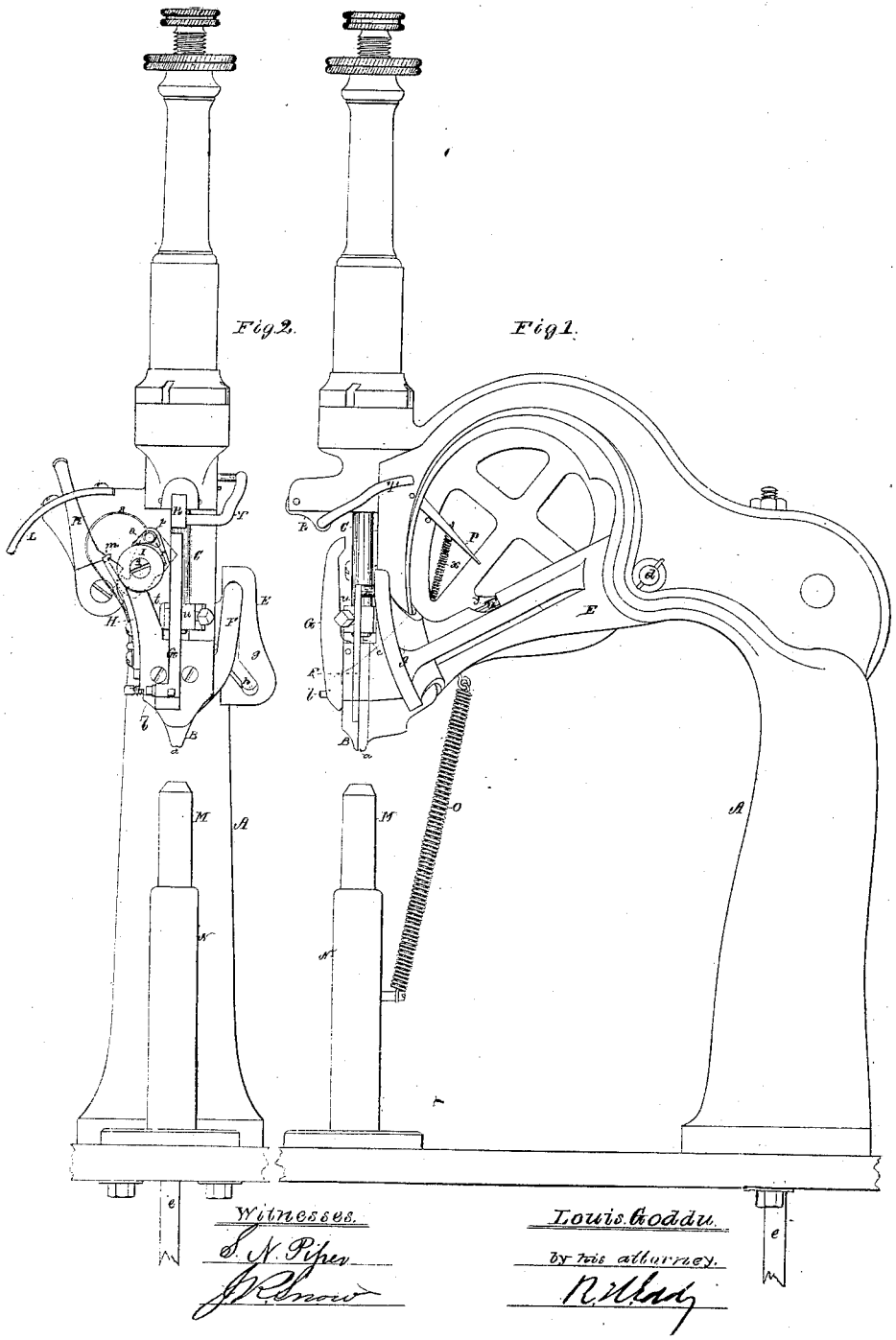

Fig. 2.

Fig. 1.

Witnesses.

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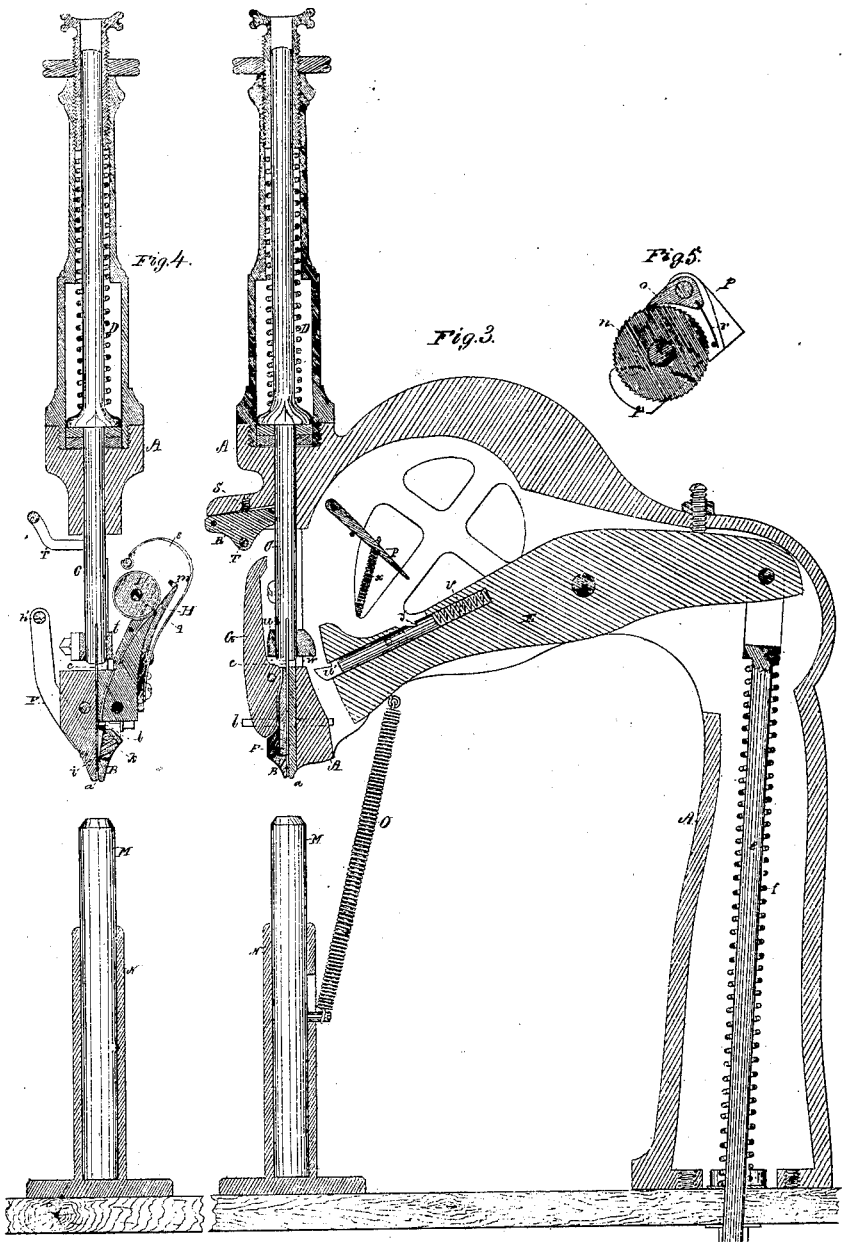

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UNITED STATES PATENT OFFICE.

LOUIS GODDU, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO ELMER TOWNSEND, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR NAILING SHOE-SOLES WITH WIRE.

Specification forming part of Letters Patent No. **111,837**, dated February 14, 1871.

To all persons to whom these presents may come:

Be it known that I, LOUIS GODDU, a citizen of the Dominion of Canada, but at present residing in Boston, in the county of Suffolk and State of Massachusetts, have made a new and useful invention having reference to the Nailing of Shoe-Soles or Various other Articles with Wire; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, making part thereof, and of which—

Figure 1 is a front elevation, Fig. 2 a side view, and Fig. 3 a vertical and longitudinal section, of my improved or new nailing-machine. Fig. 4 is a transverse and vertical section of it, taken through the nail-driver.

The main elements constituting a nailing-machine are, first, the guide-nose; second, the nail-driver and its operative mechanism; third, mechanism for feeding in the wire from which each nail is to be severed; fourth, mechanism for receiving the wire and transferring the nail portion thereof to the guide-nose passage; fifth, mechanism for severing a nail from the wire.

Such a composition or combination of mechanical elements I do not herein claim in the abstract.

In carrying out my invention I have combined, with such a machine or congregation of mechanical elements, a movable work-supporter and its elastic lifter; also, a binding mechanism to stop the nail-driver carrier, so as to prevent it from unduly actuating the wire-feeding mechanism.

I have also so constructed the machine that by the reciprocating movements of a lever the machine is rendered automatic, or the several elements caused to perform their functions in the requisite order.

For effecting such movements of such lever I usually employ a treadle and a spring, the treadle being so connected with the lever that while being depressed such treadle shall cause a movement of the lever in one direction, and the spring being so applied to the lever as to effect a reverse motion of it after the force employed to depress the treadle may have ceased to act thereon. Under these circumstances the treadle is to be supposed to be depressed by the foot of an attendant or the person who may present to the operations of the machine the shoe, article, or work to be nailed.

In the drawing, A denotes the stock or frame for supporting the main operative parts, it terminating in or being provided with the guide-nose B. This nose has a vertical passage, *a*, leading down through it. Through this passage the nail, after being severed from the wire, is driven or forced by the nail-driver, (shown at *c*.)

The said nail-driver is fixed in the lower part of a carrier or vertical slide-rod, C, arranged in the frame or stock A, and provided with a spring, D, the purpose of which is to depress the carrier after each elevation of it, such depression being with a power sufficient to cause the nail-driver to force the nail into the article into which it may be required to be driven.

Within the frame or stock A is the main operative lever E, it being arranged therein or therewith in manner as represented, so as to play vertically on a fulcrum, *d*.

A rod, *e*, depending from one arm of the lever and provided with an elevating-spring, *f*, disposed within the stock, serves, by means of a treadle, to actuate the lever. At its front end the said lever is furnished with a head, *g*, in which is a cam groove or slot, *h*, for receiving a stud, *h'*, projecting from the transferrer F, which is a lever extending within a fulcrum, (represented at *i*.) In the said transferrer is a passage, *k*, for reception of the wire from the feeding mechanism, and for transferring it, or the part severed from it by the cutter *l*, to a vertical position, or directly beneath the driver.

The cutter (shown at *l*) is fastened in or may make part of a lever, G, arranged in or with respect to the nose-piece B, in manner as represented.

The wire from which the nails are to be successively cut is to be led through the eye *m* of a guide, H, and between such guide and the periphery of a feed-wheel, I, provided with a ratchet, *n*, furnished with an actuating-pawl, *o*. (See Fig. 5, which exhibits a vertical section of the ratchet and pawl, and shows the pawl carrier or lever.)

The pawl *o* is pivoted to a lever or arm, *p*,

which turns on the arbor *q* of the feed-wheel and its ratchet, the said ratchet being fastened to one side of the feed-wheel, or made in one piece with such feed-wheel.

A small spring, *r*, serves to keep the pawl in contact with the serrated periphery of the ratchet. Another or bow spring, *s*, fixed to the frame and to the pivot of the pawl, answers to effect the backward motion of the pawl over the teeth of the ratchet.

K is a spring-lever, and L a catch-rack therefor, their purpose being to regulate the extent of back movement of the pawl-carrier *p*. They, in principle, are substantially like mechanism described in the United States Patent No. 97,190, and are intended for a like purpose.

During the upward movement of the nail-driver carrier C a cam or projection, *t*, thereof comes into contact with and moves the pawl-carrier *p*, so as to cause its pawl to turn the ratchet, its feed-wheel being thereby revolved, so as to advance the wire into the transferrer. Subsequently a nail will be severed from the wire by the cutter, whose lever for such purpose will be moved by a projection or cam, *u*, extended from the carrier C. A spring should be applied to the said cutter-lever to effect, at the proper time, a reverse movement of it.

The movable work-supporter is shown at M, it being a vertical slider arranged in a post, N, and connected with the lifter E by means of a helical spring or elastic lifter, O, all being arranged as represented. The work to be nailed is to be placed directly on the top of the supporter M, or upon a suitable carrier or device sustained or to be sustained by the said supporter.

The front arm of the lever E while being raised will, through the elastic lifter, draw the work-supporter upward, so as to elevate the work or material to be nailed up to the nose-piece B, and there retain it with a due amount of elastic force while a nail may be in the act of being driven into the work by the nail-driver.

For effecting the upward movement of the nail-driver carrier there is arranged within the lever E, in manner as represented, a catch-slide, *w'*, provided with a spring, *v*, for advancing it. This catch-slide, while in the act of elevating the nail-driver carrier, extends under and bears against a projection, *w*, thereof.

During the rise of the lever E a movable arm, P, (pivoted at its upper end to the frame A, and furnished with a depressing-spring, *x*, and arranged as represented,) by its action against a notch or shoulder, *y*, of the catch-slide *w'*, will force back the said slide from underneath the projection of the nail-driver carrier. On this taking place the depressing-spring of the said carrier will, by its elastic power, suddenly impel the carrier downward, so as to force the driver against the upper end of the nail and drive such nail into the work.

During the next descent of the front arm of the lever E the work-supporter will be free to descend and move the work away from the nose B, so as to enable the work or its holder to be moved on or relatively to the supporter, as circumstances may require.

The next part of the machine to be described is the "binding mechanism," hereinbefore mentioned. It consists of a movable clamp arm or toggle, R, pivoted in the frame A, and arranged and formed as represented, it being provided with a spring, S, to depress it into contact with the nail-driver carrier.

An arm, T, is projected from the clamp-toggle R, in manner as shown. Just as the lever E may approach near the terminus of its upward movement, its head will be carried into contact with and will raise the arm T, so as to unclamp the toggle R from the nail-driver and allow the latter to descend.

Should a person at any time move the lever E through any portion of its path of action, and next allow such lever to descend, the clamp-toggle will catch and hold the nail-driver carrier at the altitude to which it may thus have been raised by the lever E during such upward movement of it. Thus it will be seen that by means of the clamp R undue feeding in of the nail-wire will be prevented, as no feeding of the wire can again take place until the nail-driver may be moved still farther upward by the catch-slide of the lever E.

In the above-described machine I claim as of my invention as follows, viz:

1. The combination of the movable work-supporter M and its elastic lifter O with a nailing-machine, as composed of the guide-nose, the nail-driver and its operative mechanism, the mechanism for feeding the wire, that for receiving it and transferring the nail portion of it to the guide-nose passage, and, finally, mechanism for severing a nail from the wire, all being substantially as hereinbefore described.

2. The combination of the binding mechanism or toggle R, its spring S, and arm T with a nailing-machine, substantially as described, such binding mechanism being for the purpose as mentioned.

3. The arrangement and combination of the catch-slide *w'* and the arm P (provided with springs and constructed substantially as described) with the lever E and its supporting-frame.

4. The combination of the operative lever E, as described, with the frame A, the nose B, and the nail-driver *c*, the transferrer F, and the feed-wheel I, all arranged, constructed, and provided with mechanism for operating them, in manner and through the action of such lever, substantially as hereinbefore explained.

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Witnesses:
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