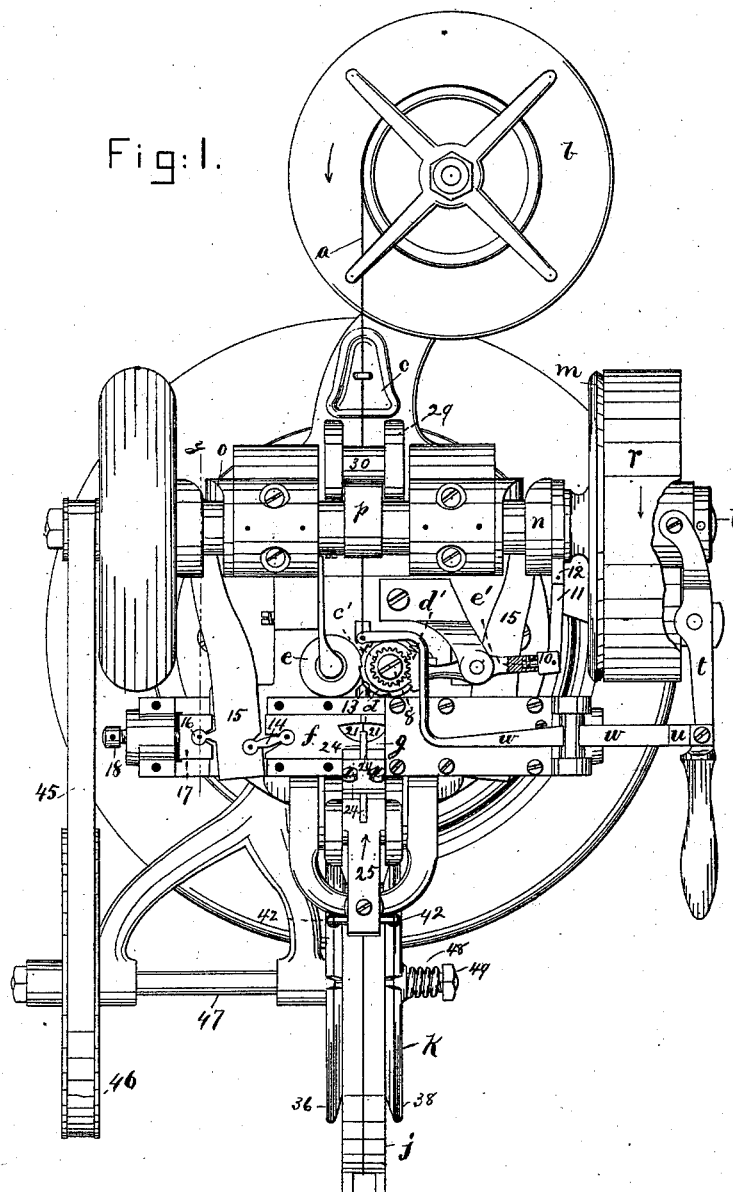


L. GODDU.
Machine for Making Shoe-Tack Wire.
No. 216,789. Patented June 24, 1879.



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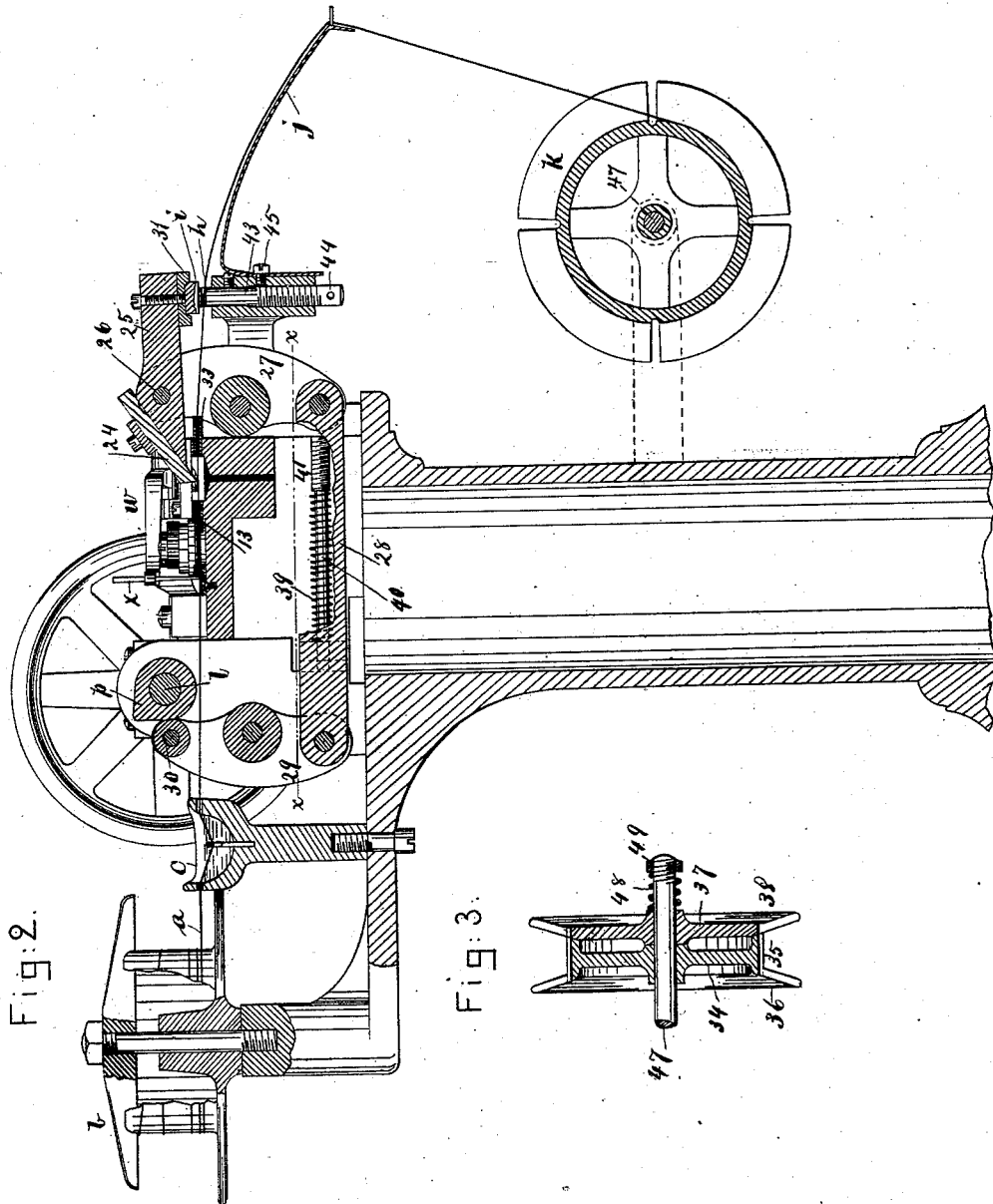


Fig. 2.

Fig. 3.

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Fig: 4

Fig: 5

Fig: 14.

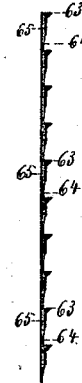
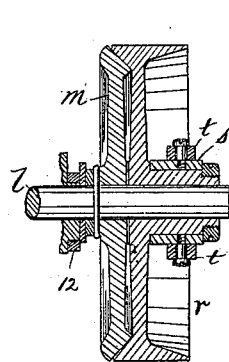
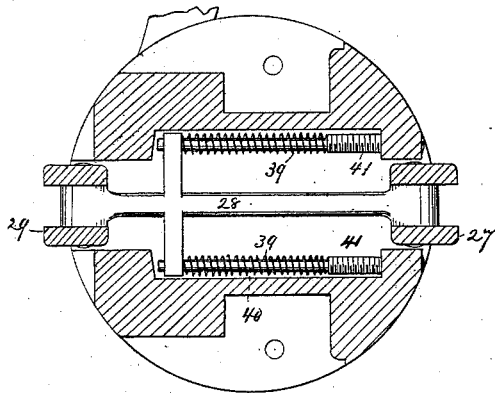


Fig 6

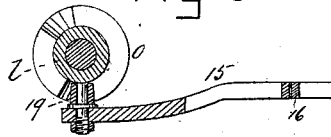


Fig: 7

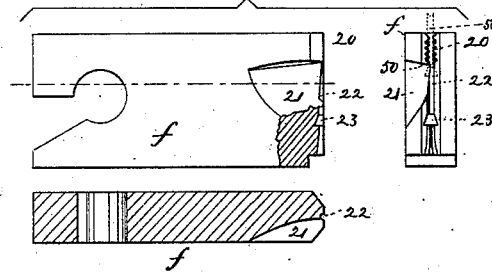


Fig: 8

Fig: 9

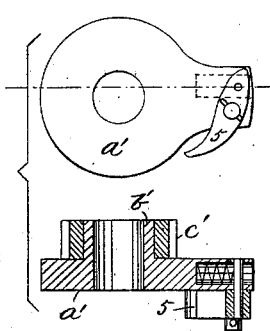
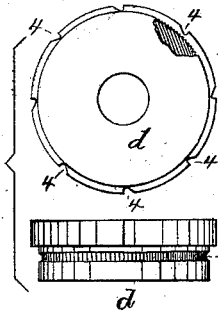


Fig: 10

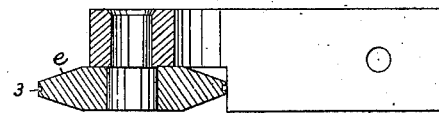
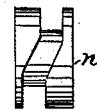
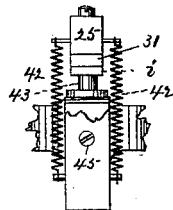
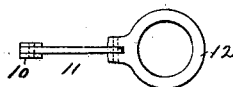


Fig: 11,

Fig: 12.

Fig: 13.



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UNITED STATES PATENT OFFICE.

LOUIS GODDU, OF WINCHESTER, ASSIGNOR TO GORDON McKAY AND JAMES W. BROOKS, TRUSTEES OF THE McKAY METALLIC FASTENING ASSOCIATION, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR MAKING SHOE-TACK WIRE.

Specification forming part of Letters Patent No. **216,789**, dated June 24, 1879; application filed February 12, 1879.

To all whom it may concern:

Be it known that I, LOUIS GODDU, of Winchester, county of Middlesex, State of Massachusetts, have invented an Improvement in Nail-Making Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to improvements in mechanism for the production of headed nails for the manufacture of boots and shoes and other articles.

In this machine a wire of greater or less length, and preferably extended between suitable reels, is, while clamped between dies, subjected to the action of a setter, which cuts into the wire at one side, and crowds a portion of the wire in advance of it longitudinally in the direction of the length of the wire, (preferably in a direction opposite the movement of the wire,) to make heads for the nails, which are formed as a string of nails connected head to point; but it is obvious the nails might be separately severed from the wire after being headed. This plan of making the heads upon a continuous wire permits the connected nails to be delivered head first, so that the string of nails, wound upon a reel, may be drawn off point first when the coil of nails is placed in a boot and shoe nailing machine, thereby obviating rewinding, which in a string of nails having fine points would be frequently broken, besides losing the time consumed by rewinding.

Figure 1 represents, in top view, a machine for making nails from wire; Fig. 2, a vertical longitudinal section thereof along the path of the wire; Fig. 3, a section of the receiving-reel; Fig. 4, a section on the line *x x*, Fig. 2; Fig. 5, a section through the driving-pulley and clutch; Fig. 6, a section on the line *y y*, Fig. 1. Fig. 7 represents one of the dies in top view, end view, and section; Fig. 8, a top and edge view of one of the feed-wheels; Fig. 9, an under-side view and section of the pawl-carrier for rotating the wheel, Fig. 8; Fig. 10, a section of the pressing-wheel of the feed; Figs. 11, 12, 13, details to be referred to; and Fig. 14, a string of nails such as is made by this machine.

In the manufacture of nails or tacks it has been customary to run a wire between rollers having recesses cut therein, to shape the wire into nails joined head to point, and the said nails so made in a string have always been delivered from between the rollers, as is obviously necessary, point first.

In this my improved machine the wire *a*, held upon a suitable reel, *b*, is led through the oil bath or cup *c*, to oil the wire for oiling the dies; thence between the feed-roller *d* and pressure-roller *e*, each preferably grooved and serrated, as at 2 3, to properly engage, hold, and move the wire; thence between the dies *f g*, through the guide-eye *h* in the pin or standard of the templet *i*, over the spring-arm *j*, to the take-up reel *k* of the machine.

The main shaft *l* of the machine has fixed upon it a driving-disk, *m*, two grooved cam-hubs, *n o*, and a tappet or cam, *p*; and loose upon the shaft is a driving-wheel, *r*, having a loose collar, *s*, which is engaged by the forked end of a clutching and unclutching lever, *t*, having a finger, *u*, which, when it abuts against the end of the stop-lever *w*, causes the pulley and disk *m* to be pressed together with sufficient force to drive the machine; but when the stopping-lever is permitted to turn on its fulcrum, as it is free to do when its finger *x* (see Fig. 2) is no longer upheld by the wire upon which it rests, the lever *w* turns by its own weight, removes its end from contact with the finger *u*, and permits the pulley and disk to separate and stop the machine.

The feeding-wheel *d* has its upper end provided with ratchet-teeth, as at 4, Fig. 8, to be engaged by a pawl, 5, on a pawl-carrier, *a'*, having a hub, *b'*, upon which is placed a pinion, *c'*, which is engaged and reciprocated about the stud 8, which holds roller *d*, by a sector, *d'*, of an arm, *e'*, having a loosely-held end piece, 10, which by link 11 is connected with a strap or annulus, 12, (see Figs. 1 and 11,) which embraces an eccentric on the main shaft *l*. This sector actuates the pawl-carrier, and its pawl turns the feed-wheel at the proper speed, the pressure-roller *e* bearing the wire into the grooved part 2 of the roller.

Next back of the feeding-roller is a short

guide tube or eye, 13, through which the wire is passed to between the dies *f g*, made as slides guided in suitable ways of the machine, so as to be moved at right angles to the length of the wire to clamp and hold it by means of short toggles 14 and levers 15, having their fulcrums 16 in blocks 17, made adjustable by screws 18, so as to vary the movement of the slides, the ends of the levers 15 next the shaft 1 having rollers 19, (see Fig. 6,) to be acted upon by the cam-hubs *o n*.

The dies, at their front ends, are corrugated, as at 20, (see Fig. 7, which shows an end view of the die,) are provided with a knife-receiving opening, 21, a groove, 22, for the reception of the wire, and a head-receiving depression, 23, for the reception of the finished head of a nail while the wire is being acted upon by the "setter" *f'* or blade, adjustably held on an arm or lever, 25, having its fulcrum at 26 on a lever, 27, connected by a rod or link, 28, with a lever, 29, having a roll, 30, which, at each rotation of shaft 1, is struck by cam *p*, to move the levers 29 27 and throw the arm 25 and setter forward in the direction of the arrow near it, it during said movement being thrown down at its forward end by the action of the incline 31 on the templet *i*. (See Fig. 2.)

The downward motion of the setter causes it to cut into the upper side of the wire clamped by and between the dies, and the forward motion causes the setter to act upon the wire and shove forward a portion of the metal or body of the wire in advance of it, forming a head upon the wire, as at 63, (see Fig. 14,) said head projecting from one side of the wire.

When one head is being set or formed by the setter the head of a previously-made nail on the string of nails in advance of it is lodged in and held by the head-receiving depression 23, and after each head is set or shaped the dies are opened and the wire is fed forward the proper length for a new nail.

The oil applied to the wire at the cup *c* is sufficient to oil the dies and parts near to it which come in contact with the wire.

After leaving the dies the string of nails, with the heads leading, passes through a guide, 33, thence through the eye *h*, and over spring *j* to the take-up reel. This reel is composed of a hub, 34, having a winding or receiving surface, 35, and a side flange, 36, and of a hub, 37, having a side flange, 38, the latter hub and flange being removable, to permit the coil of string-nails to be withdrawn laterally from the other part of the reel, so as to be placed upon a suitable reel of a boot and shoe nailing machine without rewinding.

The springs 39 on rods 40 press the arm 29, so as to hold the roll 30 against cam *p*, and the strength or force of the said springs is regulated by the screws 41. The rear end of the arm 25 is held down by springs 42, they acting to maintain the parts 31 and *i* in contact.

The templet *i*, mounted at the top of a pin or rod, 43, and acted upon by an adjusting de-

vice, shown as a screw, 44, (it being held in adjusted position by a set-screw, 45,) may be raised or lowered to vary the descent of the setter 24 and its penetration into the wire according to its diameter and the quantity of material it is desired to retain in the point and in the head of the nail being made.

The take-up reel *k* is driven by a belt, 45, which, extended from the shaft 1, is passed over pulley 46 on the shaft 47, which carries the reel, the latter being frictionally held thereon by the spring 48 and nut 49.

The wire issuing from the dies in Figs. 1 and 2 is not shown in the said figures as headed and pointed; but the wire as it leaves the dies will be as represented by Fig. 14.

When the setter partially cuts into the body of the wire, as described, and moves forward, as described, it reduces a portion of the wire to form a point for the nail previously headed and then held by the head-receiving portion 23, and the portion of the body of the wire partially severed diagonally to form the point is crowded forward and pressed or set into the form it is desired to make the head, the die having a heading-recess, 50, suitably shaped according to the shape of the head. The take-up reel is operated continuously, while the wire is fed intermittently; but by reason of the spring-rest *j* the wire is so supported as not to be broken opposite the points of the nail by the strain in winding, as would be the case were the spring-rest omitted.

I claim—

1. In a machine for making nails from wire, the open-sided dies *f g*, provided with a heading-recess, and adapted to grasp and hold the wire, as described, combined with the setter placed to enter the opening at the sides of the dies and cut partially into the wire, and mechanism to then move the setter longitudinally, to thereby point one and at the same operation shape the head for another nail, substantially as set forth.

2. In a machine to form a string of connected nails from wire, as described, the two clamping-dies *f g*, provided with corrugated or indented faces and head-shaping recesses or portions, and the setter to co-operate therewith, to thereby shape the wire for heads and points, and form the heads to lead the points as the wire is fed longitudinally, but without severing the wire, combined with a take-up reel located beyond the dies, in the direction of motion of the string of nails, to receive the said string of nails with the heads foremost, to obviate rewinding, substantially as described.

3. The die to grasp the wire, combined with the setter, to operate upon the body of the wire at one side, a lever to move the setter and its arm longitudinally, and mechanism to regulate the extent of penetration of the setter into the body of the wire, substantially as described.

4. The dies *f g*, recessed at their meeting-

faces, as described, to receive and co-operate with the setter, combined with the setter, its carrying-lever, and the adjustable templet, to operate as and for the purpose set forth.

5. In a machine for making nails, the two-part reciprocating dies and the setter to form heads and points on a wire, combined with a take-up reel and a spring-rest to support the string of nails in advance of the reel, substantially as described.

6. In a machine for making string-nails from wire, the combination, with the fast and loose pulley and lever to move the loose pul-

ley laterally, of feeding mechanism for the wire and a stopping lever and finger to rest upon the wire immediately in advance of the feeding devices or dies, whereby the absence of the wire permits the lever to move and stop the machine, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS GODDU.

Witnesses:

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L. F. CONNOR.