

(No Model.)

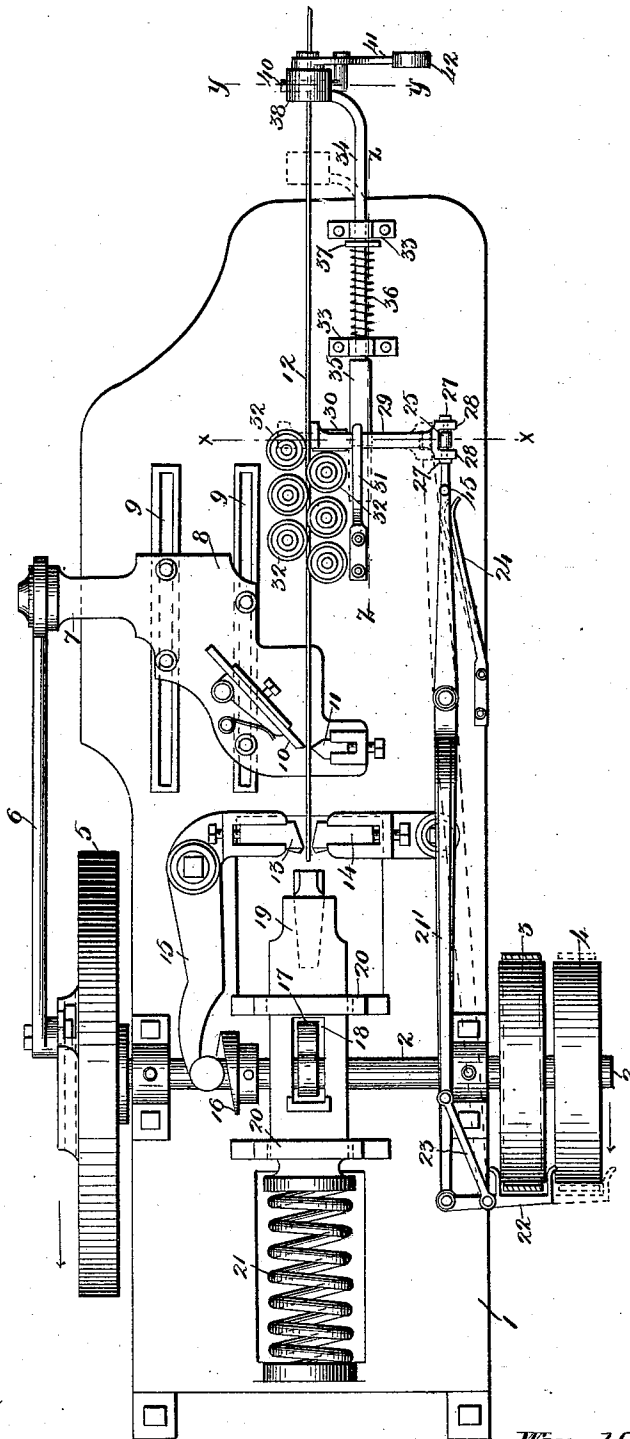
2 Sheets—Sheet 1.

W. H. DAILEY.
WIRE NAIL MACHINE.

No. 540,903.

Patented June 11, 1895.

Fig. 1.



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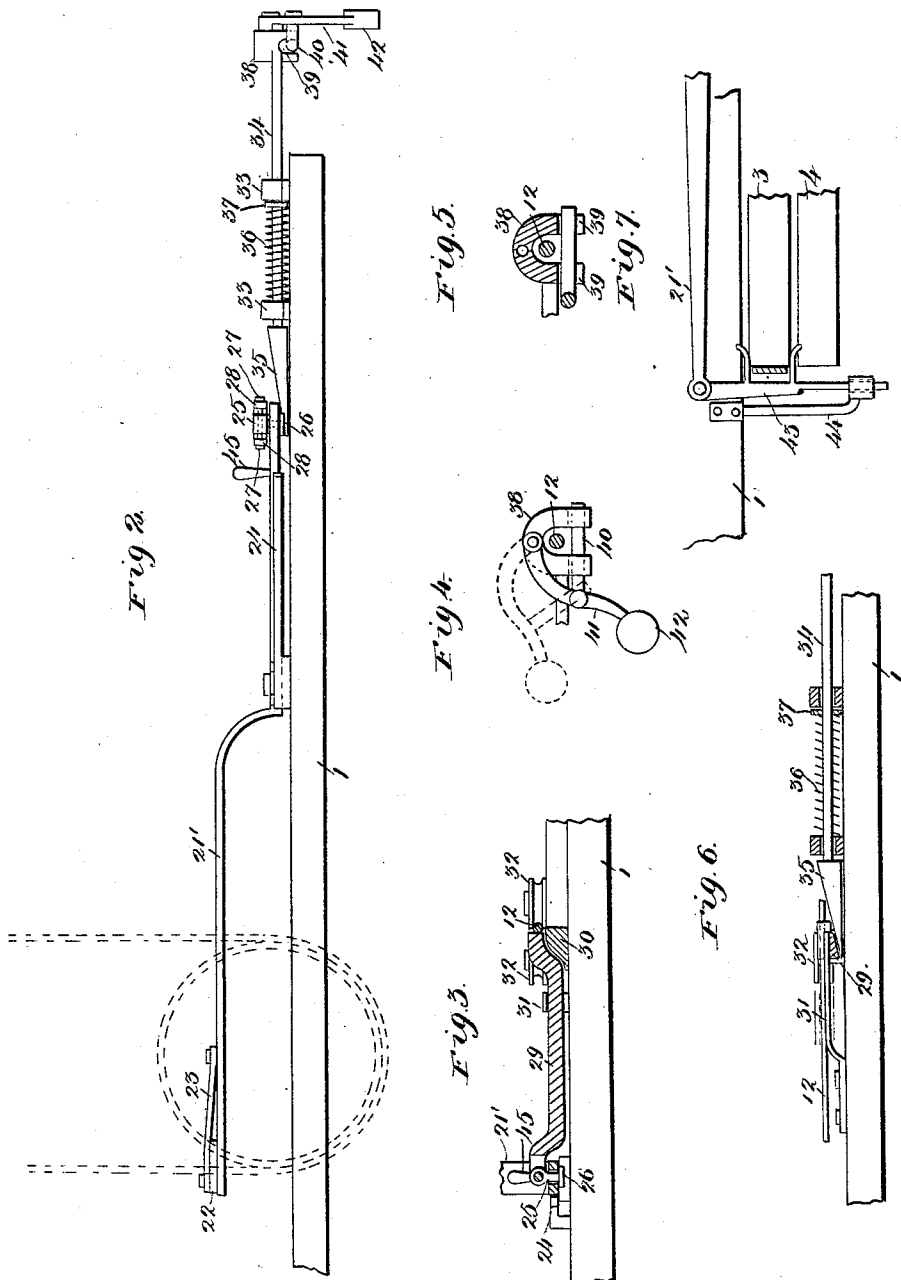
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UNITED STATES PATENT OFFICE.

WILLIAM H. DAILEY, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
DAVID SANGUINETTE, OF SAME PLACE.

WIRE-NAIL MACHINE.

SPECIFICATION forming part of Letters Patent No. 540,903, dated June 11, 1895.

Application filed February 15, 1895. Serial No. 538,477. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DAILEY, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Wire-Nail Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in wire-nail machines and consists in the novel arrangement and combination of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a plan view of a machine having my improvements attached thereto. Fig. 2 is a side elevation taken on the side of the bed-plate which carries the belt-shifting lever. Fig. 3 is a section on line *xx* of Fig. 1. Fig. 4 is an end view of the guiding end of the reciprocating bar which guides the initial passage of the wire from the reel. Fig. 5 is a section on line *yy* of Fig. 1. Fig. 6 is a section on line *zz* of Fig. 1, and Fig. 7 is a detail of a modified form of belt-shifter.

The object of my invention is to construct and attach to a wire nail machine certain improvements which will enable such machine to come to a stop either when the wire fed to it is exhausted from the reel supplying the same, or when kinks or knots in the wire prevent the ready feeding of the latter to the machine by which the nails are formed. By my present improvements the machine will immediately come to rest until either a fresh reel of wire is supplied thereto, or until the kinks in the length of the wire have been untangled or removed. In detail the improvements may be described as follows:

Referring to the drawings, 1 represents the bed plate of the machine; 2, the main driving shaft; 3, the fast pulley and 4 the loose pulley, and 5 the fly wheel. At a suitable distance from the axis of the fly wheel is pivotally secured one end of a pitman 6 whose opposite end is pivotally carried by the outer projecting arm 7 of the feed plate 8, which latter the said pitman reciprocates along the slotted guides 9, 9. The feed plate carries the adjustable feed bar 10 co-operating with a post 11 between which and the feed bar the

wire 12 is fed. As the wire is advanced by the reciprocating feed bar it is fed between the movable jaw 13, and the fixed jaw 14 of the gripper and cutter, the movable jaw being secured at one end of a gripping lever 15 oscillated by a cam 16 secured to the main drive shaft. The shaft 3 also carries an arm 17 operating in its sweep against the forward surface of an opening 18 for purposes of throwing back the plunger or hammer 19 reciprocating within the guides or bearings 20, said plunger being forced or operated in a reverse direction by a spring 21 at a proper moment for forming the head on the nail before the latter has actually been cut into its predetermined lengths by the gripper and cutter. The foregoing parts are all well known both in general construction and operation and need no detail description, and form no part of my present invention.

Along that side of the bed plate which is adjacent to the driving pulleys is a pivoted lever 21' whose long arm carries at its end the belt shifter 22 connected to the former by a brace 23. Against the side of the short arm of the lever 21' presses inwardly the free end of a spring arm 24, the natural tendency thereof being to throw the free end of the long arm outwardly and thus shift the belt from the fast pulley to the loose pulley.

The free end of the short arm of the lever 21' carries loosely a pin 25 having a head 26 which prevents its withdrawal from the opening of the arm within which it is confined, the top of the pin carrying the arms 27 which are loosely embraced by the members 28 of the forked end of a switch arm 29 the lower surface of whose free end is curved upwardly to conform to the curvature of a block 30 by which the free end is guided and supported. The free end of a resilient plate 31 keeps the switch arm in proper position along the face of the bed plate 1. The butt end of the switch arm, by the action of the spring arm 24 is held and presses against the wire 12 as the latter is fed between the feed rollers 32, it being understood of course that the wire is as a rule taut as it comes from the reel (not shown) and resists the lateral pressure to which it may be subjected by the butt end of the switch arm as the wire is passing through the

machine. It is apparent that the moment the supply of wire is exhausted, and there is nothing to resist the lateral pressure of the switch arm the spring arm 24 will throw or shift the switch arm to the position shown in dotted lines in Fig. 1, the free end of the switch arm riding over the inclined block 30 so as to clear the first guide or feed roller 32, and that at the same time the free end of the long arm of the lever 21' will be thrown outwardly thus causing the belt shifter to throw the belt from the fast on to the loose pulley, when the machine will come to rest.

Again, let us suppose that kinks or knots are found in the wire. Within suitable guide bearings 33 of the bed plate 1, is adapted to reciprocate substantially parallel to the wire fed to the machine a bar 34 whose inner end carries a wedge-shaped block 35 adapted to pass under the switch arm 29. The bar 34 is held to its normal position by the resilient action of a coiled spring 36 coiled about the bar 34 and having its ends interposed respectively between one of the bearings 33 and a collar 37 secured to the bar. The tendency of this spring is to throw the bar outwardly. The outer end of the bar is curved laterally as shown in Fig. 1, said curved end having secured thereto a guide yoke 38 whose free ends each carry a fork 39 between the members of which is adapted to pass the projecting arm 40 of a weighted lever 41 pivoted at the medial point of the yoke 38. The weight 42 at the end of the lever 41 keeps the latter in its normal position allowing the arm 40 to pass between the forked ends of the yoke. The yoke and arm 40 thus serve as a guide for the wire 12 as it passes from the reel into the machine. To insert the wire into or under the yoke, the weighted lever 41 is first shifted to the dotted position indicated in Fig. 4, after which it is allowed to drop to the position indicated in full lines in said figure. Now, therefore, if in or during the feeding of the wire as it passes from the reel, the guide yoke and arm between which the wire passes encounter any kinks or knots in the wire, the kinks will necessarily carry the yoke with them in the same direction, thus shoving the bar 34 forward against the resiliency of the spring 36 and forcing the wedge 35 under the switch arm 29, raising the free end of the latter so as to pass over the block 30, thus disengaging the butt end of the switch arm from contact with the wire, when the spring arm 24 will shift the parts to the dotted positions as shown in Fig. 1, precisely as in the manner indicated with the previous condition, that is, when the wire supply was cut off. In each case therefore the lever 21' or rather the end of the long arm thereof will be shifted outwardly, and as this end carries the belt shifter, it is apparent that the latter will throw the belt off from the fast pulley on to the loose pulley and cause the machine to stop. If during the shifting of the belt there be any tendency

on the part of the latter to bind (the free end of the long arm of the lever 21' describing the arc of a circle), the belt shifter may simply be pivoted to the end of the lever as seen in 43 in Fig. 7, the free end of the belt shifter 43 being guided or confined to a rectilinear motion by the end of a guide arm 44 projecting from the side of the bed plate.

45 represents a handle secured to the short arm of the lever 21' by which the latter may be grasped and the parts restored to their normal position.

Having described my invention, what I claim is--

1. In a wire nail machine, a suitable driving shaft, pulleys for said shaft, a switch arm normally bearing at right angles against the wire fed to the machine, a reciprocating bar substantially parallel to the wire fed to the machine adapted to be struck by the kinks in the wire and force the switch arm out of contact with the wire, and suitable belt shifting mechanism in connection with the switch arm, substantially as set forth.

2. In a wire nail machine, a suitable bed plate, a reciprocating bar guided within suitable bearings on said bed plate, a collar secured to the bar between the bearings, a coiled spring encircling the bar and having its opposite ends bearing respectively against one of the bearings and the collar, a terminal yoke at the end of the bar for guiding the wire, forks at each end of the arms of the yoke, a weighted pivoted lever having a projecting arm adapted to be normally swung between the members of the terminal forks of the yoke, a wedge-shaped block at the opposite or inner end of the reciprocating bar, and a suitable switch arm co-operating with the wedge-shaped block, substantially as set forth.

3. In a wire nail machine, a suitable bed plate, a lever pivoted along one side of the same, a belt shifting device at the end of one arm of the lever, a switch arm pivotally secured to the end of the second arm of said lever, a spring plate for holding the switch arm normally against the bed plate, said switch arm having an upwardly inclined free end and an abutting surface, and upwardly inclined and curved block adapted to support the inclined end of the switch arm and permit the latter to ride over the same, the abutting surface of the switch arm being normally in contact with the wire fed to the machine, and a spring arm normally forcing the switch arm against the wire, and shifting the lever to operate the belt shifter upon a sudden removal of the wire from contact with the switch arm, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. DAILEY.

Witnesses:

LEE SALE,
E. STAREK.