

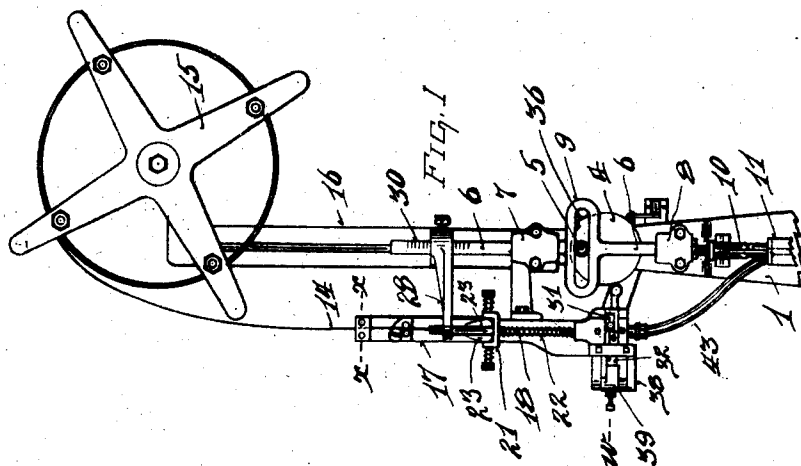
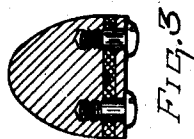
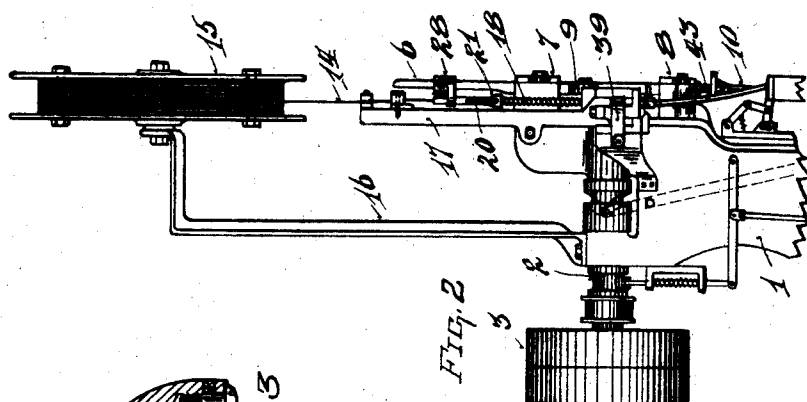
No. 883,126.

PATENTED MAR. 24, 1908.

W. WOLFE.  
WIRE FEED AND NAIL FORMING DEVICE.

APPLICATION FILED JAN. 19, 1907.

2 SHEETS—SHEET 1.



Inventor

Witnesses

Oliver B. Kainer  
Leo O. Donnell

William Wolfe  
304 Wood Street

Attorneys

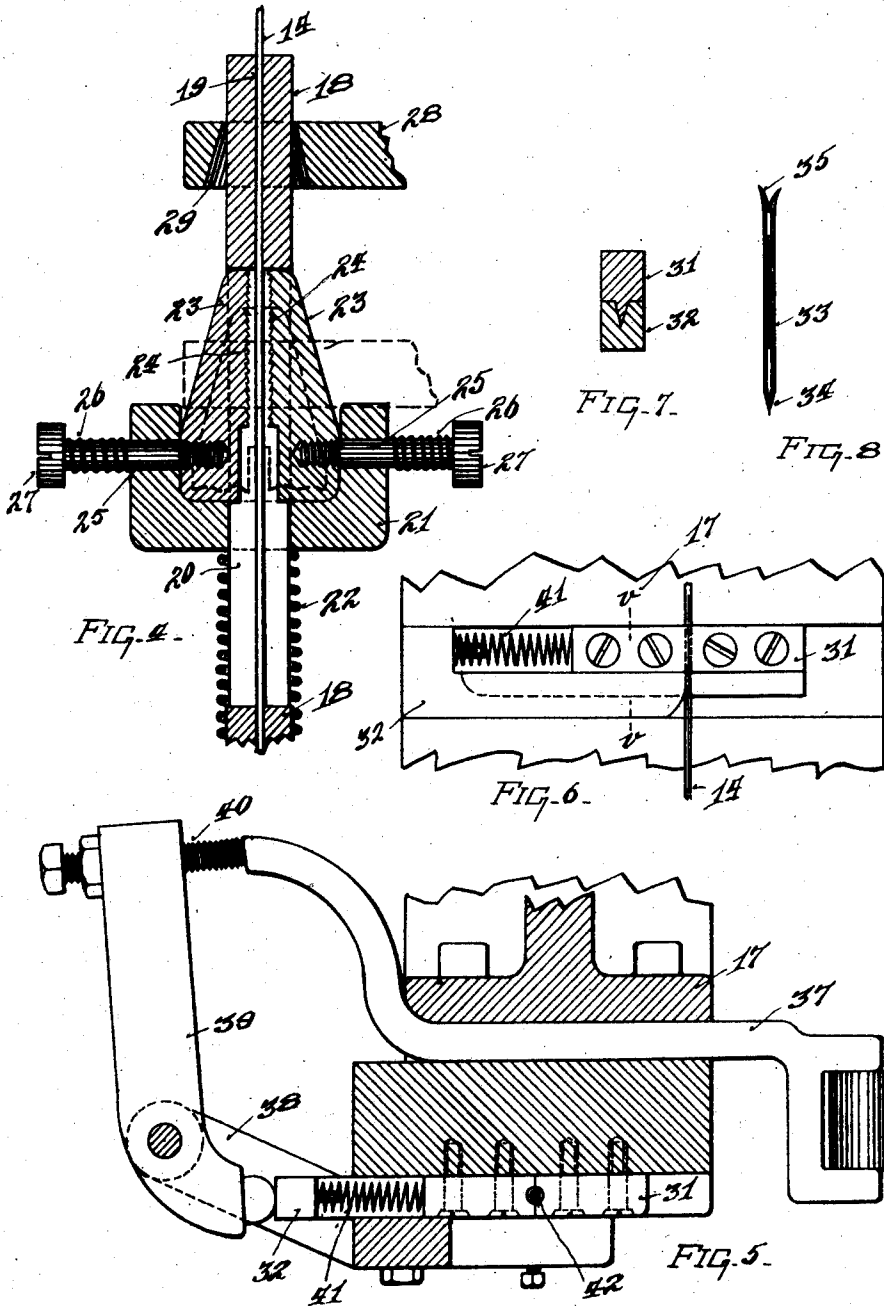
No. 883,126.

PATENTED MAR. 24, 1908.

W. WOLFE.  
WIRE FEED AND NAIL FORMING DEVICE.

APPLICATION FILED JAN. 19, 1907.

2 SHEETS—SHEET 2.



Witnesses  
Chas. B. Kaiser  
Leo O'Donnell

Inventor  
William Wolfe  
By Wm. W. Wood

Attorney

# UNITED STATES PATENT OFFICE.

WILLIAM WOLFE, OF BATAVIA, OHIO, ASSIGNOR TO THE AMERICAN HEEL MACHINE COMPANY, OF CINCINNATI, OHIO, A CORPORATION.

## WIRE-FEED AND NAIL-FORMING DEVICE.

No. 883,126.

Specification of Letters Patent.

Patented March 24, 1908.

Application filed January 19, 1907. Serial No. 353,145.

*To all whom it may concern:*

Be it known that I, WILLIAM WOLFE, a citizen of the United States, residing at Batavia, in the county of Clermont and State of Ohio, have invented certain new and useful Improvements in Wire-Feed and Nail-Forming Devices, of which the following is a specification.

My invention relates to an improved wire feed and nail forming device for a nailing machine.

In the illustration, the invention is shown as applied to a heel building machine, as my improvement is especially designed for this purpose, and has great advantages and superior utility in such a machine.

The features of the invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which:—

Figure 1 is a front elevation of the upper portion of the heel building machine with my improved wire feed and nail-forming device attached. Fig. 2 is a side elevation of the same. Fig. 3 is a section on line *x, x*, Fig. 1. Fig. 4 is an enlarged central vertical section through the wire gripping and feeding mechanism. Fig. 5 is a sectional elevation on line *w*, Fig. 1. Fig. 6 is an enlarged front elevation of the wire cutting mechanism. Fig. 7 is a section on line *v, v*, Fig. 6. Fig. 8 is a plan view of a wire nail formed upon my machine.

1 represents a section of the supporting frame, 2 the master cam shaft, and 3 the belt pulley therefor.

4 represents a cam on the front end of shaft 2 having a crank pin 5.

6 represents a plunger sliding in the vertical guides 7, 8, located above and below the cam 4. Rod 9 has a horizontal link slide-way 9 in which the pin 5 engages, so that the rotation of cam 4 imparts vertical reciprocation to the plunger 6. On the end of plunger 6 is a nail driver 10, operating in a nail channel of the nailing block 11. This nailing block 11 is held against the article to be nailed. The wire 14, from which the nails are formed, is supported upon a reel 15 journaled on the bracket 16 on the top of the frame.

17 represents a second vertical bracket parallel with bracket 16, also supported on the top of the frame.

18 represents a guide-tube attached to the

bracket 17 and having the wire channel 19. The walls of the upper portion of tube 18 are provided with the slits 20, on opposite sides, to afford access to the channel 19 for the gripping mechanism.

The details of the gripping mechanism are shown in Fig. 4, in which:—21 represents a U-shaped collar slidably mounted on the tube 18 and held in position by coiled spring 22. 23 represents a pair of gripping jaws having downwardly inclined teeth or serrations 24 on the opposing inner faces. The jaws 23 engage through the slits 20, of the tube 18, and they are held normally in retracted or ungripping relation to the wire, by means of the bolts 25 mounted in the U-arms 21. 26 represent coil springs engaging between the said U-arms and the heads 27 of said bolts, thus exerting an outward tension on the jaws 23 and holding them separated in the slits 20.

In order to actuate the grippers, the plunger 6 is provided with an adjustable arm 28, the outer end of which has a tapered orifice 29 through which the rod 18 passes. The taper of said orifice corresponds with the exterior taper of the gripper 23. When the plunger 6 is reciprocated, the arm 28 moves down, the upper end of the grippers 23 entering the orifice 29, and the continued descent of the arm 28 by reason of the tapered surfaces of the gripper 23 and the orifice 29, force the grippers inwardly to grip the wire and feed the wire downwardly through the channel 19. When the arm 28 moves upward, it will move away from the gripper 23, releasing them, the springs 26 will unlock the gripper from the wire, and the spring 22 will move the collar 21, carrying the grippers back to initial position, in which the arm 28 stands somewhat above the upper edge of the gripper. The plunger 6 is provided with graduations 30 for adjusting the arm 28 so as to regulate the length of wire feed.

In order to cut the wire, I provide the V-shaped cutter dies 31, 32, which form the nail 33 with the sharp point 34 and the split head 35, the latter being clenched in the article to be nailed by the driver, and the point being clenched against the anvil upon which the article to be nailed is supported. To actuate the nailing dies, the cam 4 is provided with a cam face 36 actuating a plunger 37, slidably mounted in the bracket 17.

38 represents a bracket arm attached to

the bracket 17 to which arm is pivoted a bell crank lever 39. The rear end of lever 39 is provided with an adjustable bolt 40 adapted to be engaged and operated by the plunger

5 37. The front end of lever 39 strikes the movable cutter die 32, slidably mounted in the slide-way in bracket 17. The cutter die is held in normal position by spring 41.

42 represents the nail orifice through the  
10 dies.

43 represents a nail chute for taking the nail from the orifice 42 and delivering it to the nailing block 11.

It is obvious that when shaft 2 is rotated,  
15 the proper nail length of wire is fed into the orifice 42 and the dies are operated to cut the wire and form the nail, the wire grip moves back to initial position for a new feed when the nail driver is returned.

20 It will be observed that the nail driving rod has a considerable throw or travel, in practice about three inches, and that the wire grippers and feeders must have only a short movement, just the length of the nail.

25 The tapering of the gripper shanks relative to the feed arm 28 and their relation to the nail driver 10, are such, that, when properly adjusted, the proper length of wire for a nail is fed at the latter end of the downward travel

30 of the arm 28. It will also be seen that the dies for cutting and forming the nail, are operated in time movements with the downward feed of the wire, and that the release of the wire cutting dies and the delivery of the

35 nail to the block takes place during the upstroke of the nail driver, so that the nail is fed into position before the downstroke of the hammer is made.

Having described my invention, I claim:—

1. In a machine of the class described, a 40 reciprocating nail driver, means for actuating the same, a tube through which the wire is fed, a pair of grippers operating through a slit in the tube, means for holding said grippers normally apart, an arm projected from 45 the reciprocating nail driver, having an orifice through which the tube passes, the meeting surfaces of the said orifice and grippers having corresponding tapers, whereby the grippers are clamped upon the wire when the 50 arm is moved downward with the arm at predetermined strokes, being released when the arm is retracted, and means for returning the grippers to initial position, substantially as described. 55

2. In a machine of the class described, a reciprocating nail driver, means for actuating the same, a tube through which the wire is fed, a U-arm movably mounted on the tube, a spring around the tube for holding the arm 60 normally in its upper position, a pair of wire grippers supported by the U-arm and operating through slits in said tube, means holding said grippers normally separated, a device actuated by the reciprocating nail driver, 65 adapted to engage the grippers, clamping them on the wire and moving them downward in the tube when the nail is driven, and to release the grippers on the return stroke of the nail driver, substantially as described. 70

In testimony whereof I have hereunto set my hand.

WILLIAM WOLFE.

Witnesses:

OLIVER B. KAISER,  
LEO. O'DONNELL.