(No Model.)

H. P. FAIRFIELD.

Nailing Machine.

No. 230,624. Patented Aug. 3, 1880.

Fig: 1.

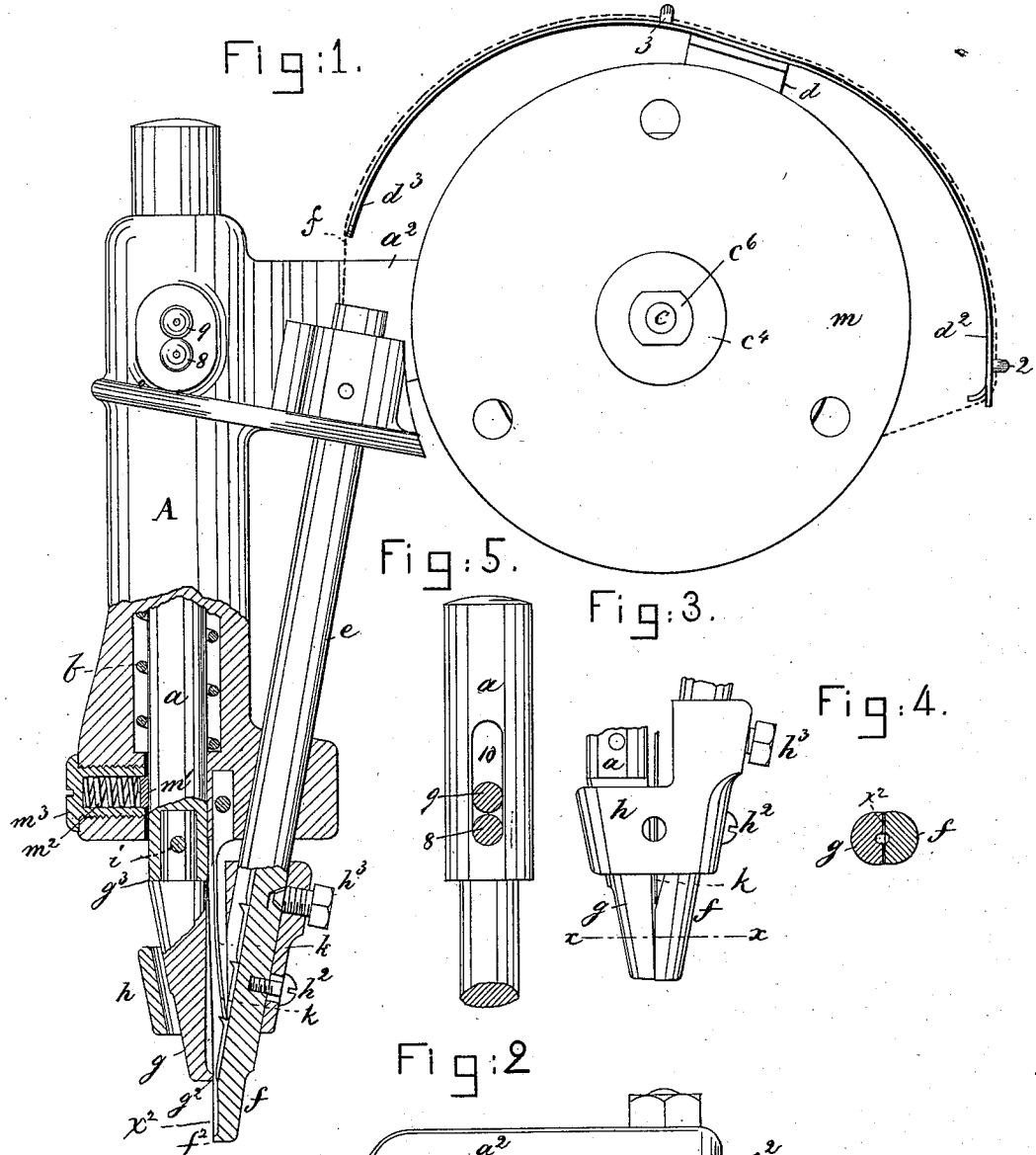
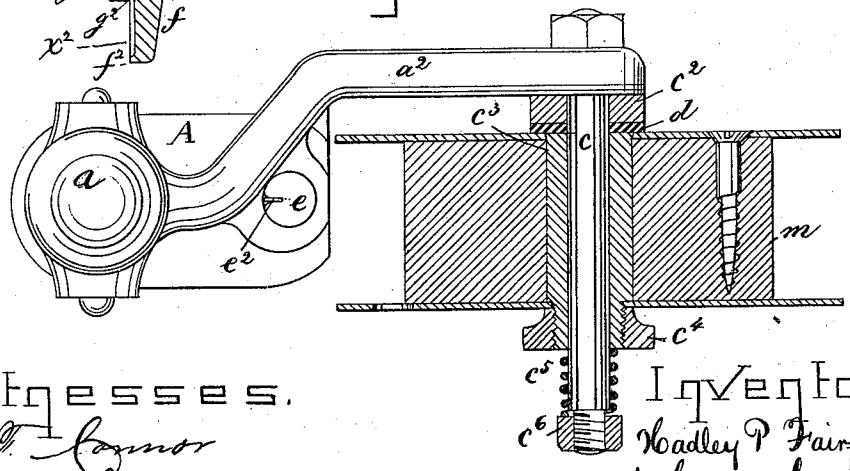


Fig: 5.

Fig: 3.

Fig: 4.

Fig: 2



Witnesses.

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Arthur Reynolds.

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UNITED STATES PATENT OFFICE.

HADLEY P. FAIRFIELD, OF WEST MEDFORD, ASSIGNOR TO GORDON McKAY, TRUSTEE, OF CAMBRIDGE, MASSACHUSETTS.

NAILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 230,624, dated August 3, 1880.

Application filed June 7, 1880. (No model.)

To all whom it may concern:

Be it known that I, HADLEY P. FAIRFIELD, of West Medford, county of Middlesex, State of Massachusetts, have invented an Improvement in Nailing-Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to improvements in nailing-machines, chiefly designed for driving nails of the string-nail class in the manufacture of boots and shoes, and for leather-work in general.

My invention, among other things, consists in the combination, with the reel that holds the string-nails, of a spring take-off and a yielding nail-support for the string-nails, the support being located between the reel and the guide bar or rod through which the nail-string is led; also, in the combination, with the driver-bar, of a driver having an angular shank, whereby the driver is thrown to one side of the center of the driving-bar, as hereinafter described; also, in the combination, with the driver and driver-bar and nose, of an adjustable conical sleeve within which are placed the nose and driver, the said sleeve, by an inclined surface thereon, acting to force the driver toward the nose as the driver descends, to thereby cut the string-nail as it is driven below the nose; also, in the combination, with the driver-bar, of a friction device composed of a screw, a spring, and friction-plate, as hereinafter described.

Figure 1 represents, in side elevation and partially in section, a nailing-machine containing my invention; Fig. 2, a top view, the reel being in section; Fig. 3, a detail, showing the lower end of the nail-driver with the driver fully down; Fig. 4, a section on the dotted line x x, Fig. 3; and Fig. 5 a detail to be referred to.

The frame-work A, made hollow to receive the driver-bar a and a spring, b, of usual construction, by which to lift the driver-bar after each descent, all as usual, has formed as part of it an arm, a^2, that carries a stud, c. On this stud is placed a washer, c^2, preferably of leather, then an arm, d, and then a sleeve or hub, c^3, upon which is placed the usual reel m for the coil of string-nails, the said reel being held in place thereon by the nut c^4, a spring, c^5, controlled by a nut, c^6, regulating the friction necessary to be overcome to turn the said reel. The arm d, made adjustable in the arc of a circle about the stud c, is extended above this reel, and serves to hold a spring take-off and a yielding nail-support. The take-off spring d^2 is extended down at the rear of the reel, while the yielding support d^3 is extended down in front of the reel almost to the upper end of the usual rod e, grooved to receive and guide the nail-string, the said rod at its lower end serving as the nose of the apparatus.

I have herein shown the take-off d^2 and support as made in one piece, attached nearly centrally to the adjustable arm d; but it is obvious they might be separate pieces. If the support d^3 should be omitted then the arm d would be turned forward on the stud c nearer the driver-bar, so that when the reel is full the nail-string will not descend and touch the nail-string on the reel and become broken.

In Fig. 1 the dotted line f shows the position of the nail-string. It leaves the reel, passes through the eye 2 of the end of the spring take-off d^2, thence along over the said take-off through the eye 3, and down over the free end of the yielding support d^3 into the groove or passage e^2 of the rod e, and along down in the said groove and into nose f, as seen in Fig. 1.

The take-off d^2 acts to loosen the string of nails from the reel as it is to be delivered, and prevents the injurious drawing together of the coils of nail-string as the driver-bar, being thrown or driven down quickly, jerks upon the said nail-string. The support d^3 yields to this sudden pull on the string-nails, and prevents breaking it. The take-off and support insure a uniform let-off and delivery of the string of nails, notwithstanding variation in the size of the coil of string-nails or the quantity of string-nails on the said reel.

The extreme lower end of the nose f is provided with a shoulder, f^2, to furnish the stationary member of a cutter, the movable member being the edge g^2 of the driver g, it having a shank, g^3, placed in an angular position with relation to the central line of the driver g, so that the said shank g^3, placed centrally in the

driver-bar, will cause the driver to be moved in the proper direction with relation to the face x^2 of the said nose.

The frame A has in it two stop-pins, 8 9, each of which enters a slot, 10, in the driver-bar *a*. The pin 8 acts as a down-stop and the pin 9 as an up-stop for the driver-bar. These two pins, to receive much of the blow or impact of the driver-bar at each ascent and descent thereof, make the apparatus stronger and more durable than when but one stop-pin is used.

Attached adjustably to the rod *e* is the conical sleeve *h*. This sleeve is slotted to receive the screw h^2, by which to hold the sleeve in position.

The adjusting-screw h^3, having, as herein shown, a conical point, enters a conical or other recess (see Fig. 1) having an inclined surface, against which the end of the said screw h^3 may act to lift or raise the said sleeve. This sleeve receives within it the rod *e* and nose, and also the driver *g*, and as the latter descends its rearwardly-inclined face acts upon the conical sleeve and causes the driver, as it reaches the end of its downstroke, to move a little laterally, sufficiently so to cause the nail to be severed between the cutting-edges f^2 g^2. The stud *i* connects the shank g^3 of the driver with the driver-bar.

The nose, except at the groove which contains the nail-string, has a flat face to receive the correspondingly flat face of the driver, it being also grooved centrally.

To obviate this I have placed the detent-spring so as to bear upon the head of that nail next back of the one to be driven, thus giving the driver an opportunity to engage the whole of the head of the nail and drive it with greater accuracy.

The driver is restricted as to the freedom of its movements by the friction-pad m' and spring m^2 and tubular screw m^3, set into the frame A, which presses the driver against the string-wire, thus insuring its engagement with the head of the nail.

I claim—

1. In a nailing-machine, the combination, with the reel and arm *d*, of the take-off spring d^2, to operate upon the wire nail-string, substantially as described.

2. In a nailing-machine, the combination, with the reel, the wire nail-string, and the rod *e*, of the yielding support d^3, located between the reel and the said rod, to operate substantially as described.

3. The combination, with the frame and its two pins, 8 9, of the slotted driver-bar, substantially as described.

4. The string-nail-guiding rod *e* and its connected conical sleeve *h*, combined with the driver placed within the said sleeve and moved or forced by the said sleeve against or toward the cutting-edge f^2 to sever the nail just as it is driven by the driver, substantially as described.

5. The combination, with the driver-bar and frame A, of the screw m^3, spring m^2, and washer *m*, substantially as described.

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

HADLEY P. FAIRFIELD.

Witnesses:

G. W. GREGORY,

N. E. C. WHITNEY.