

(No Model.)

2 Sheets—Sheet 1.

W. S. FITZGERALD.
NAILING MACHINE.

No. 419,762.

Patented Jan. 21, 1890.

Fig. 1.

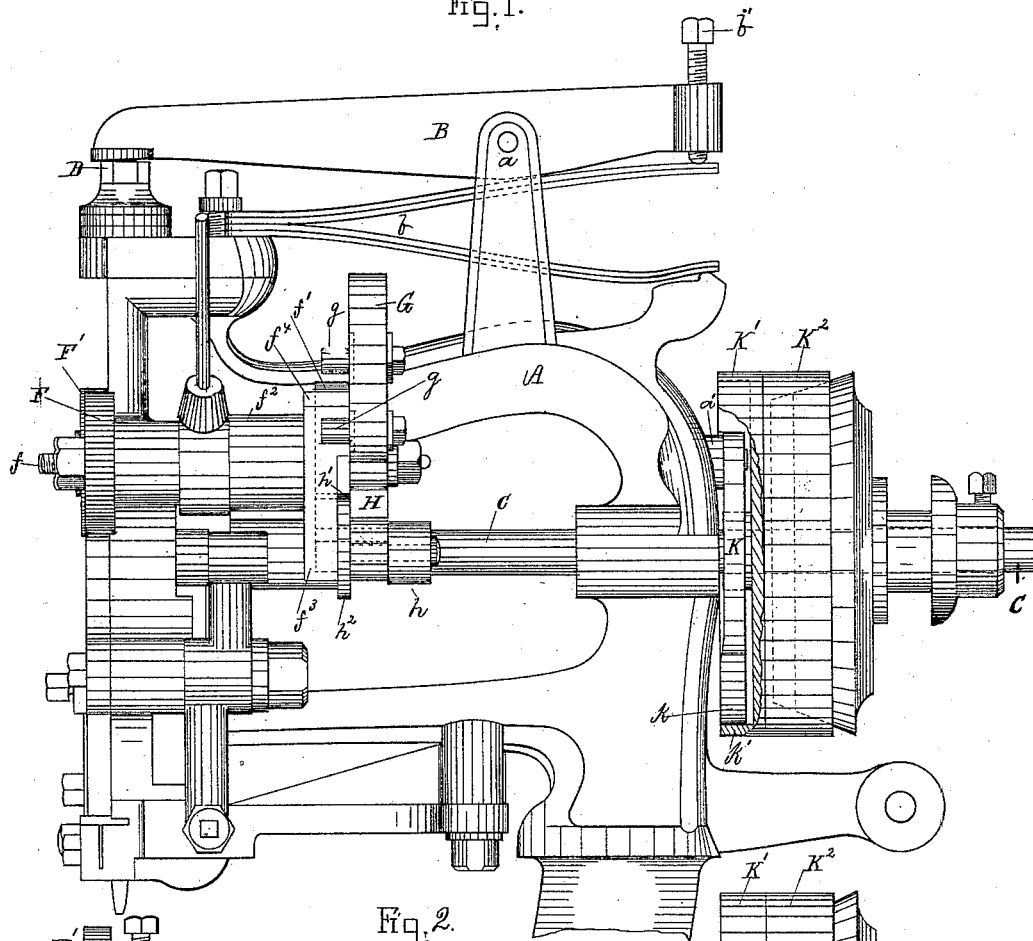
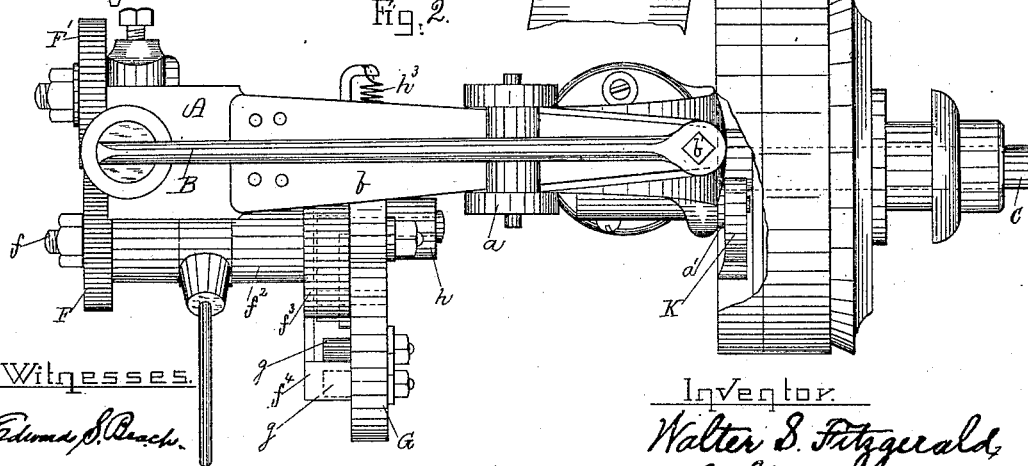


Fig. 2.



Witnesses.

Edmund S. Beach.
John R. Suow.

Inventor.

Walter S. Fitzgerald,
by his attorney,
J. E. Chapman.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

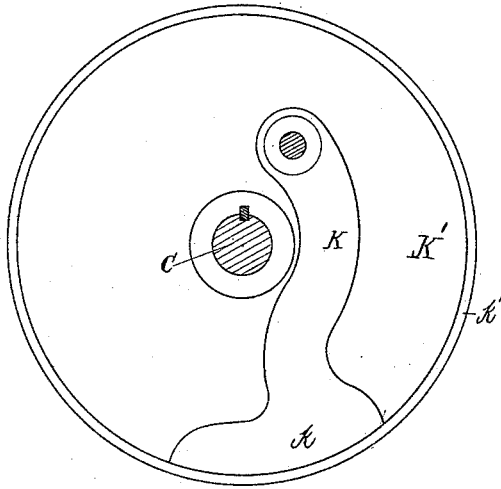
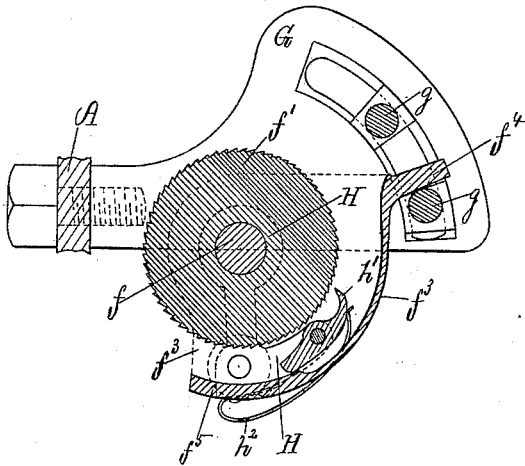


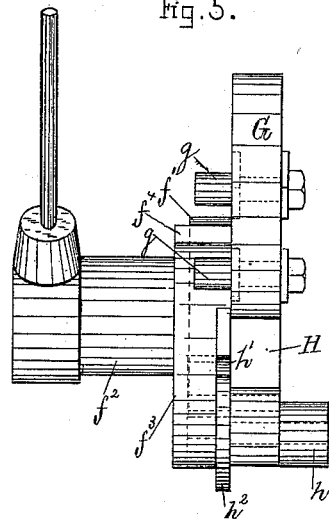
Fig. 4.



Witnesses.

Edward S. Beach.
John R. Snow.

Fig. 5.



Inventor:

Walter S. Fitzgerald,
by his attorney,
J. E. Maynard

UNITED STATES PATENT OFFICE.

WALTER S. FITZGERALD, OF BOSTON, MASSACHUSETTS.

NAILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 419,762, dated January 21, 1890.

Application filed September 13, 1886. Renewed June 17, 1889. Serial No. 314,538. (No model.)

To all whom it may concern:

Be it known that I, WALTER S. FITZGERALD, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improved Nailing-Machine, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of a nailing-machine embodying my invention; Fig. 2, a plan of the same; and Figs. 3, 4, and 5 are details.

My invention relates to boot and shoe nailing machines of the kind described in my patent, No. 324,312, dated August 11, 1885; and it consists, first, in novel and improved mechanism for actuating the driver-bar; secondly, in improved gaging mechanism by means of which a longer or shorter section of wire is fed to the cutter, as described, and, thirdly, in an improved stop to prevent the main shaft from turning backward.

The parts not lettered in the drawings are substantially the same as parts described in my said patent, and will be readily understood by all persons skilled in the art.

In the drawings, the driver-bar D is mounted as in my patent, No. 324,312, and is raised upward by the mechanism therein described; but instead of being raised against the force of a spiral spring, as in that patent, it is raised against lever B, which is fulcrumed in bracket a of head A, and is supported at one end by the V-spring b, made fast in the head A. This arrangement of the lever B, spring b, and the driver-bar insures the quick stroke of the driver-bar, which has been long sought for in this art, and enables me to dispense with both wooden and spiral springs, which have been found objectionable, owing to their liability to break and to lose their springiness.

The set-screw b' is a convenient means for adjusting the spring b.

The feed-wheels F F' are arranged in a well-known manner, as in my patent above mentioned, shaft f of feed-wheel F carrying the ratchet-wheel f'.

While my patent herein mentioned shows length-gaging mechanism of great utility, I have found that it sometimes works imperfectly and gives rise to clogging of the machine. To obviate this difficulty I have de-

vised new length-gaging mechanism which is adapted to be actuated by the arm j on main shaft C, as shown and described in my said patent. The pawl-controlling arm f², flanged at f³, encompasses shaft f, on which feed-wheel F and ratchet-wheel f' are mounted, and the flange f³ has a projection f⁴ extending between the stops g, which are adjustable in the slotted bracket G. On the inner end of shaft f is mounted the bent arm H, carrying a pawl h', which is brought into engagement with the ratchet-wheel f' by the spring h² when the thicker part f⁵ of flange f³ is out of contact with the pawl. Pawl-controlling arm f² is adapted to be turned on shaft f by hand, and is limited in its movement by projection f⁴ and stops g.

The operation of this length-gaging mechanism is as follows: The pawl-carrying arm H is reciprocated in any usual way. I prefer that shown in my patent, No. 324,312. (See Figs. 1 and 4 of that patent, where the roller marked e is the same as the roller h of this specification, Fig. 5; and the part marked j in Figs. 1 and 4 of that patent shows an arm or cam fast to the main shaft C, which is not shown in the drawings hereto annexed because hidden by the roller h in Fig. 1, which is the only figure showing the main shaft C. The arm H is moved in one direction by this wiper-cam or arm on the main shaft C and in the other direction by a spring hidden from view by the other parts, but which will be readily understood without further description, as the reciprocating of arm H by its roller h is in all respects the same as the arm d and roller e of my patent above referred to.) The pawl h' is held from engagement with its ratchet f' by that part of flange f³ which is marked f⁵ (see Fig. 4) until it is carried forward a certain part of its stroke by the forward motion of arm H; but as soon as the shoulder of the pawl h' clears the thicker part f⁵ of flange f³ the pawl-spring h² throws the pawl into contact with its ratchet f' and the wire is fed. On the back-stroke of arm H and its pawl h' the pawl is disengaged from its ratchet f' as soon as the shoulder of pawl h' is carried under part f⁵, as will be clear from Fig. 4. Thus by adjusting the part f⁵ of flange f³ with relation to pawl f' the length

of feed is regulated, as will be clear. This adjustment is readily accomplished by moving sleeve f^2 on its axis, (see Fig. 5,) for flange f^3 is fast to sleeve f^2 , and sleeve f^2 is readily
 5 moved on its axis by the finger-piece shown projecting from its hub in Fig. 5. To limit the change in the length of feed, (as is desirable in some cases,) the flange f^3 has an extension f^4 , Fig. 4, which works between the
 10 stops g , which stops g are adjustable in a slot in the bracket G, which is fast to the frame A.

To prevent the machine from running backward, as sometimes happens when the belt is on the loose pulley K², I have devised the
 15 stop K, which is pinned to the frame of the machine at a' , so as to hang within the rim k' of the pulley K', rigidly mounted on main shaft C. The foot k of stop K is struck on a circle from the center of main shaft C, so that
 20 its bottom is parallel with the inner surface of rim k' ; but the stop is pinned to the frame A at one side of the center of the shaft, with the bottom of its foot in approximate contact with the inner surface of rim k' of the fast
 25 pulley K'. When fast pulley K' rotates in one direction, stop K is inoperative. When

fast pulley K' rotates in the other direction, the frictional contact of the foot k with rim k' carries the stop along with it until the stop is bound between the pin at a' and the rim k' of fast pulley K'. Backward movement is thereby prevented, as will be clear to all skilled mechanics.

What I claim is—

1. In combination with driver-bar D and lever B, the V-shaped spring b , arranged substantially as shown, and for the purpose set forth.

2. The combination of pawl-carrier H, its pawl h' , and ratchet f' with the pawl-controlling arm $f^2 f^3 f^4$ and stops g , substantially as and for the purpose set forth.

3. In combination with fast pulley K', the self-acting stop K, pinned to frame A at a' , and having the bottom of its foot k parallel to the flange k' , substantially as and for the purpose set forth.

WALTER S. FITZGERALD.

Witnesses:

EDWARD S. BEACH,
 JOHN R. SNOW.