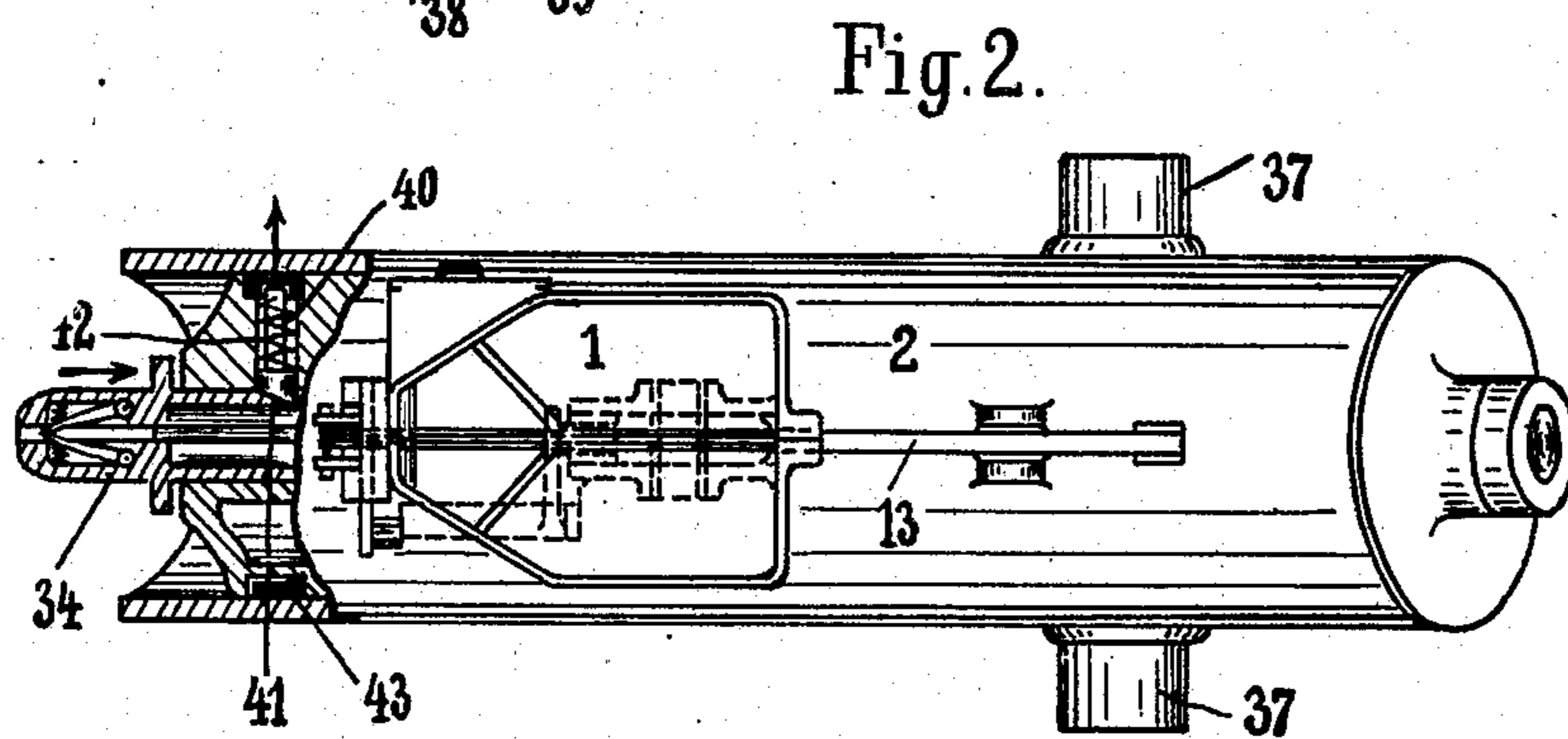
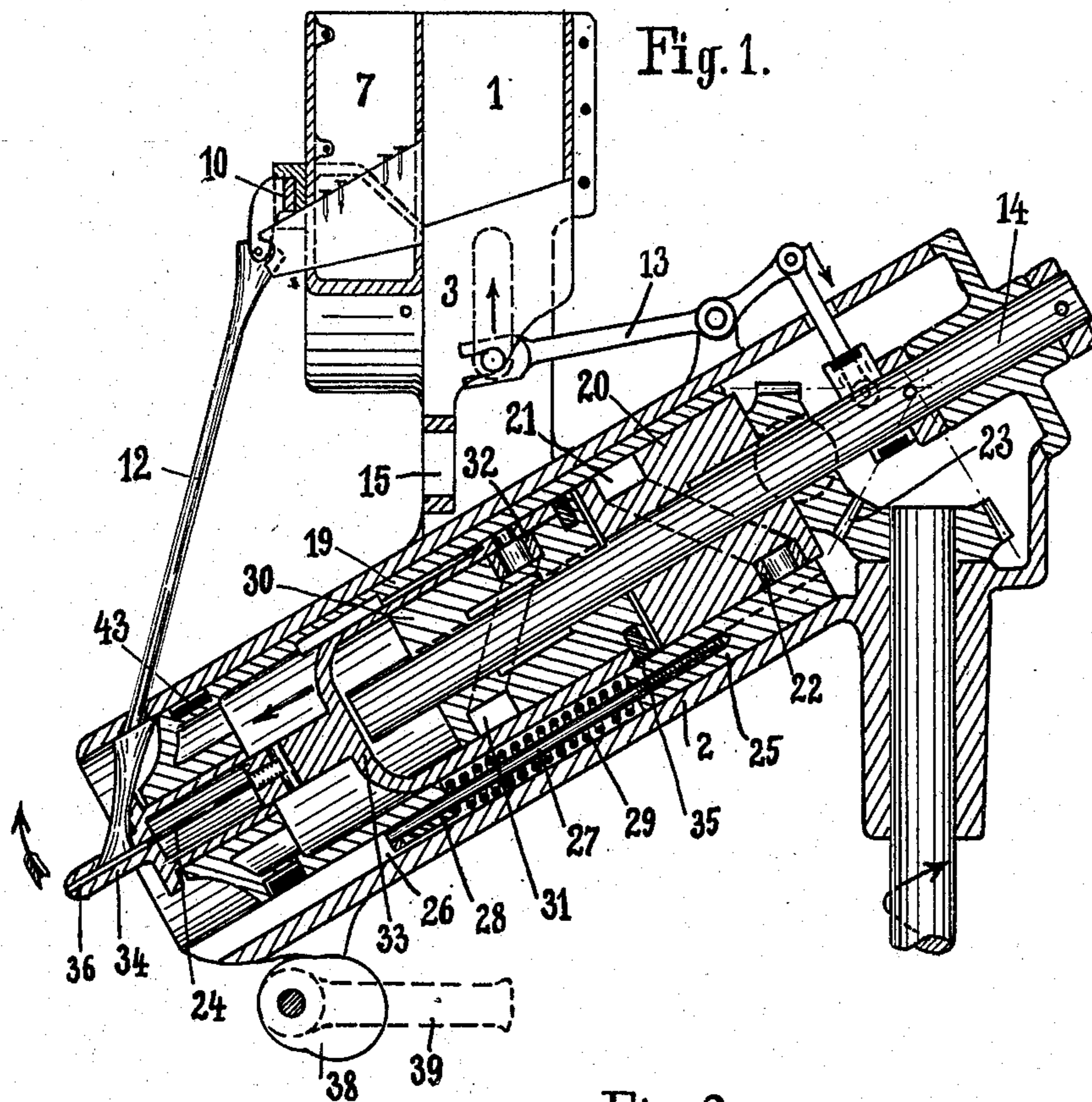


C. SATTLER.
AUTOMATIC NAILING DEVICE FOR NAILING MACHINES.
APPLICATION FILED MAY 25, 1907.

901,192.

Patented Oct. 13, 1908.



Witnesses:
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AUTOMATIC NAILING DEVICE FOR NAILING-MACHINES.

No. 901,192.

Specification of Letters Patent.

Patented Oct. 13, 1908.

Application filed May 25, 1907. Serial No. 375,608.

To all whom it may concern:

Be it known that I, CARL SATTLER, a citizen of the German Empire, and resident of Steglitz, near Berlin, Germany, have invented certain new and useful Improvements in Automatic Nailing Devices for Nailing-Machines, of which the following is a specification.

My invention relates to an automatic nailing-device by which the nails are driven automatically into the respective piece or article. The nails are driven out of the device one by one and so placed that the head is in a certain position, and of the nails arranged in a row only one nail is detached at a time, which is thereupon placed before the device by which it is pressed into the object. This automatic nailing-device is intended to be used in machines for nailing the leathern uppers of shoes to wooden soles, in machines for nailing boxes and the like.

The invention is illustrated on the accompanying drawing, in which:—

Figure 1 a vertical section of the device, and Fig. 2 a top view of the device, partly in section.

Like characters of reference indicate like parts throughout the different figures.

The nails are thrown into a suitable receptacle 1, fastened to the casing 2. In the receptacle 1 a slide 3 moves up and down, which has at its upper end a slot, into which drop the nails with their shanks and slide down on the inclined side-walls of the receptacle towards the slide. The nails remain hung up in the slot of said slide by their heads. The slide has an inclined upper edge from which, when the slide is in its highest position, the nails are moved upon a slide-way and by means of a suitable device, indicated at 10, are taken off one by one and dropped into a chute 12 in the position of the parts shown in Fig. 1 and carried to the shoe by the motion of the tube 19 and are driven from this tube by the hammer 24. The slide 3 for receiving the nails is operated by a lever 13, which is actuated by the driving shaft 14 of the device for pressing in the nails in such a manner that, when the slide is moved up and down, the device for taking the nails off is operated at the same time.

The device, by which the nails are pressed or driven into the objects consists of a casing 2, in which slides a tube 19, which carries the guide for the nail and the hammer. In the

tube 19 is arranged a cam disk 20, in a slot 21 of which moves the roller 22, fastened to a flat piece 25, sliding loosely in the body 19. The cam disk is fixed on the shaft 14 in the center of the casing 2, and the shaft is rotated by a pair of wheels 23, so that, when the shaft is rotated, the tube 19 is shifted axially and parallel to the shaft forwards and backwards by the cam disk 20. This forward and backward movement of the tube 19 is so divided that it only takes place during one half of the revolution of the shaft 14, so that during the stoppage of the tube 19, the hammer 24 has time, to press the nail into the object. The flat piece 25 slides in a groove 26 of the casing 2. A pin 27 is screwed into the flat piece 25 and the pin is guided with its other end in a thickened part 28 of the tube 19. The pin carries a spring 29, which forms the connecting piece between the cam disk 20, the flat piece 25 and the tube 19. The purpose of the spring 29 is to equalize the differences in the distance from the nailer to the shoe at different parts of the shoe. In order that when the flat piece 25 returns, the tube 19 is also moved, there is arranged at the end of the pin 27 another pin or a head is screwed upon the end of said pin. On the shaft 14 is further arranged a second cam disk 30, in the groove 31 of which slides the roller 32 so that the cam 30 can be moved longitudinally on shaft 14 while turning therewith. The pin or pivot of this roller 32 is fixed in a cylinder 33, sliding in the tube 19, in the front part of which is fastened the hammer 24 for driving or pressing the nails. This hammer lies in the nail guide 34. The cam disk 30 is moved forwards and backwards by means of the pins 35 fastened to the tube 19 and engaging in a groove in cam 30, when the tube 19 is moved forwards and backwards. The active portion of cam 20 moves tube 19 downwardly and, at the same time, cam 30, also, by reason of the engagement of pins 35 with the latter. Because of the engagement of the cylinder 33 through roller 32 with cam 30 the hammer 24 is also moved downwardly with said guide. The tube 19 then comes to rest by reason of the entrance of roller 22 into the non-active part of its cam groove and at the same time, roller 32, which during the preceding motion has been engaged with the non-active part of the cam 30, enters into its active part and moves the cylinder 33 and hammer 24 further downward to

force the nail out of the nail guide. The hammer and guide are returned to their initial positions in the same way, the cam 30 moving the hammer upwardly while cam 20 moves both the nail guide and the hammer, as well as cam 30 upwardly.

The whole device is so journaled in the pivots 37 of the casing 2 that it can oscillate on these pivots, in order to nail at different heights. The height of the nail guide or the position of the whole nailing device is regulated by a cam disk 38.

In order that, when a nail is driven in, the tube 19 cannot be moved backwards against the pressure of the spring 29, there is provided a detent at the end of the tube. This detent consists of a pin 40 radially journaled with an inclined surface, which is in contact with an equally inclined part 41 of the nail guide. Around the pin is arranged a spring 42, which tends to press the same with its inclined surface against the inclined surface of the nail guide. Around the tube 19 is placed a slotted ring 43, in the slot of which enters the other pointed end of the pin 40. If now, when a nail is driven in, a pressure is exerted on the nail guide 34, which is mounted to have a slight longitudinal motion in tube 19, the pin 40 is moved outwards, by which the outer end of the pin presses the ring 43 asunder, so that the tube is fixed in the casing 2 by reason of the friction between the expanded ring and the casing. The detaining ceases at once, as soon as the nail guide and hammer are withdrawn.

What I claim is:—

1. In an automatic nailing device for nailing machines, a shaft, a nail guide, a hammer, a cam on said shaft constructed and arranged to move the nail guide into contact with the work, a second cam longitudinally movable on said shaft and connected with the

nail tube to be moved therewith, the second cam being provided with a cam groove constructed and arranged to move the hammer to drive the nail after the nail guide has come to rest, and a detent to lock the nail guide against backward movement during the driving of the nail.

2. In an automatic nailing device, a shaft, a nail guide, a cam on said shaft constructed and arranged to move the guide axially of said shaft, a member, adapted to slide loosely in said guide and to be moved by said cam, a pin connected to said member and guided in the nail guide and a spring on said pin between the nail guide and member to provide an elastic connection between said parts.

3. In an automatic nailing device, a casing, a movable tubular member in said casing, a nail guide movably mounted in said member and having an inclined surface, a slotted expansible ring mounted in said casing, against the walls thereof, a pin slidingly mounted in said tubular member and having an inclined surface adapted to engage with the inclined surface of the nail guide, and having an end adapted to enter the slot of the slotted ring, whereby, when the nail guide is pressed against the work, the ring is expanded against the walls of the casing to lock the tubular member and the nail guide, and a spring on said pin, adapted to return the pin and nail guide to their initial positions.

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

CARL SATTLER.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.