

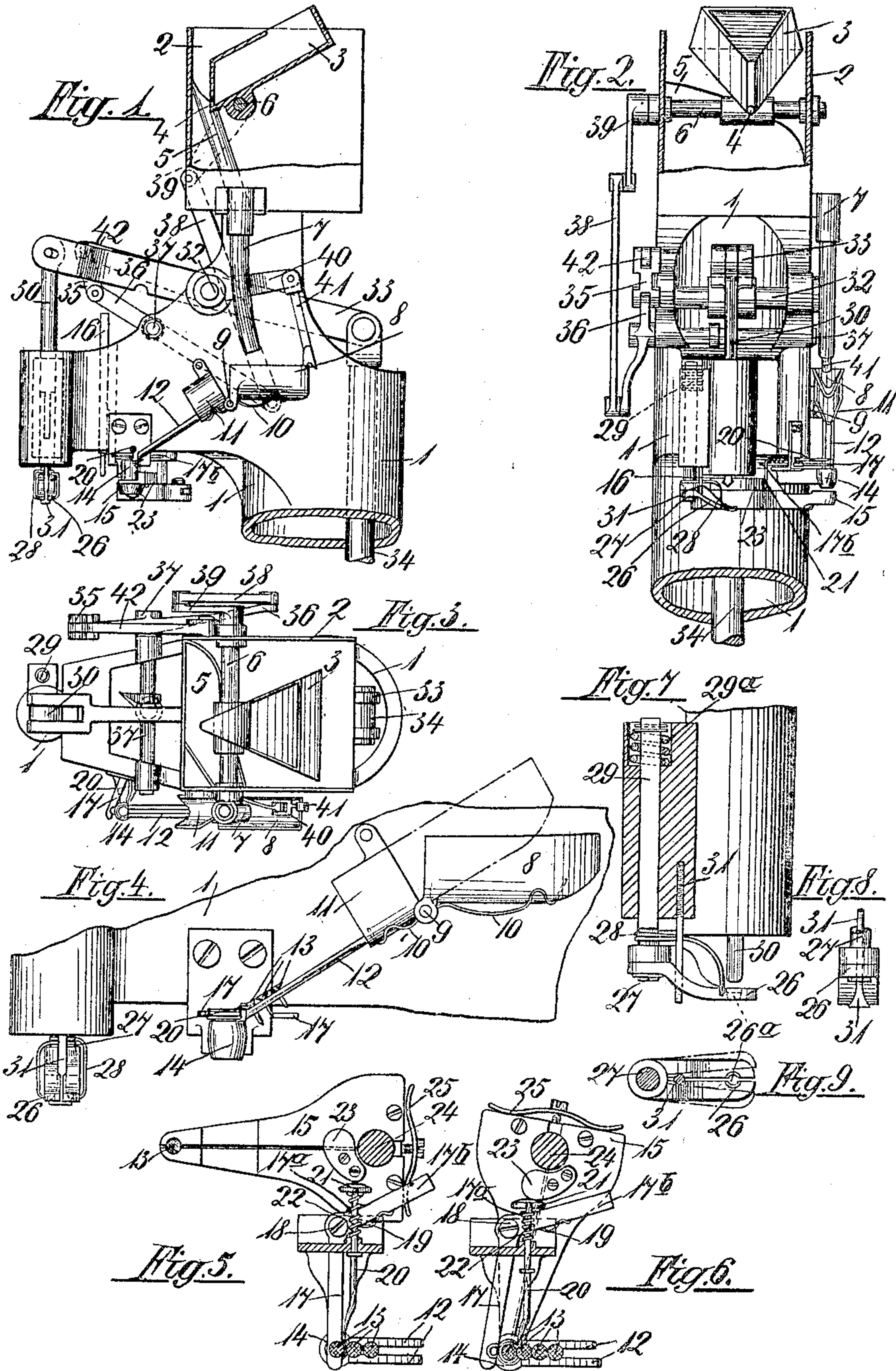
No. 813,310.

PATENTED FEB. 20, 1906.

W. KNECHT.

NAIL SUPPLYING DEVICE FOR SHOE NAILING MACHINES.

APPLICATION FILED JUNE 29, 1905.



Witness
Albert Popkins
J. M. Copenhagen.

Inventor
Wilhelm Knecht
by Stuart & Bailey
Attorneys

UNITED STATES PATENT OFFICE.

WILHELM KNECHT, OF STUTTGART, GERMANY.

NAIL-SUPPLYING DEVICE FOR SHOE-NAILING MACHINES.

No. 813,310.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed June 29, 1905. Serial No. 267,576.

To all whom it may concern:

Be it known that I, WILHELM KNECHT, a citizen of the German Empire, residing at Stuttgart, in the Kingdom of Württemberg, German Empire, have invented certain new and useful Improvements in Nail-Supplying Devices for Shoe-Nailing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to nail-supplying devices for shoe-nailing machines, the object being to provide a device by which the nails are positively and automatically supplied in regular order and in such a manner that it is impossible for more than one nail to come under the hammer or driver at one and the same time, and, further, to insure that the nails are always supplied in the correct position to the working point below the driver, so that by means of these advantages not only a more certain but a more rapid working is obtained, and thus a considerable saving in time effected. Furthermore, no accident can happen to the machine, owing to more than one nail being supplied at one and the same time or from the nails being supplied in any incorrect position.

The characteristic feature of this invention consists in that the nails pass from a container to an inclined rail in a slot in which they glide down one after the other and in which they cannot adopt any other position than with the point directed downward, as they are situated with their heads on the rail. From here the nails are supplied by a known device to the working point below the driver, said device consisting of an automatic opening and closing nail-conveyer. The nail-holder consists principally of jaws, which after receiving the nail automatically open and close on the descent of the driver.

A further characteristic feature of the present invention is the device which permits only the supply of one nail at one and the same time to the nail-conveyer. This device essentially consists of an automatically-operated stopping-arm which holds the nail that is next to be used and supplies it to the nail-conveyer, while a rod operating the stopping-arm holds back the rest of the nails, on the release of which rod the next nail passes to the stopping-arm and from here to the conveyer.

One form of the present invention is shown in the accompanying drawings.

Figures 1 and 2 are respectively front and side views in partial section; Fig. 3, a plan view of Fig. 1. Fig. 4 shows, on a larger scale, the inclined guiding-rail, as well as the working point to which the nails are delivered. Figs. 5 and 6 explain the working of the stop device in two positions in plan view. Fig. 7 is a front view of the working point, while Figs. 8 and 9 show a front view and plan view of its holding-jaws.

On the frame 1 of the machine, in the casing 2, the nail-container 3 is pivoted on the rock-shaft 6. The nail-container is tapered in front and there provided with an opening 4. The oscillation of the shaft 6 is preferably obtained by an ordinary operating-lever, treadle, or the like—for example, by a rod 34, acting through levers 33 and 42, situated on the rock-shaft 32—and by a link 35, which moves a lever 36, turning on an axle 37, the lever 36 in turn being connected by a link 38 to a lever 39, arranged on the shaft 6. By this motion the container 3 is tipped, and owing to the short tipping movement a small number of the nails 13 fall into an inclined guide 5 and from here through a small pipe 7 into a trough. This trough turns on the bolt 9 and is acted on by a spring 10, tending to push it upward. This movement is intermittently interrupted by an arm 41, which, arranged in the one-end position, presses the trough 8 downward, so that no nail 13 can slide out and be transported farther, the arm 41 being carried by a lever 40, mounted on the shaft 32. The nails pass from the movable trough 8 through the fixed trough 11 on to a sloping rail 12, in the slot in which they slide downward, arranged individually one after the other, Fig. 4. Having reached the end of this rail 12, the front nail slides onto an arm 17, recessed to correspond to the head of the nail, while the remainder of the nails are suspended in a row in the rail 12, so that even if several nails fall from the nail-container 3 at the same time they are nevertheless arranged in order and only one individual nail can reach the working point below the driver at one and the same time. On the turning of the arm 17 this nail 13 falls through the guide 14 with the point underneath onto a known nail-conveyer 15, while at the same time the remaining nails 13 are checked by a reciprocating rod 20, so that only one single nail can be conveyed. The arm 17 is consequently

rotatively arranged and performs an oscillating movement. With this object in view a cam 23 is provided on the divided nail-conveyer 15, also oscillated in the known manner by an ordinary operating-lever of any suitable construction about the pivot 24, the cam 23 on the oscillation of the conveyer lying against the head 21 of the rod 20. The rod 20 is so mounted and controlled by a spring 22 that it can only perform a reciprocating motion. In its course the head 21 of the rod 20 encounters a small projection 17^a, which projection 17^a is arranged on the arm 17^b of the stop-arm 17, so that the end of the same, holding the nail 13, is pressed aside, and the nail 13, sliding through the guide 14, falls onto the nail-conveyer 15. At the same time the rod 20 is pushed forward so far that it holds back the second nail 13, Fig. 6. On conveying the first nail 13 to the working point below the driver the cam 23 is also turned and the arm 20 pressed back by its spring 22, whereby the arm 17^b is released, and the stop-arm 17 is thereupon turned back by its spring 19. The nail 13 to be used now reaches the working point exactly over a recess 26^a of the jaws 26, and in the usual way both the jaws of the nail-conveyer 15 against the action of the spring 25 are pressed apart from each other by the insertion of the wedge-shaped point of the bolt 16, pressed down by the lever 33, and the nail 13 falls into the recess 26^a of the jaws 26, said recess being made conical to correspond to the head of the nail. Now the driver 30 descends under the action of the lever 33 and presses down the jaws 26, which are held together by springs 28, the guide-rod 29, acted on by spring 29^a, sliding in a projection of the frame 1. When the jaws are pressed down far enough, they encounter a wedge 31, Fig. 8, which opens them at the moment the hammer or driver completely drives in the nail 13 into the sole to be nailed. In the meantime another nail 13 has already reached the guide 14, so that the process can be most rapidly repeated.

I claim—

1. In a nailing-machine, an inclined and grooved nail-guide, a pivotally-mounted recessed arm at the lower end of the guide, a stop-rod for engaging and holding the row of nails in the guide after the entrance of the

lowermost nail into said recess, means for actuating the rod, and means for transmitting movement from the rod to the arm.

2. In a nailing-machine, an inclined and grooved nail-guide, a pivoted arm arranged to prevent the passage of the nails from the guide, said arm having a nail-receiving recess, a stop-rod arranged to enter to the rear of the lowermost nail, means for reciprocating the rod, and means for moving the arm to nail-discharging position.

3. In a nailing-machine, an inclined and grooved nail-guide, a pivoted arm arranged to prevent the passage of the nails from the guide, a slidable stop-rod movable across the guide, a cam for moving the rod in one direction, means for transmitting movement from the rod to the arm, and springs for returning the rod and arm to initial position.

4. In a nailing-machine, a nail-guide, a movable carrier having a pair of spring-closed recessed arms arranged to receive successive nails from the guide, a nail-driver, nail-holding jaws below the driver, means for moving the carrier between the guide and jaws, and means for opening the arms of the carrier to deliver the nail to the jaws.

5. In a nailing-machine, a nail-guide, a movable carrier having a pair of spring-closed recessed arms arranged to receive successive nails from the guide, means supported by the carrier for effecting delivery of nails from the guide, a nail-driver, nail-holding jaws below the driver, means for moving the carrier between the guide and jaws and means for opening the arms of the carrier to deliver the nail to the jaws.

6. The combination with a nail-driver, of a pair of spring-closed jaws having recesses to receive a nail-head, a spring-elevated carrying-rod for said jaws, the jaws being movable with the driver during the first portion of the downward movement of the latter, and a stationary wedge-cam arranged between and adapted to open the jaws in advance of the completion of the driving operation.

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

WILHELM KNECHT.

Witnesses:

WALTER SCHWAEBSCH,
RUDOLF BRECHT.