July 12, 1966 E. A. PARR 3,260,437

SHOE FOR AUTOMATIC NAILING MACHINE

Filed May 18, 1964

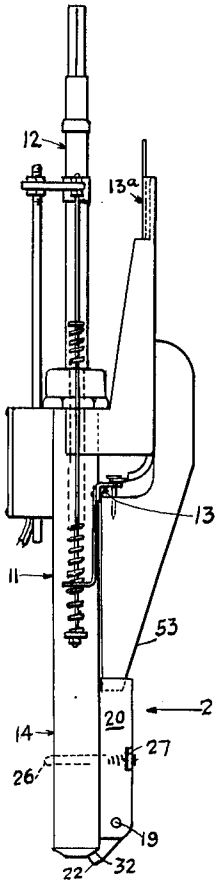

FIG. 1.

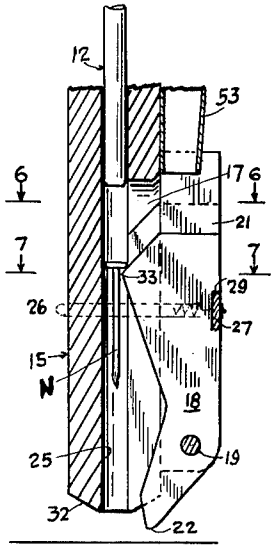

FIG. 4.

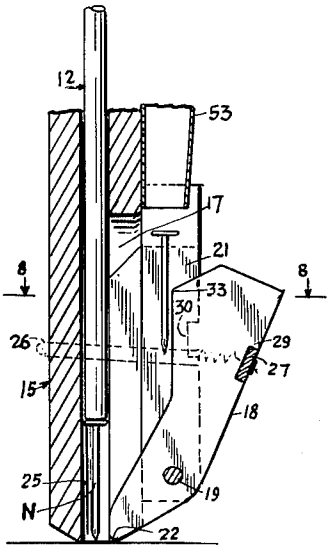

FIG. 5.

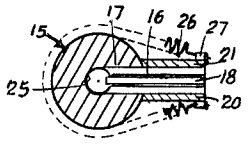

FIG. 6.

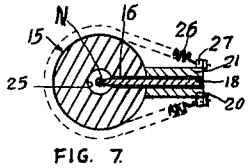

FIG. 7.

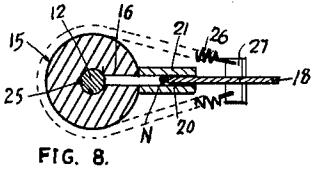

FIG. 8.

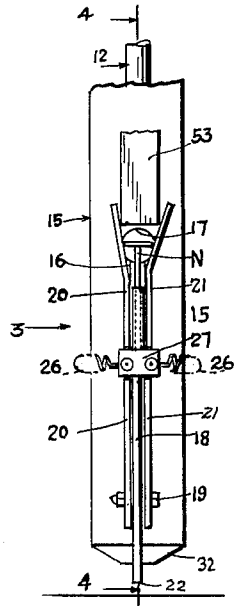

FIG. 2.

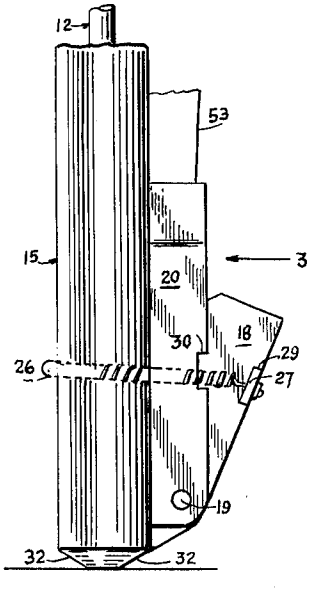

FIG. 3.

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SHOE FOR AUTOMATIC NAILING MACHINE

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4 Claims. (Cl. 227—149)

This invention relates to automatic nailing machines and deals particularly with an improved shoe adapted to replace the shoe as shown and described in my Patent No. 3,041,617, issued to me on the 3rd day of July 1962.

The invention to be described and claimed hereinafter is an improvement on the invention disclosed in said patent and the shoe described herein has been designed to work in conjunction with the machine shown in the above mentioned patent and the illustration and description herein will be directed exclusively to that part of the machine which has been established in the said patent as the shoe.

The primary object of the invention to be described and claimed hereinafter is to provide a shoe of the character described which will work with the mechanisms described in the said patent to perform all the necessary functions of a shoe in a precise manner. One which will react quickly and accurately to the movement of the machine over a floor.

Another object is to produce a shoe that will not drop nails at unwanted places.

A further object is to provide a shoe that will not clog the nails in the nail feeding route.

Still another object is to provide a shoe wherein the nail feeding mechanism is positive in action and under strict control of the operator at all times.

Briefly stated, the invention amounts to providing a shoe adapted to replace the shoe on the nailing machine shown in the above mentioned patent in any suitable manner, such as by making it integral with the machine or detachably mounting the shoe on the lower end of the main barrel shown in the patent, wherein the new shoe comprises a body portion adapted to form a fixed extension of the main barrel of the striking mechanism and carries within itself a member pivoted at its lower end that swings in a vertical slot in the wall of the extension. The slot extends through the wall of the extension into the inner bore of the extension which carries the striker operated by the striking mechanism shown in the patent and the pivoted member freely slides in the slot. When the machine is lifted from the floor the sliding member is held in a closed position, that is, a position where the nail is held in the inner bore of the shoe. This would occur when the whole machine is raised from the floor and is being moved from place to place. As soon as the machine is set down in a new nailing position, a cam shaped toe on the lower end of the pivoted member engages the floor and swings the member outwardly in the slot and the nail drops to the bottom of the bore where the striker drives it home. During these operations, the nail feeding mechanism has dropped a single nail into the nail chute from where it drops into a tapered opening at the top of the slot where it is suspended by its head. After the nail is driven and the machine is picked up to be moved to a new spot for driving a nail, the pivoted member swings back into a closed position and in so doing pushes the suspended nail ahead of itself in the slot unil it reaches the inner bore of the shoe where it holds the nail in this position as before stated. At this point the cycle has been completed and is ready to be repeated. The operation is continuous and is brought about by raising and lowering the machine from the floor.

Other objects and advantages will become apparent as the description proceeds in conjunction with the drawing in which:

FIG. 1 is a side elevation of the complete machine showing how applicant's invention would appear when used in conjunction with the mechanisms of the patent mentioned;

FIG. 2 is an enlarged fragmentary view of FIG. 1 taken in the direction of the arrow 2;

FIG. 3 is a side view of FIG. 2 taken in the direction of the arrow 3;

FIG. 4 is a vertical section taken on the line 4—4 of FIG. 2;

FIG. 5 is the same view as FIG. 4 with the pivoted member shown in its outward or open position;

FIG. 6 is a cross section taken on line 6—6 of FIG. 4;

FIG. 7 is a cross section taken on line 7—7 of FIG. 4; and

FIG. 8 is a cross section taken on line 8—8 of FIG. 5.

In describing the present invention, reference will be made to the original invention covered by the herein mentioned patent in general terms only so far as is necessary to establish the mechanism involved to show the use and construction of the present invention as it relates to the original patent.

In FIG. 1 the original machine is shown as it was illustrated in he former patent with the original shoe replaced by applicant's present shoe. It will be seen that the complete machine comprises, generally speaking, a main barrel, or the body of the machine, designated **11**; a reciprocable striking member, designated **12**; a nail hopper generally designated **13***a*; a nail feeding mechanism designated **13**; and a shoe generally designated **14**. Applicant's invention resides in the shoe **14** as will be explained hereinafter, the rest of the recited mechanisms operate in the same manner as explained in the said patent.

Referring to the drawing, it will be seen in FIGS. 2 to 8 that applicant's new shoe comprises a barrel generally designated **15**. This barrel as before stated, may be made integral with the main barrel **11** of the original structure shown in FIG. 1 or it may be made to be detachably mounted on the lower end of the barrel **11**. The barrel **15** is formed with a slot **16** which runs vertically up one side of the barrel and terminates in a hole **17** which is larger diametrically than the width of the slot and is formed by drilling a hole straight in to the bore **25** of the barrel and then slanting the drill upwardly and forming a downward slope of the hole toward the center of the barrel, see FIG. 4. The hole is of sufficient diameter to slidably pass the heads of nails and the width of the slot should be sufficient to slidably pass the shanks of the nails.

Slidably mounted in the slot **16** is a member **18** which is pivoted at its lower end as shown at **19**. To provide the necessary strength and furnish an extended slot **16**, I have provided wings **20** and **21** which are welded to the body **15** and aligned with the slot on each edge. The purpose of these is to extend the slot so that the pivoted member **18** will have sufficient support when in its outwardly extended position and also as shown, to furnish the pivot point **19**.

The member **18** is pivotally mounted to freely slide in the slot **16** and between the wings **20** and **21** and has a cam shaped toe **22** which extends below the body **15** when the member is in a closed position, as shown in FIG. 4. This position occurs when the nailing machine is raised from the floor for movement to a new position for nailing and the sliding member **18** is pulled into a closed position by a coiled spring **26** which extends around the body of the barrel **15** and has its ends connected to a short piece of flat metal strip **27** fastened to the outer edge of the member **18**. For purposes of handling the machine on a floor and avoiding obtrusions that might catch an operator's clothing, the metal strip

is set into a recess **29** so that it will be flush with the edge of the wings **20** and **21** when the sliding member **18** is in a closed position. The wings **20** and **21** likewise have similar recesses **30** on their outer edges. The lower end of the barrel **15** is chamfered as indicated at **32** to permit driving toe nails and using in corners.

Before going into a description of the operation of the machine, it should be understood that the striking member **12** is presumed to be power driven, either by electricity or pneumatic pressure and that the machine is lifted from the floor by raising the striking member to the limit of its upward stroke where it engages a stop and lifts the machine from the floor, all of which is explained in the before mentioned patent. This position is shown in FIG. 4. Here it will be noted that the striking member **12** is in the upper part of the bore **25** of the barrel **15** and that the sliding member **18** is in a closed position. In this position several things should be observed. First, that the cam shaped toe **22** has rotated into a position below the end of the shoe. Second, that the sliding member **18** is in a closed position and has a nail N clamped in the bore **25** where it can not fall out during movement of the machine. Third, that when the machine is set down in a new nailing position the sliding member **18** is swung outwardly on its pivot **19** and assumes the position shown in FIG. 5. This releases the nail N and it falls to the bottom of the bore **25** ready for the striking member **12**. As the striking member **12** is lowered in the bore the nail feeding mechanism generally designated **13** drops a single nail into the nail chute **53** and it passes through the chute and falls between the wings **20** and **21**. It will be noted that the upper ends of the wings are bent outwardly from each other and form a wedge shaped entrance to the space between the wings into which the chute enters, best shown in FIG. 2. As the nail falls into the wedge shaped entrance, the head of the nail engages the sides of the entrance and the nail is loosely supported in a position as shown in FIG. 2 and FIG. 5. The striker drives the nail home in the bore **25** and is withdrawn to raise the machine and move it to a new position. During this latter operation, the sliding member **18** is pulled back into a closed position by the spring **26** and as it passes through the slot **16**, it catches the nail on its point **33** and pushes it ahead of itself through the slot **16**. The head of the nail passes through the hole **17** and the nail enters the bore **25** and slides down until it is held in position by the point **32** on the member **18**, see FIG. 4. In this position, the cycle is ready to repeat.

Although I have shown and described my invention in conjunction with my former patent hereinbefore mentioned, nevertheless, it should be apparent that the shoe involved in the present invention is capable of working in conjunction with any automatic nail driving machine that has a nail feeding mechanism equivalent to the one shown in my former patent.

I claim:

1. A shoe for an automatic nailing machine of the character described comprising an elongated body adapted to be operably connected to said machine, said body having a longitudinal bore therethrough and a slot on one side paralleling and extending into said bore, said slot extending from the lower end of said body and terminating short of the upper end thereof in a hole of greater diameter than the width of said slot, a member pivoted

at the lower end slidably mounted in said slot adapted to swing into and out of the bore in said body, said member having a cam shaped toe on the lower end thereof arranged to extend below the lower end of said body to engage the surface of a floor and rotate said sliding member out of said slot to an open position when said body contacts said floor, and a spring member arranged to swing said sliding member into said slot to a closed position when said body is lifted from the floor.

2. A device as set forth in claim **1** which also includes means for extending said slot outwardly with respect to said body with a wedge shaped opening to the outward extension of said slot above the said hole terminating the slot in the body.

3. A shoe for an automatic nailing machine of the character described comprising an elongated body having a bore longitudinally therethrough, there being a slot on one side of said body paralleling and extending into said bore, said slot terminating short of the upper end of said shoe in a hole of greater diameter than the width of said slot, a plate fixed to the outer surface of said body on each side of said slot and in alignment therewith forming an outward extension of said slot with respect to said body, said plates being bent at their upper ends to form a wedge shaped entrance to said slot, a sliding member in said slot pivotally mounted at the lower end thereof adapted to swing into and out of the bore in said body, a cam shaped toe on the lower end of said sliding member adapted to engage a floor and rotate said sliding member on its pivot out of said bore and into an open position, and a spring member arranged to swing sad sliding member back into a closed position when said body is raised from the floor.

4. In combination with an automatic nailing machine having an automatic nail feeding mechanism which includes a nail hopper, a nail chute, and means operable by raising said machine with respect to a floor to feed a single nail from said hopper to said chute, a shoe adapted to be operably embodied in said machine, said shoe comprising an elongated body having a longitudinal bore therethrough, there being a slot on one side of said body paralleling and extending into said bore, said slot terminating short of the upper end of said body in a hole of greater diameter than the width of said slot, a plate fixed to the outer surface of said body on each side of said slot and in alignment therewith forming an outward extension of said slot with respect to said body, said plates being away from each other at their upper ends to form a wedge shaped entrance to the slot between them positioned to receive nails from said chute, a sliding member in said slot pivotally mounted at the lower end thereof adapted to swing into and out of the bore in said body, a cam shaped toe on the lower end of said sliding member adapted to engage the floor and rotate said sliding member on its pivot out of said bore and into an open position, and a spring member arranged to swing said sliding member back into a closed position when said body is raised from the floor and push a nail dropped from the chute of said automatic nailing machine into said wedge shaped entrance where it is supported by the head thereof into the bore of said body and hold the nail in a fixed position.

No references cited.

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