

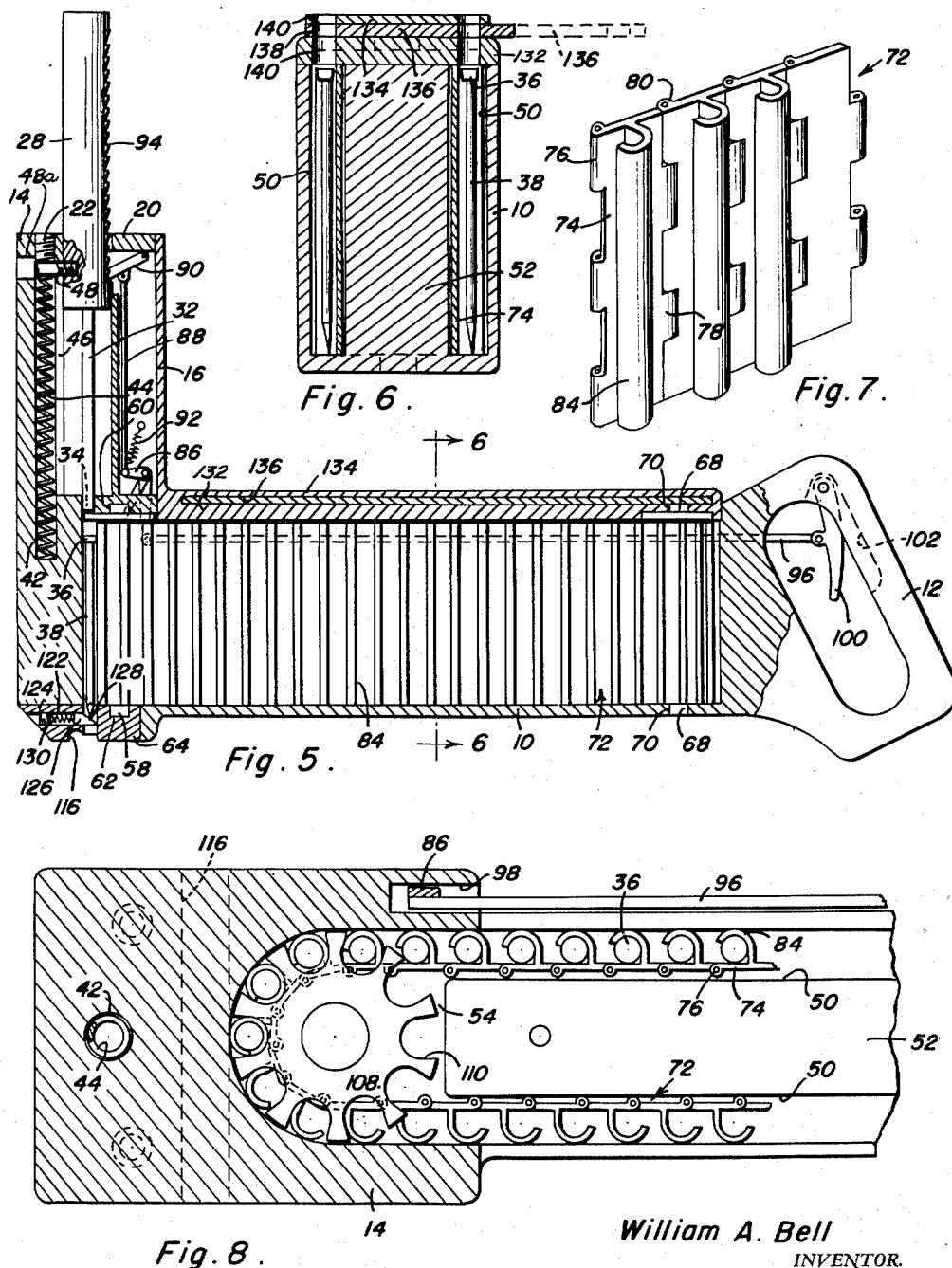
Oct. 10, 1950

W. A. BELL
NAILING MACHINE

2,525,637

Filed Oct. 1, 1948

3 Sheets-Sheet 2



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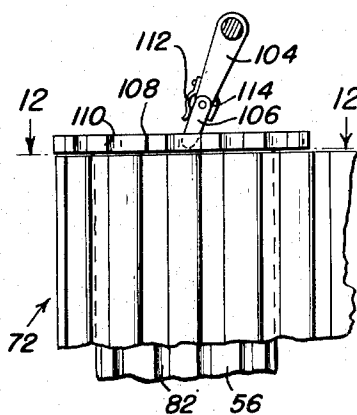
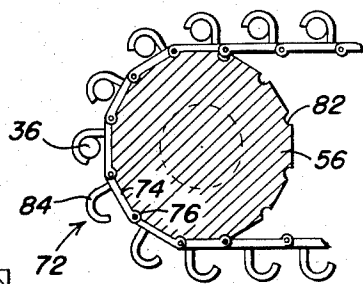
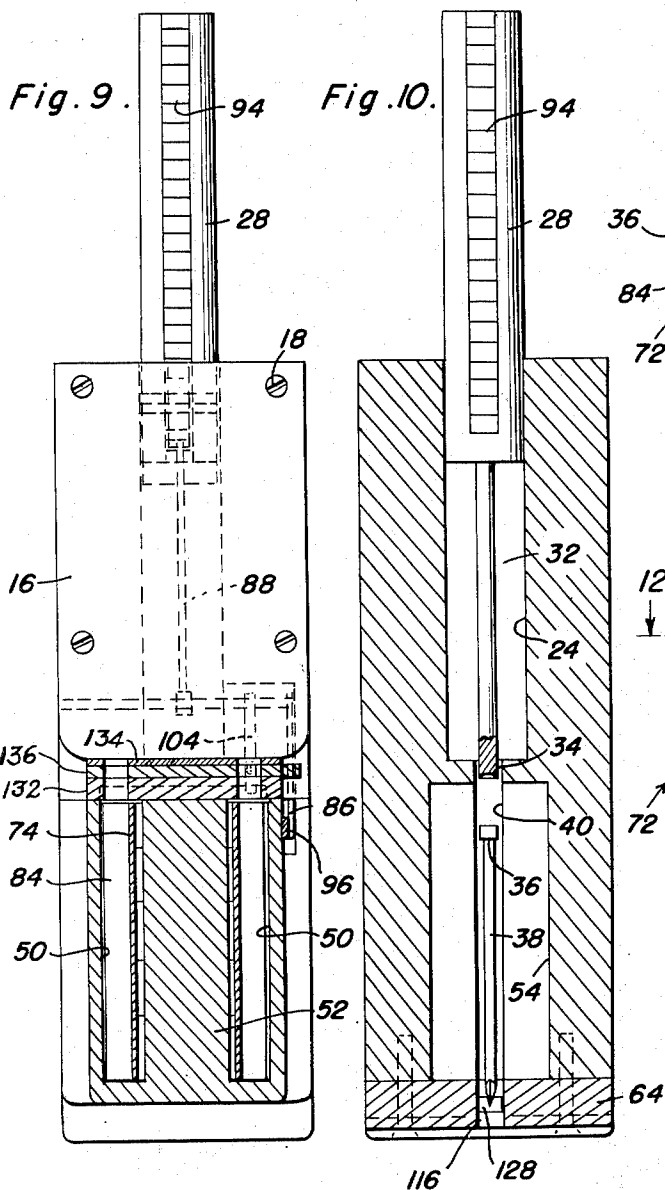
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NAILING MACHINE

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2 Claims. (Cl. 1—46)

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This invention relates to new and useful improvements in nail driving machines and the primary object of the present invention is to provide a nailing machine for driving and setting nails in the tongue and grooved boards of floor boards.

Another important object of the present invention is to provide a nailing machine including a driving member and embodying novel and improved means for retaining the same in a locked position after the same has driven a nail and for releasing said retaining means whereby the driving member will return to its normal position for the next operation.

Yet another object of the present invention is to provide a nail-driving machine including a novel and improved feeding mechanism for supplying nails, one at a time, to a delivery chamber whereby the same will be ejected by a driving member.

Another feature of the present invention is to provide a nailing machine including a nail receiving chamber, and means for retaining a nail in said chamber until such time as a driving member engages and forces the nail therefrom.

Another feature of the present invention is to provide a conveyor for supplying nails to a delivery chamber and embodying means for holding and retaining a group of nails relative to the conveyor.

Another feature of the present invention is to provide a nail driving machine including a driving member which is actuated manually to effectively drive nails into fibrous materials, a locking mechanism for holding the driving member in a fixed position after the same has driven a nail, and novel and improved manually or electrically operated means for releasing the locking mechanism.

A further object of the present invention is to provide a nailing machine including a feed conveyor for supplying nails to a chamber where the same are to be discharged by a driving member, and manually operable means for rotating said conveyor in a step-by-step movement.

A still further aim of the present invention is to provide a nail driving machine of the aforementioned character that is simple and practical in construction, strong and reliable in use, efficient and durable in operation, small and compact in structure, neat and attractive in appearance, relatively inexpensive to manufacture, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the de-

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tails of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of the nail driving machine constructed in accordance with the present invention;

Figure 2 is a top plan view of the present invention, and with parts of the slidable closure broken away and shown in section and showing the closure moved to permit supplying the magazine with nails;

Figure 3 is a bottom plan view of the present invention;

Figure 4 is a side elevational view of the present invention and showing the same in use;

Figure 5 is an enlarged longitudinal vertical sectional view taken substantially on the plane of section line 5—5 of Figure 2;

Figure 6 is an enlarged transverse vertical sectional view taken substantially on the plane of section line 6—6 of Figure 5;

Figure 7 is a fragmentary perspective view of the conveyor used in conjunction with the present invention;

Figure 8 is an enlarged fragmentary, horizontal, longitudinal sectional view taken substantially on the plane of section line 8—8 of Figure 1;

Figure 9 is an enlarged transverse vertical sectional view taken substantially on the plane of section line 9—9 of Figure 1;

Figure 10 is an enlarged transverse vertical sectional view taken substantially on the plane of section line 10—10 of Figure 1;

Figure 11 is an enlarged fragmentary elevational view illustrating the conveyor mechanism and the actuating means therefor; and,

Figure 12 is a horizontal sectional view taken substantially on the plane of section line 12—12 of Figure 11.

Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents an elongated substantially rectangular body or housing having a hand grip 12 integrally formed therewith at one end.

A substantially rectangular drive head or casing 14 is integrally formed with the body 10 and includes a removable wall or closure 16 that is secured to the casing 14 by fasteners 18, and an upper wall 20 is provided with an adjustable plunger stop 22.

The upper portion of the head 14 is provided

with an axial, substantially rectangular, opening or bore 24 that registers with an opening 26 in the upper wall 20.

An elongated, substantially rectangular, driving member 28 of strong, durable material such as steel, is slidably mounted in the bore 24 and opening 26 and supports a removable hammer engaging cap 30 at its upper end. A tool or nail driver 32 is fixed to or forms an integral part of the member 28 and the free end of the driver 32 is provided with a concaved recess 34 conforming to the head portion 36 of a nail 38.

A further axial bore or chamber 40 is provided in the lower portion of the head 14 and slidably receives the driver 32 when the member 28 is driven inwardly of the head 14.

Spaced parallel to the bore 24, is a substantially cylindrical recess 42 in which there is disposed a coil spring 44. A longitudinal slot 46 provided between the recess 42 and bore 24 slidably receives a detachable lug 48 carried by the member 28 that bears against the spring 44. The spring 44 normally urges the member 28 outwardly of the bore 24, and the lug 48 engages the stop 22 to limit the upward or outward sliding movement of the member 28 relative to the head 14. The head 14 is provided with an opening 48a that registers with the lug 48, when the member 28 is raised, to permit removal of the lug 48 from the member 28 by a tool inserted through the opening 48a and into a suitable kerf in the lug 48.

The housing 10 is provided with a pair of spaced parallel passages 50 which are separated by a longitudinal portion 52 forming an integral part of the housing 10. The partition 52 terminates adjacent the chamber 40 to provide a recess 54 for a first roller or cylindrical post 56 having reduced end portions or trunnions 58 that rotatably engage recesses 60 and 62 provided in the head 14 and a detachable plate or foot 64 carried by the head 14, respectively.

A second cylindrical post 66 is disposed in the housing 10, adjacent the hand grip 12 and the rear end of the partition 52, and includes reduced end portions 68 that are rotatably received in sockets 70 provided in the housing.

The numeral 72 represents the conveyor or endless feeding member that is used in conjunction with the present invention generally. This conveyor includes a plurality of substantially rectangular and similar links 74 each of which are provided with spaced knuckles 76 and 78 on each longitudinal edge. The knuckles or leaves 76 being staggered relative to the knuckles or leaves 78 so that pivot pins 80 will connect the interdigitated knuckles of adjacent links, as shown best in Figure 7 of the drawings. The knuckles 76 and 78 project outwardly from the inner faces of the links 74, and are aligned and rounded to engage longitudinally disposed, circumferentially spaced recesses or grooves 82 provided in the outer periphery of the cylindrical posts whereby the conveyor 72 will be rotated with and by the posts.

Rigidly attached to or forming an integral part of the outer face of each link 74, is one longitudinal edge of an arcuate nail embracing and holding plate or strip 84.

Pivotally mounted in the head 14, is a bell-crank lever 86 one leg of which is connected to a pitman 88 that extends from a pivotal dog or pawl 90 mounted in and pivoted to the head 14, as shown best in Figure 5 of the drawings.

A resilient member or spring 92 is anchored

to the head 14 and the bell-crank lever 86 to normally urge the pitman 88 upwardly and dog 90 into locking engagement with a rack bar 94 provided on one face of the member 28. It should be noted, that the dog 90 and rack bar 94 are so arranged as to permit the member 28 to move inwardly of the head 14, however, the same will lock the member 28 inwardly of the head and the driver 32 in the chamber 40 until the said dog 90 is released from engagement with the rack bar 94.

In order to release the dog 90 from the rack bar 94, there is provided an elongated operating lever 96, which is spaced relative to the housing 10. One end of the lever 96 extends into a recess 98 provided in the head 14 and is pivoted to the free end of the bell-crank lever 86, and the remaining end of the lever 96 is angulated to pivotally engage a trip lever 100 that is pivoted in a recess 102 formed in the hand grip 12.

When the trip lever 100 is pulled toward the hand grip 12, the pitman 88 will be moved downwardly and the dog 90 will disengage the rack bar 94.

Attention is next directed to the mechanism for rotating the post 56 in order to move the conveyor 72 in a step-by-step manner for delivering nails to the chamber 40. This mechanism comprises a lever 104 that is mounted on the bell-crank lever 86. A pawl 106 is pivotally carried by the lever 106 and engages an annular ratchet or plate 108 having circumferentially spaced recesses or openings 110 that are fixed to the post 56, and a spring member 112 fixed to the lever 104 bears against the pawl 106 to return and urge the same into a selected one of the openings 110.

When the lever 96 is pulled rearwardly toward the hand grip 12, to release dog 90 from the rack bar 94, the lever 104 will swing rearwardly and the pawl 106 being pivoted to the lever 104 will swing forwardly, under tension of a spring 112 mounted on the lever, to ride upon the plate 108 and will be urged into a recess 110 by the spring 112. The lever 104 and pawl 106 will then be in vertical alignment so that as the lever again moves forwardly, under action of the spring 92, a lug 114 on the lever 104 will engage the pawl so that the lever 104 and pawl 106 will swing forwardly in unison to rotate the conveyor 72 to supply a nail to the chamber 40. It being understood that the nail will fall due to its own weight into the chamber 40 when the said nail is aligned with the chamber 40 (see Figures 11 and 5).

The foot or plate 64 is provided with a flat work-engaging face having a groove 116 provided therein adapted to receive the tongue 118 of a floor board 120 and holds the present invention in position with respect to the tongue 118 during a nail driving operation as shown in Figure 4.

A longitudinal, internally threaded bore 122 is provided in the foot 64 at right angles to the chamber 40 and receivably engages a bolt 124. A plunger 126 having a cam surface 128 is slidable in the bore 122 and is urged by a spring 130 disposed between the plunger 126 and bolt 124 so that the cam surface will be normally disposed in alignment with the chamber 40 to receive the lower end of a nail disposed in the chamber 40.

As the nail in the chamber 40 is driven downwardly by the driver 32, the pointed end of the nail will move the plunger 126 into the bore 122 and the nail is free to enter the tongue 118. The plunger will then return to its normal posi-

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tion to retain the next nail in the chamber 40.

Integrally formed with the wall 16 and at right angles thereto, is an elongated panel 132 forming the upper wall for the housing 10. The central portion of the panel 132 is provided with a substantially horizontal opening 134 that slidably receives a cover plate drawer 136 having a plurality of openings 138 that will register with openings 140 provided in the panel 132, as the cover plate is moved laterally of the panel 132, so that nails may be inserted into the arcuate strips 84. The cover plate is movable so that the openings 138 will not register with the openings 140 to prevent nails from disengaging the strips 84 while the present invention is in use.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A nailing machine comprising a driver head, a plunger workable in said head, a driver carried by said plunger, a nail receiving chamber pro-

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vided in said head, means normally retaining a nail in said chamber, means for locking said driver in said chamber, an operating rod for releasing said locking means, and means operable by said operating rod for feeding nails to said chamber.

2. A nailing machine comprising a driver head, a plunger workable in said head, a driver carried by said plunger, a nail receiving chamber aligning said driver and adapted to receive said driver as said plunger is driven into said head, means for locking said driver in said chamber, means for releasing said locking means, means for returning said plunger to its normal position, means for normally retaining a nail in said chamber, means for supplying nails to said chamber, and an operating rod controlling said releasing means and said means for supplying nails to said chamber.

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