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ROUND-A-CORNER NAIL DRIVER

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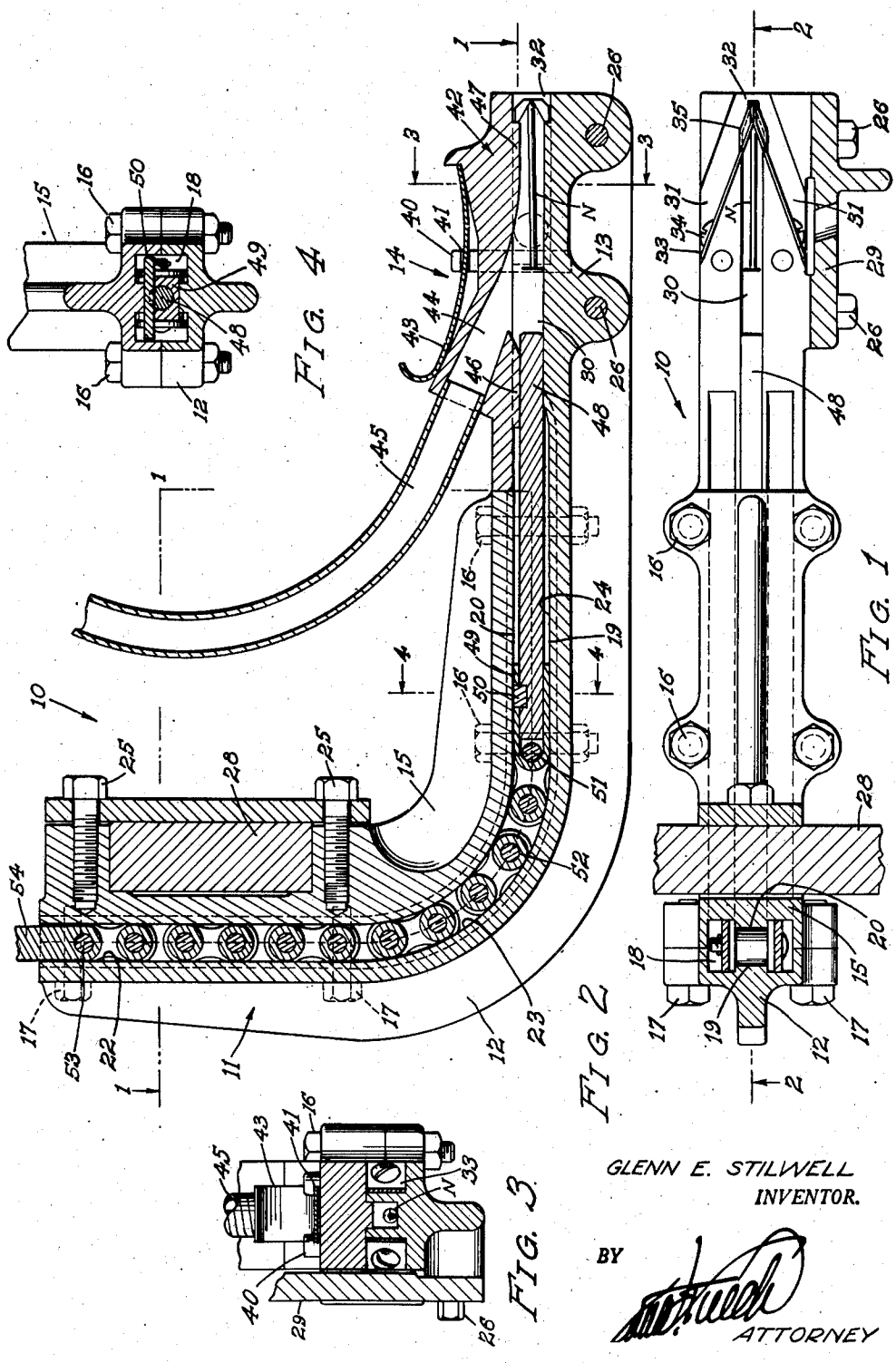


FIG. 1

FIG. 2

FIG. 3

FIG. 4

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ROUND-A-CORNER NAIL DRIVER

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3 Claims. (Cl. 1—1)

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This invention relates to nailing machines and is particularly useful in such a machine in which nails are simultaneously driven into the work vertically and horizontally.

Nailing machines of this character are employed in assembling a complete crate head or crate in a single nailing operation.

In this operation, a vertically reciprocating cross head is usually employed to drive nails downwardly into the work, while means, actuated from the cross head often through a bell crank, drives nails horizontally into the work.

It is an object of the present invention to provide an improved right angle nail driver for driving a nail horizontally in response to the reciprocation vertically of a prime mover.

The manner of accomplishing the foregoing object as well as other objects and advantages will be made manifest in the following description, taken in connection with the accompanying drawings in which:

Fig. 1 is a semi-plan view of a preferred embodiment of the invention taken on the line 1—1 of Fig. 2.

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig 2.

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 2.

Referring specifically to the drawings, the invention is there shown as embodied in a right angle nail driver 10 having a rigid guide body 11 which includes a unitary outer casting 12 with which a base block 13 of a nail chuck 14 is cast integral. The body 11 also includes an inner casting 15 which is united by bolts 16 and cap screws 17 with the casting 11 to form a guideway 18 having opposed tracks 19 and 20 formed on the castings 12 and 15 respectively (Fig. 1). The guideway 18 has a primary straight portion 22, a curved portion 23 and a secondary straight portion 24.

The body 11 is secured by cap screws 25 and 26 to frame members 28 and 29 of a nailing machine (not shown) so that its position is fixed during the operation thereof in the driving of nails horizontally, as in the manufacture of crate heads or crates in said machine.

The base block 13 of the chuck 14 has formed therein a nail driving chamber 30 which is aligned with and connects with the secondary straight guideway portion 24. The block 13 has channels 31 which converge to unite with the chamber 30 at the open end 32 of the latter, through which

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nails N are driven from the chuck 14. Leaf springs 32 are secured by screws 34 to the inner side walls of the channels 31, the forward ends of these springs having nail guiding pockets 35 and being slightly bent so as to meet face to face as shown in Fig. 1. These springs function to guide a nail N to aline this while it is being driven and yield to allow the nail and the driver to pass therebetween. Extending upwardly from the blocks 13 are pins 40 having notches 41 formed near their upper ends and facing inwardly. Apertured to receive the pins 40 when moved downwardly to cover the chamber 30 is a chuck cap block 42. This block is yieldably held in place by a leaf spring 43 which is manually inserted into the notches 41, as shown in Fig. 2. Formed in the block 42 is an oblique nail feeding passage 44 with which a nail tube 45 connects.

It is to be noted that portions 46 and 47 of the cap block 42 extend downwardly into the nail driving chamber 30 to cause this to confine a nail driving plunger 48 in a snug sliding relation therewith. The plunger 48 extends into the secondary guideway portion 24 and into a cross head 49 in which it is located by a key 50. The cross head 49 makes a neat sliding fit with the opposed tracks 19 and 20 within the guideway portion 24.

Disposed in the guideway 18 and having one end thereof connected by a pin 51 to the cross head 49 is a flexible roller chain 52. This chain at all times fills the curved portion 23 of the guideway 18 and extends into one or the other or both of the straight portions 22 and 24 thereof. Connected to the other end of the chain 52 by a pin 53 is an actuator rod 54. The rod 54 extends upwardly to connect with a vertically reciprocating cross head (not shown) of the nailing machine in which the right angle nail driver 10 is employed. The rod 54 is of a suitable diameter to be slideably received in the straight guideway portion 22.

As nails are driven vertically by the nailing machine aforesaid, the rod 54 is reciprocated downwardly and upwardly in the guideway portion 25, this motion being transmitted through the transmitter chain 52 to the nail driving plunger 48, thereby reciprocating this in the chamber 30 to drive a nail N horizontally from the mouth 32 of the chuck 14.

I claim:

1. A round-a-corner nail driver, comprising: rigid guide means providing a guideway having a primary straight portion, a curved portion and a secondary straight portion; a nail chuck united to said guide means and having a nail driving

chamber which connects with said secondary straight guideway portion; a nail driving plunger slideably disposed in said chuck and said secondary guideway portion; a roller link chain connected at one end to said plunger and disposed in said guideway so as to extend through the curved portion thereof; tracks on opposite sides of said guideway by which the rollers of said chain are guided; and an actuator guided in said primary straight portion of said guideway and connecting to the opposite end of said chain.

2. A round-a-corner nail driver, comprising: rigid guide means providing a guideway having a primary straight portion, a curved portion, and a secondary straight portion; a nail chuck including a base block and a cap block which combine to form a nail driving chamber which connects with said secondary straight guideway portion; means for yieldably holding said cap block on said base block, said base block and said guide means comprising a unitary casting; a nail driving plunger slideably disposed in said chuck and said secondary guideway portion; a flexible motion transmitter element connected at one end to said plunger and disposed in said guideway so as to extend through the curved portion thereof; and an actuator guided in said primary straight portion of said guideway and connecting to the opposite end of said transmitter.

3. A round-a-corner nail driver, comprising: rigid guide means providing a guideway having a primary straight portion, a curved portion,

and a secondary straight portion; a nail chuck united to said guide means and having a nail driving chamber which connects with said secondary straight guideway portion; a nail driving plunger slideably disposed in said chuck and said secondary guideway portion; a flexible motion transmitter element disposed in said guideway so as to extend through the curved portion thereof with one end of said transmitter extending into said secondary guideway portion; a cross head provided on said end of said transmitter and slideable in said secondary guideway portion; means for detachably connecting said nail plunger to said cross head; and an actuator guided in said primary straight portion of said guideway and connecting to the opposite end of said transmitter.

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