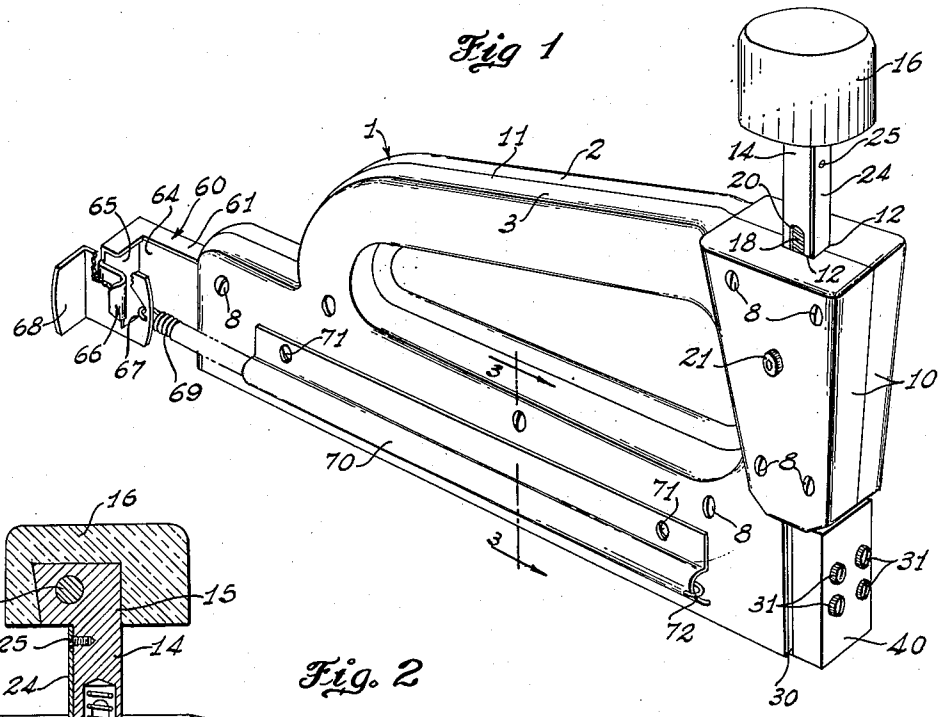
Dec. 25, 1951 E. P. ANSTETT 2,580,065

NAILING MACHINE

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Fig 1



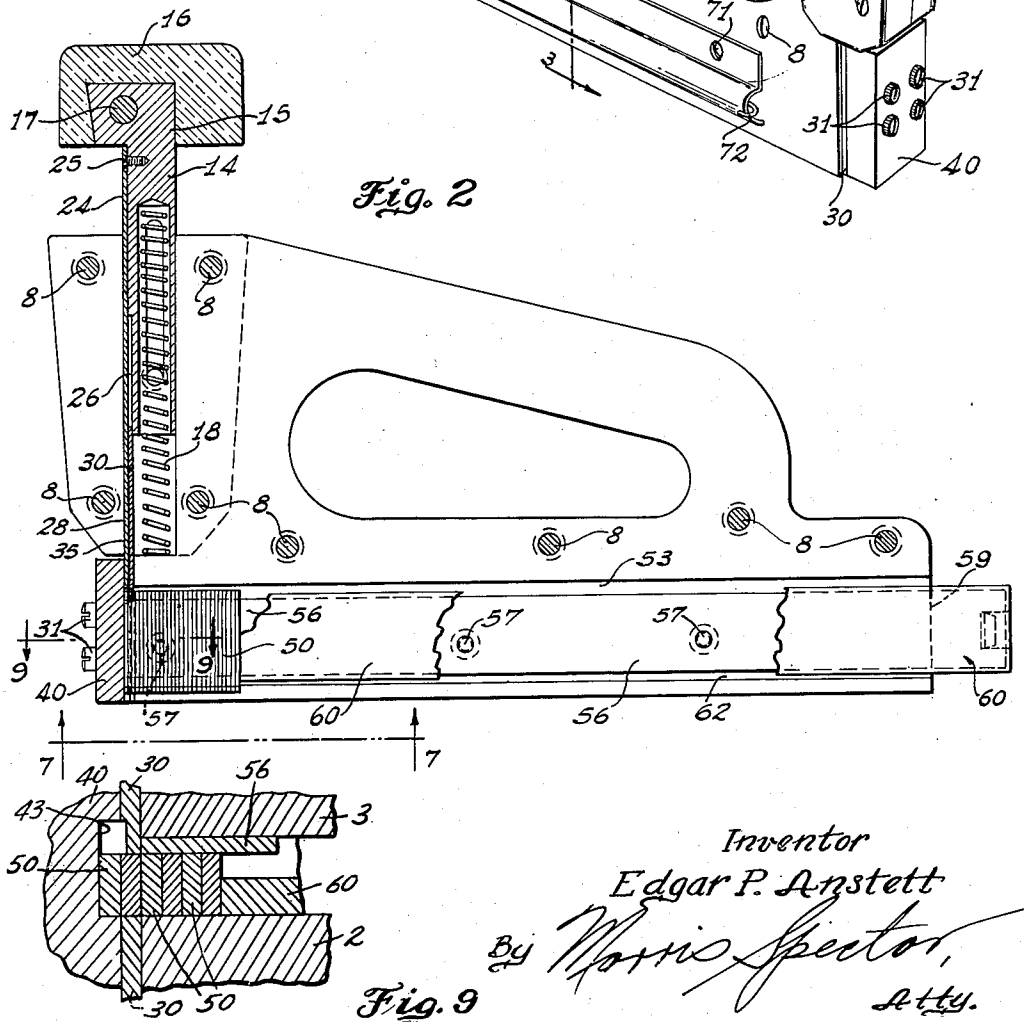


Fig. 2

Fig. 9

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NAILING MACHINE

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Fig. 3

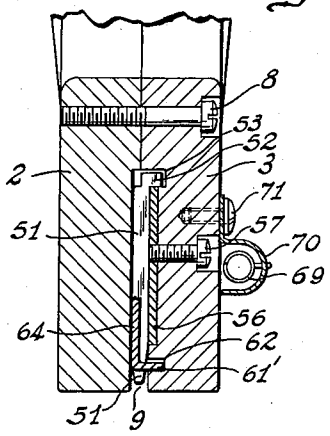


Fig. 5

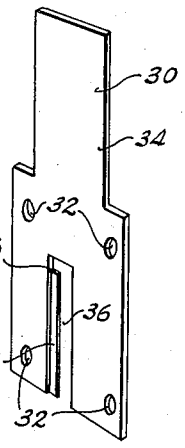


Fig. 4

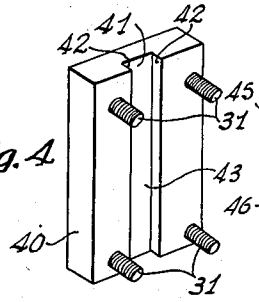


Fig. 6

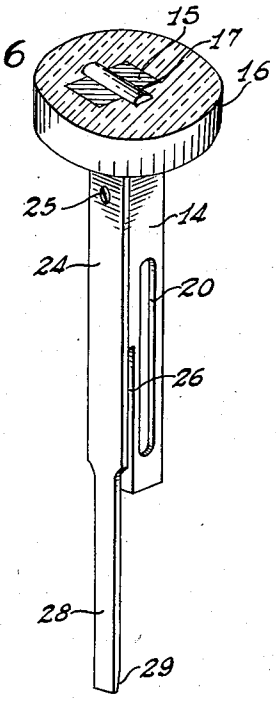


Fig. 7

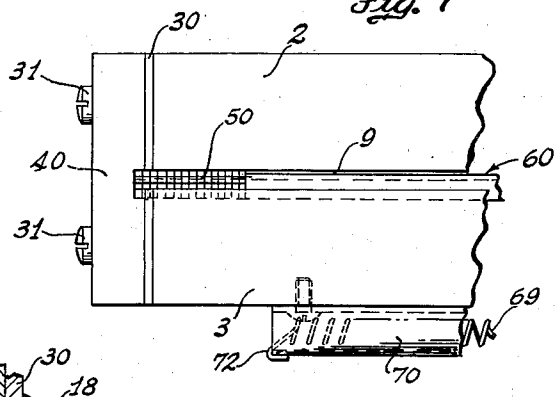
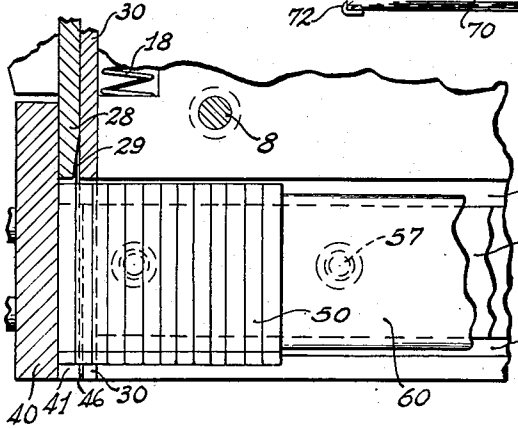


Fig. 8



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Fig. 9A

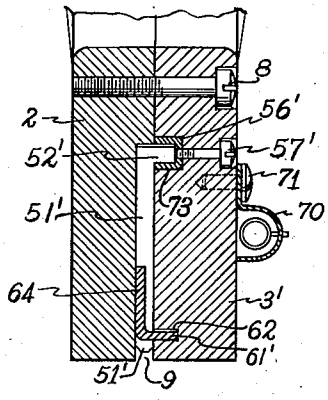


Fig. 10

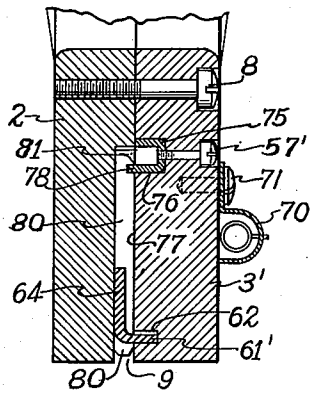


Fig. 11

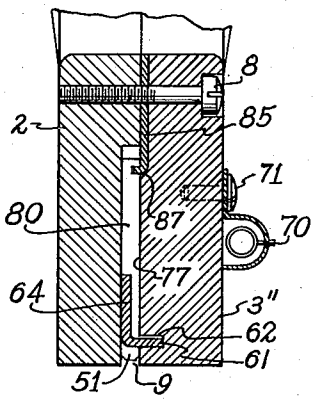


Fig. 12



Fig 14



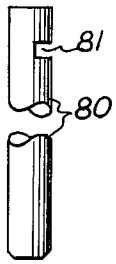


Fig. 13

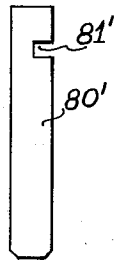


Fig. 15

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UNITED STATES PATENT OFFICE

2,580,065

NAILING MACHINE

Edgar P. Anstett, Chicago, Ill.

Application June 21, 1950, Serial No. 169,504

17 Claims. (Cl. 1—46)

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This application is a continuation in part of my co-pending application Serial No. 783,606, filed November 1, 1947, now forfeited.

This invention relates to machines for driving nails, dowels, or the like, and, more particularly, to such machines as are portable, being carried to the location where the nailing is to take place, and are operated by an impact imparted thereto either by means of a mallet or the like in the case of nailing by hand, or by electric power means in the case of power driven apparatus.

It is one of the objects of the present invention to provide a machine of the above mentioned character in which nails or dowels of different sizes may be used. It is a further object of the present invention to provide a nailing machine with a nail feeding means which is so arranged that a supply of nails may be easily and quickly inserted into the machine or equally quickly removed therefrom as, for instance, when a different type or size of nail is to be inserted.

It is a still further object of the present invention to provide a nailing machine wherein the operator may readily and quickly observe how many nails are left in the machine in order that he may know how soon the supply of nails will be exhausted.

Nails used in nailing machines are frequently made of flat sheet metal stock and stacked together and held in stick form by a coating of glue or the like. Such nails are exceedingly flexible in one direction and therefore must be firmly held against bending in that direction as the nail is being driven. It often happens that different pieces of sheet metal stock from which different nails are made vary in thickness to such an extent as to interfere with the action of driving the nail from the machine. It is one of the objects of the present invention to provide a nailing machine which is so constructed that even a large variation in thickness of the nail will not interfere with the operation of the machine.

It is a further object of the present invention to provide a nail feeding mechanism wherein there is provided a rail for supporting the heads of the nails which assures the proper positioning of the nails in the machine and which rail may be made of material having substantially higher wearing properties than the rest of the machine, so that even after prolonged use of the machine the nail is properly positioned within the machine.

It is a still further object of the present invention to provide an improved means for securing the impact head of a nailing machine plunger to the nail driving plunger of the machine.

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It is a still further object of the present invention to provide a nailing or stapling machine which can receive and drive headless nails or dowels and wherein the nails or dowels are suspended in the machine with their centers of gravity below the point of support or suspension, so that each nail or dowel tends to hang vertically in the machine whereby the position of each nail or dowel is self-adjusting and the nail or dowel will not tend to fall out of its normally operative position within the machine.

In dealing with nails or dowels that are provided with a head it is preferable to hang the nail or dowel from the head as the nail or dowel moves in the machine. This is accomplished by providing a rail from which the nail is suspended by its head. In dealing with a dowel of the headless type, somewhat different supporting means must be provided. In any event, the dowel is supported in such a manner that when the machine is in its normal position of use for driving nails substantially downwardly, the center of gravity of the dowel is below the point of support of the dowel so that the dowel will have a natural tendency to hang downwardly. In accordance with the principles of the present invention, when the machine is to be used with headless dowels it is provided with a dowel-supporting rail that has a flange or its equivalent which constitutes the supporting rail for the dowel and which projects past the shank of the dowel towards the longitudinal center line thereof and enters a groove in the dowel adjacent the top thereof so that the flange thus supports the dowel at the groove thereof.

The attainment of the above and further objects of the present invention will be apparent from the following specification taken in conjunction with the accompanying drawings forming a part thereof.

In the drawings:

Figure 1 is a perspective view of a nailing machine embodying the present invention;

Figure 2 is a central longitudinal sectional view through the machine;

Figure 3 is a sectional view taken along the line 3—3 of Figure 1;

Figure 4 is a perspective view of the front end plate of Figure 2;

Figure 5 is a perspective view of a guide plate for holding the stem of the plunger plate against buckling;

Figure 6 is a perspective view of the plunger and driving blade;

Figure 7 is an enlarged bottom view of a portion of the machine;

Figure 8 is an enlarged view of the lower left hand side of Figure 2;

Figure 9 is an enlarged fragmentary sectional view taken on the line 9—9 of Figure 2 and looking in the direction of the arrows;

Figure 9–A is a sectional view corresponding to Figure 3 and showing a modified construction of the machine;

Figures 10 and 11 are views corresponding to Figure 3 of two other modified constructions;

Figure 12 is a top view of a dowel pin that may be driven by the machine of the present invention;

Figure 13 is a front view of the dowel pin of Figure 12; and

Figures 14 and 15 are similar views of another dowel for use in those machines.

Reference may now be had more particularly to the respective figures of the drawings wherein like reference numerals designate like parts throughout.

The nailing machine is indicated in general by the reference numeral 1, and includes a body portion which consists of two similar but not identical body halves 2 and 3 each of which is a casting or molding of suitable material which may be, for instance, steel, although a preferred material is a non-brittle hard thermoplastic compound which has incorporated therein a commingled mass of short strands of cotton, rayon or the like, which are promiscuously commingled in the mass of molded material. This forms an excellent impact material which is not subject to cracking or crystallization. The body portions 2 and 3 are aligned and secured together by a series of screws 8 the heads of which extend into countersunk holes in the casting 3 in the body portion 2 and thread into tapped holes in the body portion 2, as may be seen, for instance, in Figure 3. The bottoms of the body portions 2 and 3 are perfectly flat and lie in the same plane. The opposite faces of the body portions 2 and 3 are in surface to surface contact with one another except along the bottom of the nailing machine where they are spaced apart by a space 9 that extends the full length of the machine, the space being of a width slightly in excess of the width of a nail and of a height slightly in excess of the height of the longest nail to be taken by the machine.

At the forward end of the machine each body part 2 and 3 has an enlarged head 10 each of which is integral with the rest of its body portion. A handle part 11 extends from the head to the base part of the body and provides means for gripping the machine manually.

Each enlarged head 10—10 has a vertically extending channel-shaped groove 12 therein, the grooves in the contacting faces of the heads 10—10 being opposite one another so that together they form a vertically extending square or rectangular hole for receiving a rectangular-shaped driving plunger 14 of steel, which has an enlarged head 15 around which is molded a driving plunger knob 16 preferably of plastic impact material such as was described above. The knob is adapted to receive the blow of a hammer or mallet for moving the plunger 14 to drive a nail, in a manner to be more fully described as this description proceeds. A steel anchoring pin 17 extends through the head 15 and is anchored in the molded head 16. The plunger 14 is constantly urged to its uppermost position by a coiled spring 18 which extends into a bore in the plunger and bears against its lower end against the body portions 2 and 3 at the base of the opening that receives the plunger 14. One face of the plunger has a longitudinally extending elongated slot 20 that receives the stem of a screw 21 which is threaded into one of the heads 10. The screw 21 by engagement with the bottom of the slot 20 limits the upper movement of the plunger 14 under the action of the spring 18. The lower movement is limited by engagement of the knob 16 with the top of the heads 10—10.

A nail driver comprising a flat nail driving blade 24 of steel fits over one face of the plunger 14 and bears at its upper end against the enlargement 15 at the top of the plunger 14 so that upon downward movement of the plunger 14 the blade 24 is also forced downwardly. A short pin 25 which extends through a hole in the blade and is embedded in the plunger 14 serves to raise the blade upon upward movement of the plunger. The plunger 14 with the blade 24 together make a snug sliding fit in the hole 12—12 of the head 10.

The face of the plunger 14 that is engaged by the blade 24 is cut away from the bottom upwardly, as indicated at 26. The length of this cut is somewhat in excess of the stroke of the plunger. The thickness of the cut is made a few thousandths of an inch in excess of the thickness of a guide plate 30 to be presently described. The purpose of this cut-away part 26 will be apparent as this description proceeds. The lower end of the blade 24 has a nail driving stem 28 which is of a thickness approximately equal to that of an average nail that is to be used in the machine. The length of the stem 28 is in excess of the stroke of the plunger. At its base the stem 28 is slightly tapered, as indicated at 29, so that the bottom surface of the stem 28 is definitely of a thickness not to exceed the minimum thickness of a nail to be used in the machine.

A guide plate 30 of a thickness equal to the thickness of a nail to be driven by the machine is secured to the bottom front part of the body portions 2—3 as by screws 31 that pass through holes 32—32 in the plate 30. The guide plate 30 is of a width at its lower part equal to the thickness of the lower part of the body portions 2 and 3 and includes a tongue portion 34 of a reduced width that extends into the plunger-receiving slot 12—12, and enters into the cut-away part 26 between the plunger and the plate 24. The upper part of the plate 30 is supported by the lower part of the plunger 14 and as the plunger descends the front surface of the upper part of the plate 30 continues to hold the stem 28 against buckling in one direction lengthwise of the machine, namely, in a rearward direction, while the surfaces 35 of the body portions 2 and 3 hold the blade against buckling in the opposite direction lengthwise of the machine. The lower part of the plate 30 has a slot 36 therein which is of the same shape as the shape of the nail to be driven by the machine.

A front facing plate 40 is secured to the lower part of the machine by the screws 30—31. The front facing plate 40 extends flush with the bottom of the machine and upwardly from the bottom to the base of the heads 10. The inner face of the plate 40 has a vertically extending channel 41 formed therein at the center thereof,

which channel is of a width equal to the width of the stem 28 plus a few thousandths of an inch for clearance. In the descent of the plunger the stem 28 rides in the channel 41 and is guided and supported at its lower end against forward and sideward buckling by the walls of the channel 41. During the descent of the plunger stem 28 the stem is confined between the surfaces 42—42 of the plate 40 between which surfaces it makes a snug sliding fit. The depth of the channel 41 is of exactly the same thickness as the thickness of the stem 28 plus a few thousandths of an inch for clearance, so that one surface of the stem 28 bears against the surface 43 of the channel in the plate 40 and the opposite surface of the stem 28 bears against the plate 30. The stem 28 is thus confined against flexing or buckling during its descent. As the stem 28 comes opposite the slot 36 the nail next to the one being driven exerts a pressure against the stem 28.

When nails are made by stamping the same from sheets of metal it is found that there is a variation in thickness of the nails made from different sheets of standard stock that are supposedly of the same thickness. To make certain that even the thickest nail shall be ejected and that the head thereof shall not catch on the edge 45 of the plate 30 the plate 30 is chamfered or cut down to a reduced thickness along the surface 46 thereof so that the surface 46 of the plate 30 is spaced from the surface 43 of the channel 41 by an amount in excess of the thickness of the thickest nail to be encountered (but less than twice the thickness of the thinnest nail to be encountered). This allows ample leeway for normal variations of the thickness of sheet metal from which the nails are made and also allows for any possibility that the head of an L-shaped nail may be very slightly skewed or twisted out of the plane of the shank of the nail. This thereby avoids any possibility that the head of a nail of excessive thickness might catch on the surface 45 of the plate 30.

It sometimes happens that a nail is appreciably thinner than it should be. When that is the case it is necessary to make sure that the stem 28 engages only the last nail and not the last two nails. To assure this the bottom of the stem 28 is slightly tapered, as indicated at 29 (Figs. 6 and 8) so that the thickness of the stem at its very base is equal to or slightly less than the minimum thickness of a nail to be encountered, so that under no circumstances will the bottom of the stem 28 engage both the nail to be driven and a portion of the adjacent nail. When an excessively thin nail is encountered, that is, a nail of a thickness less than the thickness of the stem 28, the bottom edge of the stem 28, being of reduced thickness, engages only the last nail and commences to drive it downwardly. Thereafter, as the stem continues to descend, the tapered surface 29 of the stem engages the next nail and pushes it and the entire stock of nails in the machine backwards by a small amount, that is, a few thousandths of an inch, which is the deviation in thickness of the nails.

The space 9 between the two body halves 2—3 is adapted to receive the nails. A stack of nails is indicated by the reference numeral 50. Each nail is, in this instance, of an L-shape, including a shank portion 51 and a head 52. The individual nails are stamped from a flat sheet of metal and are stacked together one upon the other and adhered by a coating of glue to form a stick of nails which can be inserted into the machine. The body portion 2 has a longitudinal groove 53 therein and extending the full length thereof. A steel plate or bar 56 is secured in place by a series of screws 57. The top of the plate constitutes a rail for the heads of the nails. The individual nails of the stick rest with their heads on the rail 56, the heads extending into the groove 53, and the shank of each nail overlying the outer surface of the rail 56, as may be seen from Figure 3. The nails are slid into place from the back side 59 of the machine and thereafter a nail pusher 60 is inserted in back of the last nail. The nail pusher 60 consists of a piece of sheet metal, channel-shaped in cross section, having upper and lower flanges 61 and 61 of which the upper flange 61 rides in the groove 53 and the lower flange rides in a parallel groove 62 in the body half 3. The web 64 of the pusher plate 60 bears against the shank of the rearmost nail of the stick of nails 50. The flange 61 may also bear against the head of that rearmost nail. The pusher plate 60 is freely slidable between the body halves 2 and 3 and extends rearward of the body portion 3 and has a right angle bend 65 which terminates in a hook 66. The hook is adapted to enter into an opening 67 in a clip 68. A coiled spring 69 is secured to the clip 68 and extends through a sheet metal guard member 70 that is secured to the body 3 as by a pair of screws 71—71. The opposite end of the spring, indicated at 72, is secured to the guard member 70 so that the guard member also constitutes a spring container.

The spring 69 acting on the clip 68 exerts a continuous force maintaining the nail pusher 60 in pressure engagement with the last nail of the stick of nails 50. The stick of nails is thus constantly pressed forwardly in the magazine to bring the foremost nail of the stick into engagement with the surface 43 of the channel 41 in the front facing plate 40. This surface 43 therefore acts as a front stop for the nails in the magazine. At this time the foremost nail lies in the channel 41 in a position for subsequent ejection from the machine. The particular nail may be of a thickness different from the depth of the channel 41. If it is of greater thickness than the depth of the channel 41 a portion of the foremost nail extends rearwardly of the front face of the guide plate 30 into the space between the cut-away surface 46 of the plate 30 and the channel 41. The head of the foremost nail clears the edge 45 so that the foremost nail can be driven by downward movement of the stem. The next to the last nail is supported by the edge 45 of the plate 30 and may also be supported by the top surface of the rail 56, so that whether the foremost nail is a thick nail or a thin nail the next to the foremost nail is in any event supported against ejection. It is thus apparent that in the present machine the foremost nail is free for movement in an ejection direction that is downwardly as seen in Figure 2, and that all the other nails, including the second nail from the front, are positively held against such movement either by the top surface of the rail 56 or by the surface 45 of the guide plate 30, and that the depth of the cut-away portion 46 in the guide plate 30 allows for variations in thickness between the thinnest nail and the thickest nail that can be driven through the machine, with the assurance that one and only one nail shall be ejected with each stroke of the

driving stem 28. As the foremost nail is successively displaced from the machine the pusher 60 under the action of the spring 69 advances the nails one at a time. When the last nail is in its position to be driven from the machine the flanges of the bent portion 65 of the pusher 60 engage the rear face of the body portion 3 so that the forward end of the pusher 60 cannot be extended into the path of movement of the stem 28.

A supply of nails may be easily and quickly inserted into the machine by merely unhooking the spring clip 68 from the hook 66, withdrawing the pusher 60 from the machine, and then inserting the nails. Thereafter the pusher 60 is replaced and the clip 69 is also replaced on the hook 66.

It is to be noted that the space 9 between the body portions 2 and 3 extends substantially the full length of the base of the nailing machine. As a result the operator can, by turning the machine up side down, visually observe the quantity of nails remaining in the machine.

Reference may now be had more particularly to Figure 9A which is a section, corresponding to Figure 3, of a modified embodiment of the present invention. This modification consists in that the plate-like rail 56 of Figure 3 has been replaced by a channel-shaped metal rail 56'. This rail extends the full length of the machine, the same as the rail 56. The rail 56' is secured in place by a series of screws 57' that extend through the body half 3' that otherwise corresponds to the body half 3 of the machine previously described. In this arrangement the head 52' of a sheet metal nail 51' is suspended from the lower flange 73 of the channel rail 56' the same as is the sash pin or nail 50 in the embodiment previously described. The nail is advanced by the web 64 of the pusher plate, in the same manner as was previously described.

In Figure 10 there is shown still a further modification of the rail wherein the nail-supporting rail, indicated at 75, is channel-shaped, similar to that of the rail 56', but differs therefrom in that the lower flange 76 of the channel rail projects beyond the surface 77 of the body portion 3' to provide an overhanging portion 78. This overhanging portion constitutes a rail for headless nails, sash pins or dowels, such as shown in Figures 13 or 15. In this instance the nail or pin, indicated at 80, is headless and has a slot 81 formed therein adjacent one end thereof. The pin 80 is mounted with the slot 81 embracing the overhanging portion 78 of the channel 76 so that the overhanging portion 78 constitutes a rail from which the dowel is suspended. The sash pin of Figures 12 and 13 has been shown as being round in cross section. The sash pin may be rectangular in cross section, as illustrated in Figures 14 and 15, being stamped from flat sheet metal stock to have a slot 81' therein corresponding to the slot 81 of Figure 12. The slotted portion of each sash pin embraces the overhanging rail portion 78 of the channel rail for suspending the pin from the rail with the sash pin hanging in the space 9 of the machine. The sash pins are secured together in a stick by glue or other adhesive the same as are the nails 50 previously described, with the slots 81' in alignment.

In Figure 11 there is shown a section corresponding to Figure 3 of still another modification of the present invention. This modification consists in that here the supporting rail, indicated at 85, is in the form of a metal plate that is secured between the two machine halves by the screws 8 that secure the two machine halves together. The plate 85 like the plate 56 extends substantially the full length of the base of the machine. It has a small flange 87 at its lower end, which flange overhangs the wall 77 of the nailing machine half 3' that corresponds to the body portion 3 of the machine previously described. The overhanging flange 87 of the plate 85 constitutes a rail from which nails or sash pins such as shown in Figures 13 or 15 are suspended, the overhanging portion 87 extending into the slots 81 or 81' as the case may be.

It is apparent from each of the modifications of the machine herein shown that the nail or dowel is suspended from a longitudinally extending rail provided in the machine and which rail constitutes a mono-rail from which the nail or dowel is suspended. The point of suspension of the nail or dowel is appreciably above the center of gravity thereof. In each instance the nail is supported from above rather than from below so that in each instance there is no tendency for the nail to fall within the nail magazine. There is thus no possibility for a nail to fall into a horizontal position within the machine and be advanced in that position to a place where the horizontally extending nail projects into the path of the nail driving stem 28. Such action would, of course, be likely to ruin the machine.

In compliance with the requirements of the patent statutes I have here shown and described a preferred embodiment of my invention. It is, however, to be understood that the invention is not limited to the precise construction here shown, the same being merely illustrative of the principles of the invention. What I consider new and desire to secure by Letters Patent is:

1. A nailing machine comprising a body having a lengthwise extending straight nail-receiving groove, a bar extending lengthwise in the groove and spaced from the top of the groove and constituting a rail for nail heads, a guide plate across the foreward end of the groove and having an opening for the passage of nails therethrough, and a nail driving stem slidable over the guide plate and guided thereby, the guide plate being cut away on the front surface thereof at that edge of the opening thereof which is adjacent the head of a nail that is being driven by the stem.

2. A nailing machine comprising a body having a lengthwise extending straight nail-receiving groove which is open lengthwise along the bottom of the machine so that nails in the machine are visible through the opening, a guide plate across the foreward end of the groove and having an opening for the passage of nails therethrough, and a nail driving stem slidable over the guide plate and guided thereby, the guide plate being cut away on the front surface thereof at that edge of the opening thereof which is adjacent the head of a nail that is being driven by the stem.

3. A nailing machine comprising a body having a lengthwise extending straight nail-receiving groove, a guide plate across the forward end of the groove and having an opening for the passage of nails therethrough, and a nail driving stem slidable over the guide plate and guided thereby, the guide plate being cut away on the front surface thereof at that edge of the opening thereof which is adjacent the head of a nail that is being driven by the stem.

4. A nailing machine comprising two similar face to face body parts secured together and having a lengthwise extending straight nail-receiving groove between them opening lengthwise along the bottom of the machine so that nails in the machine are visible through the opening, a bar extending lengthwise in the groove and spaced from the top of the groove and constituting a rail for nail heads, a nail pusher in the groove substantially filling the space between the bar and the groove wall opposite thereto, a spring urging the pusher forward, said spring extending lengthwise of the body parts on the outside of the machine, and a guard surrounding the spring.

5. A nailing machine comprising two similar face to face body parts secured together and having a lengthwise extending straight nail-receiving groove between them, a bar extending lengthwise in the groove and spaced from the top of the groove and constituting a rail for nail heads, a nail pusher in the groove substantially filling the space between the bar and the groove wall opposite thereto, a spring urging the pusher forward, said spring extending lengthwise of the body parts on the outside of the machine, and a guard surrounding the spring.

6. A nailing machine comprising two similar face to face body parts secured together and having a lengthwise extending straight nail-receiving groove between them opening lengthwise along the bottom of the machine so that nails in the machine are visible through the opening, a bar extending lengthwise in the groove and spaced from the bottom of the groove and constituting a rail from which nails are to be suspended in the groove, a nail pusher in the groove substantially filling the space between the bar and the groove wall opposite thereto, and a spring urging the pusher forward.

7. A nailing machine comprising a body having a lengthwise extending straight nail-receiving groove and a bar extending lengthwise in the groove and spaced from the bottom of the groove, said bar having a nail supporting portion projecting into the groove below and adjacent the top thereof and constituting a mono-rail from which nails are to be suspended in the groove.

8. A nailing machine comprising a body having a lengthwise extending straight nail-receiving groove which is open lengthwise along the bottom of the machine so that nails in the machine are visible through the opening, and a bar extending lengthwise in the groove and spaced from the bottom of the groove, said bar having a nail supporting portion projecting into the groove below and adjacent the top thereof and constituting a mono-rail from which nails are to be suspended in the groove.

9. A nailing machine having a nail-receiving magazine having opposite vertical walls for confining a nail, a nail supporting rail having an edge extending lengthwise within the magazine and overhanging one of the vertical walls towards the other, the extending edge of said rail being spaced above the center of the magazine and constituting a mono-rail from which the nails are suspended in the magazine.

10. A nailing machine comprising a body having a lengthwise extending straight nail-receiving groove, a guide plate across the forward end of the groove and having an opening for the passage of nails therethrough, and a nail driving stem slidable over the guide plate and guided thereby, the guide plate having means for holding the next to the foremost nail against discharge movement from the machine, said last means comprising a nail support recessed from the front surface of the guide plate only part way through the thickness of the guide plate thereby allowing space for the foremost nail driven by the nail driving stem to extend rearwardly of the front surface of the guide plate.

11. A nailing machine having means forming a nail magazine including means for slidably supporting nails in the magazine, means forming a stop for the foremost nail in the machine, means urging the nails forwardly in the magazine towards the stop, the machine having a nail discharge opening through which the foremost nail in the machine is driven by a sliding movement along the stop, a nail driver having a nail engaging end, said driver being slidable along the stop from an initial position above the foremost nail to a position engaging the foremost nail and driving it through the discharge opening, the nail discharge opening being of a size in the direction of movement of the nails in the magazine greater than the thickness of the nail engaging end of the driver to permit discharge of a nail of a greater thickness than the thickness of the nail engaging end of the driver, the means for supporting the nails including a foremost portion which supports the second nail from the stop and which is spaced from the stop by an amount greater than the thickness of the nail driver so that when the nail driver is in its driving position there is a fractional part of the thickness of the next to be driven nail between the nail support and the nail driver.

12. A nailing machine having means forming a nail magazine including means for slidably supporting nails in the magazine, means forming a stop for the foremost nail in the machine, means urging the nails forwardly in the magazine towards the stop, the machine having a nail discharge opening through which the foremost nail in the machine is driven by a sliding movement along the stop, a nail driver having a nail engaging end, said driver being slidable along the stop from an initial position above the foremost nail to a position engaging the foremost nail and driving it through the discharge opening, the nail discharge opening being of a size in the direction of movement of the nails in the magazine greater than the thickness of the nail engaging end of the driver to permit discharge of a nail of a greater thickness than the thickness of the nail engaging end of the driver, the means for supporting the nails including a foremost portion which supports the second nail from the stop and which is spaced from the stop by an amount greater than the thickness of the nail driver so that when the nail driver is in its driving position there is a fractional part of the thickness of the next to be driven nail between the nail support and the nail driver, and a guide plate one side of which guides the side of the driver opposite the side thereof that slides on the stop, the said foremost portion of the nail support being a part of the guide plate and being offset rearwardly from said one side of the guide plate.

13. A nailing machine having means forming a nail magazine including means for slidably supporting nails in the magazine, means forming a stop for the foremost nail in the machine, means urging the nails forward in the magazine towards the stop, the machine having a nail discharge opening through which the foremost nail in the machine is driven by a sliding movement along the stop, a nail driver having a nail engaging

end, said driver having a forward face guided by and slidable along the stop from an initial position above the foremost nail to a position engaging the foremost nail and driving it through the discharge opening, means including said stop for supporting said driver against buckling in the forward direction, rear guide means having a front guide face for supporting the rear face of said driver against buckling in a rearward direction, said driver being slidable between said two last named means, the nail discharge opening being of a size in the direction of movement of the nails in the magazine greater than the thickness of the nail engaging end of the driver to permit discharge of a nail of a greater thickness than the thickness of the nail engaging end of the driver, the means for supporting the nails including a foremost portion which supports the second nail from the stop and which is spaced from the stop by an amount greater than the thickness of the nail driver and which terminates rearwardly of the front guide face so that when the nail driver is in its driving position there is a fractional part of the thickness of the next to be driven nail between the nail driver and the front guide face of the rear guide means of the nail driver.

14. A nailing machine comprising a body having a flat bottom surface adapted to fit against a member to be nailed, there being an elongated straight magazine chamber adapted to receive therein a supply of nails, a nail supporting rail in and substantially coextensive with said chamber and from which the nails are adapted to be suspended for sliding movement along the chamber and rail forwardly to a region of discharge, a vertical guide plate extending across the magazine chamber at the forward end thereof, and having an opening therein in register with said chamber, said opening being of a contour generally conforming to the contour of a nail in the chamber, a second plate forwardly of said guide plate, said second plate being formed with a vertically extending guideway for directing nails downwardly, a nail-driving blade slidable in said channel, a portion of the material at the front of said guide plate in the vicinity of said opening being relieved to provide a nail-supporting ledge of a thickness less than the thickness of the guide plate, for supporting the second foremost nail while leaving the foremost nail clear of the ledge, with the relieved portion extending downwardly below the ledge to the extreme bottom of the guide plate to provide a clearance for downward movement of relatively thick nails.

15. A nailing machine comprising two face to face body parts having therebetween an elongated magazine chamber adapted to contain a supply of nails, the extreme rear end of the said chamber being open for filling purposes, and said magazine opening at its forward end at a discharge region, said magazine having therein means forming a nail-supporting surface extending lengthwise in said magazine and constituting a mono-rail from which the nails are adapted to be suspended in the magazine chamber for sliding movement therealong in a forward direction, spring means for impelling the nails in said magazine chamber forwardly toward said discharge region, a guide plate extending across said magazine chamber at the forward end thereof at said discharge region and positioned against the front surface of said body portion, said guide plate having a nail passageway therethrough in register with said magazine, means including a second plate fastening the two body parts together at the forward regions thereof and overlying said guide plate, said second plate being formed with a vertically extending guide channel in register with said nail passageway, said channel being open at its bottom for the discharge of a nail therethrough in a direction lengthwise of the channel, a nail driving blade slidable along the guide plate and guided in said channel and movable from an initial position where its lower driving end is above the nail-supporting surface to a final position adjacent to the lower end of the channel, the guide plate having means for holding the next to the foremost nail against discharge movement in a direction lengthwise of the channel, said last means being rearwardly of that surface of the guide plate along which the nail driving blade slides to allow space for the foremost driven nail to extend rearwardly of the front surface of the guide plate, and said last means constituting a portion of the guide plate which is set back rearwardly from the front surface thereof.

16. A nailing machine comprising a body having a lengthwise extending straight nail-receiving groove provided with opposed vertically disposed side walls, a bar extending lengthwise in the groove and spaced from the bottom of the groove, said bar having a nail-supporting portion below and adjacent to the top of the groove and constituting a mono-rail from which nails are to be suspended in the groove for longitudinal sliding movement therealong in a forward direction toward an ejecting station with a minor portion of each nail extending above and overlying the nail-supporting portion and with a major portion of each nail depending from said nail-supporting portion, one of the side walls of said nail-receiving groove, below said nail-supporting portion, providing a nail guideway for maintaining the nails in a substantially vertical position during sliding movement of the nails in the groove, means for impelling the nails forwardly in said groove, said means including a nail pusher slidably disposed within said groove, said pusher having its forward end substantially coextensive with the trailing nail at the part thereof below said nail-supporting portion, and a pusher advancing spring having one end acting on the pusher and the reaction of the opposite end resisted by the body portion, the portion of the spring adjacent to the body reacting end thereof extending along the outside of the body, and means forming a releasable hook connection in the line of the transmission of action of the spring between the body and the pusher.

17. A nailing machine comprising two similar body parts arranged in face-to-face relationship and providing in combination a relatively thin, elongated body portion having a flat plane bottom surface, the inner surface of each of said body parts being relieved along a region extending along the bottom hereof and the two relieved surfaces providing therebetween an elongated straight nail-receiving magazine adapted to receive therein a supply of nails, the extreme rear end of said magazine being open for filling purposes, a nail-supporting rail substantially co-extensive with said magazine, means securing the rail to one side surface of said magazine, a laterally extending nail-supporting surface on said rail extending in said magazine below and adjacent to the upper regions of said magazine and constituting a mono-rail from which the nails are adapted to be suspended in the magazine with

a major portion of each nail depending from said flange, the opposite walls of said magazine below said nail supporting surface bearing against the depending portion of each nail and confining the same therebetween and providing a guideway for maintaining the nails in a substantially vertical position during bodily movement of the nails along the magazine and rail, a nail pusher in said magazine and slidable therein, said pusher having a forward edge for engaging the last nail in the magazine for advancing the nails along the magazine, the vertical portion of said pusher being confined between said rail and the opposed wall of the magazine, and a pusher advancing coiled spring having one end thereof bearing against said pusher and having its other end extending along the outside of the body adjacent the opposite end of the spring, and means holding said opposite end of the spring to said body

thereby forming a path of force transmission from the body through the spring to the pusher, and a releasable hook connection in said path for separating said path to permit retraction of the pusher from the magazine.

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