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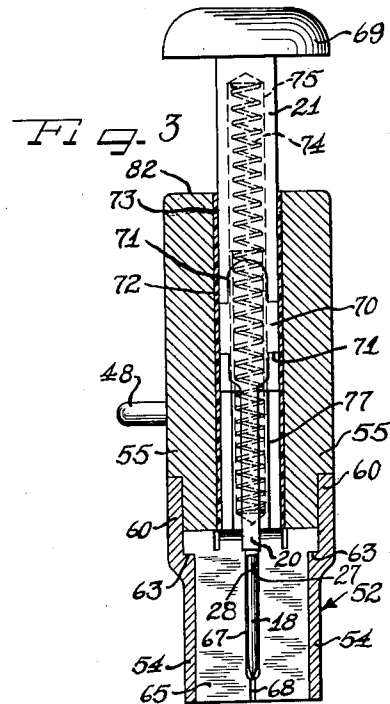
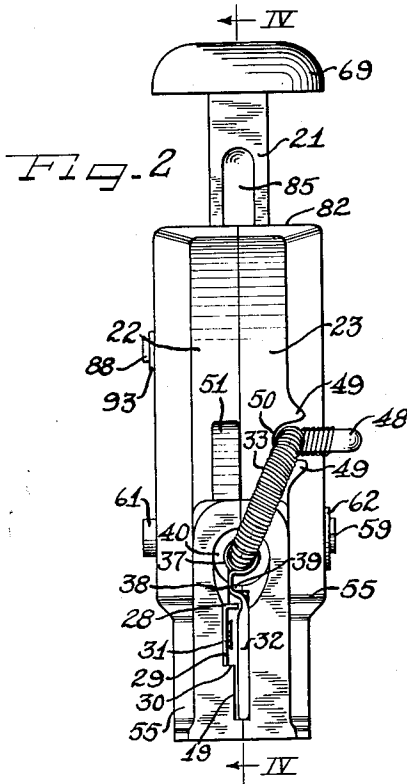
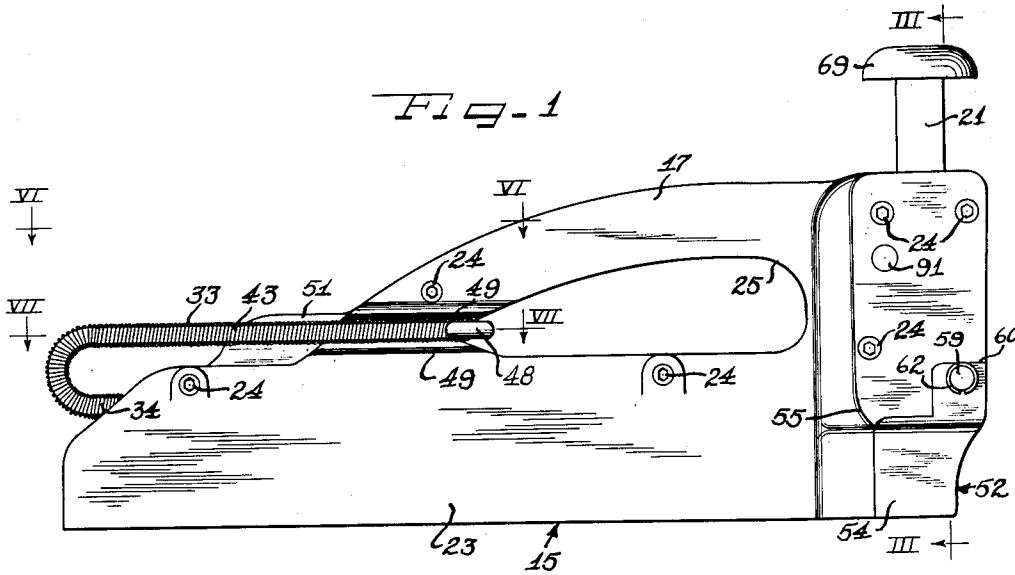
C. H. TRUE, JR., ET AL

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MAGAZINE AND FEED MEANS FOR FASTENER DRIVING MACHINES

Filed Sept. 2, 1950

3 Sheets-Sheet 1



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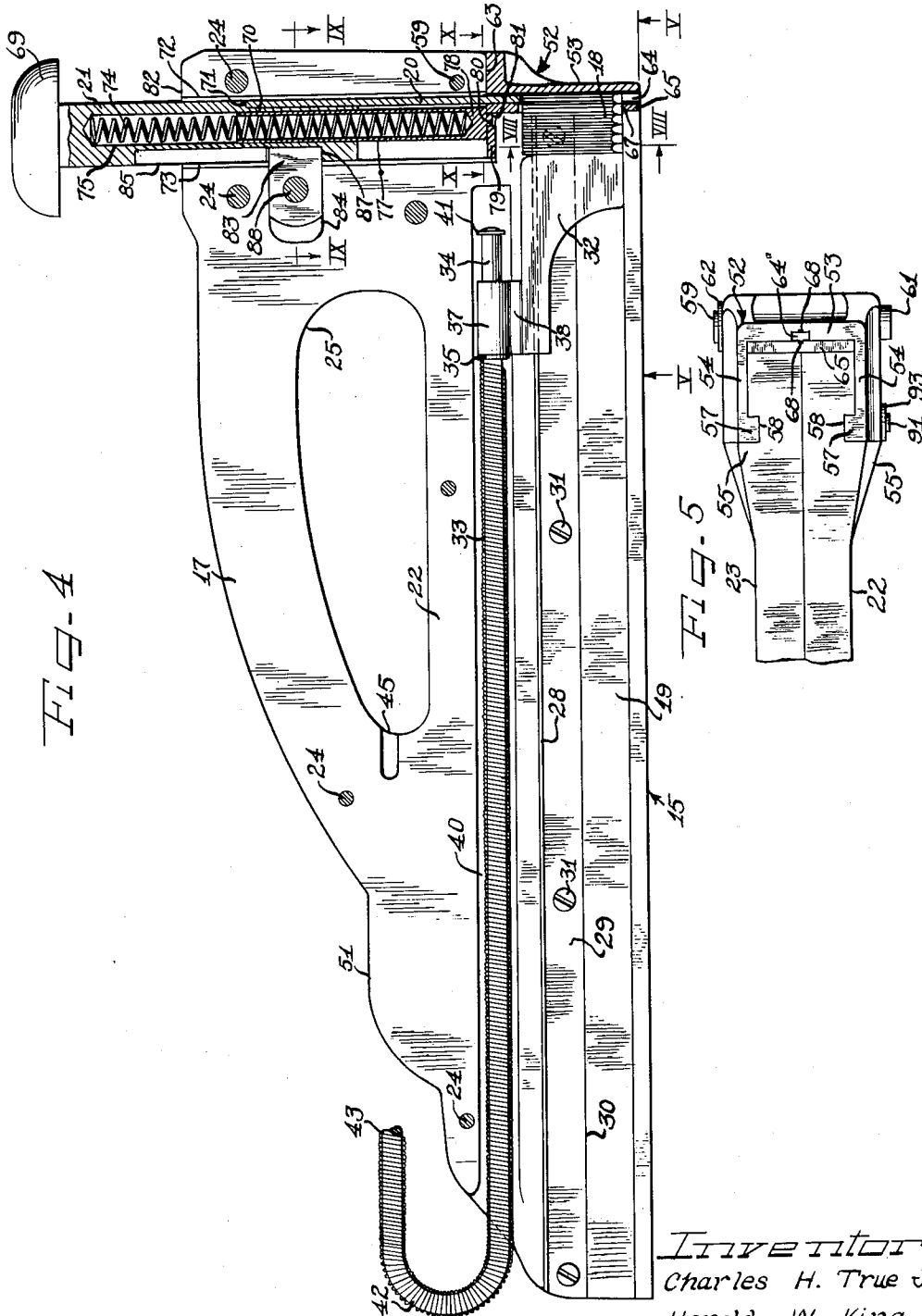
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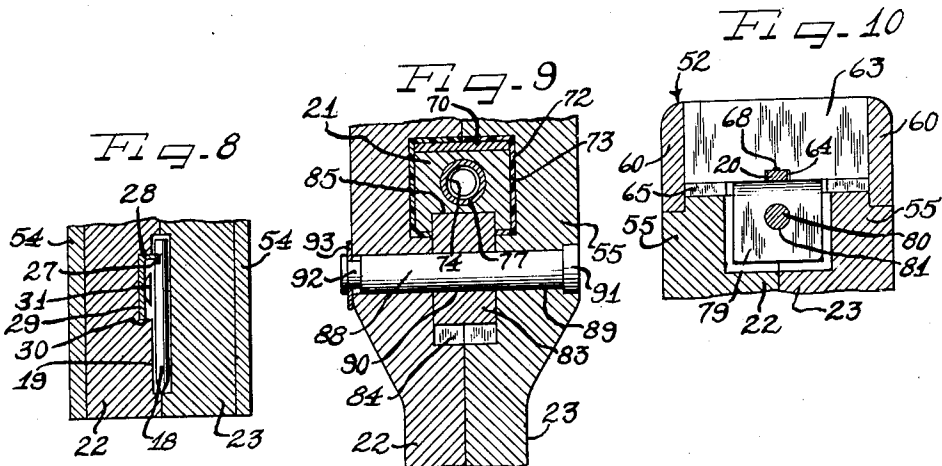
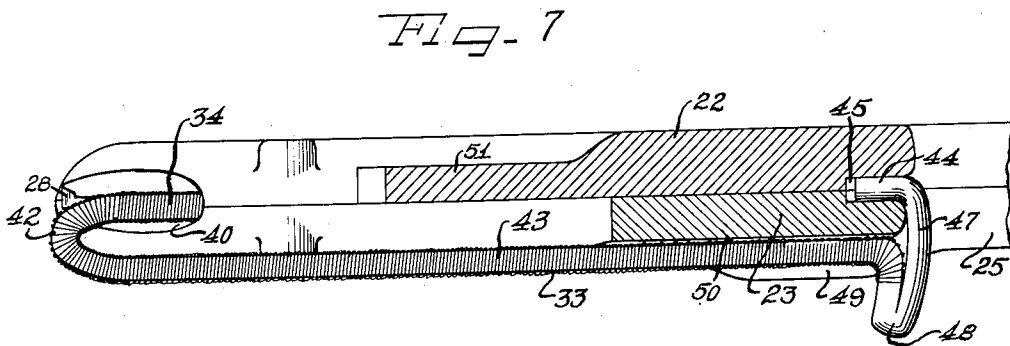
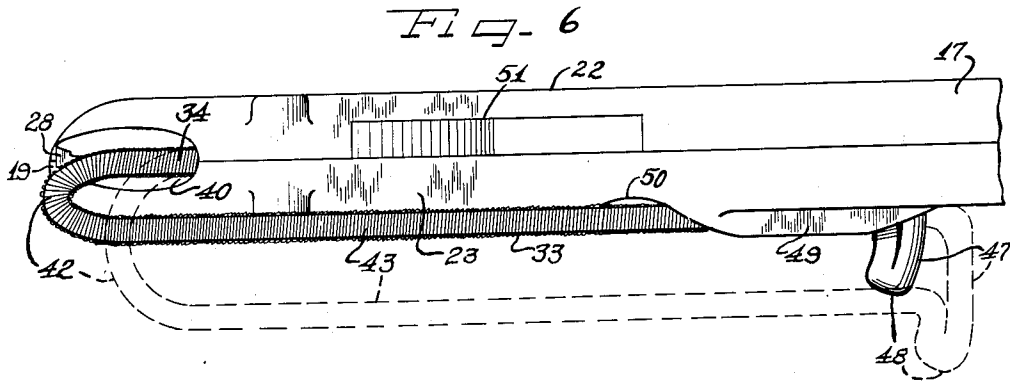
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3 Sheets-Sheet 3



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2,734,192

MAGAZINE AND FEED MEANS FOR FASTENER DRIVING MACHINES

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Application September 2, 1950, Serial No. 183,012

11 Claims. (Cl. 1—46)

This invention relates to improvements in machines for driving pointed fastening elements into members to be secured together and more particularly concerns a novel machine of the portable type especially adapted for driving sash pins in the manufacture of window sash or the like.

An important object of the present invention is to provide an improved fastener driving machine having novel fasteners supporting and driving structure.

Another object of the invention is to provide a novel assembly at the driving end of a fastener setting machine especially constructed and arranged to withstand the repetition of driving shocks to which a machine of this kind is subjected in service.

A further object of the invention is to provide improved driving plunger and blade means in a machine for driving and setting sash pins or the like.

Still another object of the invention is to provide an improved feed mechanism for driving machines wherein a series of drivable fastening elements is fed successively to a driving plunger.

Yet another object of the invention is to provide novel feed magazine structure for sash pins.

Other objects, features and advantages of the present invention will be readily apparent from the following detailed description of a preferred embodiment thereof taken in conjunction with the accompanying drawings in which:

Figure 1 is a side elevational view of a fastener driving machine embodying the features of the present invention;

Figure 2 is a rear elevational view of the machine;

Figure 3, is a vertical sectional detail view through the machine taken substantially on the line III—III of Figure 1;

Figure 4 is an enlarged longitudinal vertical sectional view through the machine taken substantially on the line IV—IV of Figure 2;

Figure 5 is a bottom elevational view of the front portion of the machine taken substantially as indicated by the line V—V in Figure 4;

Figure 6 is a fragmentary top plan view of the rear portion of the machine substantially as indicated by the line VI—VI of Figure 1;

Figure 7 is a horizontal fragmentary sectional detail view taken substantially on the line VII—VII of Figure 1;

Figure 8 is an enlarged vertical sectional detail view taken substantially on the line VIII—VIII of Figure 4;

Figure 9 is an enlarged fragmentary horizontal sectional detail view taken substantially on the line IX—IX of Figure 4; and

Figure 10 is an enlarged fragmentary horizontal sectional detail view taken substantially on line X—X of Figure 4.

Having reference to Figures 1 and 4, a machine according to the present invention comprises a body 15 provided with a handle 17 by which it can be grasped and carried to and held in position upon work into which a fastening element such as a sash pin 18 carried within

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a magazine 19 in the body is to be driven by a driving blade 20 by actuation of a plunger 21.

In an economical form, the body 15 is made from complementary side members 22 and 23 which may be machined from individual metal plates or castings, but are preferably made from an appropriate moldable material by which the desired configurations and cavities are economically formed on and in the side members or plates. As shown, the side member 22 provides the left side or face of the machine and the side member 23 provides the right side or face of the machine (Figs. 1, 2 and 4). Appropriate separable fastening devices such as bolts or screws 24 are employed to secure the two half portions or plates of the body in complementary working assembly to provide the body unit 15. The handle 17 is integral in one piece with the upper portion of the body and defines with the upper portion of the body 23 a hand hole 25.

Each of the sash pins 18 comprises an elongated straight body, generally round or rounded in cross section, having a chisel point at one end and a blunt head at the opposite end. Adjacent to the head end of the sash pin body is provided a transverse groove 27 (Figs. 3 and 8) for riding a supporting and guide rail 28 within the magazine 19 of the machine. For convenience in handling, a substantial number of the sash pins 18 is associated in a flattened stick by adhering the sash pins in edge-to-edge relation by means of a suitable solidifiable adhesive. A partial stick of sash pins 18 is shown in Fig. 4. It will be understood that the sticks of sash pins may be made as long as desired and the length of the magazine 19 and therefore of the supporting rail 28 are preferably such as to accommodate one fairly long stick or a plurality of shorter sticks of sash pins.

The magazine 19 is preferably formed as an elongated horizontal channel or passage through the lower portion of the body 15 of the machine and may conveniently comprise opposing complementary channel recesses in the respective interfaces of the side members 22 and 23 of the body. The height of the magazine channel is preferably somewhat greater than the length of the sash pins 18 and the width of the magazine is slightly greater than the thickness of the sash pins, thereby freely accommodating the sash pins but serving to retain and guide the sash pins in a vertical position for feeding to the driving end of the machine.

In a convenient form, the rail 28 may comprise an inverted generally L-shaped bar having the rail portion 28 and a vertical leg 29 which is received in a horizontal channel 30 recessed into one wall of the magazine 19, as for example in the wall provided by the side plate 22, so as to clear the magazine proper, and may be secured therein as by means of screws 31. The rail 28 is especially advantageous in supporting the sash pins 18 with the points thereof free from frictional contact with the floor of the magazine 19. Furthermore, the rail 28 prevents cocking and jamming of any individual sash pin within the magazine or at the driving station within the machine where such an individual pin may have escaped from its captive relation within a stick or may comprise the trailing endmost and thus remaining sash pin of a stick, the remainder of which may have been used up.

Loading of the machine with the sash pins 18 is very easily accomplished by inserting the sash pins into the open rear end of the magazine 19, with the guide rail 28 engaging within the aligned notches 27 in the sash pin.

In order to retain the sash pins 18 against escape from the open rear end of the magazine 19 and to urge the sash pins positively toward the driving station at the forward end of the machine, retaining and positive feed means are provided comprising a pusher 32 preferably in the form of a blade or plate of approximately the width and height of

the sash pins 18 at its forward edge and appropriately dimensioned to fit freely for reciprocal movement within the magazine 19 (Figs. 2 and 4). After a supply of the sash pins 18 has been fed into the magazine 19, the pusher 32 is inserted into the rear of the magazine to drive against the rear of the series of sash pins.

Means are provided for exerting a forwardly biasing force against the pusher 32. Herein such means comprise a coiled compression spring 33 mounted about a guide rod 34 and bearing against an abutment washer 35 abutting the rear end of a guide sleeve 37 provided on an upward extension 38 on the pusher 32. By reference, the upward extension 38 is substantially shorter than the overall length of the pusher 32 and projects upwardly from the rearmost portion of the upper margin of the pusher 32. As best seen in Fig. 2, the extension portion 38 of the pusher is configured to extend freely about the edge of the guide bar or rail 28 and then extends laterally and upwardly to clear through a slot 39 provided in the roof of the magazine 19 and affording a longitudinal passage into an upper longitudinally extending pusher spring chamber 40 parallel to the pin magazine. The chamber 40 is preferably formed from complementary channels of semi-circular cross-section in the respective side plates 22 and 23 of the machine body.

The construction and relationship of the spring 33, the guide rod 34, and the pusher sleeve 37 are such that constant spring pressure bias is maintained upon the pusher from the position of maximum magazine load wherein the pusher is located at the extreme rear of the machine until the last pin is driven from the magazine into the driving station of the machine at the extreme front of the pin magazine. To this end, the guide rod 34 is of a length to extend the substantially full length of the spring chamber 40 and at least to a position at the forward end of the spring chamber wherein engagement of the forward end of the guide sleeve 37 of the pusher with a stop collar 41 on the forward end portion of the rod 34 and coincides with the most extreme forward position that must be assumed by the forward edge of the pusher 32 in driving the last of the sash pins 18 into position for driving by the driving blade 20. The sleeve 37 is freely slidable longitudinally on the rod 34 under the influence of the compression spring 33. When the magazine 19 is to be loaded, the pusher 32 is withdrawn from the magazine by withdrawing the rod 34 rearwardly. After a load of sash pins has been inserted into the magazine 19, the pusher 32 is inserted into the magazine in driving relation against the rear extremity of the series of pins and the rod 34 is projected forwardly into the spring chamber 40 to the maximum extent of the rod and in so doing the spring 40 is placed under compression, the rear end of the spring 33 being anchored upon the rear end portion of the rod 34.

In order to increase the elasticity of the springs 33 by an increase in its length without objectionable projection thereof rearwardly from the body of the machine while in service, the guide rod 34 is return bent to provide a generally U-shaped loop 42 thereon and a forwardly directed leg 43 extending preferably parallel to the body length of the rod 34, with the spring 33 of a length to encompass not only the body length of the rod rearwardly of the slidable pusher guide sleeve 37 but also the loop portion 42 and the return leg portion 43 of the rod. The return leg portion 43 preferably extends to approximately half the length of the body portion or main leg of the rod.

For retaining the rod 34 in the loaded, service position thereof against the thrust of the compression spring 33, releasable anchoring means are provided which comprise a rearwardly extending lug 44 on the outer or forward extremity of the rod leg 43 which is engageable in a forwardly opening retaining socket 45 formed at the rear base of the handle 17 and with its mouth at the rear extremity of the hand hole opening 25 (Figs. 4 and 7). By

preference the socket 45 is formed by complementary opposing recesses or blind end channels formed in the opposing interfaces of the two plates 22 and 23 of the machine body. The retaining or anchoring lug 44 is conveniently formed by turning rearwardly the outer extremity of the spring rod and disposing the lug in sufficiently spaced relation to the adjacent leg 43 of the rod to accommodate the thickness of the plate member 23, the outer extremity portion of the rod being for this purpose provided with a head portion 47 by which the lug 44 is joined to the remainder of the outer leg 43 of the rod.

For convenience in manipulation, the head portion 43 is formed at immediate juncture with the rod leg 43 with a laterally projecting handle portion or bend 48 which projects laterally sufficiently beyond the machine side 23 to enable convenient grasping thereof for releasing the lug 44 from the socket 45 by forward thrust on the handle in opposition to the spring 33 to a position substantially as indicated in dash outline in Fig. 6. Thereupon the lug 44 and the arm 43 of the rod can be swung out clear of the adjacent side of the machine body and the rod pulled rearwardly out of its chamber 40 to withdraw the spring and the pusher 32. Upon reassembly, after the rod 34 and pusher 32 have been reinserted into the machine and the rod 34 pushed as far as permitted into the chamber 40, the lug 44 is reengaged within the retaining socket 45 by reversal of the process described for removal thereof and the handle 48 released so that the thrust of the spring 33 draws the lug 44 into the socket 45. It will be observed that ample space is afforded at the forward end of the chamber 40 to clear the tip portion of the rod 34 during the insertion or removal of the rod 34 as described.

In order to avoid interference with the spring 33 by the palm of the user of the machine while grasping the rearwardly slanting handle 17 in service, suitable guard fins are provided on the machine body 15. To this end, a spaced pair of longitudinally extending laterally projecting guard fins or ribs 49 is provided at the side of the machine body at the base portion of the handle 17 on the side plate 23 along side of which the forwardly projecting outer arm 43 of the spring guide rod extends, the protecting ribs 49 flanking a longitudinal groove 50 within which the rod arm 43 and the adjacent terminal portion of the spring 33 are received (see Figs. 1, 2, 6 and 7). Additional protection is provided by a vertical fin 51 which projects upwardly and rearwardly from the machine body rearwardly from the handle 17, with the upper edge portion of the fin projecting above the service position of the guide arm 43 and the associated portion of the spring 33. By preference the fin 51 is formed on the side plate 22. Through this arrangement, when the machine is manipulated by means of the handle 17, the heel of the palm portion of the user's hand will be guarded against applying damaging or operation-interfering pressure against the spring 33.

An especially compact, rugged, economical and efficient construction is provided for the forward, pin driving portion of the machine. An important feature of this construction comprises a strong, one piece reinforcing and guide nose portion or member 52 which is constructed and assembled in novel fashion with the work engaging forward pin setting portion of the machine.

One of the important functions of the nose member 52 is to retain the forward portions of the side plates 22 and 23 of the machine against spreading under the force dissipating impact incident to the stopping of driving blows of the plunger 21 and the driving blade 20 at the end of a driving stroke. For this purpose, the nose member 52 is formed of generally U-shape cross-section (Fig. 5) in horizontal or plan section, including a front vertical wall 53 and similar opposite side walls 54. The body side plates 22 and 23 are preferably thickened as indicated at 55 for reinforcement purposes at the front of the machine and the nose member 52 snugly engages

in interconnected manner with the thickened plate portions, being for this purpose arranged to be assembled by sliding the same into position by relative movement from the bottom of the machine toward the upper portion of the machine.

An interlocking interengagement of the nose portion 52 with the thickened side plate portions 55 is effected by providing the rear margins of the side walls 54 of the nose member with opposing inwardly extending interlock flanges or ribs 57 which engage in interlock complementary grooves 58 in the forward plate portions 55. It will be observed that in this manner the forward end portions of the body plates 22 and 23 are held very effectively against spreading and the nose member 52 is held effectively against displacement forwardly from the machine.

Unintentional downward displacement of the nose member 52 is prevented by a securing pin 59 which extends through a pair of upwardly extending spaced parallel attachment ears 60 on the upper forward portion of the side walls 54 of the nose member (Figs. 1 and 3). The pin 59 is detachably held against displacement by means of an integral head 61 at one end and a detachable snap on lock collar 62 adjacent its other end and the shank of the pin extends through the forward extremity portions of the side plates 22 and 23 forwardly of the driving blade 20 (Fig. 4).

Since the rigid and rugged nose member 52 is especially adapted to withstand the impact incident to the terminus of pin driving strokes of the plunger 21, means are provided for assuring transmission thereto from the body of the machine of the residual impact force of the driving blows upon the plunger. For this purpose the upper portion of the nose member 52 is provided with a substantial upwardly facing shoulder formation 63 (Figs. 3 and 4) opposing overlying complementary portions of the body side plates of the machine, supplemented by an inset relationship of the attachment ears 60 into the sides of the thickened portions 55 of the side plate.

Another important function of the nose member 52 is to provide driving guide-way for the sash pins 18, and the driving blade 20. For this purpose, the inner face of the front wall 53 of the nose member has a vertical pin and driving blade guiding channel or way 64 (Figs. 4, 5 and 10). The guide channel or groove 64 is disposed vertically in front of and in centered relation to the forward end of the pin magazine 19 to receive the sash pins 18 successively as fed thereinto from the magazine 19 by the pusher 32. By preference the width of the driving groove 64 is slightly greater than the width or thickness of the pins 18 to accommodate a somewhat wider dimension in the driving blade 20 which should be not excessively wider than the thickness of the pins so that the driving tip of the blade will not make an excessively large hole when countersinking the sash pins but which must be of sufficient cross-section to avoid buckling in driving.

While the forward side of the driving blade 20 is supported within the driving groove 64, the rear side of the driving blade should also receive firm support and for this purpose a backup plate 65 (Fig. 3) is provided which is dimensioned to fit immediately inside of the front wall 53 of the nose member and between such front wall and the adjacent end portions of the side plates 22 and 23 of the machine body. For passage of the sash pins 18 through the plate 65 it is provided with a doorway slot 67 disposed vertically in alignment for free passage of the pins therethrough into the driving guideway 64. The width of the doorway aperture or slot 67 is slightly less than the width of the driving blade 20 so that throughout its range of movement, the driving blade is backed up between the plate 65 and the forward wall defining the driving guideway 64. As will be noted in Figures 3 and 4, the upper portions of the nose member 52 and the back-up plate 65 extend a substantial distance above

the doorway aperture 67 so that in the fully retracted position of the blade 20 above the sash pin 18 next to be driven, a substantial portion of the tip of the blade is thoroughly backed up against buckling and is guided for accurate engagement with the head of the pin.

In order to avoid turning of the sash pins 18 out of the vertical driving alignment with the driving blade 20 in the driving guideway 64, the front to rear dimension of the guideway is in general so related to the width of the sash pins that a snug relationship would normally exist and the snugness is relieved by respective opposing relief and turn preventing vertical narrow guide grooves 68 within respectively the forward wall defining the guideway 64 and the opposing lower portion of the surface of the plate 65 below the doorway of aperture 67 (Figs. 3, 4, and 5). The rounded opposite sides of the successive sash pins 18 are received in the opposing guide grooves 68 and thus held against tilting or turning out of the driving path.

In a preferred construction, the driving blade 20 is formed as a separable thin hardened steel plate which is assembled with the forward face of the plunger 21 preferably formed as a square elongated member having an impact knob or head 69 at its upper end. As best seen in Figs. 3, 4 and 9, the driving blade 20 is preferably formed with a substantially elongated narrow and thin lower driving blade portion having an upper generally cruciform body portion 70 which need be of no greater thickness than the driving portion of the blade but which is of substantially greater width than the driving portion of the blade. The blade body 70 is set into a complementary cruciform shaped recess 71 in the forward face of the plunger 21. Thereby not only is the driving blade 20 held against longitudinal displacement with respect to the plunger 21 but it is also held against lateral displacement and moves with the plunger 21 for driving and retraction movements. The cruciform arrangement with the upper end of the blade body 70 rounded as seen in Fig. 3 is advantageous in presenting maximum edge surface of the head of the blade member to opposing complementary surfaces of the plunger 21 within the recess 71 to distribute driving force from the plunger 21 uniformly and effectively against the blade.

The driving plunger 21 is guided for vertical reciprocation in an appropriate square guideway 72 provided in the thickened portions 55 of the body plates 22 and 23 and formed by complementary opposing vertical channels or grooves in the body plates cooperating to provide the guideway. An appropriate bearing liner 73 is provided within the guideway 72 for reducing friction and wear between the plunger and the walls defining the guideway. By preference the bearing liner 73 comprises "nylon" since this plastic has the desirable property of providing substantially wear-free bearing surface requiring no lubrication. As will be evident from Figures 3, 4 and 9 the front wall of the guideway 72 cooperates with the front face of the plunger 21 to maintain the cruciform head portion 70 of the driving blade against escape from the recess 71.

Means are provided for automatically retracting the plunger 21 and thereby the driving blade 20, in the present instance comprising a return spring 74 preferably in the form of a coil compression spring which is disposed within a vertical downwardly opening elongated socket 75 within the plunger. The lower end portion of the spring 74 is disposed within a guide tube 77 extending slidably into the spring socket 75 of the plunger and having a lower blind end portion 78 resting upon a platform 79 provided therefor by a rearwardly bent upper marginal portion of the back-up plate 65 underlying the lower end of the plunger guideway 72. Fixed retention of the base end portion 78 of the spring tube is effected by the interlocking of a downwardly projecting tip or boss 80 thereon within an aperture 81 provided for this purpose in the flange 79 (Figs. 4 and 10). The reaction of the spring 74 under compression maintains the tube 77 seated on

the flange 79 and also functions to normally urge the plunger upwardly into retracted position.

Besides serving as a guide for protecting the lower portion of the spring 74 from catching on the lower end of the plunger 21, the tube 77 also serves as a lubricant chamber for lubricating the spring and thus avoiding frictional operating noises thereof in service. Additionally, by being closely spaced with respect to the driving blade 20, the tube 77 serves as a buckling resistance backing for the driving blade 20 should there be a tendency toward flexing of the blade in response to a resistance condition encountered in service or an oversharp or sudden impact against the plunger. The front of the upper portion of the blade 20 is, of course, supported against buckling by the bearing 73 backed up by the forward wall defining the plunger guideway 72.

Downward movement of the plunger 21 is limited by engagement of the underside of the plunger head 69 against an upwardly facing abutment shoulder 82 provided at the top of the thickened body plate portions 55. In this downward limit position the driving tip of the blade 21 projects into pin-counter-sinking relation below the lower end of the pin, driving guideway 64. Immediately upon release of the driving force against the plunger, the return spring 74 snaps the plunger 21 and the blade 20 into retracted position.

Limit upon retraction is afforded by a stop block 83 mounted within an appropriate cavity 84 (Figs. 4 and 9) provided in the body of the machine rearwardly of and opening into and through the rear wall of the plunger guideway 72 and the bearing liner 73. The forward end portion of the stop block 83 operatively engages in a rearwardly opening vertical groove 85 in the rear surface of the plunger 21. At its lower end the groove 85 has a stop shoulder 87 which engages against the adjacent opposing portion of the block 83 in the fully retracted position of the plunger and stops the plunger at a height wherein the lower tip of the driving blade 20 clears the head of the next succeeding sash pin 18 fed into the driving guideway 64. As evident from Figures 3 and 4, at the limit of upward or driving blade retraction movement of the driving plunger 21 the cruciform upper or head portion 70 of the driving blade remains within the guideway 72 wherein the front wall defining the passageway and more particularly the front portion of the liner 73 continues to maintain the head portion 70 within the recess 71.

In order to enable removal of the driving plunger and blade assembly without requiring separation of body plates 22 and 23, the stop block 83 is so related to the plunger that the stop block can be easily retracted from its cooperative relation to the plunger into the recess or chamber 84 clear of the plunger guideway. For this purpose the stop block chamber is of sufficient depth to receive the stop block fully in retracted position and the stop block is formed of sufficient weight and is loosely slidably received within the stop block chamber so that by tipping the machine on end with the forward portion up, the stop block will drop by gravity into the chamber 84, while by moving the machine into reverse position wherein the forward end thereof is down, the block can be moved by gravity into the cooperative engagement within the groove 85 in the plunger.

To retain the stop block 83 against unintentional displacement from stopping relation to the plunger, a removable retaining pin 88 is provided (Figs. 4 and 9) which extends through a bore 89 transversely in the thickened portions 55 of the body plates of the machine rearwardly of the plunger guideway 72 and with which a transverse bore 90 in the stop block 83 is adapted to register when the forward end portion of the stop block is in its operative plunger-stopping relation within the groove 85 of the plunger 21. At one end the pin 88 has a head 91 and at its other end portion the pin has an annular groove 92 receptive of a snap on lock collar 93. Thus, while the stop block 83 effectively retains the

driving plunger 21 against over-retraction, in the service condition of the machine, displacement of the stop block can be easily effected for release of the plunger by removal of the retaining pin 88 and rearward shifting of the block when it is desired to do so. Reassembly can then be easily effected by returning the plunger into its guideway, depressing the same until registration of the groove 85 is effected with the stop block chamber 84, and the machine held with the forward end portion downwardly so that the stop block 83 will drop into operative position, whereupon the retaining pin 88 is returned through the registering bores 89 and 90 in the machine body and in the block, respectively, and the operative relationship is reestablished.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

We claim as our invention:

1. In combination in a sash pin driving machine, a body structure, said body structure having an elongated sash pin magazine therein, a guide rail of angular cross section having a portion projecting laterally into an upper section of the magazine for engagement within aligned guide grooves in a series of sash pins in the magazine, a vertical depending leg on said rail member attached to one wall defining said magazine chamber and offset into positive clearance relation to the path of movement of the sash pins depending from the rail, and means for pushing the sash pins along said rail toward one end of the magazine chamber.

2. In combination in a machine of the character described, means defining a body structure, said body structure having a magazine chamber in the lower portion thereof for receiving a load of fastening elements to be driven, a pusher operable reciprocally in said magazine chamber for driving the fastening elements toward a driving means, said body structure having an auxiliary chamber above said magazine chamber, said pusher having a portion thereof projecting from the upper part of the pusher into said auxiliary chamber, a rod extending into said auxiliary chamber and with which said portion of the pusher is slidably engaged, said rod having a portion thereof extending rearwardly from said auxiliary chamber and forwardly along said body structure, a coiled compression spring disposed about said rod including said forwardly extending portion, and an interlock element on said forwardly extending portion of the rod, said body structure having a socket therein for interlocking engagement of said interlock element therein for retaining said rod in operative position.

3. In combination in a machine of the character described, a body structure having an elongated fastening element magazine in the lower portion thereof opening from the rear of the body and having driving guide means at the forward end thereof, the upper portion of the body having a handle thereon defined by a hand hole, a pusher for driving the fastening elements forwardly in the magazine chamber, and means for biasing the pusher including a rod having a portion in slidable engagement with said pusher and extending rearwardly from the body and having a biasing coil spring thereabout, said rod having a portion extending around the rear portion of the body and forwardly therealong to the rear portion of said hand hole, a rearwardly extending interengagement lug on said forwardly extending portion of the rod, said body having a socket opening forwardly into said hand hole adjacent to the rear base portion of said handle and within which said lug is engageable to retain the rod in position.

4. In combination in a fastener driving machine, a body structure, handle on the upper forward portion of said body, a fastener supply magazine extending from an opening at the rear of the lower portion of the body forwardly to open at the front portion of the body structure, means for pushing the fasteners forwardly in said

magazine and including a rod extending rearwardly around the body structure and having a portion projecting forwardly past and adjacent to the rear base portion of said handle, a coiled compression spring disposed about said rod including said forwardly projecting portion, and longitudinally extending protective rib means on said body at the rear base portion of the handle alongside said rod portion and projecting laterally therebeyond to protect the spring against undesirable engagement by the palm portion of the hand of a user manipulating the machine by means of said handle.

5. In a machine of the character described, means defining an elongated fastener element chamber having an opening at one end and adapted to deliver at the opposite end to a fastener driving mechanism, a pusher in said chamber, a generally U-shaped rod having a portion thereof in said chamber associated operatively with said pusher and a second portion disposed externally of said chamber, coiled compression spring means supported by both portions of said rod and acting to bias said pusher normally forwardly in said chamber, an interlock lug on said external portion of the rod, and means interengageable releasably with said interlock lug and located on said first mentioned means for maintaining the rod normally in operative position.

6. In a sash pin driving machine, a body structure, said body structure having a lengthwise extending pin-receiving magazine provided with opposite vertical wall portions between which sash pins are adapted to be moved toward a driving station, and a nail-supporting rail structure of inverted L-shaped construction providing a rail flange extending lengthwise within the magazine and overhanging one of the vertical walls toward the other, with the edge of the rail flange spaced from said other wall a distance slightly greater than the thickness of the neck portion of a pin having a sidewardly opening rail engaging head notch, said rail having an elongated vertically extending flange secured to said one wall and spaced from said other wall a distance substantially greater than the thickness of a pin so as to remain in positive clearance relation to pins moved forwardly in the magazine.

7. In combination in a machine of the character described, a structure provided with an elongated rearwardly opening fastening element magazine adapted for delivery of fastening elements to a driving station at the front of the machine, a pusher for urging the fastening elements forwardly in the magazine, a rod having a main portion rotatable about its axis and cooperatively related to the pusher and extending rearwardly from the magazine, said rod having a portion extending around from the rear of the magazine and forwardly to a substantial extent and being swingable relative to said structure by rotational movement of said main rod portion, biasing coil spring means on said rod portions acting on said pusher to thrust the pusher forwardly, means for retaining the rod in operative position, said means including releasably interengageable components on, respectively, said structure and said forwardly extending portion of the rod, and said components being interengageable by said swinging of said forwardly extending rod portion from a released position to said operative position.

8. In combination in a machine of the character described, a structure provided with an elongated rearwardly opening fastening element magazine adapted for delivery of fastening elements to a driving station at the front of the machine, a pusher for urging the fastening elements forwardly in the magazine, a rod having a main portion rotatable about its axis and cooperatively related to the pusher and extending rearwardly from the magazine, said rod having a portion extending around from the rear of the magazine and forwardly to a substantial extent and being swingable relative to said structure by rotational movement of said main rod portion, biasing coil spring means on said rod portions acting on said pusher to thrust the pusher forwardly, rod retaining means

releasably interengageable by swinging of said forwardly directed portion of the rod from a released position to an interengaged retained position, and guard means on said structure cooperatively related to said forwardly directed rod portion and the spring means thereon when the forwardly directed rod portion is in the retained position of the rod and from which guard means said forwardly directed portion of the rod and the spring means thereon are moved clear by swinging of said forwardly directed portion of the rod into said released position.

9. In combination in a machine of the character described, a structure provided with an elongated rearwardly opening fastening element magazine adapted for delivery of fastening elements to a driving station at the front of the machine, a pusher for urging the fastening elements forwardly in the magazine, a rod having a main portion rotatable about its axis and cooperatively related to the pusher and extending rearwardly from the magazine, said rod having a portion extending around from the rear of the magazine and forwardly to a substantial extent, biasing coil spring means on said rod portions acting on said pusher to thrust the pusher forwardly, and means for retaining the rod in operative position comprising a forwardly opening socket fixedly positioned with respect to said structure and a rearwardly directed interlock lug on said forwardly extending portion of the rod releasably interengageable within said socket by movement of said forwardly extending portion of the rod for effecting such interengagement.

10. In combination in a machine of the character described, a structure provided with an elongated rearwardly opening fastening element magazine adapted for delivery of fastening elements to a driving station at the front of the machine, a pusher for urging the fastening elements forwardly in the magazine, a rod having a main portion cooperatively related to the pusher and extending rearwardly from the magazine, said rod having a portion extending around from the rear of the magazine and forwardly to a substantial extent, biasing coil spring means on said rod portions acting on said pusher to thrust the pusher forwardly, and means for retaining the rod in operative position comprising a forwardly opening socket fixedly positioned with respect to said structure and a rearwardly directed interlock lug on said forwardly extending portion of the rod releasably interengageable within said socket by movement of said forwardly extending portion of the rod for effecting such interengagement, said lug being maintained in said socket by rearward thrust imposed on said lug through said forwardly extending rod portion by said spring means.

11. In combination in a machine of the character described, a structure provided with an elongated rearwardly opening fastening element magazine adapted for delivery of fastening elements to a driving station at the front of the machine, a pusher for urging the fastening elements forwardly in the magazine, a rod having a main portion cooperatively related to the pusher and extending rearwardly from the magazine, said rod having a portion extending around from the rear of the magazine and forwardly to a substantial extent, biasing coil spring means on said rod portions acting on said pusher to thrust the pusher forwardly, stop means engaged by said spring means adjacent to the forward extremity portion of said forwardly extending portion of the rod, and means for releasably retaining the rod in operative position comprising separable means on said structure and on said forward extremity portion of said forwardly extending rod portion forwardly of said stop means.

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