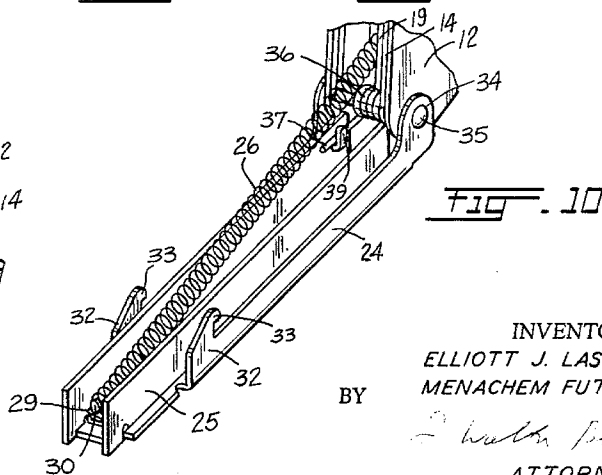
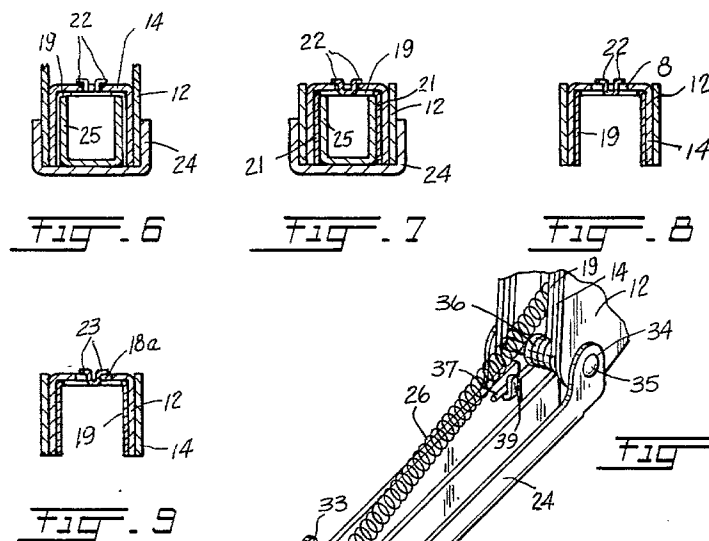


3,199,185

3 Sheets-Sheet 2



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TACKER AND METHOD OF SECURING A FOLLOWER WITHIN A MAGAZINE

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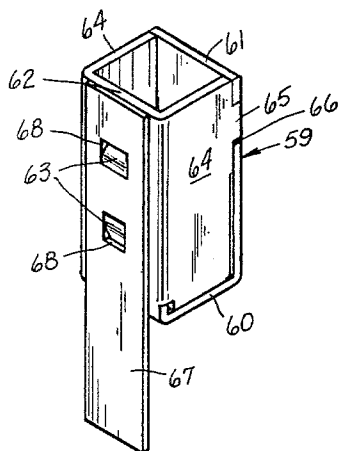


FIG. 11

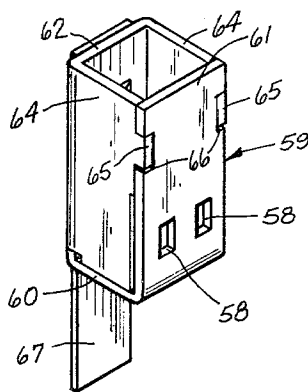


FIG. 12

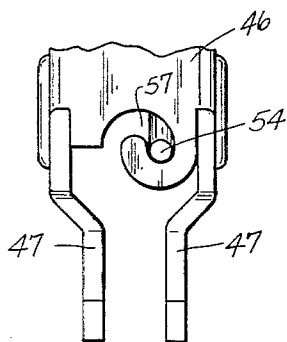


FIG. 13

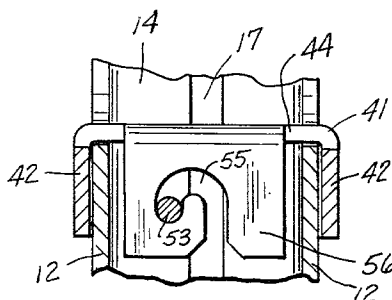


FIG. 14

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1

3,199,185

TACKER AND METHOD OF SECURING A FOLLOWER WITHIN A MAGAZINE

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Filed May 24, 1963, Ser. No. 283,029
3 Claims. (Cl. 29—434)

This invention relates to a tacker having a number of novel structural components. The structure of the ram, the ram spring, the follower, and the magazine are novel in and of themselves and are separately claimed in this application. However the novel components also combine to produce a superior tacker to those heretofore manufactured.

The invention also relates to the method of securing a follower within a magazine which is done simply, easily, and economically.

Conventionally a tacker consists of a spring loaded ram, a driver blade secured to the ram, a trigger actuating the ram, a magazine, a spring loaded follower within the magazine, and a fastener driving opening at the forward end of the magazine. The magazine must contain some type of latching means to permit the insertion of fasteners in laterally aligned relationship therewithin and to secure these fasteners in position after their insertion. Innumerable structures have been devised including the above components and have performed in a satisfactory manner.

In the instant invention, one of the novel features involved, resides in the fact that the spring which controls the trigger also controls the latching means for opening and closing the magazine. Thus one spring is made to perform two functions at a great saving in cost, material, and assembly time.

Furthermore, in the instant invention, the magazine and follower combination is very simply assembled. The magazine is provided with a longitudinal slot therealong having a transversely enlarged portion at the rear thereof and the follower is provided with a pair of spaced outwardly extending supports which project from the top thereof. The spaced outwardly extending supports are adapted to pass through the transversely enlarged portion so that the outwardly extending supports are passed through the transversely enlarged portion. The follower is then slid along the slot, and a stop member is then placed in position behind the follower which prevents the follower from moving rearwardly far enough to abut the transversely enlarged portion thus providing a very simple and rapid method for assembly of the components.

The ram of the tacker of this invention is also of novel construction and is integral. It consists of a base, a pair of spaced upstanding substantially rigid members carried by the base, a pair of substantially rigid offset angularly (preferably right angularly) disposed members laterally extending from a upstanding member, with each of the angularly disposed members also being laterally interlocked with the other upstanding member. This provides a rigid strong construction but one which can be easily formed by automatic equipment.

The ram of the tacker of this invention has a driver blade secured thereto as in conventional structures.

The invention will now be described by reference to the accompanying drawings which are made a part of this specification.

FIG. 1 is a side elevational view of a tacker made in accordance with this invention with the operating handle in down and locked position.

FIG. 2 is a cross sectional view taken through the tacker shown in FIG. 1 but with the operating handle in up position showing the internal construction.

2

FIG. 3 is a fragmentary cross sectional view showing a portion of the magazine structure of this invention taken along lines 3—3 of FIG. 2.

FIG. 4 is a cross sectional view similar to that of FIG. 3 but with the follower in the most rearward position that it can assume after the stop member is interposed rearwardly of the follower after assembly of the parts.

FIG. 5 is a cross sectional view similar to that of FIG. 3 but showing the manner in which the outwardly extending supports of the follower may pass through the transversely enlarged portions of the slots as the device is assembled and the stop member not yet placed into position.

FIG. 6 is a cross sectional view taken along lines 6—6 of FIG. 3.

FIG. 7 is a cross sectional view taken along lines 7—7 of FIG. 4.

FIG. 8 is a cross sectional view taken along lines 8—8 of FIG. 5.

FIG. 9 is a cross sectional view taken along lines 9—9 of FIG. 5.

FIG. 10 is a detail plan perspective view of the cover of the magazine in fully opened position showing the internal rail and associated structure therewithin.

FIG. 11 is a side detail isometric perspective view, on an enlarged scale, of the ram of the instant invention showing the method of attachment of the driver blade to the ram.

FIG. 12 is an isometric side perspective view taken on the opposite side to that shown in FIG. 11 and also on an enlarged scale, of the ram of the instant invention showing the trigger actuating recesses therewithin.

FIG. 13 is a detail enlarged sectional view showing the method of attachment of one end of the trigger spring to the trigger taken along lines 13—13 of FIG. 2.

FIG. 14 is a detail enlarged sectional view showing the method of attachment of the other end of the trigger spring to the latch taken along lines 14—14 of FIG. 2.

FIG. 15 is a cross sectional view taken along lines 15—15 of FIG. 2.

The inventions of this application will now be further described by reference to the specific forms as shown in the drawings which represent the best modes known to the inventors of taking advantage of the same. However the reader is cautioned to note that the specific forms of these inventions as set forth in the foregoing specification are for illustrative purposes and for purposes of example only. Various changes and modifications could obviously be made within the spirit and scope of these inventions and would occur to those skilled in this art.

The tacker 11 of this invention is formed with a frame 12 which is provided with a hand opening 13 therewithin. A magazine 14 is carried by frame 12 and is provided with a fastener driving opening 15 at its forward portion thereof. Magazine 14 also has a roof portion 16 which is provided with a longitudinal slot 17 therewithin. Slot 17 bears a pair of spaced transversely enlarged portions 18 and 18a at the rear thereof. A follower 19 is formed with a top 20 and a pair of downwardly depending side portions 21. Top 20 of follower 19 carries a forward pair 22 and a rearward pair 23 of spaced outwardly extending supports which project upwardly from top 20. Supports 22 and 23 are partially and slidably disposed within slot 17 and are capable of passing through portions 18 and 18a respectively when adjacent such portions.

Magazine 14 bears a pivotally openable cover 24 which is formed with a fastener supporting rail 25 therewithin. A coil spring 26 is secured at one end 28 to a downwardly depending hook 27 carried by follower 19. The other end 29 of coil spring 26 is secured to hook 30 which is carried by cover 24 of magazine 14.

Cover 24 may optionally bear a staple remover 31 at its rear if desired.

Cover 24 also is formed with a pair of spaced lateral locking portions 32 which bear hooks 33 at their ends. Cover 24 and magazine 14 are each provided with alignable holes 34. A pin 35 is disposed within aligned holes 34 thereby pivotally securing cover 24 to magazine 14. A first arcuately compressible coil spring 36 is disposed about pin 35 and bears a pair of outwardly extending arms 37 and 38. Arm 37 is disposed within holding portion 39 carried by cover 24 while arm 38 bears against the inner face 40 of frame 12.

Spring 36 normally holds cover 24 in open position.

In assembled condition the rear portion of follower 19 is abutable with pin 35 and supports 22 and 23 normally cannot move further rearwardly than the points indicated in FIG. 4.

Latch 41 is formed with a pair of spaced arms 42 which bear hook portions 43 at the ends thereof. Hook portions 43 are adapted to mesh with hook portions 33 upon cover 24. Arms 42 are joined to one another by bar 44.

Each of arms 42 of latch 41 is provided with a hole therewithin (not shown) and frame 12 is also provided with an additional hole (not shown). The holes within arm 42 and frame 12 are alignable with one another. Trigger 46 is formed with a pair of spaced arms 47 which in turn carry projections 45 (FIG. 2). Each of arms 47 is also provided with an aligned slot 48, of larger diameter than the hole within arms 42 and frame 12. A pin 49, of approximately equal diameter to the holes within arms 42 and frame 12 is disposed within said aligned holes and within slot 48.

A second arcuately compressible coil spring 52 is disposed about pin 49. Spring 52 is formed with a pair of outwardly extending arms 53 and 54. Arm 53 is secured within recess 55 which is provided within an overlying portion 56 of bar 44. Arm 54 of spring 52 is disposed within arcuate recess 57 provided within trigger 46. Thus trigger 46 is pivotally movable about frame 12 but also is slidably movable by reason of the larger size of slot 48.

Wheel 50 is disposed between the upper portions of arms 47 of trigger 46 and is secured in position by pin 51.

Ram 59 is preferably of integral construction and comprises a base portion 60, a first upstanding substantially rigid portion 61, a second upstanding substantially rigid portion 62. Portion 61 is provided with a pair of spaced recesses 58 which are adapted to accommodate projections 45 of trigger 46.

Portion 62 carries a pair of spaced projections 63 thereupon and also bears a pair of substantially right angled lateral portions 64. Each of portions 64 bear a tab 65 which in turn mesh with recesses 66 provided upon member 61. Therefore ram 59 is of substantially rectangular configuration having a closed base and an open top.

Driver blade 67 is provided with a pair of spaced recesses 68 which are adapted to accommodate projections 63 of ram 59.

Frame 12 carries a front portion 69. Front portion 69 is formed with a pair of spaced holes which are alignable with corresponding spaced holes located within frame 12. Operating handle 70 is pivotally secured to frame 12. Operating handle 70 overlies wheel 50 and is provided with a cut-out portion 72 and a hole. A pin 71 passes through the hole within operating handle 70 and the aligned holes in frame 12 and front portion 69. A pin 73 passes through the aligned holes within frame 12 and front portion 69. A latch 74 is pivotally secured to pin 49 and may be locked in "down" position by projections 75.

Front portion 69 is formed with a roof 76. A coil spring 77 is disposed within ram 59 and abuts roof 76. An additional coil spring 78 is disposed within spring 77. A bumper 79 is disposed within front portion 69.

The assembly of the tacker of this invention is obvious from the construction of one skilled in the art and need not be specifically set forth. However the positioning of the follower 19 within the magazine 14 will be specifically explained.

Frame 12 is obtained and the reader will note that slot 17 bears enlarged transverse slot portions 18 and 18a. The reader will also note that follower 19 bears projections 22 and 23 and that projections 22 and 23 pass through portions 18 and 18a. Projections 22 and 23 are pushed through slots 18 and 18a and follower 19 then slid forwardly along slot 17. Cover 24 is then obtained. Pin 35 is then passed through one hole within cover 24 and through one of the aligned holes within frame 12. Spring 36 is then placed about pin 35 and pin 35 then passed through the opposite aligned holes within frame 12 and cover 24. Pin 35 is then rivetted in position and arm 37 of spring 36 locked within holding portion 39. Spring 26 is then hooked into hook 27 of follower 19 and into hook 30 and cover 24.

As can be seen from FIG. 2 of the drawings when follower 19 now moves rearwardly it will abut spring 36. The construction is so made that the rearwardmost permitted movement of follower 19 will not permit projections 22 and 23 to be aligned with slot portions 18 and 18a. Thus follower 19 is retained within slot 17 and cannot be removed therefrom without disassembly of the tacker.

The operation of the instant tacker will now be explained.

Cover 24 of magazine 14 is pivotally removed therefrom by movement of latch 41 in the direction of the arrow shown in FIG. 1. Movement of latch 41 is performed against the pressure of spring 52. The movement of latch 41 causes hooks 33 and hooks 43 to become disengaged from one another and arm 37 of spring 36 causes cover 24 to pivot away from magazine 14. Cover 24 is then moved manually in an arcuate direction as shown by the arrow in FIG. 2. Spring 26 then causes follower 19 to assume its most permitted rearward position. Frame 12 is then overturned bottom up and a strip of staples placed within magazine 14 bottom up. Cover 24 is then pivotally moved to its normal closed position while the tacker is in overturned position and hooks 33 and 43 then snapped together by reason of the construction of the parts. The tacker is then made available for use by movement of member 74 in a downward direction so as to clear recess 72 and permit operating handle 70 to assume the position shown in FIG. 2. Trigger 46 then contacts recesses 58 within ram 59. As operating handle 70 is pushed downwardly trigger 46 lifts ram 59 until driver blade 67 leaves recess 15. The forward pressure on follower 19 caused by spring 26 then causes a staple to intervene opening 15 and underlie driver blade 67. As operating handle 70 is depressed still further the pivotal movement of trigger 46 causes projections 45 to leave recesses 58 and thus causes ram 59 under pressure of springs 77 and 78 to move downwardly with considerable force driving the intervening staple into the work. The force of the downward movement of ram 59 is absorbed by bumper 79.

As operating handle 70 is released spring 52 causes trigger 46 to assume its normal position. At the same time the rearward pressure exerted upon trigger 46 causes it to slide rearwardly through slot 48 so as to permit trigger 46 to slide along ram 59 and again contact recesses 58 for another stroke.

The foregoing description indicates the manner in which the objects of this invention are achieved.

We claim:

1. A magazine for a fastening device comprising a roof portion provided with a longitudinal slot therealong having a transversely enlarged portion at the rear thereof, said magazine being also provided with a fastener driving opening at the front portion thereof, a spring loaded

5

follower within said magazine, said follower having a top and pair of spaced outwardly extending supports carried by said top, said supports being partially disposed within said slot and adapted to pass through said transversely enlarged portion upon assembly or disassembly of the mechanism, and a stop member carried by said magazine normally preventing said supports from reaching said transversely enlarged portion of said slot.

2. A magazine for a fastening device comprising a roof portion provided with a longitudinal slot therealong having a pair of spaced transversely enlarged portions at the rear thereof, said magazine being also provided with a fastener driving opening at the front portion thereof, a spring loaded follower within said magazine, said follower having a top and a pair of downwardly depending spaced sides carried by said top, said follower also having a forward pair and a rearward pair of spaced outwardly extending supports upwardly projecting from the top, said supports being partially disposed within said slot and adapted to pass through said transversely enlarged portions upon assembly and disassembly of the mechanism, and a stop member upon said magazine, and a stop member carried by said magazine normally preventing said supports from reaching said transversely enlarged portions of said slot.

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3. A method of securing a follower within a magazine of a fastening device comprising the steps of forming said magazine with a roof portion provided with a longitudinal slot therealong having a transversely enlarged portion at the rear thereof, forming a follower with a top portion having outwardly extending support normally slidably and partially disposed within said slot but being able to pass through said transversely enlarged portion, passing the outwardly extending support of said follower through said transversely enlarged portion of said slot, sliding said follower forwardly along said slot, and thence disposing a stop member rearwardly intervening said follower so that said outwardly extending support cannot clear said transversely enlarged portion of said slot.

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