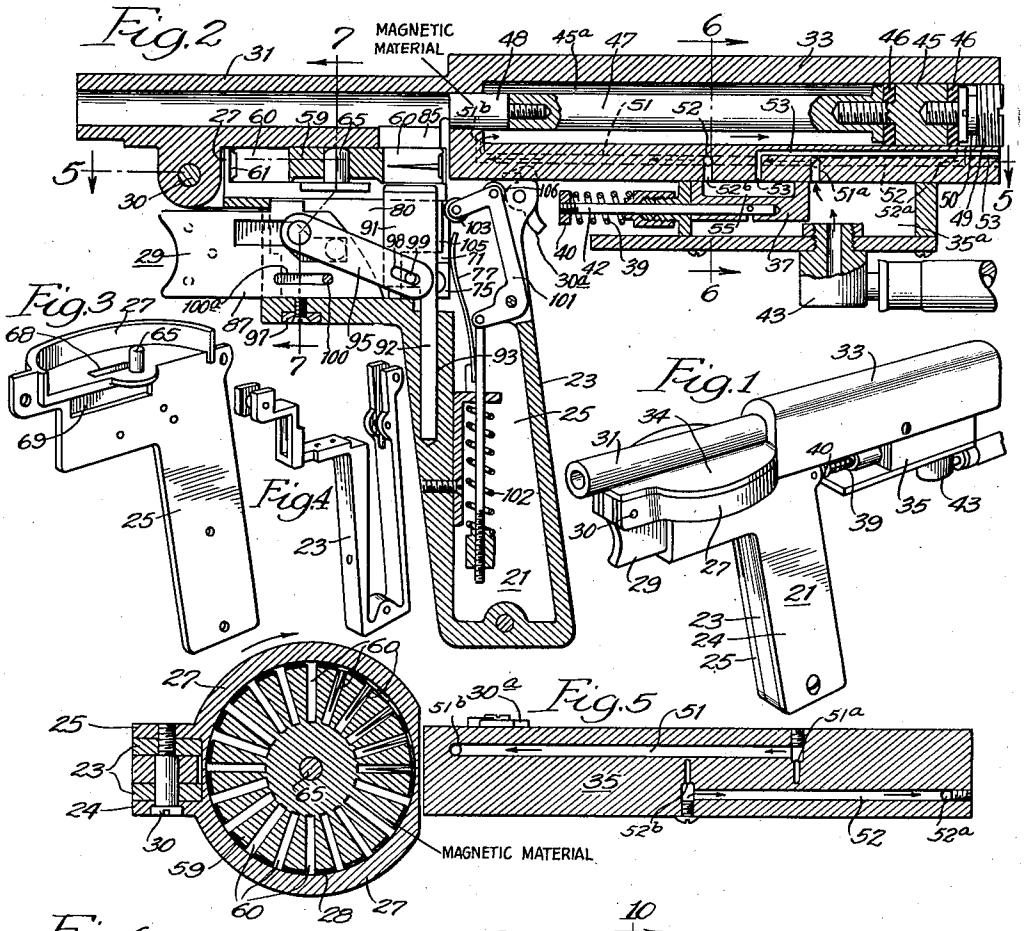
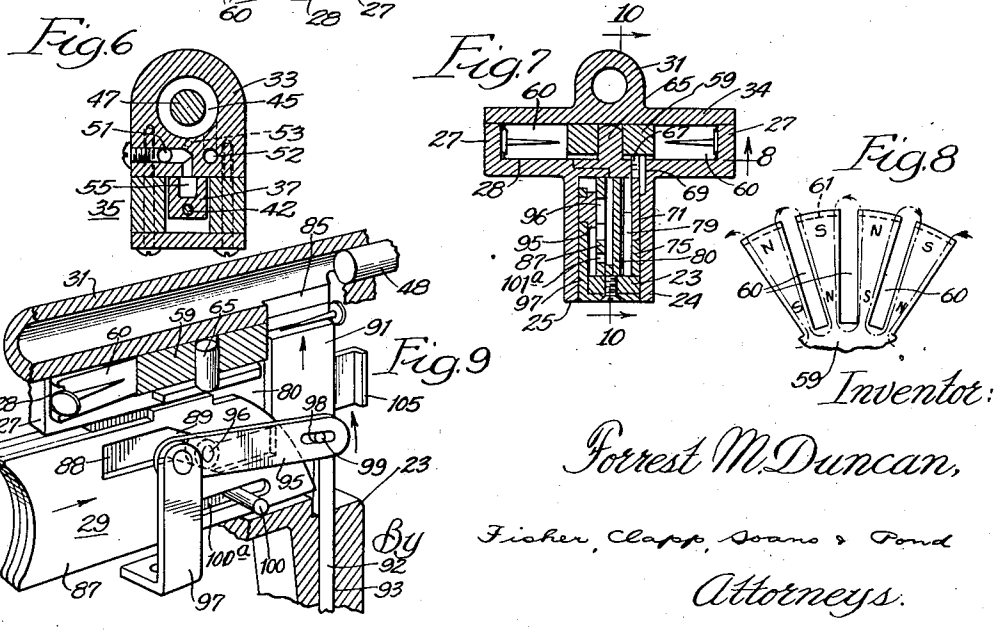
Oct. 29, 1940. F. M. DUNCAN 2,219,739

PNEUMATIC HAMMER

Filed Aug. 30, 1937 2 Sheets-Sheet 1





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PNEUMATIC HAMMER

Filed Aug. 30, 1937 2 Sheets-Sheet 2

Fig. 10

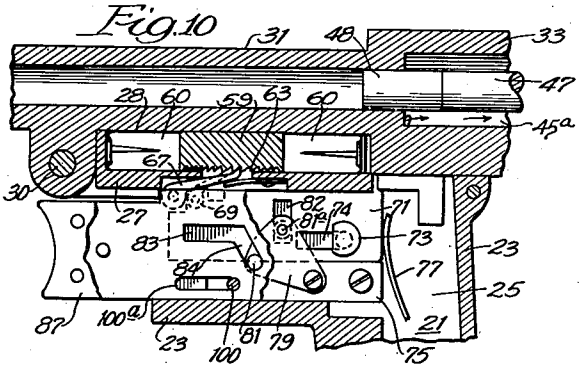


Fig. 12

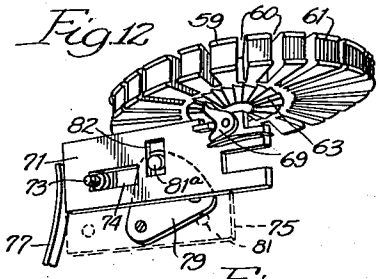


Fig. 13

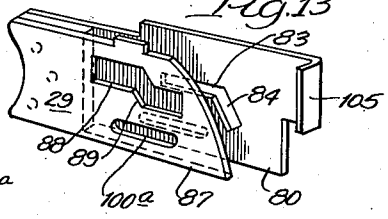


Fig. 11

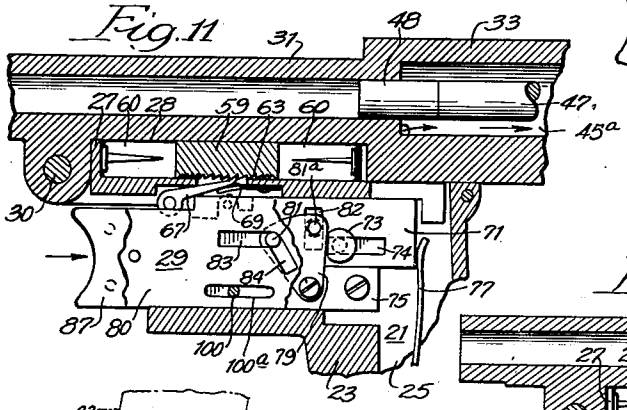


Fig. 14

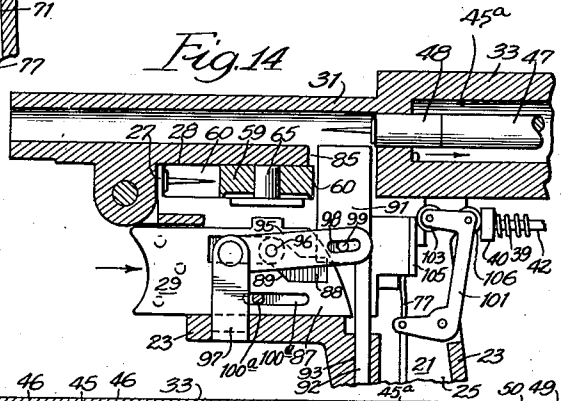


Fig. 15

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Patented Oct. 29, 1940 2,219,739

UNITED STATES PATENT OFFICE

2,219,739

PNEUMATIC HAMMER

Forrest M. Duncan, Chicago, Ill.

Application August 30, 1937, Serial No. 161,537

10 Claims. (Cl. 1—46.1)

My invention relates generally to automatic mechanisms for driving tacks, nails, brads or the like, and has particular relation to portable devices of this type.

In the upholstering and similar arts, there has long been a great need for automatic tack or nail driving equipment provided with means whereby a plurality of tacks or nails might be driven in succession, i. e. for an automatic tack or nail driving mechanism of a repeating type, and the principal object of the present invention is to provide such a device.

Other objects of my invention are to provide a simple, automatic, easily operated tack or nail driving mechanism of the repeating type which shall embody a magazine of novel construction which is easily and quickly removable from the mechanism when empty to permit the substitution therefor of a new magazine; and to provide automatic, repeating type tack or nail driving mechanism which shall be capable of imparting as many repeated blows to any particular tack or nail being driven as the operator may desire without in any way interfering with the automatic and successive feeding of subsequent tacks during the normal operation of the device. Additional objects and advantages of my invention will be made apparent by reference to the accompanying drawings and the following description of one preferred embodiment thereof.

In the drawings—

Figure 1 is a perspective view of an automatic tack driving mechanism of a repeating type embodying the features of the present invention;

Figure 2 is an axial, enlarged sectional view of the mechanism illustrated generally in Figure 1;

Figures 3 and 4 are perspective views illustrating the structural features of certain elements of the grip frame constituting a part of the mechanism illustrated in Figures 1 and 2;

Figure 5 is a sectional view on the line 5—5 of Figure 1 illustrating certain of the features of the magazine and the driving hammer forming a part of the mechanism of my invention;

Figures 6 and 7 are sectional views on the lines 6—6 and 7—7, respectively, of Figure 2;

Figure 8 is a fragmentary view illustrating the magnetization of the magazine used in conjunction with the mechanism of my invention;

Figure 9 is a fragmentary perspective view of the injector forming a part of the mechanism of my invention;

Figure 10 is a fragmentary view, partly in section, showing the relative position of the several elements constituting the indexing mechanism for the magazine in normal or rest position;

Figure 11 is a fragmentary view similar to Figure 6 illustrating the relative position of the several elements of the indexing mechanism at the conclusion of an indexing operation;

Figure 12 is a perspective view of the pawl operating slide constituting a part of the indexing mechanism and the magazine;

Figure 13 is a perspective view of the trigger element;

Figure 14 is a fragmentary view similar to Figures 6 and 7, illustrating the position of the various elements of the mechanism, just prior to the operation of the driving hammer; and

Figure 15 is a fragmentary view illustrating the position of the various movable elements of the mechanism as a whole, following the operation of the driving hammer.

The mechanism illustrated in the drawings is particularly adapted for driving carpet tacks or upholstery tacks. It will be understood, however, that a similarly arranged structure can be used for driving nails, brads, or the like. Hence, when the word tack is used herein, it should be understood to include broadly tacks, nails, brads and the like.

Referring to the drawings, the device illustrated therein includes a hammer or driving means which is pneumatically operated, a magazine for holding a supply of tacks, and operating mechanism for effecting and controlling the operation of the various elements of the device. The operating mechanism includes mechanism for indexing the magazine so as to permit each of the tacks contained therein to be moved successively into operative relation with the tack driving means, and valve means actuable to control the operation of the driving hammer in such manner that single or multiple blows may be struck during the driving of any particular tack.

More specifically, the device includes a metallic frame 21 which for convenience has the general form of a pistol grip. The frame 21 comprises a hollow inner section 23 sandwiched between two outer plate members 24 and 25, the upper ends of which are provided with arcuate shaped housing portions 27 (Figures 1 and 3) which in the assembled device define the walls of a magazine chamber 28. The indexing and valve mechanism for controlling the operation of the hammer are contained within the hollow grip frame 21 and are adapted to be operated by a slidable trigger member 29 as will be described in more detail in a subsequent paragraph.

The hammer or driving mechanism constitutes a unitary structure pivotally connected to the grip frame 21 by a suitable pin 30 Figure 5 and normally held in the position illustrated in Figures 2 and 15 by a releasable latch 30a. The hammer mechanism includes a barrel 31 integrally attached to a piston cylinder 33. A circular plate member 34 (Figures 1 and 7) disposed beneath the barrel 31 serves to close the top of the magazine chamber 28 when the mechanism is in operative position.

A slide valve 35 (see Figure 2) of conventional design is rigidly attached to the bottom of the piston cylinder 33 by suitable means such as screws. The slidable element 37 of the valve 35 is biased to the normal position thereof by means of a compression spring 39, one end of which abuts against the head 40 of the valve operating member 42. A swivel type air hose connection 43 is located on the lower side of slide valve 35 for connecting the driving mechanism to a source of pressure air.

A suitably proportioned cylindrical piston 45 is arranged for movement within the piston cylinder 33. If desired, this piston 45 may be fitted with leather sealing washers 46 or the like for engaging the walls of the piston chamber. The hammer proper (47) constitutes a cylindrical rod affixed at one end to the piston 45 and adapted to move within the barrel 31. The outer end section 48 of the hammer 47 is formed of magnetic material and is magnetized in order to aid in holding the tacks or nails in proper position during operation of the mechanism. The rear end of the piston chamber 33 is closed by a suitable plug 49, and if desired a resilient bumper indicated at 50 may be provided for minimizing shocks during the return of the hammer and piston at the conclusion of each stroke.

A complete operation of the apparatus of the present invention is effected by moving the trigger or operating member 29 from the normal or outer extreme position of that member illustrated in Figures 2 and 10 to an inner extreme position illustrated in Figure 15. There are two important intermediate positions of the trigger or operating member 29. Movement of the trigger 29 from the outer extreme position (Figures 2 and 10) to the first intermediate position which is illustrated in Figure 11 operates the indexing mechanism; movement of the trigger from the first intermediate position (Figure 11) to the second intermediate position which is illustrated in Figure 14 effects the operation of the tack feeding mechanism; and movement of the trigger from the second intermediate position (Figure 14) to the extreme inner position (Figure 15) effects the operation of the tack driving mechanism.

Suitable inlet-outlet passageways 51 and 52, connecting passageways 51a, 51b, 52a and 52b, and a vent passageway 53 (Figures 2 and 15) cooperate with the movable element 37 of the slide valve 35 to assure proper movement of the piston 45 and hammer 47 in response to movement of the trigger 29 and the valve operating member 42. When all of the elements of the mechanism are in the normal position illustrated in Figure 2, the piston 45 and hammer 47 are held in a retracted position by pressure air which is admitted to the inner (left hand) end of the piston chamber 45a, the air passing from the supply line through the valve chamber 35a, through the short passageway 51a into the passageway 51, and thence through the short passageway 51a to the inner end of the piston chamber 45a. The outer (right hand) end of the piston chamber 45a is vented to the atmosphere through the short passageway 52a, the passageway 52, the short passageway 52b the chamber formed by the recess 55 in the inner portion of the slide element 37, and the vent passageway 53.

Movement of the trigger member from the second intermediate position of Figure 14 to the extreme inner position of Figure 15 effects movement of the slide valve from the position of Figure 2 to the position of Figure 15. In the Figure 15 position, pressure air passes from the supply line through the valve chamber 35a, through the short passageway 52b, the passageway 52 and the short passageway 52a into the outer (right hand) end of the piston chamber 45. Simultaneously, the inner (left hand) end of the piston chamber 45a is vented to the atmosphere through the short passageway 51b, the passageway 51, the short passageway 51a, the chamber formed by the recess 55 in the slide element 37, and the vent passageway 53. As a result, the piston 45 and hammer 47 are moved forward by the pressure air at high velocity, carrying the tack previously introduced into the barrel on the end of the hammer. If desired, glands or other seals may be provided about the hammer 47 to minimize air leakage.

To restore the hammer 47 to the retracted or driving position, the trigger member is moved from the extreme inner position of Figure 15 to the second intermediate position of Figure 14. The effect of this movement is twofold: Pressure air is cut off from the inner end of the piston chamber 45a and the inner end of the piston chamber is simultaneously vented to the atmosphere through the short passageway 52a, the passageway 52, the short passageway 52b, the chamber formed by the recess 55 in the inner portion of the slide element 37, and the vent passageway 53. At the same time, pressure air is conducted from the supply line through the valve chamber 35a to the inner end of the piston chamber 45a through the short passageway 51a, the passageway 51, and the short passageway 51b. The net effect of this operation is to cause the retraction of the piston 45 and the hammer 47 connected thereto, and if desired, repeated blows may be struck by the hammer 47 by moving the trigger member 29 between the second intermediate position and the inner extreme position. Each movement of the trigger from the second intermediate position to the inner extreme position will cause the hammer 47 to move forward and produce a driving blow, and each movement of the trigger member from the inner extreme position to the second intermediate position will retract the hammer and render the mechanism in condition to deliver another driving blow if desired. The only way that a tack can be fed into the mechanism is to fully release the trigger to the extreme outer position and then move the trigger from the extreme outer position to the second intermediate position.

The tack or nail supply is carried in a circular, plate-like magazine 59 provided with a plurality of radial slots 60, as illustrated particularly in Figures 5 and 12. The magazine 59 is preferably made of mild steel or other magnetic material and is magnetized so that alternate spokes are of different polarity as indicated in Figure 8. This magnetizing of the spokes serves to hold the tacks in place during the handling of the magazine and during the operation of the injecting and hammer mechanism. It is desirable to provide a peripheral groove 61 at the edge of the magazine 59 in order that the tacks held in the

magazine will not become displaced. The central portion of the under side of the magazine 59 is provided with a plurality of radial teeth 63 for cooperating with the indexing mechanism, and with a centrally disposed hole for engaging a pin 65 integral with the inner section 25 of the grip frame. During the operation of the device, the magazine 59 rotates on this pin 65 in response to the operation of the indexing mechanism. When all of the tacks carried by a magazine have been driven, the empty magazine can be easily removed and a filled magazine substituted therefor merely by releasing the latch 30a and moving the unitary driving mechanism to the position illustrated by dot and dash lines in Figure 15, this movement serving to "break" the entire mechanism similarly to a repeating pistol.

The indexing mechanism is illustrated particularly in Figures 7, 10, 11, 12 and 13, and includes a stationary pawl 67 for preventing reverse movement of the magazine during the indexing operation. The stationary pawl 67 is mounted upon the grip frame directly beneath the magazine chamber 28, and the outer end thereof projects through an opening 68 (Figure 3) in the frame section 25. The pawl 67 is spring biased into engagement with the radial teeth 63 on the underside of the magazine 59. The indexing mechanism also includes an operating pawl 69 which is mounted on a slide member 71 as is shown in Figures 7, 10, and 12, the slide member 71 being supported for slidable movement upon the rear section 25 of the grip frame by means of a pin 73 which engages a slot 74 formed in the member 71 and a small removable guide plate 75. The slide member 71 which carries the operating pawl 69 is biased to the normal position by means of a flat spring 77. Movement of the slide member 71 and the operating pawl 69 in response to movement of the trigger member 29 is effected by a triangularly shaped crank 79 pivotally supported upon the guide plate 75. The crank member 79 is provided with a pair of projecting roller members 81 one of which engages a vertical slot 82 in the slide member 71, and the other of which engages a slot 83 having a cam portion 84 in the inner plate section 80 of the trigger member.

It will be apparent by reference to the drawings that when the trigger member 29 is moved from the normal position shown in Figure 10 (and Figure 2) to the position shown in Figure 11 the triangularly shaped crank 79 will be rotated clockwise (Figure 10) about 30° due to the engagement of the cam portion 84 of the slot 83 with the outwardly projecting rollers 81. This movement of the crank member 79 will be transmitted to the plate support 71 for the movable pawl 69 by means of the other roller 81a which engages the vertical slot 82 in that member. The proportions of the slots are so arranged that each movement of the trigger 29 from the outer extreme position of Figure 10 to the first intermediate position of Figure 11 will rotate the magazine 59 the correct distance to bring each of the radial slots 60 therein into successive alignment with the axis of the barrel. In this position each tack carried by the magazine 59 is brought into alignment with a T-shaped opening 85 which extends through the plate 34 into the barrel 31. The operating pawl 69 is resiliently biased into engagement with the magazine teeth 63 in order that the pawl support plate 71 may retract from the indexing position to the normal position following each indexing operation without interference between the pawl and the magazine teeth.

The trigger 29 includes, in addition to the inner plate section 80 having the cam slot 84 for operating the indexing mechanism, an outer plate section 87 provided with a slot opening 88 having a cam surface 89 for actuating the feed or injector mechanism for the tacks. This mechanism, as is illustrated particularly in Figures 9, 14, and 15, includes a thin, generally rectangularly shaped injector member 91 of non-magnetic material having an elongated end section 92 adapted to engage a guide slot 93 formed in the central element 23 of the grip frame. Normally the injector member 91 is in the position shown in Figure 2 and, by virtue of the fact that the injector cam 89 is spaced some distance in the rear of the indexing cam 74, the injector member 91 remains in this position during the indexing operation.

At the conclusion of the indexing operation, however, that is, at the point illustrated in Figure 11, further inward movement of the trigger 29 will be effective to raise the injector member 91, this movement of the injector member 91 being accomplished by a link 95 provided with a roller 96 for engaging the slot 88 and the cam 89. The link member 95 is pivotally supported at one of its ends upon an upstanding support 97 affixed to the grip frame, and at the other of its ends is provided with a slot 98 adapted to engage a pin 99 integrally attached to the injector member 91. Thus, movement of the trigger 29 from the first intermediate position illustrated in Figure 11 to the second intermediate position illustrated in Figure 14 serves to raise the injector member 91 through one of the radial slots 60 of the magazine 59 and to move the nail or tack located in that slot through the T-shaped passageway 85 into the barrel 31 of the hammer mechanism. The head section 48 of the hammer 47, as mentioned previously, is magnetized to a very considerable degree, and by virtue of the resultant attraction, the head of the tack is drawn into position against the head of the hammer automatically as an incident to the upward movement of the injector 91. The proportions of the cam 89 and the cooperating elements are such that at the uppermost limit of its movement the injector 91 does not project into the barrel 31 of the hammer mechanism.

In view of the fact that the slots 83 and 88 in both sections of the trigger 29 are horizontal at their inner ends, the indexing mechanism and the injector mechanism are held in a static position when the trigger 29 is moved from the second intermediate position illustrated in Figure 14 to the extreme inner position illustrated in Figure 15. This movement of the trigger 29 from the second intermediate position to the extreme inner position is availed of for actuating the valve mechanism and permits repeated blows to be struck during the driving of any particular tack without in any way interfering with the successive feeding of the next tack. The trigger 29 is guided and the limits of its movement are established by pins 100 projecting inwardly from the side sections 24 and 25 of the grip frame to engage slots 100a formed in the side sections 80 and 87.

The operating means for the valve mechanism includes a double ended, bell crank lever 101 pivotally mounted on the central element 23 of the grip frame and biased to the position shown

in Figure 2 by a suitable spring 102. The upper end of the bell crank lever is provided with a roller 103 adapted to abut against a flat surface 105 formed at the end of the inner section 80 of the trigger 29 whereby movement of the trigger serves to rotate the bell crank valve operating lever 101. The inner end of the valve operating lever 101 is also provided with a roller member 106 which is adapted to abut against the head 40 of the valve operating member as illustrated in Figures 14 and 15. It will be seen, therefore, that when the trigger is moved from the second intermediate position shown in Figure 14 to the extreme inner position shown in Figure 15, the slide valve 35 will be operated to admit pressure air to the outer end of the piston chamber and move the hammer 47 through the barrel 31 carrying the tack with it. Ordinarily, one blow will suffice to drive a tack but, if necessary, as many repeated blows as may be desired can be given by releasing the trigger 29 to the position shown in Figure 14 and returning it to the fully retracted position, i. e. the position shown in Figure 15. When the trigger has been completely released, i. e. returned to the position of Figure 2, the device is in operative position to drive another tack.

The operational cycle of the device of my invention may be briefly summarized as follows: Initial movement of the trigger 29 from the normal or outer extreme position illustrated in Figures 2 and 10 to the first intermediate position illustrated in Figure 11 will actuate the indexing mechanism to cause rotation of the magazine 59 in a clockwise direction (Figure 5) to align the next succeeding magazine slot 60 with the axis of the barrel 31, i. e. to a position where the tack located in that slot aligns with the T-shaped opening 85 extending into the barrel. Further movement of the trigger 29 from the first intermediate position of Figure 11 to the second intermediate position of Figure 14 effects the actuation of the injector mechanism, and the injector 91 pushes the adjacent overlying tack into the barrel chamber; the magnetic attraction of the head portion 48 of the hammer 47 acts upon the tack as it is moved out of the magazine slot and draws the tack into driving position at the head end of the hammer. Additional movement of the trigger from the second intermediate position of Figure 14 to the inner extreme position of Figure 15 actuates the valve mechanism 35 and causes the hammer 47 to move from the retracted position of Figure 2 to the extended or driving position of Figure 15 with a blow action, thereby driving the tack held on its head portion 48.

Complete release of the trigger 29 will restore the device to its normal condition, and to drive a subsequent tack it is necessary merely to pull the trigger from the outer extreme position of Figure 2 to the inner extreme position of Figure 15 which will effect a repetition of the sequence of operations described above.

Ordinarily one blow of the hammer 47 will drive the tack, but if the initial blow is insufficient, as many additional blows as may be required may be struck in sequence without interfering with the normal successive feeding of tacks by simply releasing the trigger 29 so as to permit it to move from the inner extreme position (Figure 15) to the second intermediate position (Figure 14), whereupon the hammer will be retracted without movement of the indexing or injector mechanisms, and then restoring the trigger 29 to the inner extreme position of Figure 15, which will effect reoperation of the hammer. The device inherently includes positive indicating means whereby the operator may readily determine just how far the trigger 29 should be released if further hammer blows are desired in the driving of any particular tack. There are three of these indicating means: One, the operator can readily feel the retraction of the hammer 47 and stop forward movement of the trigger at the point where retraction occurs, i. e. at the second intermediate position; two, the operator can stop the forward release of the trigger 29 when he hears the sound of the escape of the air used on the driving stroke; and three, which is the most important of all, the substantial biasing force of the spring 39 is released from the trigger 29 at the second intermediate position, the point where the hammer is retracted without movement of the indexing or injector mechanism, thereby making it necessary for the operator to consciously decrease the retarding force of his finger at this point in order to fully release the trigger 29. The effect is to cause the release of the trigger 29 to take place in definite steps.

It will be apparent from the foregoing that the device of my invention constitutes an easily operated means for automatically driving any number of tacks, nails or the like, in succession. The position in which the tacks or nails are driven may be very accurately controlled by merely placing the barrel of the device over the point where it is desired to drive the tack. The device is extremely flexible in operation in that it permits re-insertion of magazines simply by pressing the release latch 30a to open the magazine chamber 28, and it permits repeated blows to be given to any particular tack or nail without interfering with the normal automatic feed of the device.

The improved operation of my mechanism is believed to be in part due to the novel magnetic magazine which I have evolved, and the structural features of the indexing and injecting mechanism. It will be evident that the principles which I have disclosed in the foregoing may be embodied into mechanisms of various types, and it is my desire, therefore, that the accompanying claims shall be accorded the broadest possible construction consistent with the state of the art.

I claim the following as my invention:

1. In apparatus of the class described, hammer means operable to deliver a driving blow to a tack, a magazine for supporting a plurality of tacks, a trigger member movable between two extreme positions, means actuable in response to movement of said trigger from one of said extreme positions to an intermediate position to index said magazine, means operable in response to further movement of said trigger from said first intermediate position to a second intermediate position to move individual tacks successively from said magazine into operative relation with said hammer means, and means actuable in response to movement of said trigger member from said second intermediate position to the other extreme position to operate said hammer means to deliver a driving blow to the tack which is in operative relation therewith, said last mentioned means being actuable to cause repeated blows to be delivered to said tack in response to repeated movement of said trigger member between said second intermediate position and said other extreme position.

2. A magazine for use in conjunction with ap-

paratus of the class described, comprising a generally circular plate member of magnetic material provided with a plurality of radial slots for receiving the shanks of tacks and with a peripheral groove for receiving the heads of such tacks or nails.

3. A magazine for apparatus of the class described, comprising a generally circular plate member of magnetic material provided with a plurality of radial slots for receiving the shanks of tacks or nails, said slots defining spokes which are magnetized in such manner that the outer ends of adjacent spokes are of opposite polarity.

4. In apparatus of the class described, tack driving means which is operable to deliver a driving blow to a tack and which includes a hammer member having a magnetized head, a magnetized magazine which comprises a generally circular plate of magnetic material provided with a plurality of radial slots for receiving the shanks of a plurality of tacks releasably held therein by magnetic attraction, an operating member, tack feeding means actuable in response to movement of said operating member to forcibly propel one of said tacks out of said magazine and toward said magnetized head, said magazine being so positioned relative to said magnetized head that the magnetic forces exerted by the magnetic fields of both said magazine and said head act simultaneously on each tack so propelled whereby each such tack is guided along a predetermined path into driving position on said magnetized head, and means also operable in response to movement of said actuating member to operate said hammer to deliver a driving blow.

5. In apparatus of the class described, hammer means operable to deliver a driving blow to a tack, a magazine for supporting a plurality of tacks, a trigger member movable between an outer and an inner extreme position, means actuable in response to movement of said trigger member from the outer extreme position to a first intermediate position to index said magazine, injector means operable in response to further movement of said trigger member from said first intermediate position to a second intermediate position to move individual tacks successively from said magazine into operative relation with said hammer means, means actuable in response to movement of said trigger member from said second intermediate position to said inner extreme position to operate said hammer means to deliver a driving blow, said hammer operating means after delivering a driving blow as aforesaid being restored to its normal operative condition by movement of said trigger member from said inner extreme position to said second intermediate position, and biasing means opposing movement of said trigger member from said outer extreme position to said intermediate positions and to said inner extreme position, said biasing means being automatically actuable to materially decrease the biasing action on said trigger member when said trigger member is moved from said inner extreme position to said second intermediate position whereby said trigger member may be moved between said second intermediate position and said inner extreme position to cause repeated blows to be delivered by said hammer means to said tack without operation of said indexing means or said tack injecting means.

6. In apparatus of the class described, hammer means operable to deliver a driving blow to a tack, a tack magazine, a trigger member movable between an outer and an inner extreme position, tack feeding means actuable in response to movement of said trigger member from the outer extreme position to an intermediate position to move individual tacks successively from said magazine into operative relation with said hammer means, means actuable in response to movement of said trigger member from said intermediate position to said inner extreme position to operate said hammer means to deliver a driving blow, said hammer operating means after delivering a driving blow as aforesaid being restored to its normal operative condition by movement of said trigger member from said inner extreme position to said intermediate position, biasing means opposing movement of said trigger member from said outer extreme position to said intermediate position and to said inner extreme position, said biasing means being automatically actuable to materially decrease the biasing action on said trigger member when said trigger member is moved from said inner extreme position to said intermediate position, whereby said trigger member may be moved between said intermediate position and said inner extreme position to cause repeated blows to be delivered by said hammer means without operation of said tack feeding means.

7. In apparatus of the class described, tack driving means which is operable to deliver a driving blow to a tack and which includes a hammer member having a magetized head, a magnetized magazine for releasably holding a plurality of tacks in predetermined feeding position by virtue of magnetic attraction, an operating member, tack feeding means actuable in response to movement of said operating member to forcibly propel one of said tacks out of said magazine and toward said magnetized head, said magazine being so positioned relative to said magnetized head that the magnetic forces exerted by the magnetic fields of said magazine and said head act simultaneously on each tack so propelled whereby each such tack is guided along a predetermined path into driving position on said magnetized head, and means also operable in response to movement of said operating member to operate said hammer to deliver a driving blow.

8. In apparatus of the class described, tack driving means which is operable to deliver a driving blow to a tack and which includes a hammer member having a magnetized head, a magnetized magazine which releasably holds a plurality of tacks by magnetic attraction, an operating member movable between an outer and an inner extreme position, tack feeding means actuable in response to movement of said operating member from said outer extreme position to an intermediate position to forcibly propel one of said tacks out of said magazine and toward said magnetized head, said magazine being so positioned relative to said magnetized head that the magnetic forces exerted by the magnetic fields of both said magazine and said head act simultaneously on each tack so propelled, whereby each such tack is guided along a predetermined path into driving position on said magnetized head, means actuable in response to movement of said operating member from said intermediate position to said inner extreme position to operate said tack driving means to deliver a driving blow, said tack driving means after delivering a driving blow as aforesaid being restored to its normal operative condition by movement of said operating member from said inner extreme position to said intermediate position, biasing means opposing movement of said trigger

member from said outer extreme position to said intermediate position and to the inner extreme position, said biasing means being automatically actuable to materially decrease the biasing action on said operating member when that member is moved from said inner extreme position to said intermediate position whereby said operating member can be moved between said intermediate position and said inner extreme position to cause repeated blows to be delivered by said tack driving means without operation of said tack feeding means.

9. In apparatus of the class described, hammer means operable to deliver a driving blow to a tack, a magazine for supporting a plurality of tacks, a trigger or operating member movable between an outer and an inner extreme position, tack feeding means actuable in response to movement of said trigger member from the outer extreme position to an intermediate position to move individual tacks successively from said magazine into operative relation with said hammer means, and means actuable in response to movement of said trigger member from said intermediate position to said inner extreme position to operate said hammer means to deliver a driving blow, said hammer operating means after delivering a driving blow as aforesaid being restored to its normal operative position by movement of said trigger member from said inner extreme position to said intermediate position, whereby repeated blows may be delivered to each tack by repeating the movement of said trigger member between said intermediate position and said inner extreme position.

10. A magazine for use in conjunction with apparatus of the class described, comprising a generally circular plate member of magnetic material provided with a plurality of radial slots for receiving the shanks of tacks or nails, said slots defining spokes which are magnetized.

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