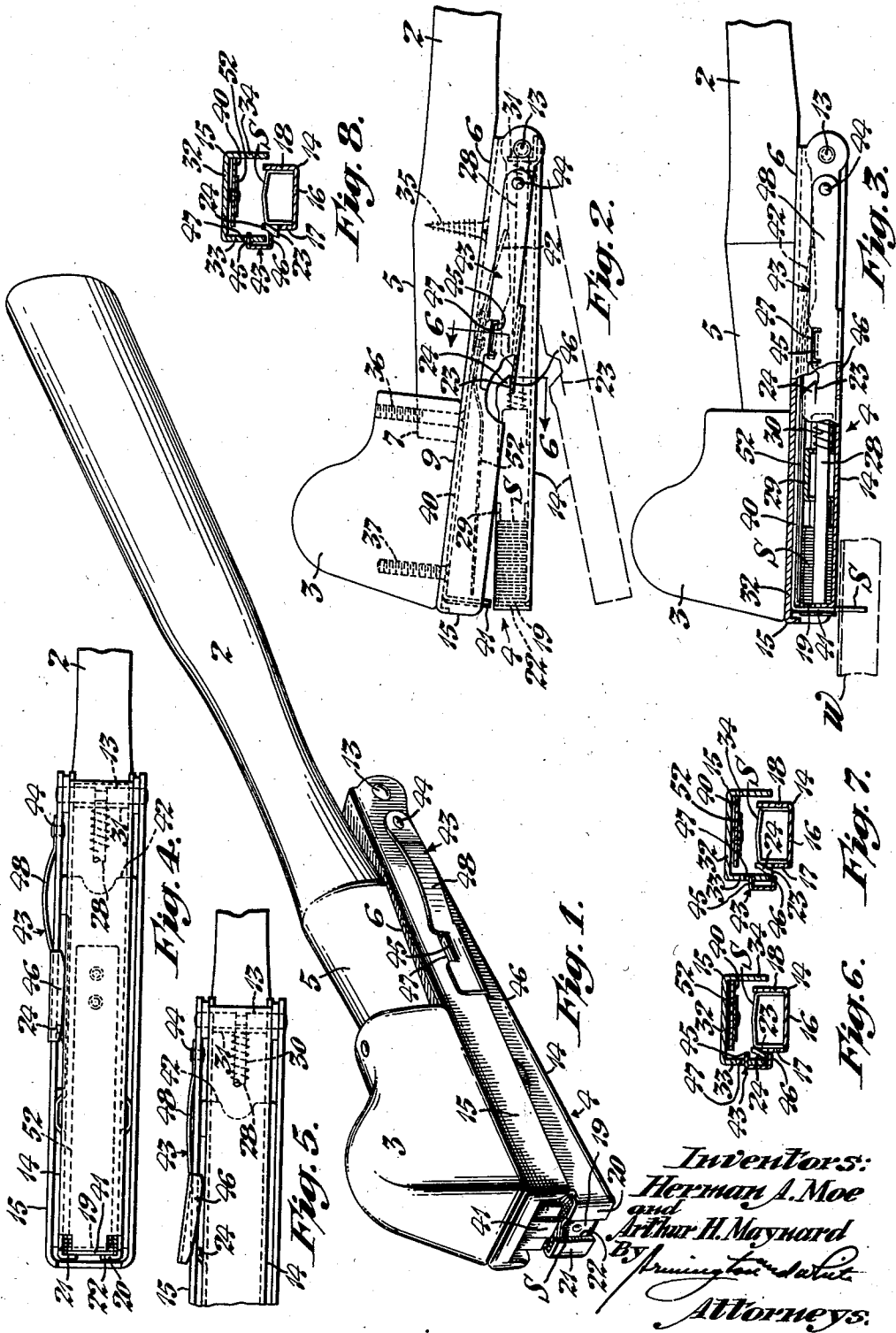


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FASTENER APPLYING IMPLEMENT
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FASTENER-APPLYING IMPLEMENT

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The present invention relates to improvements in fastener-applying implements and more particularly to a hammer-tacker for attaching labels, tags and the like to shipping cases, fastening upholstery to furniture, attaching roofing and siding to buildings, and for other purposes.

One object of the present invention is to provide a hammer-tacker of the type indicated comprising unitary fastener-applying means mounted at one end of a handle.

Another object is to provide a hammer-tacker of the type indicated having a magazine-arm for containing fasteners and fastener-applying means relatively movable toward each other to drive the fasteners into the work, and away from each other to open the magazine-arm to receive a supply of fasteners.

Another object is to provide a fastener-applying implement of the type indicated having improved latching means for limiting the relative movement of the magazine arm and fastener-applying means to maintain them in operative relationship.

Another object is to provide a fastener-applying implement of the type indicated in which the magazine-arm and fastener-applying means may be released from the limiting means by lateral pressure applied to the latching means.

Another object is to provide a fastener-applying implement of the type indicated having a resilient element adapted to bear against the fasteners to prevent upward movement thereof in the magazine when the magazine-arm and fastener-applying means are moved toward each other.

Still another object is to provide a hammer-tacker of the type indicated which is of extremely simple and compact construction to adapt it for economical manufacture.

Further objects of the invention are set forth in the following specification which describes a preferred form of construction of the implement, by way of example, as illustrated by the accompanying drawing. In the drawing:

Fig. 1 is a perspective view of a hammer-tacker incorporating the novel features of the present invention;

Fig. 2 is a side elevational view of the forepart of the implement showing the fastener-applying means rigidly attached to the forward end of the handle and illustrating the magazine-arm in dash lines as moved away from the fastener-applying means;

Fig. 3 is a view similar to Fig. 2 showing the magazine-arm as moved toward the fastener-applying means to drive a fastener into the work;

Fig. 4 is a bottom plan view of the fastener-applying unit showing the flange of the latching-member underlying the detent-shoulder on the magazine-arm;

Fig. 5 is a view similar to Fig. 4 showing the flange of the latching-member as rocked outwardly by lateral pressure applied to its bowed portion to release the detent-shoulder on the magazine-arm;

Fig. 6 is a transverse sectional view on line 6—6 of Fig. 2 showing the U-shape of the latching-member at one end and illustrating its lower flange in latching engagement with the detent-shoulder on the magazine-arm;

Fig. 7 is a view similar to Fig. 6 showing the flange of the latching-member moved laterally out of engagement with the detent-shoulder on the magazine-arm to release the latter for movement away from the fastener-applying means; and

Fig. 8 is a view similar to Fig. 7 showing the inclination of the latching detent on the magazine-arm to adapt the flange of the latching-member to pass thereby during the relative swinging movement of the magazine-arm and fastener-applying means toward each other.

Hammer-type fastener-applying implements are generally used and commonly known in the art as hammer-tackers. Such hammer-tackers are swung in the manner of an ordinary hammer and are operated by the impact of a movable part of the implement with the work to drive a fastener thereinto.

In accordance with the present invention a hammer-tacker is provided comprising unitary self-contained fastener-applying means mounted at the end of a suitable handle. The fastener-applying unit may be of the type embodying a channel-shaped magazine-arm for containing a supply of fasteners and a fastener-driver carried by a member mounted for movement toward the magazine-arm to drive the fasteners therefrom, with said parts movable away from each other to adapt the magazine to receive a supply of fasteners through its open top. The driver-carrying member is rigidly attached to the end of the handle which is preferably weighted whereby the impact of the end of the magazine-arm against the work will cause relative movement between the magazine-arm and the driver to drive a fastener into the work. Latching means of improved form are provided on the magazine-arm and driver-carrying member to limit their relative swinging movement apart from each other. The latching means are adapted to be released to permit the magazine-arm to be swung away from the driver-carrying member to open it for receiving a supply of fasteners. Another feature of the invention is the provision of a resilient member adapted to engage against the fasteners in the magazine-arm when the latter is moved toward the driver-carrying member to hold the fasteners against upward movement in

the magazine-arm during a fastener-driving operation.

Fig. 1 of the drawing illustrates the implement as comprising a handle 2, a weight 3 at one end of the handle and unitary fastener-applying means 4 attached to the under side of the handle and weight. The handle 2 may be of any suitable form and construction, but preferably is of wood and of a shape generally similar to the handle of a claw-hammer. As illustrated in the present drawing, the forward end 5 of the handle 2 is generally tapered and has a flat side 6 at the bottom thereof. The tapered end 5 of the handle 2 projects into a recess 7 at the rearward end of the weight 3 and is secured thereto by suitable means. The weight 3 may be of any suitable shape but, as herein illustrated, it is in the form of a rounded knob having a flat bottom 9 in alinement with the flat side 6 of the tapered end 5 of the handle 2.

The fastener-applying means and magazine are generally similar to those illustrated and described in the copending application for United States Letters Patent of Arthur H. Maynard, Serial No. 245,105, filed December 12, 1938. They may comprise a magazine-arm 14 and a driver-carrying member 15 pivotally connected at their rearward ends by a cross-pin 13. The magazine-arm 14 is of channel-shape, see Figs. 6 and 7, having a bottom wall 16 and upstanding side walls 17 and 18. The forward end of the bottom wall 16 is folded upwardly to provide a shear-plate 19 and the forward ends 20 and 21 of the side walls 17 and 18 are folded laterally inward in spaced relation to the shear-plate to form a throat 22 therebetween, see Figs. 1 and 4. The fasteners, which may be in the form of U-shaped staples S, are supported in the magazine-arm 14 by the direct engagement of the ends of their legs with its bottom wall 16 and are held against lateral movement by the engagement of the legs with the side walls 17 and 18.

Projecting laterally from the side wall 17 of the magazine-arm 14 is a latching-shoulder 23, preferably formed by the bottom edge of a finger or lug 24 struck outwardly from the metal of the arm and gradually inclined from the plane of the side wall to the shoulder, see Figs. 6 to 8. A bracing strut or rod 28 extends longitudinally within the magazine-arm 14 between the shear-plate 19 and pivot-pin 13. Mounted to slide on the rod or strut 28 is a suitable staple-pusher 29 which is adapted to be propelled forwardly by a coil spring 30 encircling the strut and acting between the pusher and a right-angular plate 31 embracing the pivot-pin, see Figs. 2 and 3.

The driver-carrying member 15 is of inverted channel-shape having a top wall 32 and depending side walls 33 and 34. The side walls 33 and 34 are adapted to enclose or telescope over the sides 17 and 18 of the magazine-arm 14 to guide the latter during relative swinging movement of the arm and driver-carrying member.

The top wall 32 of the driver-carrying member 15 underlies the bottom 9 of the weight 3 and the flat side 6 of the forward end 5 of the handle 2, being attached thereto by means of a wood screw 35 extending through said top wall and into the handle and a pair of machine screws 36 and 37 extending through the top wall and into tapped holes in the weight, see Fig. 2. Mounted on the under side of the top wall 32 of the member 15 is a flat sheet-metal strip 40 of resilient material having its forward end bent downwardly at right-angles to provide a driver

41. The opposite end of the strip 40 is constituted as a leaf-spring 42, being generally curved to extend rearwardly along and downwardly from the member 15 with its end engaging the upper edges of the side walls 17 and 18 of the magazine-arm 14 to normally swing said member and the magazine-arm away from each other. The strip 40 is attached to the under side of the wall 32 of the member 15 adjacent its bent driver-portion 41 by means of the machine screw 37 which extends through perforations in the strip, the top wall of the member and into the tapped hole in the weight 3.

In accordance with the present invention a novel form of latching-member 43 is provided on the side wall 33 of the driver-carrying member 15 for cooperation with the latching-shoulder 23 on the magazine-arm 14. The latching-member 43 is in the form of an arcuate leaf-spring having flat portions at its opposite ends and a bowed portion 48 therebetween, see Figs. 4 and 6. The flat portion at the rearward end of the latching-member 43 is attached to the side wall 33 of the member 15 by a rivet 44 or other suitable means while the flat portion at its forward end has upper and lower flanges 45 and 46 folded laterally at right-angles thereto. The upper flange 45 extends into a slot 47 in the side wall 33 of the member 15 while the bottom flange 46 is adapted to underlie the bottom edge of the side wall 33 to adapt its terminal portion to engage the latching-shoulder 23 projecting from the side 17 of the magazine-arm 14. The outer flat portion of the latching-member 43 carrying the flanges 45 and 46 bears against the side 33 of the member 15 and the inner edge of the lower flange is beveled or inclined toward its outer end. Thus, by pressing on the bowed portion 48 of the latching-member 43 to straighten the same its flat end portion having the flanges 45 and 46 will swing laterally outward to the position illustrated in Fig. 5. Outward swinging movement of the terminal portion of the latching-member 43 acts to disengage the flange 46 from the latching-shoulder 23 on the magazine-arm 14 whereby to release the latter for movement away from the driver-carrying member 15 in the manner indicated by dash lines in Fig. 2. Upon swinging movement of the magazine-arm 14 toward the driver-carrying member 15 the outwardly inclined lug 24 will engage the beveled or inclined forward edge of the flange 46 to cam the latching-member outwardly to cause the flange to pass by the latching-shoulder 23, the resiliency of the latching-member thereafter causing its flat portion to be pressed against the side 33 of the member 15 to engage the flange 46 in under the latching-shoulder, see Fig. 8.

Another feature of the present invention consists in the provision of a resilient element 52 on the driver-carrying member 15 which is adapted to bear against the crossbars or heads of the staples S in the magazine-arm 14 during a fastener driving operation. As illustrated in the drawing, the resilient element 52 is in the form of a leaf-spring having its rearward end attached to the leaf-spring 42. The resilient element 52 extends forwardly from the leaf-spring 42 and is offset intermediate its ends to provide a straight portion positioned to overlie the staples S in the magazine-arm 14. The resilient element 52 is normally spaced from the fasteners S in the magazine-arm 14 when the magazine-arm and driver-carrying member 15 are in open rela-

tionship as illustrated in Fig. 2, but is adapted to bear against the heads of the staples when the magazine-arm is rocked toward the driver-carrying member to the position illustrated in Fig. 3. It will also be noted that due to the mounting of the resilient element 52 adjacent the rearward end of the leaf-spring 42 its forwardly-extending straight portion is moved toward the staples S in the magazine-arm by the flexing of the leaf-spring 42 to progressively increase the pressure applied to the heads of the staples. One form of the invention having been described in detail, its mode of operation is explained as follows.

The implement is held in one hand at the outer end of its handle 2 and its weighted end is swung toward the work W in the manner of an ordinary hammer. Upon engagement of the forward end of the magazine-arm 14 with the work W, indicated in Fig. 3, the momentum of the member 15, augmented by the action of the weight 3, causes it to move toward the magazine-arm 14 and the driver 41 to descend through the throat 22 to drive a staple S into the work. During this relative movement of the magazine-arm 14 and driver-carrying member 15 the forwardly-projecting straight portion of the resilient element 52 engages the heads of the staples S. Furthermore, the flexing of the rearward spring portion 42 of the member 40 tends to rock the resilient element 52 to progressively increase its pressure applied to the heads of the staples S to hold them in alinement in the magazine-arm during the staple driving operation, that is, to prevent them from jumping or rising upwardly under the shock of the blow being struck against the work.

After the staple S has been driven and the momentum of the swung implement is dissipated the leaf-spring 42, acting between the member 15 and the upper edges of the side walls 17 and 18 of the magazine-arm 14 will swing the latter away from the member 15 to the position illustrated in full lines in Fig. 2. The relative movement of the magazine-arm 14 and the driver-carrying member 15 away from each other is limited by the engagement of the latching-shoulder 23 on the magazine-arm with the inwardly extending flange 46 of the latching-member 43. Due to the engagement of the upper flange 45 of the latching-member 43 with the side of the slot 47 in the member 15, any tendency of the latching-member to swing on its pivot under the shock of the blow is opposed. After the driver 41 has moved out of the throat 22 the pusher 29 is advanced by the action of the spring 30 to feed the staples S forwardly in the magazine-arm 14 to position the foremost staple in the throat. The implement may be operated in the manner explained above until the entire supply of staples S in the magazine is exhausted.

To refill the magazine-arm 14 with a supply of staples S the bowed portion 43 of the latching-member 43 is pressed inwardly to cause the flat portion at its outer end to be sprung outwardly in the manner illustrated in Figs. 5 and 7 whereby to disengage its flange 46 from the latching-shoulder 23 on the magazine-arm 14. The magazine-arm 14 may then be swung away from the driver-carrying member 15 as indicated by the dash lines in Fig. 2, the pusher 29 retracted, and a supply of fasteners S, preferably in the form of a self-sustained stick, inserted into the magazine through its open top. The staples S are supported in the magazine-arm 14 by the direct

engagement of the ends of their legs with its bottom wall 16 and the sides of their legs with the side walls 17 and 18 thereof. The magazine-arm 14 is then swung on the pivot-pin 13 toward the driver-carrying member 15, during which movement the inner edge of the flange 46 of the latching-member 43 will engage the outwardly-inclined lug 24 on the side of the magazine-arm to cam the latching-member outwardly, see Fig. 8, to permit its flange 46 to pass by the latching-shoulder 23. After the flange 46 has passed by the latching-shoulder 23 the resiliency of the latching-member 43 will move the flange inwardly to engage it under the latching-shoulder 23. The implement is then in condition to be operated in the manner explained above.

It will be observed from the foregoing specification that the present invention provides a simple and compact implement in the form of a hammer-tacker adapted for use for various kinds of work. It will also be observed that the fastener-applying mechanism is in the form of a self-contained unit attached to the forward end of a handle. It will still further be observed that the present invention provides an improved form of releasable latching means for limiting the relative movement of the magazine-arm and driver-carrying member, and in addition, means for holding the staples against unwarranted movement in the magazine-arm during the operation of the implement.

While a preferred form of implement incorporating the novel features of the present invention is herein described and illustrated, it is to be understood that modifications may be made in the construction and arrangement of the elements of the device without departing from the spirit or scope of the invention. Therefore, without limiting ourselves in this respect, we claim:

1. A device of the type indicated having a handle, and a fastener-applying unit mounted at one end of the handle, said fastener-applying unit comprising a member rigidly attached to the handle and carrying a driver, a magazine-arm pivotally mounted on said member for movement relative thereto upon impact with the work to adapt the driver and magazine-arm to drive the fasteners into the work, and a releasable latch for limiting the relative movement between the member and magazine-arm, said latch being manually operable to release the magazine-arm from the member whereby said arm may be swung away from the member.

2. A device of the type indicated having a handle, a weight at one end of the handle, a member rigidly attached to the weighted end of the handle and mounting a driver, an arm embodying a magazine for fasteners, and means for pivotally connecting the member and magazine-arm for relative movement toward each other to drive the fasteners from the magazine, said weight acting to augment the momentum of the handle to cause relative reciprocation of the driver and arm upon impact of the latter with the work as the implement is swung thereagainst.

3. A device of the type indicated having a handle, a member rigidly attached to one end of the handle and mounting a driver, a channel-shaped magazine-arm pivotally mounted on said member for relative swinging movement of the driver and magazine-arm to drive fasteners into the work, said magazine-arm being adapted to support a supply of fasteners by the direct engagement of the ends of their legs with the bottom wall thereof, and a resilient element carried

by the member and adapted to bear against the fasteners in the magazine-arm when the latter is rocked toward said member.

4. A device of the type indicated having a handle, a member rigidly attached to one end of the handle, a resilient element on the member having one end projecting at right-angles thereto to provide a driver, a channel-shaped magazine-arm pivotally mounted on the member for relative swinging movement with respect to the driver to drive fasteners from the magazine, said free end of the resilient element normally acting to swing the magazine-arm away from said member while permitting movement of the magazine-arm toward the member, and a second resilient element carried by the first-mentioned resilient element and adapted to bear against the fasteners in the magazine-arm when the latter is swung toward the member.

5. A device of the type indicated having a handle, a member rigidly attached to one end of the handle and mounting a driver, a magazine-arm pivotally mounted on the member for relative swinging movement of the driver and magazine-arm to drive fasteners into the work, said magazine-arm having detent-means thereon, a latch on said member adapted to normally engage the detent-means on the magazine to limit the relative swinging movement of the magazine-arm and member, and means for mounting the latch on the member for movement laterally thereof to release it from engagement with the detent-means on the magazine-arm.

6. A device of the type indicated, having a handle, an inverted channel-shaped member rigidly attached to one end of the handle and mounting a driver, a channel-shaped magazine-arm pivotally mounted on the member for relative swinging movement of the driver and magazine-arm to drive fasteners into the work, detent-means projecting from the side of the magazine-arm, said magazine-arm being adapted to support a supply of fasteners by the direct engagement of the ends of their legs with the bottom wall thereof and said magazine-arm normally enclosed within the inverted channel-shaped member, a latch on said member adapted to normally engage the detent-means on the magazine-arm to limit the relative swinging movement of the magazine-arm and member, and means for mounting the latch on the member for movement laterally thereof to release it from engagement with the detent-means on the magazine-arm to adapt the latter to be swung away from the member for receiving a supply of fasteners.

7. In a fastener-applying implement of the type having a magazine-arm and a driver-carrying member connected for relative movement toward each other to drive fasteners and away from each other to open the magazine-arm to receive a supply of fasteners, the combination of detent-means on the magazine-arm, a latch on the member engaging the detent-means on the magazine-arm to limit the relative movement of the magazine-arm and member, and means for mounting the latch on the member for movement in a plane normal to the plane of relative movement between the magazine-arm and member to release the latch from engagement with the detent-means on the magazine-arm.

8. In a fastener-applying implement of the type having a magazine-arm and a driver-carrying member connected for relative movement toward each other to drive fasteners and away

from each other to open the magazine-arm to receive a supply of fasteners, the combination of detent-means on the side of the magazine-arm, and a rockable latch connected to the member at one end and having detent-means at its opposite end adapted to engage the detent-means on the magazine-arm, said latch being movable laterally of the plane of relative movement between the magazine-arm and member to release its detent-means from engagement with the detent-means on the magazine-arm.

9. In a fastener-applying implement of the type having a magazine-arm and a driver-carrying member connected for relative movement toward each other to drive fasteners and away from each other to open the magazine-arm to receive a supply of fasteners, the combination of detent-means on the side of the magazine-arm, and a resilient latch-element connected to the member at one end and having a shoulder at its opposite end adapted to engage the detent-means on the magazine-arm, said resilient element having a bowed portion between its connected end and shoulder whereby pressure applied to the bowed portion of the element will act to move its shoulder laterally to release it from the detent-means on the magazine-arm.

10. In a fastener-applying implement of the type having a channel-shaped magazine-arm for holding a supply of fasteners by the direct engagement of the ends of their legs with the bottom wall thereof and a driver-carrying member, means for connecting said member and magazine-arm for relative movement toward each other to drive fasteners and away from each other to open the magazine-arm to receive a supply of fasteners, the combination of a resilient element on the driver-carrying member overlying the fasteners in the magazine-arm and adapted to bear against the fasteners when the magazine-arm and driver-carrying member are moved toward each other.

11. In a fastener-applying implement of the type having a magazine-arm for holding a supply of fasteners and a driver-carrying member, said arm and member being connected for relative movement toward and away from each other, a spring extending rearwardly and downwardly from the driver-carrying member to engage its end with the magazine-arm, and a resilient element connected to the spring intermediate its ends and extending forwardly to overlie the fasteners in the magazine-arm, said resilient element being adapted to bear against the fasteners in the magazine-arm and to be rocked toward the fasteners by the flexing of the spring on which it is mounted when the magazine-arm and driver-carrying member are moved toward each other.

12. A device of the type indicated having a handle, a member rigidly attached to one end of the handle, a resilient element on the member having one end projecting at right-angles thereto to provide a driver, and a channel-shaped magazine-arm pivotally mounted on the member for relative swinging movement with respect to the driver to drive fasteners from the magazine, said free end of the resilient element normally acting to swing the magazine-arm away from the member while permitting movement of said arm toward the member.

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