

April 15, 1952

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2,593,231

SHOCK ABSORBING MEANS FOR SPRING ACTUATED TACKING DEVICES

Original Filed Oct. 9, 1947

Fig. 1

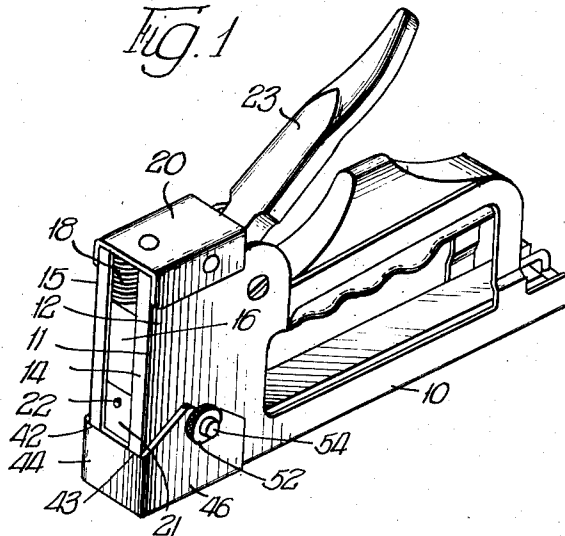


Fig. 3

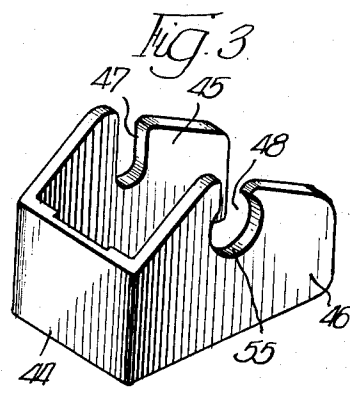


Fig. 2

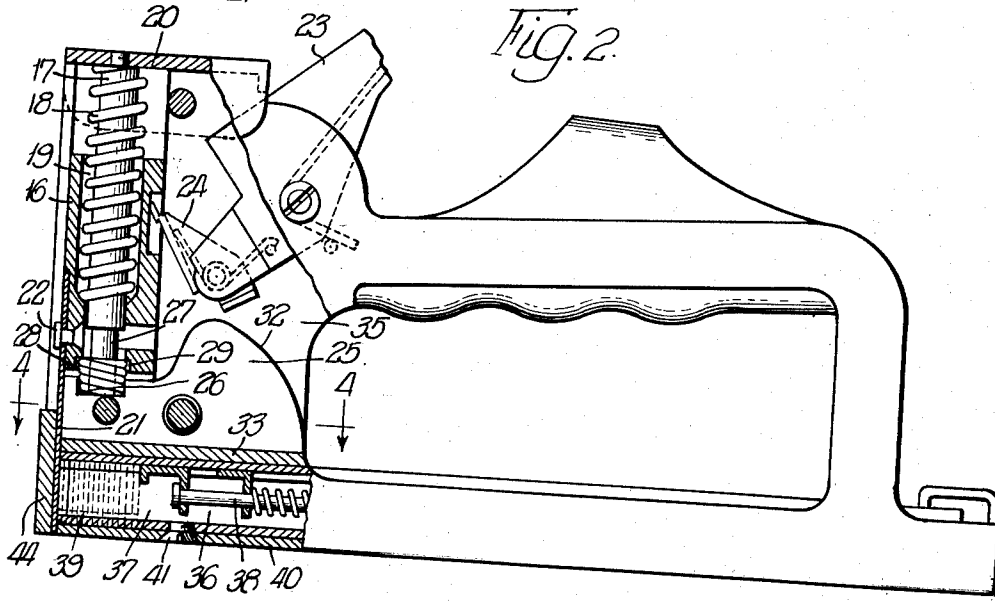
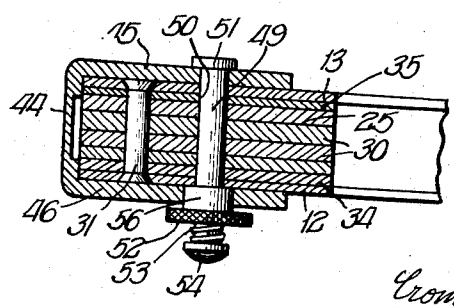


Fig. 4



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UNITED STATES PATENT OFFICE

2,593,231

SHOCK ABSORBING MEANS FOR SPRING
ACTUATED TACKING DEVICESOscar A. Wandel, Chicago, Ill., assignor to
Henry A. Torstenson, Chicago, Ill.Original application October 9, 1947, Serial No.
778,953. Divided and this application Septem-
ber 8, 1950, Serial No. 183,705

3 Claims. (Cl. 1-49)

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This invention is concerned with improvements in a portable tacker or fastener driving device which is adapted to drive a U-shaped staple into a surface of wood, cardboard or similar material.

More particularly, the invention is concerned with a fastener driving device of the type which comprises a forward chamber having a vertical fastener guideway therein, a reciprocal driving plunger in the driveway, a bottom horizontally disposed fastener feeding chamber provided with means for delivering fasteners to driving position beneath the plunger and an actuating mechanism for the plunger which is operated by a pivotal rearwardly directed handle member.

This application is a division of copending application Serial No. 778,953, filed October 9, 1947, and issued as U. S. Letters Patent No. 2,556,992, on June 12, 1951.

A principal object of the invention is to provide in a fastener driving device of the type described an improved bumper block which is arranged beneath the driving plunger to limit the downward movement of the plunger and to cushion the movement of the driver at the end of the driving stroke so that the staple will be driven to the proper depth and the shock due to the striking of the plunger at the end of the driving stroke will be substantially absorbed by the bumper block.

A further object of the invention is to provide in a fastener driving device of the type described a bumper block for cushioning the movement of the driver at the end of the driving stroke which comprises a plurality of relatively thin plates arranged in edgewise face-to-face relation with adjacent edges thereof positioned to be engaged by the driver.

These and other objects and advantages of the invention will be apparent from a description of the preferred form thereof which is shown by way of example in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a fastener driving device embodying the principles of the invention;

Fig. 2 is a side elevation of the device to an enlarged scale with portions thereof broken away;

Fig. 3 is a perspective view of a removable front wall section of the device; and

Fig. 4 is a section on the line 4-4 of Fig. 2.

The present invention is applicable to various kinds of fastener driving devices such as stapling machines, compression tackers, magazine ham-

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mers, etc. For convenience in illustration, the invention is shown embodied in a tacker used for driving U-shaped staples.

A tacker of this type is shown and described in Patent No. 2,456,526, issued December 14, 1948, to which reference is made for a detailed description of those features which are not described in detail in this application.

The illustrated form of the tacker comprises a generally U-shaped frame 10 having a forward chamber or driving head 11 defined by spaced vertical frame side plates 12 and 13. The forward ends of the side plates 12 and 13 are turned inwardly to provide flanges 14 and 15 which form part of the front face of the tacker and the forward side of a guideway for the driving plunger 16 which is mounted for vertical reciprocation in the guideway.

The driving plunger 16 is mounted on a fixed guide post 17 and is actuated by a compression spring 18 which surrounds the post 17 with its lower end seated in a recess or bore 19 in the top of the plunger 16 and with its upper end extending to the cap 20 at the top of the guideway. The plunger 16 carries a staple driving blade 21 at its bottom end which is secured to its forward face by the rivet 22. The driving plunger is adapted to be elevated to compress the spring 18 and then released for the driving stroke by pivotal operation of a lever or handle 23 and a cooperating trip mechanism 24 within the driving head 11.

A bumper block 25 is secured immediately beneath the driving plunger 16 and is provided with a recess 26 receiving the reduced lower end 27 of the guide post 17 and a compression spring 28 which surrounds the reduced portion 27 of the post 17 and engages in a recess 29 in the lower end of the driving plunger 16 to cushion the shock at the end of the driving stroke. The bumper block 25 is formed by a plurality of plates 30 arranged in face-to-face relation and secured together by a rivet 31 adjacent the forward end thereof. The rear portions of the plates 30 extend upwardly at 32 to form a strengthening rib extending transversely thereof. The plates 30 provide a laminated block structure which is capable of absorbing without damage the shock produced by the driving operation. The block 25 is positioned on the bottom or right portion 33 of an inner U-shaped frame having upwardly extending side plates 34 and 35 and is rigidly held in position between the upstanding plates, the securing rivet 31

3 preferably extending through plates 34 and 35 and also through side plates 12 and 13.

A generally horizontal staple supply chamber 36 is provided beneath the inner frame member 33. The chamber 36 extends rearwardly and receives a fastener magazine 37 and a fastener feeding mechanism 38 which feeds fasteners 39 to driving position beneath the fastener driving blade 21. The fastener magazine 37 is preferably secured to the bottom or bight member 40 of the outer frame 10 by screws 41 or the like.

The flanges 14 and 15 of the side plates 12 and 13 are cut away at the bottom at 42 and 43 and a removable, generally U-shaped front plate member 44 is provided for positioning thereon with the legs 45 and 46 embracing the lower portion of the side members 12 and 13 of the frame 10. The legs 45 and 46 have upwardly extending top edges and are provided with upwardly opening recesses or slots 47 and 48 which are aligned transversely thereof. The front plate member 44 is secured in position on the device by means of a pin 49 which extends through a transverse bore 50 provided in the head 11 of the tacker. The bore 50 extends through outer side plates 12 and 13, the inner side walls 34 and 35 and the laminated block 25. The ends of the pin 49 project outwardly beyond the faces of the outer side walls 12 and 13. The end of the pin 49 which projects beyond side plate 13 is received in the slot 47 and is provided with a head 51. The other end of the pin 49 projects beyond the plate 12 a sufficient distance to accommodate a sliding latching sleeve 52 which is urged inwardly by a compression spring 53 surrounding the pin and seated against an enlarged portion or head 54 on the end of the pin. The pin is received in an enlarged bottom portion 55 of the slot 48 and the sleeve 52 is provided with a reduced portion 56 which is accommodated in the enlarged portion 55. Movement of the sleeve 52 outwardly frees the legs 45 and 46 of the plate member 44 for removal from engagement with the pin 49. By means of this construction the plate member 44 is very readily removed and replaced.

While specific details of construction have been referred to in illustrating the preferred form of the device, it will be understood that other details may be resorted to within the spirit of the invention.

I claim:

1. In a fastener driving mechanism comprising a housing having a guideway, a driver mounted in said guideway, means for reciprocating the driver to drive a fastener, means for feeding fasteners to a driving position relative to the driver and a shock absorbing bumper block rigidly mounted between the driver and the fastener feeding means, said bumper block comprising a plurality of rigidly connected plates arranged in edgewise relation with adjacent edges forming a bumper surface extending transversely of the guideway for engagement by said driver to cushion the movement thereof at the end of the driving stroke.

2. In a fastener driving mechanism comprising a housing having an upright guideway, a driver mounted in said guideway, means for forcing the driver downwardly to drive a fastener, means for feeding fasteners to a driving position beneath the driver, and a shock absorbing and reinforcing member rigidly mounted beneath the driver for engagement by the driver at the end of the driving stroke to cushion the movement thereof, said member comprising a plurality of vertically positioned rigidly connected plates in face-to-face relation.

3. In a fastener driving mechanism comprising a housing having an upright guideway, a driver mounted in said guideway, means for forcing the driver downwardly to drive a fastener, means for feeding fasteners to a driving position beneath the driver, and a shock absorbing bumper block rigidly mounted beneath the driver for engagement by the driver at the end of the driving stroke to cushion the movement thereof, said bumper block comprising a plurality of relatively thin plates arranged in vertically positioned, edge aligned, face-to-face and rigidly connected relation.

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The following references are of record in the file of this patent:

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