

UNITED STATES PATENT OFFICE.

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TACKER.

1,368,274.

Specification of Letters Patent. Patented Feb. 15, 1921.

Application filed May 19, 1917. Serial No. 169,673.

To all whom it may concern:

Be it known that I, JAY A. MACKEY, a citizen of the United States, and resident of Lynn, county of Essex, Commonwealth of Massachusetts, have invented an Improvement in Tackers, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts in each of the several views.

This invention relates to devices for applying and driving tacks, of a general type commonly in use in shoe factories and including a magazine wherein a supply of tacks are held in alinement for delivery to a driving point, along with a driving pin or the like connected for operation by a plunger. A prime object of the invention is to provide a device of this character that is materially simplified in construction as compared with prior devices of its type and being at the same time substantial and reliable in action and not apt to get out of order. In devices of this character it has been customary to provide a gate for controlling the delivery of successive tacks from the magazine to the driving point and to employ as a means for operating this gate a separate prong or pin operable thereon with a cam action or the like, simultaneously with the driving pin movement to open the same for releasing a tack for movement to driving position. One important feature of the present invention consists in providing means whereby such tack controlling gate instead of requiring a separate operating member in the form of a sliding bar or pin or the like, is operated and controlled by the movement of the driving pin itself, this permitting a material simplification of the device and making it more compact. In accordance with a further feature of my invention the gate which controls the moving of the tacks to driving position is carried by a spring pressed block slidably guided immediately adjacent the driving passage, such slide block being equipped with guiding devices for its slide movement transversely with respect to the driving passage adapted to hold the same accurately positioned and dispensing with the pivoted arm for holding this block which has hitherto been usual, such arm having been pivoted at a relatively remote point and introducing a complication more apt to get out of order. A further ob-

ject is to provide improved means for controlling the entrance passage of tacks into the magazine of the device. A still further object is to provide an improved construction and arrangement of spring retracted driving plunger for the tacks. The foregoing and other objects and advantages of the invention will more fully appear from the following detailed description, and the distinctive features of novelty will be pointed out in the appended claims.

Referring to the drawings:

Figure 1 is a view partly in elevation and partly in vertical section showing my improved device substantially full size;

Fig. 2 is a partial transverse vertical section on line 2—2 of Fig. 1;

Fig. 3 is a transverse section of the magazine on line 3—3 of Fig. 1;

Fig. 4 is a plan view of the slide block which bears the tack controlling gate;

Fig. 5 is a front view thereof; and

Fig. 6 is an end or side view of the same.

The barrel or housing of the present device is indicated at 10 having slidably fitted therein a plunger 11 equipped with an outer head 12 to be engaged for depressing the same and having at its inner end a socket head 13 in which is suitably fastened as by a transverse cotter pin 14 a driving pin or rod 15. The inner portion of the plunger 11 is oppositely slotted as seen at 16 through a substantial portion of the length of the plunger to receive a guide pin 17 which is fitted transversely through an intermediate portion of the barrel 10. The plunger 11 is hollow and affords a housing for a compression coil spring 18 which serves to retract the plunger, for this purpose reacting between a plug 19 threaded into the outer end of the plunger and a backing block 20, the lower end of which is transversely slotted and fitted to a rabbeted intermediate portion 21 of the cross pin 17. The lower end of the barrel 10 is cut away at its side and front as indicated at 22 and a thickened lower extremity 23 thereof has a horizontal bottom projection 24 with a threaded passage 25 to receive a threaded nipple at the inner end of a tubular nose 26 having a passage 27 there-through in alinement with the driving pin 15 and of a size to fit the same; the lower end of this tubular nose being preferably serrated as indicated at 28 to afford non-slipping engagement with a tack receiving sur-

face. The lower portion of the barrel 10 has secured thereto just above the bottom 24 and extending into the laterally cut out recess 22, a magazine 29 extending diagonally upward and secured to the barrel by screws 30 or the like. This magazine is composed of side bars 31 with an intermediate filling plate 32 assembled and held together by screws or the like to provide a slide passage 33 between the upper sides of the bars 31 to permit the sliding of tacks therealong with their heads resting on the tops of the bars 31. A suitable guard plate 34 is secured to one of the plates 31 overhanging the passage 33 and spaced therefrom so as to permit the tacks to slide down the passage-way thus provided while being retained from dropping out therefrom. At the upper outer end of the magazine 29 a bracket block 35 is secured, this having a hook projection 36 adapted to engage over a pin or projection on a loading mechanism for filling the magazine with tacks. The block 35 has a transverse bore 37 in which is housed a compression coil spring 38 which normally holds pressed outward a slide plug 39 rabbeted so as to engage the magazine and be held from dropping out, and having a projecting portion 40 that in this normal outward position closes the upper end of the passage 33 so that the tacks will not drop out upon turning downward of the magazine 29, this projecting portion having a beveled edge 41 engageable with the forward end of the chute of the tack loader so that said plug is pressed back to open the passage 33 as soon as the hook 36 of the magazine 29 is applied to the loader for filling. The lower thickened portion 23 of the barrel 10 has fitted thereon a short guide tube 42, the passage through which fits the driving pin 15 and aligns with the passage 27. This tube also has transverse guide passages through one side thereof through which are slidably fitted a gate member 43 and a controller member 44 both fixed in a slide block 45, as by means of a cotter pin 46 common to both these members and passed transversely through the block 45. The block 45 has a lower widened portion 47 guided in ways formed at one side by the lower ends of the plates 31 and at its other side by a cheek plate 48 secured to the lower end of the barrel. The lower block portion 47 has spaced apart transverse holes 49 therein to receive guide pins 50 fixed in and projecting transversely from the lower barrel portion 23 and thus the block 45 is guided for easy sliding movement transversely with respect to the barrel and the passage through the tube 42 fitted therein. The slide block 45 is normally held pressed inward by a spring 51 anchored to the body of the device, *e. g.*, as shown to a screw 30 on the magazine and having its free end pressing against said slide block. When thus pressed inward the slide block presents the controller member 44 with its end projecting more into the passage of the tube 42 and this inwardly projecting end is formed with an open passage aligning generally with the passage of the tube 42 that guides the driving pin, but flaring out upwardly as seen at 52 and thus presenting a sloping transversely curved surface in the path of movement of the driving spindle 15 which upon engagement by said spindle presses the block 45 outward. This carries with it the gate 43 which thus permits the foremost tack to slide past the same so that its head will move in behind the driving pin or spindle as soon as the spindle is again retracted. Upon such retracting movement of the spindle, since the controller member 44 is below the gate 43, the driving pin first disengages the controller member thus permitting the slide block 45 to move again inward under the action of the spring 51 thus closing the gate 43 before the driving pin 15 is retracted back of the head of the foremost tack. Thus the rest of the line of tacks are restrained from moving forward, and to permit the moving in of the gate 43 between the foremost tack and the rest of the tack line, the forward edge of said gate is beveled as indicated at 53. Thereupon as the driving pin 15 is fully withdrawn so that its end releases the foremost tack this slides on into the passage of the tube 42 ready to be projected downwardly by the next forward movement of the plunger, being of course restrained from dropping out prematurely by the controller member 44 which is then yieldingly projected into the lower portion of the tube passage. Thus the driving pin or spindle 15 constitutes the sole operating member not only for driving the tack but also for actuating the controller member 52 of the slide block 45 which through the gate 43 governs the delivery of tacks from the magazine into driving alinement. The controller member 44 as explained, serves also the function of a tack restraining member to keep the tack about to be driven yieldingly positioned in the driving passage until engaged by the driving pin. The device as thus constituted is of relatively few parts, all of which are positive and reliable in action and with no co-operative relation at all complicated or likely to get out of order. It will also be noted that the slide block 45 may be instantly removed by merely displacing the spring 51, whenever required for any attention to the operative parts, such removal of the slide block 45 only, affording complete and free access to the working area of the device. I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the

present embodiment to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A device of the kind described, comprising a barrel, a magazine associated therewith having a slide way for tacks, a plunger equipped with a driving pin slidably fitted in said barrel, and means controlled by said driving pin for governing the delivery of tacks from said slide way into driving alinement, said means consisting in a slide block equipped with a member presenting a sloping face spring pressed into the path of said driving pin whereby the same is pressed outward by engagement with said pin, and a gate carried by said slide block permitting the foremost tack to move for presentation to the driving pin upon each retracting movement of the slide block.

2. Tack driving mechanism, comprising a barrel, a magazine equipped with a slide way for tacks associated with said barrel, a plunger equipped with a driving pin slidably fitted in said barrel, a block mounted for sliding movement at a lower portion of said barrel and equipped with spring means for pressing it normally inward, said block presenting an inclined surface to be pressed outward by engagement with said driving pin and also bearing a gate positioned above said inclined surface and controlling the passage of tacks from said slide way for presentation to said driving pin.

3. Tack driving mechanism, comprising a holder equipped with a slide way for tacks, a plunger slidably fitted to said holder equipped with a driving pin, and a slide block removably fitted to said holder for transverse sliding movement and having means controlled by said driving pin for governing the delivery of tacks thereto from said slide way, and also having means carried thereby for preventing the premature discharge of the tack to be driven.

4. Tack driving mechanism, comprising a body, a plunger slidably fitted therein and equipped with a driving pin, a magazine having a tack slide way associated with said body, said magazine having means to be applied in receiving relation to a tack loader, and means for automatically closing normally the receiving end of said slide way consisting in a transversely slidable spring pressed member having a beveled edge engageable by a cooperative portion of a tack loader or the like to press said member back-

ward and open the receiving end of said slide way.

5. A device of the kind described, comprising a barrel, a driving element slidable therein, a magazine arranged to deliver tacks into the path of said driver, a tack separator, a tack support having a tack supporting face arranged to be contacted and moved by said driving element, and means by which the movement of said support actuates said separator.

6. In a device of the kind described comprising a barrel, having a tack tube, a driving rod reciprocable therein, and a magazine, in combination, a tack separator for said magazine, and means for actuating said separator comprising a part normally positioned across said tack tube and in the path of the driver and having a wedge cam element serving as a tack holder and engageable by said driver in its driving stroke to move said part from across said tack tube.

7. In a device of the kind described, a tack tube, a reciprocable driver therein, a magazine for supplying tacks to said tube, a tack separator movable transversely of said magazine and across the path of movement of the tacks therein, a separator actuator movable transversely of and into the tack tube and provided with a tack supporting element for contact with said driver, and means connecting said separator and actuator.

8. In a device of the kind described, a magazine providing a path for movement of tacks, a tack tube, a drive rod reciprocable therein, a tack separator movable to and from a position transverse of said path, a block providing a support for said separator and serving to actuate the same, means for supporting said block for movement perpendicular to said path, resilient means tending to position said block with the separator across said path, and a member carried by said block and normally extending across said tube and actuable by said drive rod to remove said separator from across said path.

9. In a device of the kind described, a tack tube, a driver reciprocable therein, a magazine, a tack separator for said magazine, an actuator for said separator comprising a block having a plurality of openings therethrough, guide pins passing through said openings and fixed with respect to said magazine, a spring normally urging said block longitudinally of said pins in one direction, and means actuable by said driver for moving said block in the opposite direction.

In testimony whereof, I have signed my name to this specification.

JAY A. MACKEY.