

B. N. CLARY.
FASTENING INSERTING MECHANISM.
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1,003,984.

Patented Sept. 26, 1911.

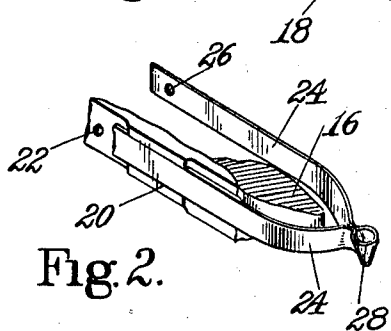
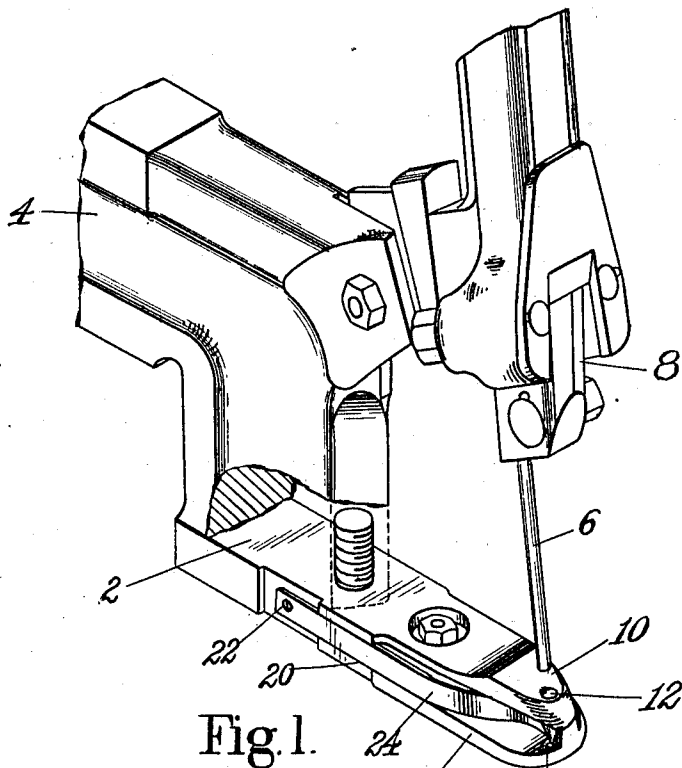


Fig. 2.

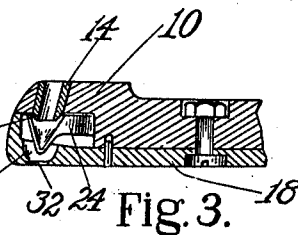


Fig. 3.

WITNESSES.

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FASTENING-INSERTING MECHANISM.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, BURTON N. CLARY, a citizen of the United States, residing at Beverly, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Fastening-Inserting Mechanism, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines used in the manufacture of boots and shoes, and particularly to fastening-inserting mechanisms employed in such machines.

In many of the machines which are used in the manufacture of boots and shoes, particularly in lasting machines and pulling-over machines, mechanism is provided for inserting previously formed fastenings, such, for example, as headed nails or tacks. These fastenings are usually delivered by automatic mechanism into position to be operated upon by a driver, and, if the lower end of the driver passage is not arranged to rest directly upon the point on the work at which the fastening is to be inserted, means is usually provided for retaining the fastening in position for the action of the driver. The retaining means as ordinarily constructed has a double function, inasmuch as it both serves to hold the fastening in position for the action of the driver, and also tends to keep the fastening upright during the driving operation, thereby preventing buckling or crippling of the fastening before it is inserted to the desired depth. Owing to the many advantages attending its use, fastening-retaining and guiding means of the kind above described has been employed also in many machines in which the lower end of the driver passage is arranged to rest upon the point on the work at which the fastening is to be inserted.

The most common form of fastening-retaining and guiding means comprises a pair of pivoted jaws, each jaw having formed upon its side adjacent to the other jaw one-half of a fastening-retaining pocket. This pocket, which is usually shaped like an inverted cone, is arranged either in, or in line with, the driver passage and it is intended that the apex of the cone shall be located in the axial line of the driver and of the driver

passage, so that as the nail or tack drops into the pocket with its point downward the point will be brought into said axial line, the head of the nail or tack resting either against the walls of the driver passage or against the sides of the pocket. Resilient means are usually provided for holding the pivoted jaws yieldingly in contact with each other, the jaws being forced apart by the nail or tack and by the driver during the driving operation. Fastening-retaining and guiding means constructed as above described, if strong enough to withstand the wear and tear to which it is subjected, takes up a comparatively large amount of space and when mounted in a nail-receiving block or nose, which is intended to hold a nail in position for the operation of the driver in a place where there is not much room for the operating parts, as, for example, when lasting the heel seats of turn shoes, it necessitates making the said nail-receiving block or nose comparatively large and thereby interferes with the efficient operation of the machine as a whole.

An object of the present invention is to improve and simplify the construction of fastening-retaining and guiding means, whereby durable and efficient means of the kind specified may be provided which will occupy a comparatively small amount of space.

A further object of the invention is to provide means of the kind specified which will consist of as few parts as possible, which may be readily assembled in operative position when the machine is made and which may be quickly replaced at small cost when worn out or broken.

The invention comprises also novel and compact means for attaching the parts in which the fastening-retaining pocket is formed to the part in which the driver passage is formed, said means being preferably so constructed and arranged that each of said pocket-containing parts is automatically locked in place when brought into proper relationship to the part containing the driver passage.

The invention comprises further means for insuring that the center or apex of the fastening-retaining pocket shall lie in the axial line of the driver and of the driver passage. The provision of such means con-

tributes much to the successful operation of a fastening-inserting mechanism, since without it any inequalities in the spring pressure exerted upon the two halves of the fastening-retaining pocket will cause the center of the pocket to be moved to one side or the other of the axial line, and thus cause the fastening to be correspondingly tipped.

A further object of the invention is the provision of a construction which will permit the fastening-retaining and guiding means to be constructed of light parts, whereby the inertia to be overcome in the opening and closing movements of the fastening-retaining pocket or cup is reduced to a minimum.

With the above and other objects in view, the invention is here shown as embodied in a construction comprising a support provided with a driver passage, spring fingers extending transversely of the driver passage, rigidly attached at their ends remote from said passage to said support and shaped at their other ends to form between them a fastening-retaining and guiding pocket or cup lying within, or in the line of, the driver passage.

In the accompanying drawings, the invention is shown as embodied in the tack block of a lasting machine of the type illustrated and described in United States Letters Patent to S. W. Ladd and R. F. McFeely, No. 584,744, June 15, 1897.

Figure 1 is a perspective view of a tack block embodying this invention together with the cooperating parts of a lasting machine of the type above referred to; Fig. 2 is a perspective view of the spring fingers in which the nail-retaining pocket is formed; Fig. 3 is a longitudinal section of the front part of the nail block shown in Fig. 1.

In the machine of said Letters Patent a tack block carried by a reciprocating slide 4 is adapted to receive a lasting tack when moved into one position by said slide and to hold said tack in position to be operated upon by a driver 6 carried by a driver bar 8 when moved into another position by said slide. For a description of the means for supplying tacks to the tack block and of the means for reciprocating the tack block-carrying slide, which means constitute no part of the present invention, reference may be had to the Letters Patent above referred to.

The tack block 2 of the present invention has a forwardly projecting overhanging tapered portion 10 in which is formed a driver passage 12, the driver passage being surrounded by a bushing 14 which extends below the under surface of the overhanging portion 10 to form a pocket-centering boss 15 around the driver passage. Beneath the overhanging part 10 of the block is a V-shaped portion 16 and attached to the under side of this V-shaped portion is a wiper plate

18 having an upwardly extending guard at its forward end which contacts with the under surface of the overhanging part 10.

The tack block is provided at each side with a dovetail groove 20 and a pin or stud 22, and into each groove is dovetailed the shank portion of a spring finger 24, the finger being provided with an opening 26 to receive the pin 22. The rear end of each of the fingers 24 is beveled and the forward edge of each of the pins 22 is also beveled so that as the shank portion of the finger slides through the dovetail groove 20 the beveled end will ride upon the beveled edge of the pin and bend the part of the finger beyond the dovetail groove away from the block until its opening 26 comes into position to receive the pin 22. The finger will then spring back against the side of the block and will be thus fixed in its proper position until it is again sprung away from the block to remove it for repair or replacement, the locking of the finger being effected automatically during its insertion into place. The forward portions of the fingers are received in lateral recesses in the tack block formed between the overhanging portion 10 and the wiper plate 18, along the sides of the V-shaped portion 16, these recesses communicating with each other in the region of the driver passage, and each finger is shaped at its forward end to form one-half of a nail-retaining pocket 28.

The nail-retaining pocket, as shown, is shaped like an inverted cone and the upper portion or base of the cone surrounds the boss 15 upon the under side of the overhanging part 10 of the nail block, which boss, as has already been described, is formed, for convenience in manufacture, by the extension of the bushing 14, although it might be made integral with the part 10. The point of the pocket, or apex of the cone, extends into a transverse groove 30 in the wiper plate 18 and lies in the axial line of the driver passage 12 and also directly over the center of an opening 32 in said wiper plate. The opening 32 forms an extension of the driver passage.

It will be noted that the boss upon the under side of the overhanging part 10 insures the centering of the point of the pocket to bring it into the line of the axis of the driver passage 12. Each of the spring fingers 24, when in position in the nail block, is under tension along its forward portion, the normal curvature of the forward portion of each finger being such that, if permitted, the forward end of each would lie upon the opposite side of the driver passage from that upon which the rear end lies. The two halves of the pocket 28, owing to the fact that the fingers 24 in which they are formed are sprung out of the line of their normal curvature, are therefore pressed tightly to-

gether and also pressed against opposite sides of the boss 15 on the under side of the overhanging part 10. It will be noted further that the arrangement of the pocket-centering boss with respect to the dovetail grooves 20 and the means for automatically locking the spring fingers when they have reached their proper position in said grooves insures the proper positioning of the fingers with respect to each other and with respect to the driver passage when the parts are assembled. The means for holding the spring fingers in place are furthermore so constructed that it is impossible for them to get out of adjustment, there being no screws or other adjustable parts to become loosened. Said means also provides a rigid support for the fingers against transverse thrusts of the driver in the tack or nail driving operation. The parts when once assembled are therefore sure to maintain their proper relationships to each other, until worn out or broken.

As hereinbefore pointed out, this invention is shown as embodied in the tack block of a lasting machine and it will be obvious to one skilled in the art that a construction of the type herein illustrated and described possesses many advantages over prior constructions employed in lasting machines. It will be noted that the halves of the fastening-retaining pocket are formed in the spring fingers transversely of their length, thus permitting the shanks of the fingers to extend parallel to the wiper plate 18 whereby they are permitted to be of considerable length and may be readily made of the proper resilience. The arrangement of the shanks of the spring fingers transverse to the fastening-retaining pocket and also to the driver passage has a further advantage in that it insures the proper opening of the fastening-retaining pocket during the driving operation. In the construction hereinbefore described, it will be noted that the lower end and the upper end of the fastening-retaining pocket open simultaneously and in equal amounts.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. In a machine of the class described, a horizontally movable tack block having at its forward end a transverse driver passage toward which said tack block is tapered, the forward end of said tack block being rounded in two dimensions, and a yielding tack retaining pocket in line with said driver passage.

2. In a machine of the class described, fastening retaining and guiding means comprising a horizontal support provided at its forward end with a transverse driver passage toward which said support is ta-

pered, the forward end of said support being rounded in two dimensions, and a pair of spring fingers extending lengthwise of said support, said fingers being rigidly attached to the sides of said support at their ends remote from said passage and being bent toward each other and shaped at their other ends to form between them a nail pocket in line with said passage.

3. In a machine of the class described, fastening retaining and guiding means, comprising a support provided with a transversely arranged driver passage toward which said support is tapered, a pair of spring fingers extending lengthwise of said support, said fingers being rigidly attached to the sides of said support at their ends remote from said passage and being bent toward each other and shaped at their other ends to form between them a nail pocket in line with said passage, and a vertical guard in front of said nail pocket constructed to form with said support an uninterrupted smooth face.

4. In a machine of the class described, fastening retaining and guiding means comprising a support provided with a driver passage, a pair of spring fingers extending transversely of said driver passage, said fingers being rigidly attached at their ends remote from said passage to said support and shaped at their other ends to form between them a nail pocket in line with said passage, and a vertical guard in front of said nail pocket constructed to form with said support an uninterrupted smooth face.

5. In mechanism of the class described, fastening-retaining and guiding means comprising a support provided with a driver passage, a pair of spring fingers extending transversely of said passage, said fingers being attached at their ends remote from said passage to said support and shaped at their other ends to form a fastening-retaining pocket in line with said passage and means coöperating with said pocket for insuring axial alinement of said passage and said pocket.

6. In mechanism of the class described, the combination with a support provided with a driver passage, of a pair of spring fingers having formed between them a pocket in line with said passage, said fingers extending transversely of said passage and being rigidly attached to said support at their ends remote from said passage and a pocket centering boss upon said support coöperating with said pocket.

7. In mechanism of the class described the combination with a support provided with a driver passage, of a pair of spring fingers having formed between their adjacent ends a pocket in line with said passage, said fingers being rigidly attached to said

support at their ends remote from said pocket, and a boss upon said support extending into the upper part of said pocket.

8. In mechanism of the class described, the combination with a support provided with a driver passage, of a pair of spring fingers having formed between them a pocket in line with said passage, said fingers extending transversely of said passage and being rigidly attached to said support at their ends remote from said passage, and a bushing surrounding said passage and extending into said pocket.

9. Fastening-retaining and guiding means comprising a support provided with a driver passage and a pair of spring fingers shaped to form between them a pocket in axial alinement with said passage, said fingers extending transversely of said passage and being dove-tailed into said support at their ends remote from said passage.

10. Fastening-retaining and guiding means comprising a support provided with a driver passage, a pair of spring fingers extending transversely of said passage and having formed between their adjacent ends a fastening-retaining pocket in line with said passage, said support being provided with means for confining said fingers against bodily movement so constructed and arranged that each finger is automatically locked in place when brought into proper relationship to said support.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BURTON N. CLARY.

Witnesses:

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FREDERICK L. EDMANDS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."