Sept. 28, 1937. N. LIPSON 2,094,459

TACK DRIVER AND PULLER

Filed Nov. 27, 1936

Fig. 1.

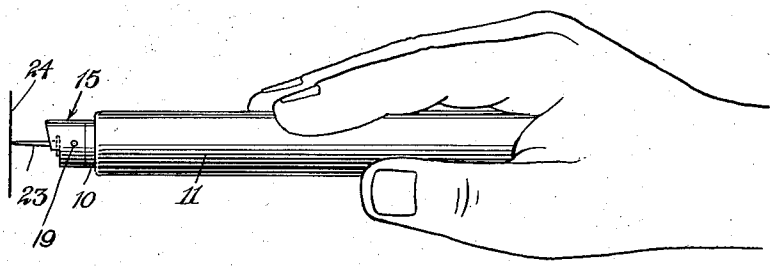


Fig. 2.

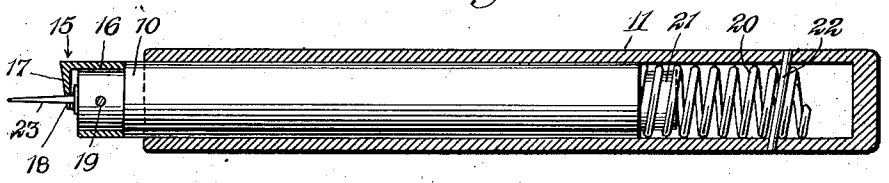


Fig. 3.

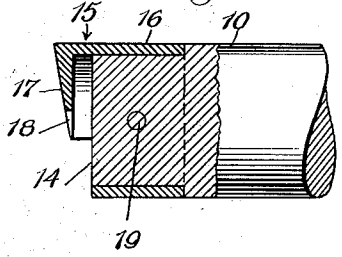
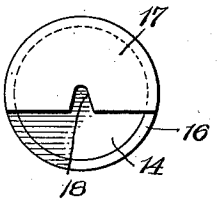


Fig. 4.



WITNESSES

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TACK DRIVER AND PULLER

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5 Claims. (Cl. 1—47)

This invention relates to tack drivers and pullers, and has for an object the provision of an improved device of this character which is particularly suited for driving and pulling thumb tacks and which is provided with shock absorbing means which facilitates the operation of the device and eliminates the sharp impact shocks resulting from the driving of the tack.

A further object is the provision of an improved tack driver and puller which is of simple and inexpensive construction; which is convenient to operate both in the driving and pulling of tacks, particularly thumb tacks, and which is formed with an adjustable spring connection between the handle and plunger portion so as to provide shock absorbing means that may be adjusted to the force required to drive the tacks.

My device is particularly adapted for use in driving and pulling thumb tacks, and is primarily designed for that purpose. It may, however, be used in driving and pulling carpet tacks or the like.

For a fuller understanding of the invention, reference should be had to the accompanying drawing, in which

Fig. 1 is a side view of the tack driver and puller embodying my invention, showing how it may be used to drive a tack;

Fig. 2 is a longitudinal sectional view of the tack driver and puller;

Fig. 3 is a detail view partially in section of the end of the plunger; and

Fig. 4 is a plan view of the plunger.

My device consists of a plunger indicated at 10 for engaging a tack, a handle 11 for manipulating the plunger, and a shock absorbing connection between the plunger and the handle for preventing the transmission of any impacts to the hand of the operator. The plunger is preferably formed of a rod or cylindrical member made of metal, and is formed with a flat, blunt end 14 for engaging the tacks and driving them home.

To hold the tack in proper position with respect to the end of the plunger and to aid in pulling the tack, I provide a cap 15 over the end 14, formed so as to engage the under surface of the head of the tack. The cap may be formed integral with the plunger 10, or be secured therein in any desired manner. In the device illustrated in the accompanying drawing the cap is formed of a separate member. So as to provide a smooth external finish on the plunger, the end 14 is of reduced diameter and the cap 15 is secured around this portion of the plunger. The cap consists of a cylindrical shell 16 having a hood 17 formed at the end thereof, the hood being a segment of a circle a little larger than a semicircle and being spaced from the end 14 of the plunger a slightly greater distance than the thickness of the head of a tack. The hood 17, as appears most clearly from Fig. 3, preferably tapers from the peripheral edge thereof towards the straight side, and a tapering slot 18 extends from the center of the straight side of the hood to a point just beyond the center of the end of the plunger, as shown most clearly in Fig. 4. In this way, the hood 17 may be placed under the head of a tack, with the abutment wall 14 of the plunger engaging the top of the head of the tack, and with the slot 18 engaging the sides of the shaft of the tack, as appears most clearly from Figs. 1 and 2. The cap 15 is held in position on the plunger by any suitable means, such as a pin 19.

For manipulating the plunger 10, I provide the handle 11, which is hollow, the internal diameter being of such a size that the plunger may be inserted therein with the end 14 and the cap 15 projecting beyond the end of the handle.

So that too sudden a shock is not transmitted to the hand of the operator when the handle 11 is grasped and pressure applied to drive a tack home, I provide a shock absorbing connection between the handle 11 and the plunger 10 consisting of a spiral spring 20 secured at one end around the reduced end portion 21 of the plunger. To hold the plunger in position in the handle, a pin 22 is extended across the inside of the handle adjacent the end thereof, as shown in Fig. 2, the pin being preferably disposed at an angle approximating the angle of the wire forming the spring 20. The spring 20 and the adjacent end of the plunger 10 are then inserted in the hollow handle 11 until the spring contacts the pin 22. The plunger 10 is then rotated in proper direction to cause the spiral spring to feed around the pin 22. When the spring has been turned to the approximate position shown in Fig. 2, the plunger and spring will then be held in position by means of the engagement of the spring with the pin 22. If the handle is then grasped and pressure applied upon a tack, the first pressure will be expended in compressing the spring 20. This pressure gradually increases as the spring approaches its fully compressed position, until gradually the pressure is no longer expended in compressing the spring, but rather in driving the tack home. In this way there is no sudden impact or shock occasioned by driving the tack

home, but there is merely a gradual increase in pressure without sudden jars or shocks. The relative positions of plunger 10 and handle 11 may be varied by rotating the plunger and spring, thereby causing the spring to feed to different positions with respect to pin 22. When it is desired to have the plunger project to a greater degree beyond the end of the handle the spring and plunger are rotated until the pin approaches the free end of the spring, and when it is desired to have the plunger project to a lesser degree the spring and plunger are rotated in the opposite direction.

In using my device, the spring 20 is adjusted to the desired position and the handle 11 is grasped in the hand in any convenient manner, such as that shown in Fig. 1. The head of a tack 23 is then inserted beneath the hood 17 of the cap 15, with the shaft projecting through the slot 18. The point of the tack is then placed against the surface 24 into which it is to be driven, and pressure is applied against the end of the handle 11. The first result from applying pressure to the handle is the compression of spring 20 due to the resistance offered by the tack. As the spring approaches fully compressed position and the tension increases, the point of the tack 23 gradually begins to enter the surface 24 and finally the entire pressure exerted against the end of the handle is utilized in driving the tack home. When the tack has been driven home, the hood 17 is then slid from beneath the head of the tack. It will be seen that at no time is there any sharp increase in pressure or any shock or jar occasioned by driving the tack home.

To pull a tack, the hood 17 is inserted beneath the head of the tack 23 with the slot or notch surrounding the shaft. The handle of the plunger is then manipulated in the manner of a lever, with the result that the tack may be conveniently pulled from position.

It will be seen that by means of the present invention a tack driver and puller of improved construction has been provided, which is economical to manufacture, which may be conveniently operated to either drive or pull tacks, and which eliminates all sharp jars or shocks in driving tacks.

My device is, as stated above, particularly adapted for use in driving and pulling thumb tacks and is primarily designed for that purpose. It should be understood, however, that it may, if desired, be used in driving and pulling carpet tacks or the like.

It should be understood, of course, that modifications might be made in the illustrated and described embodiment of the invention without departing from the invention as set forth in the accompanying claims.

I claim:

1. In a tack driver and puller, a hollow handle, a plunger disposed in said handle and having an abutment portion for engaging the head of a tack extending beyond the end of the handle, a relatively flat hood disposed over a part of the abutment portion and spaced a short distance therefrom for engaging the under surface of the head of the tack, and a spring disposed in said handle and serving as a shock absorber between the handle and plunger.

2. In a tack driver and puller, a hollow handle, a plunger disposed in said handle and having an abutment portion for engaging the head of a tack extending beyond the end of the handle, a relatively flat hood disposed over a part of the abutment portion and spaced a short distance therefrom for engaging the under surface of the head of the tack, and shock absorbing means between the plunger and handle comprising a spiral spring disposed in said handle and engaging the plunger at one end and having engagement with a pin extended across the inside of the handle at the other end so that the relative position of the pin and spring may be varied by rotating the spring.

3. A tack driver or the like, comprising a hollow handle, a plunger disposed in said handle and having an abutment portion extending beyond the end of the handle for engaging the head of a tack, and shock absorbing means between the handle and plunger comprising a spiral spring disposed in the handle and engaging the plunger at one end, and having engagement with a pin extended across the inside of the handle so that the relative position of the pin and spring may be varied by rotating the spring.

4. In a tack driver and puller, a handle member, a plunger carried by said handle member and having an abutment portion for engaging the head of a tack extending beyond the end of the handle, a relatively flat hood disposed over a part of the abutment portion and spaced a short distance therefrom for engaging the under surface of the head of the tack, and shock absorbing means comprising a spring between said handle and plunger.

5. In a tack driver and puller, a hollow handle, a plunger disposed in said handle and having an abutment portion for engaging the head of a tack extending beyond the end of the handle, and shock absorbing means between the plunger and handle comprising a pin extending across the inside of the handle and a spiral spring disposed in said handle and engaging the plunger at one end and having engagement with the pin at the other end so that the relative position of the plunger and handle may be varied by rotating the spring.

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