Dec. 23, 1952 H. W. HILL 2,622,634

FENCE STAPLING TOOL

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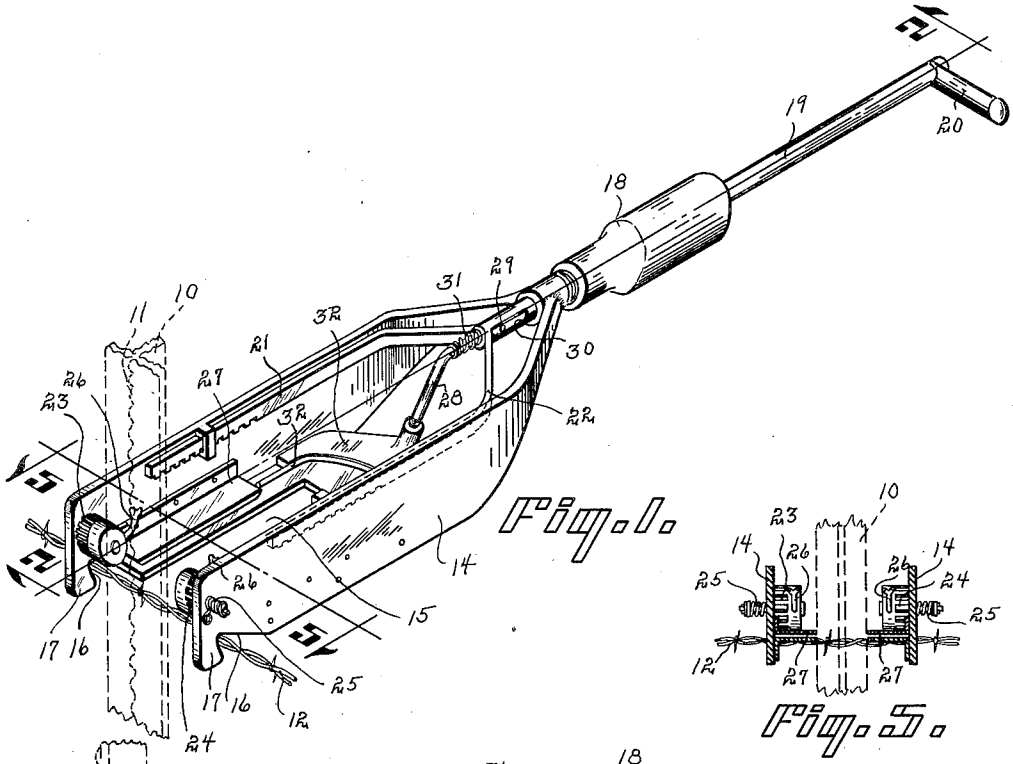


Fig. 1.

Fig. 5.

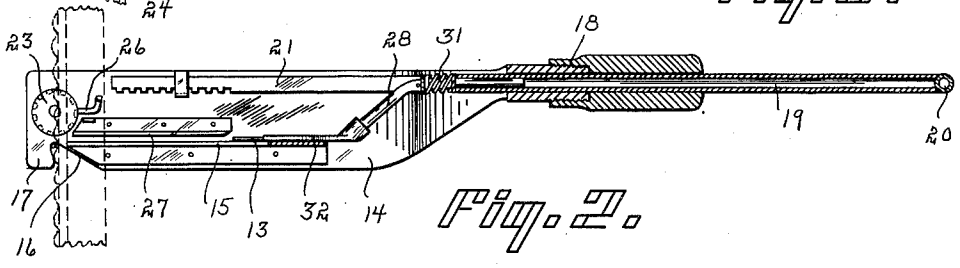


Fig. 2.

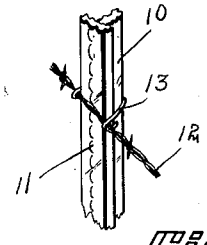


Fig. 3.

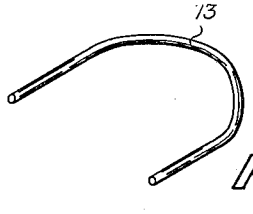


Fig. 4.

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FENCE STAPLING TOOL

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2 Claims. (Cl. 140—54)

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The principal object of my invention is to provide a staple attaching tool for securing wire strands, fence or like to metal posts.

More specifically, the object of this invention is to provide a hand-operated tool that will draw a strand of wire onto a metal post, place a U-shaped staple around the post and then bend the ends of the staple around the wire strand, thereby securing the strand to the post.

A further object of my invention is to provide a fence stapling tool that is easy to operate.

A still further object of my invention is to provide a tool for stapling fence to metal posts that is rapid in operation.

A still further object of this invention is to provide a fence stapler that is economical in manufacture and durable in use.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangement, and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of my tool in use.

Fig. 2 is a longitudinal sectional view of my device taken on line 2—2 of Fig. 1.

Fig. 3 is a perspective view of a staple bent around a post and strand of wire by my tool.

Fig. 4 is an enlarged perspective view of a U-shaped staple.

Fig. 5 is a cross-sectional view of my device taken on line 5—5 of Fig. 1 and more fully illustrates its construction.

In recent years metal fence posts have been rapidly replacing the use of wooden posts. This is particularly true when temporary fencing is required. The chief problem, however, has been the successful securing of the fence to the metal post which is most commonly T-shaped in cross-section with a longitudinal row of projections on its flat side. Usually, wire staples are employed. These staples are placed around the post and the ends of the staple are bent around the wire fence by the use of a pair of pliers or like. Obviously, such a procedure of securing a fence to a post is not only slow and tiresome but requires a certain amount of skill. I have overcome such objections as will hereinafter be appreciated.

Referring to the drawings I have used the numeral 10 to designate an ordinary metal fence post having a row 11 of lugs on its flat side for receiving between any two lugs the fence strand

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12. The numeral 13 designates a common U-shaped wire or metal rod staple. My tool is designed to clinch such a staple around the post 10 and wire strand 12, as shown in Fig. 3. However, it is obvious that my tool can operate with staples of different shape or design and also the metal post may be of different design from that of the one shown. The numeral 14 designates the trough portion of my tool having its forward end open and an elongated rearwardly extending slot opening 15 in its forward central bottom, as shown in Fig. 1. The two spaced apart sides of the trough extend forwardly a slight distance beyond the trough bottom. Formed in the bottom edge of each of these sides and forward the trough bottom is a notch 16 for forming the two downwardly and rearwardly extending hooks 17 at the forward end of the trough. The purpose of these two hook portions is to temporarily catch the wire strand and hold it tightly against the post during the stapling operation. Formed on the rear upper end of the trough is a hollow handle portion 18. Slidably extending through this handle 18 is an elongated hollow shaft 19 having a grip portion 20 on its rear end. On the forward end portion of the shaft 19 and within the upper portion of the trough are two forwardly extending ratchet toothed arms 21 and 22, as shown in Fig. 1. These two arms are spaced apart to slidably engage the insides of the two trough walls, respectively, and when the shaft is in a rear sliding position, terminate a substantial distance from the end of the trough. The teeth of these two arms are on their undersides. The numerals 23 and 24 designate two ratchet gears rotatably mounted on the forward inside of the two sides of the trough, respectively. A tension spring 25 is provided for each of the gears for yieldingly holding them in one direction of their rotation. These gears are so placed that they are engaged eventually by the ratchet arms when the shaft 19 is moved forwardly. The numeral 26 designates a wire bending finger extending outwardly and forwardly from each of the gears. The free end of each of these fingers is biforked for engaging the top and sides of the end portions of the staple. The numeral 27 designates a horizontal plate secured to the inside of each of the sides of the trough. These two plates are spaced above the bottom of the trough and are at each side of the notch opening 15, respectively. The numeral 28 designates a rod having its rear end slidably extending into the forward end of the shaft 19. It is limited in its sliding movement

by a pin 29 extending through a longitudinal slit 30 in the wall of the shaft. A coil spring 31 yieldingly holds the rod forwardly in its sliding movement. This rod extends forwardly and then downward in the trough and has its forward end connected to a U-shaped plunger shoe 32. This shoe is slidable on the bottom of the trough and capable of passing under the plates 27 for forcing a staple forwardly.

The practical operation of the tool is as follows:

With the shaft 19 in rear position a staple 13 is placed on the magazine space 33, which is the space on the trough bottom and between the rear ends of the plates 27 and the shoe 32. The next operation is to hook the prongs 17 over the fence strand with the fence post in the notch opening 15, as shown in Fig. 1. The strand 12 may normally be some distance from the post and the depth of the notch 15 permits the tool to pass at each side of the post in order to catch the strand with the hook portions 17. By pulling the tool rearwardly the hooked fence strand will be drawn tightly to the post and between two of the bumps of the row 11 of the post. Next by holding the tool rearwardly by use of the handle 18, the shaft 19 is forced forwardly by use of the grip 20. The first action resulting therefrom is to move the shoe forwardly, thereby forcing the staple 13 under the two plates. Simultaneously, the ratchet arms move forwardly and eventually contact the ratchet wheels. By further forward movement of the shaft 19 the staple will be moved to tightly embrace the post with the ends of the staple extending above the fence strand, and with the ratchet gears in contact with the forwardly moving ratchet arms, the fingers on the ratchet gears will swing around forwardly thereby contacting the two end portions of the staple and moving these two end portions downwardly and rearwardly in hooked condition around the fence strand, as shown in Fig. 3. The continued forward movement of the ratchet arms to accomplish this last action (even though the shoe and staple has engaged the post) is made possible by the spring 31 yieldingly permitting the ratchet arms to move forwardly after the rod 28 and shoe 32 have stopped forward movement.

From the above, it will be obvious that once the wire strand is contacted by the prongs 17 and pulled to the post, one forward movement of the grip 20 will place the staple tightly around the post and bend the staple ends around the wire strand, thereby successfully securing the strand to the post. To remove the tool, the grip is pulled rearwardly to return the actuating mechanism to cocked positions, and the hook ends 17 detached from the now fastened wire strand. The plates 27 not only guide the staple into place, but holds the same during the clinching operation. As soon as the rod 19 is moved to the rear, the tension springs 25 will return the ratchet gears to normal positions with their bending fingers 26 to the rear and ready for the next stapling operation. While I have described the staple magazine as that space on the trough bottom forward of the shoe 32 when the shoe is rearward, it is obvious that a magazine hopper for holding a plurality of staples may be secured in this area.

Some changes may be made in the construction and arrangement of my fence stapling tool without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a fence stapling tool, a handle having a bore extending longitudinally through it, a pair of spaced apart legs secured to said handle and extending therefrom parallel to each other, a hollow rod slidably mounted in said handle; said rod extending between said legs, a solid rod having a portion of its length slidably engaged in the hollow of said hollow rod, a stop means on said solid rod, a spring loosely embracing said solid rod and trapped between said stop means and the end of said hollow rod, a staple advancing and holding shoe secured to said solid rod, a pair of cogs rotatably secured one to the inside of each of the free ends of said U-frame, a pair of Y-bending fingers fixed to each of said cogs and extending radially therefrom, a U-rack bar slidably mounted inside said U-frame and havings its closed end rigidly secured to said hollow rod; said U-rack bar capable of being slidably moved to engage and rotate said cogs, hooks on the free ends of said U-frame, and springs on said cogs for yieldingly rotating said cogs in the opposite direction from that in which said cogs are rotated by said U-rack bar.

2. In a fence stapling tool, a U-frame, a handle fixed to the closed end of said U-frame, a bore extending longitudinally through said handle and the closed end of said U-frame, a rod slidably mounted in said bore and extending within said U-frame, a U-rack bar slidably mounted within said U-frame; the closed end of said U-rack bar fixed to said rod, a staple advancing and holding means yieldingly secured to said rod, a pair of cogs one rotatably secured to each of the free ends of said U-frame and operated by said U-rack bar when the U-rack bar is slidably moved in the U-frame, a pair of bending fingers one secured to each of said cogs and extending radially therefrom, and hooks formed on the forward free ends of said U-frame.

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