Jan. 1, 1957 G. T. SHERMAN 2,776,108

SPIKE OR BOLT PULLER

Filed March 16, 1954

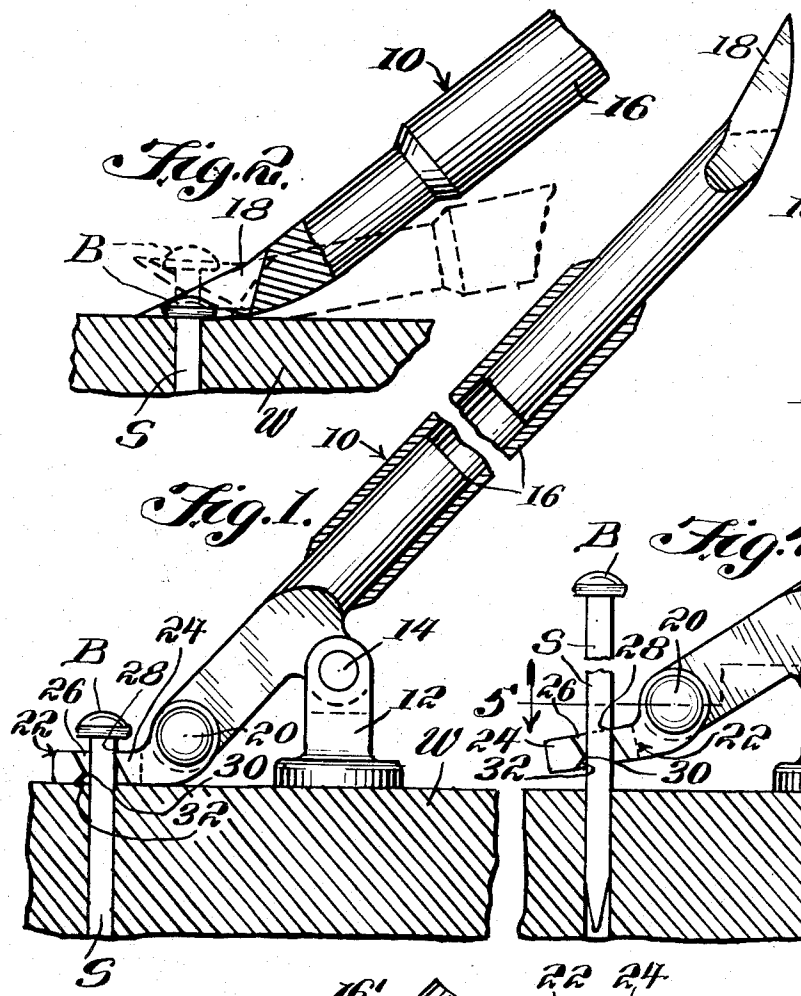


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

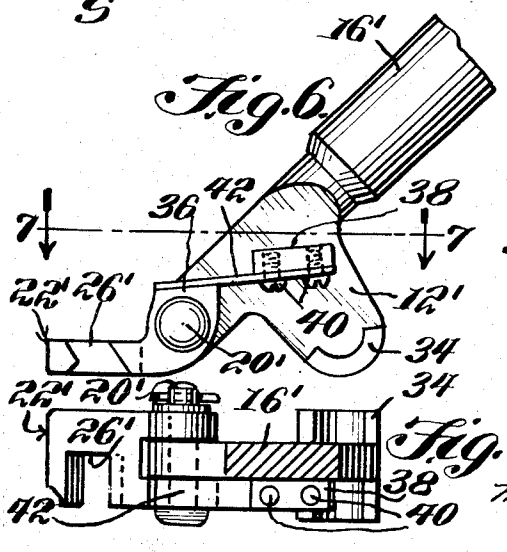


Fig. 6.

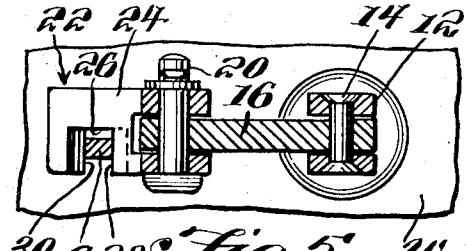


Fig. 5.

Fig. 7.

INVENTOR.
George T. Sherman,
BY
McMorrow, Berman & Davidson
ATTORNEYS

United States Patent Office 2,776,108 Patented Jan. 1, 1957

2,776,108

SPIKE OR BOLT PULLER

George T. Sherman, Medford, Oreg.

Application March 16, 1954, Serial No. 416,601

1 Claim. (Cl. 254—27)

This invention relates to a spike or bolt puller and has for its primary object to extract from a work piece a spike or bolt extending thereinto.

Another object is to extract the shank of the spike or bolt from the work in a rectilinear path so as to avoid bending the shank during the extraction thereof.

The above and other objects may be attained by employing this invention which embodies among its features a fulcrum, a lever carried adjacent one end by the fulcrum to move in an arcuate path adjacent work engaged by the fulcrum, a shank engaging jaw carried by the lever to move adjacent the fulcrum about an axis which extends transversely across the arcuate path, and sharpened edges carried by the jaw for engaging and penetrating as the lever is moved in the arcuate path successive increments of opposite sides of a shank extending into the work to extract the shank from the work in a path substantially normal to the work.

Other features include a cam face carried by the jaw adjacent one side thereof and extending transversely across the axis in spaced relation thereto, and a leaf spring carried by the lever and engaging the cam face for yieldingly holding the jaw in a selected angular position relative to the longitudinal axis of the lever.

Still other features include a starting claw carried by the lever and extending longitudinally from the end thereof remote from the fulcrum.

In the drawings:

Figure 1 is a fragmentary sectional view through a piece of work having a spike extending thereinto and showing a spike or bolt puller according to the present invention in position on the spike after the head of the spike has been lifted to partially extract the shank from the work;

Figure 2 is a view showing an extractor in use lifting the head of a spike from the work;

Figure 3 is a plan view of the head lifting claw of the extractor of Figure 2;

Figure 4 is a view similar to Figure 1, showing the puller in the act of lifting the spike;

Figure 5 is a horizontal sectional view taken substantially on the line 5—5 of Figure 4;

Figure 6 is a fragmentary side view of a modified form of the invention; and

Figure 7 is a horizontal sectional view taken substantially on the line 7—7 of Figure 6.

Referring to the drawings in detail, the illustrated bolt or spike puller, generally designated **10**, comprises a fulcrum foot **12** having pivotally connected to the upper end as at **14** a lug **15** depending from a lever **16**. The lug **15** is located near to and spaced from one end of the lever **16**. Carried by the lever and projecting longitudinally from the end thereof remote from the fulcrum **12** is an extractor claw **18** which is adapted to engage beneath the head of a bolt or spike B, the shank S of which is embedded in work W, as will be readily understood upon reference to the drawings. As shown in Figure 2, the claw **18** functions in a manner similar to

a conventional claw-type tack puller in order to start the bolt or spike B out of the work, as suggested by the dotted lines in Figure 2.

Pivotally mounted on one end of the lever **16** as at **20** for movement about an axis extending crosswise of the lever **16** is a jaw **22**, comprising a substantially rectangular flat plate **24** having a shank receiving notch **26** which opens through one side edge of the plate **24** for receiving the shank S of a spike or bolt B. As illustrated in the drawings, the opposite walls of the notch are in spaced parallel relation but are inclined to the upper and lower faces of the jaw **26** to define sharpened edges **28** and **30** which are adapted to engage opposite sides of the shank S to exert lifting effort thereon when the lever **16** is depressed toward the work W. The free end of the jaw **22** is beveled as at **32** so that as the lever **16** is moved in a direction to advance the jaw **22** toward the work W, the jaw may move freely downwardly with relation to the shank S of the spike or bolt B that is being extracted from the work.

In the modified form of the invention, illustrated in Figures 6 and 7 a depending fulcrum lug **12'** is formed integrally with the lever **16'** and extends laterally outwardly therefrom adjacent one end thereof. The arm **12'** is provided with an arcuate foot **34** serving as a rocker which bears on the work and on which the arm **12'** is supported and the foot **34** defines a fulcrum which bears on the work for enabling the lever **16'** to rock in an arcuate path adjacent the work. Pivotally connected as at **20'** to the lever **16'** adjacent the arm **12'** is a jaw member designated generally **22'** which moves in an arcuate path adjacent one side of the lever **16'** and is provided with a slot **26'** corresponding in all respects to the slot or recess **26** in the jaw member **24**. Carried by the jaw member **22'** and extending upwardly adjacent one side of the end of the lever **16'** to which the jaw member **22'** is pivoted is a flat **36** which extends transversely relative to and spaced from the axis of the pivot **20'**. A lug **38** is carried by the lever **16** and projects laterally outwardly therefrom adjacent the fulcrum **12'** and secured to said lug as by screws **40** is a leaf spring **42** which, as illustrated in Figure 6, bears on the flat **36** of the jaw member **22'**.

In use, the claw **18** is engaged with the head of the bolt or spike B to start the extraction thereof from the work W, as illustrated in Figure 2. When the head of the bolt or spike B has been lifted to the maximum extent by the claw **18**, the fulcrum **12** is placed on the work W, as illustrated in Figure 1, with the shank S of the partially extracted spike or bolt B entering the recess **26** in the jaw member **22**. With the jaw member thus partially embracing the shank S, the lever **16** is moved about the pivot **14** of the fulcrum **12** to exert lifting effort on the shank S by the engagement of the sharpened edges **28** and **30** with the shank S. As the shank S is partially extracted from the work W by the jaw member **22**, the lever **16** is moved in the opposite direction to move the jaw member **22** downwardly along the shank S to cause the sharpened edges **28** to engage the shank in spaced relation to its first engagement therewith so that by repeated rocking of the lever **16**, the jaw member is caused to take a fresh grip on the shank S and the spike or bolt B will be extracted in successive steps in a rectilinear path which lies substantially normal to the work.

In employing the type of puller illustrated in Figures 6 and 7, the foot **34** of the arm **12'** is disposed upon the surface of the work with the slot or recess **26'** receiving the shank of the bolt or spike to be extracted from the work. By advancing the lever **16'** toward the work, it will rock on the curved surface of the foot **34** to move the jaw member **22'** away from the work with the sharp-

ened edges of the opposite walls of the recess **26'** engaging opposite sides of the shank being extracted. As reverse movement is applied to the lever **16'**, the sharpened edges of the jaw member **22'** will in effect ratchet along the opposite sides of the shank under the influence of the spring **42** so that as soon as reverse motion is applied to the lever **16'**, the sharpened edges of the jaw member **22'** will engage and partially penetrate opposite sides of the shank being extracted. By using either of the devices described, it is obvious that a spike or bolt may be extracted from work in which it is embedded with but a minimum of effort and with but a minimum of injury thereto, owing to the fact that it is extracted in a substantially rectilinear path which lies normal to the work so that no bending of the shank results.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What is claimed is:

In a spike puller, an elongated lever having a first end and a second end, fulcrum means secured to and projecting laterally from said lever near said first end, and

a jaw pivoted on a transverse axis on said lever at said first end of the lever, said jaw comprising a flat plate having a spike receiving notch opening through one side thereof and providing opposed gripping edges, said jaw plate having an inner end which is pivoted on the said one end of the lever, a flat carried by said jaw and extending transversely across said jaw in spaced relation to said transverse axis, and a leaf spring carried by said lever and extending across the flat in engagement therewith for yieldingly holding the jaw in a selected angular position relative to the longitudinal axis of the lever.

References Cited in the file of this patent

UNITED STATES PATENTS

129,412	Jackson	July 16, 1872
463,817	Slocom	Nov. 24, 1891
564,122	Thayer et al.	July 14, 1896
652,093	Diener	June 19, 1900
1,221,323	Hill	Apr. 3, 1917
1,396,615	Woodcock	Nov. 8, 1921

FOREIGN PATENTS

263,737	Switzerland	Dec. 1, 1949