

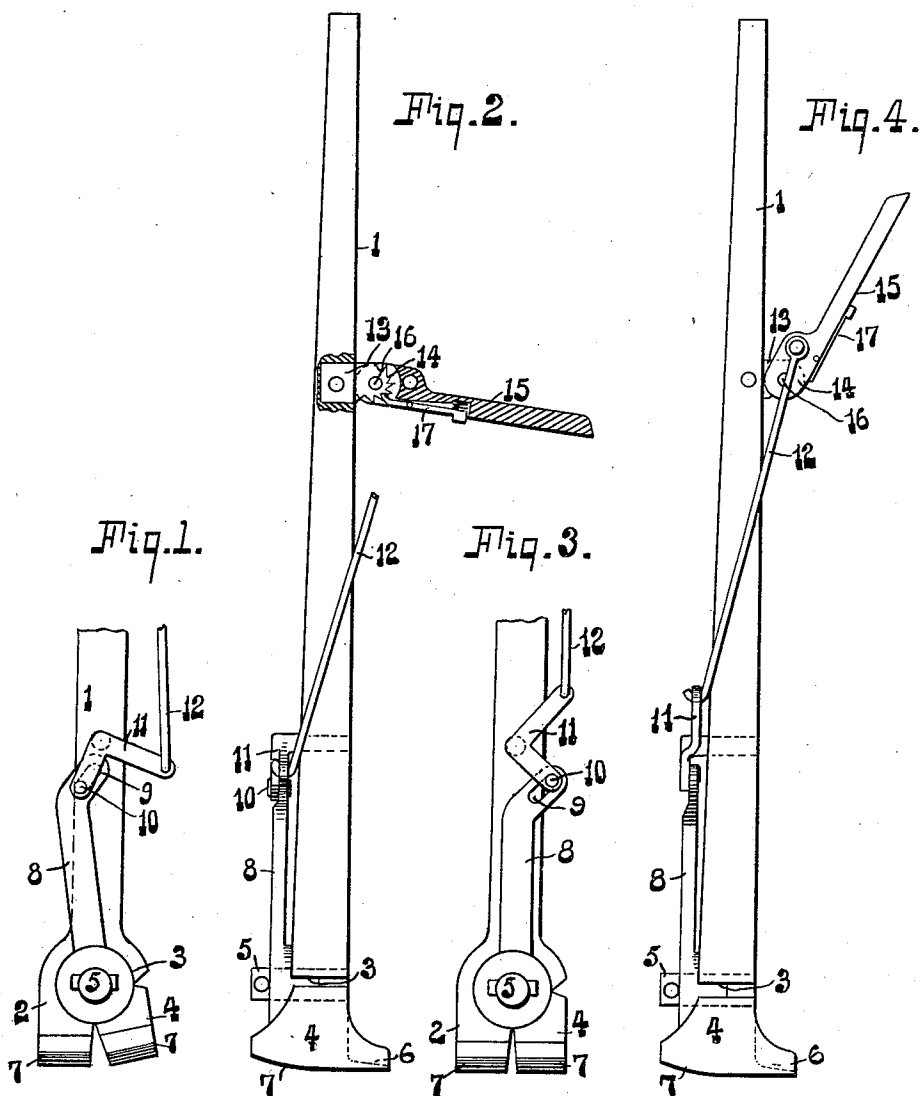
No. 725,902.

PATENTED APR. 21, 1903.

E. E. WELSH.  
SPIKE EXTRACTOR.

APPLICATION FILED JUNE 12, 1902.

NO MODEL.



WITNESSES

*G. S. Harway.*  
*Artemus Welsh.*

INVENTOR

*Elmer E. Welsh,*  
*By Edward A. Lawrence,*  
his Attorney.

# UNITED STATES PATENT OFFICE.

ELMER E. WELSH, OF LAWRENCE, KANSAS, ASSIGNOR TO ROBERT WRAY,  
OF PITTSBURG, PENNSYLVANIA.

## SPIKE-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 725,902, dated April 21, 1903.

Application filed June 12, 1902. Serial No. 111,254. (No model.)

*To all whom it may concern:*

Be it known that I, ELMER E. WELSH, a citizen of the United States of America, and a resident of the city of Lawrence, county of Douglas, State of Kansas, have invented certain new and useful Improvements in Spike-Extractors, of which the following is a specification.

In the drawings which make part of this specification, Figure 1 is a rear elevation of the lower portion of my spike-extractor, showing the jaws open. Fig. 2 is a side elevation showing the jaws in the same relative position and also a sectional view of the operating-lever and ratchet. Fig. 3 is a rear elevation of the lower portion of my device, showing the jaws closed; and Fig. 4 is a side elevation of my device with the jaws closed.

My invention, briefly stated, consists in a new and improved spike-extractor for use on railway-work and like purposes where spikes, nails, or metal pins or bolts are to be drawn. It is of a very simple though substantial construction, and in the operation of clutching the article to be extracted at once adjusts itself to any size of spike without prior adjustment of parts and obtains a firm hold.

The following is a detailed description of my invention, reference being had to the drawings.

1 is the handle or main lever of my extractor and is of suitable length to furnish sufficient leverage to extract the spike after the jaws have obtained a firm hold.

2 is one of the jaws made integral with handle 1 or rigidly attached thereto with suitable bolts or rivets. Jaw 2 is recessed at 3 to permit the pivotal attachment thereto of movable jaw 4 by means of pin 5, journaled in said jaws. The portions of said jaws intended to seize the spike to be extracted are the front of the jaws, which are cut away, as at 6 6, to form comparatively thin lips or claws. The under surfaces of the jaws are rounded up toward the rear, as at 7 7, to form a continuous fulcrum or bearing-surface as the extractor is tilted backward in the operation of withdrawing the spike.

8 is an arm or lever made integral with or rigidly attached to movable jaw 4, and when said jaw is in its closed position said lever is

virtually parallel with handle 1. At its upper extremity said lever 8 is provided with longitudinal slot 9, which slot is in turn engaged by pin 10 on the lower arm of bell-crank lever 11. Bell-crank lever 11 is pivoted at its center to handle 1, and the extremity of its upper arm is pivoted to the lower end of lever or rod 12.

13 is a projection on the front of handle 1, rigidly attached thereto, as shown in the drawings, or made integral therewith, as desired. Integral with said projection is half-round ratchet 14.

15 is a small operating-lever recessed longitudinally at its lower extremity to admit ratchet 14 and pivotally attached to said ratchet by pin 16 passing through said ratchet.

17 is a spring-pawl on lever 15 and when not pressed out of the way engaging ratchet 14, thus securely holding said lever 15 in any position relative to ratchet 14 in which it may be placed. Rod 12 is pivotally connected at its upper end with lever 15 at a point between pin 16 and the upper extremity of said lever.

The operation of my device is as follows: When lever 15 is swung down to its lowest position, as shown in Fig. 2, rod 12 is forced downward, turning bell-crank lever 11, which in turn forces lever 8 to one side, thus rotating movable jaw 4, so that the jaws are open to their widest extent. The jaws are then placed over the spike to be drawn and lever 15 is now pulled upward, whereupon the above-described movement of the various parts is reversed and movable jaw 4 is forced toward fixed jaw 2. Said lever 15 is thus forced upward until the jaws obtain a firm hold on the spike to be extracted, when said lever is released; but pawl 17, engaging ratchet 14, holds said lever firmly in the position it has assumed and also holding the jaws in their secure embrace of the spike to be extracted. It remains but to pull the lever or handle 1 backward and downward and the spike is extracted.

Among the special merits of my invention may be mentioned its extreme simplicity of construction, allowing great strength of materials and insuring durability. A further and important merit is the fact that my ratchet arrangement permits an immediate

adjustment of the jaws to any size of spike without any preliminary changes of parts or their mutual relation, insomuch as the lifting of lever 15 brings the jaws into close  
 5 contact with the spike to be drawn, and the engagement of pawl 17 with ratchet 14 holds the jaws in place, so that lever 15 may be let  
 10 alone and both hands of the operator given to tilting back the handle 1.

Although I have described my invention with minuteness, I do not desire to be limited thereby; but

I claim broadly—

15 In spike-extractors, the combination of a handle; clutching-jaws at the extremity of

said handle; a projection on the front of said handle; a vertical ratchet on said projection; a vertically-swinging lever pivoted to said projection; a spring-pawl on said lever adapted to engage said ratchet, and a rod pivoted  
 20 to said lever between said pawl and the pivoted end of said lever and operatively connected with one of said clutching-jaws.

Signed by me at Lawrence, Kansas, this 4th day of June, 1902.

ELMER E. WELSH.

Witnesses:

ANNA WELSH,  
 J. M. SPENCER.