

(No Model.)

A. WELSH.
SPIKE EXTRACTOR.

No. 571,816.

Patented Nov. 24, 1896.

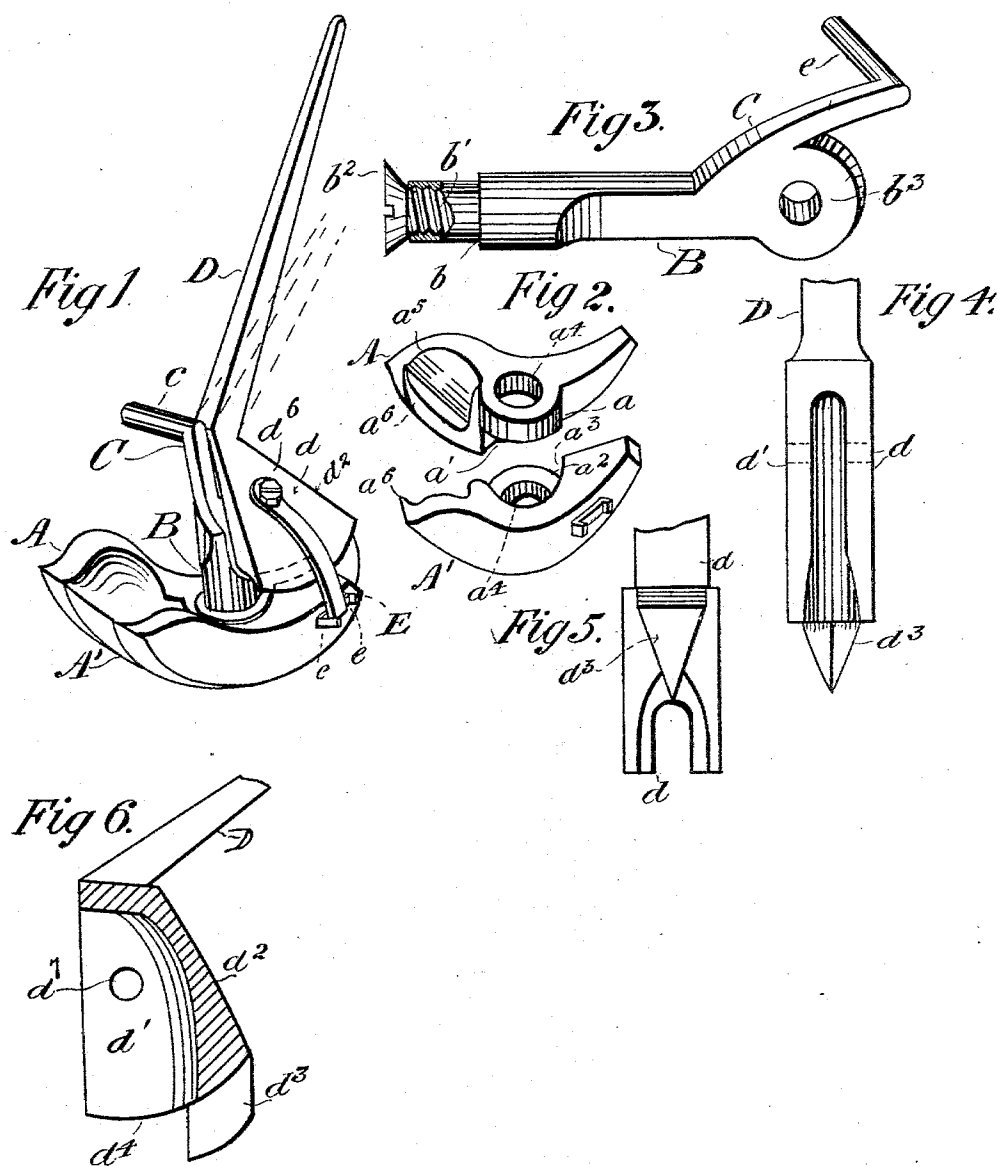


Fig 7.

WITNESSES:
Wm. Watson
R. R. Porritt

INVENTOR
Artemus Welsh
BY
Rich. H. Manning
ATTORNEY

UNITED STATES PATENT OFFICE.

ARTEMUS WELSH, OF LAWRENCE, KANSAS.

SPIKE-EXTRACTOR.

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To all whom it may concern:

Be it known that I, ARTEMUS WELSH, a citizen of the United States, residing at Lawrence, in the county of Douglas and State of Kansas, have invented certain new and useful Improvements in Spike-Extractors; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to and is an improvement upon the invention in spike-extractors for which I made application for Letters Patent on the 3d day of January, 1896, Serial No. 574,253.

The object of the present invention is, first, to obtain a pivotal connection of the lever with the fulcrum-post nearer the lines of force in extracting the spike and a direct downward bearing upon the hinged jaws; second, to obtain a short leverage in closing the jaws upon the spike; third, to provide means for opening the forward ends of the jaws automatically; fourth, to combine the fulcrum-post detachably with the jaws.

My invention further consists in the novel construction and combination of parts, such as will first be fully described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a view in perspective of the improved implement. Fig. 2 is a detail view of the jaws detached from each other. Fig. 3 is a detail side view of the fulcrum-post, showing the screw-bolt and foot-lever. Fig. 4 is a detail face portion of the lower end of the operating-lever, showing the recess. Fig. 5 is a detail view of the lower end of the operating-lever, looking upward, showing the recess and wedge. Fig. 6 is a vertical sectional view of the lower end of the operating-lever. Fig. 7 is a detail broken front view of the opposite jaws, showing the hinged ears of the jaws and the recess for the head of the screw-bolt.

Similar letters of reference indicate corresponding parts in all the figures.

Referring to the drawings, A A' are the separate spike-grasping jaws, each of which is constructed in the form of a segment of a circle, so as to constitute rockers. These

rockers are arranged substantially in parallelism, side by side. Upon the inner side portion of the jaw A, at a point nearly equidistant from each end and extending from the upper surface of the jaw, is an outwardly-curved projection or ear a . The under side portion of the ear a is cut away, forming a semicircular recess a' . Upon the inner side portion of the jaw A', at a point corresponding with the lug a on the jaw A, is a projection or ear a^2 , which extends from the under side portion of the said jaw. The upper side portion of the ear is cut away, so as to form a semicircular recess a^3 , which receives the ear a^2 in the jaw A, the ear a^2 overlapping ear a^3 . In the ears $a^2 a^3$ is a vertical registering perforation a^4 .

B is the fulcrum-post, which projects upwardly from the jaws at a point directly over the ears $a^2 a^3$. In the lower end b of the fulcrum-post B is an internal-screw-threaded pivot b , which extends downwardly within the registering perforations a^4 of the ears $a^2 a^3$ and forms the pivot upon which the jaws oscillate.

b' is a screw-threaded bolt which extends upwardly within the screw-threaded pivot b in the post B. Upon this screw-bolt b' is a head b^2 , and in the under side portion of the ear a^2 of jaw A is a recess b^3 , which receives the head b^2 of said screw, and is within the curved surface of the under side of the rockers or jaws. The upper end portion of the fulcrum-post, which extends a comparatively short distance from the jaws, is slightly enlarged and flattened upon both sides and perforated in a transverse direction at b^3 .

To the forward side portion of the fulcrum-post is attached rigidly one end of a bar C, the other end of which bar extends a short distance in an upward direction and is projected forward at an angle to the fulcrum-post, and a portion c of said bar bent at right angles and extended a short distance from the fulcrum-post, preserving a position transversely to the spike-grasping jaws A A'.

D is the operating-lever to the implement. The lower end portion d of the lever D consists of a triangular block or casting, in the forward inclined edge portion of which is a recess d' , extending from the upper or narrow portion of the block the greater part of the

distance in the direction of the other inclined edge portion and downwardly through the lower edge of the block, leaving a continuous rib or web d^2 , extending from the top of the block and downwardly a short distance below the edge of the block d , and its lower extremity d^3 is formed with a double bevel or the sides inclined inwardly toward each other, so as to constitute a wedge, and also curved outwardly or rounded, so as to form a segmental wedge, which enters between the rear ends of the jaws $A A^2$.

The block d is arranged upon the fulcrum-post, which enters the recess d' the proper distance to permit an oscillating movement of the block at its lower end portion in advance of the forward portion of the fulcrum-post. In the block d at a point directly opposite the perforation b^3 in the fulcrum-post is a perforation d' . In the perforation d' and b^3 is a pivot-bolt d^4 . The lower end portion of the block d is curved, as at d^4 , so as to avert contact with the upper surface of the jaws. The upper end portion of the lever consists of a straight bar, which is connected with the upper portion of block d and extends upwardly a considerable distance and is deflected rearwardly at an acute angle to the rib portion d^2 of the block d . To the side of the block d on the bolt d^4 is attached rigidly the upper end of a flat plate of spring-steel E , the lower end of which plate extends downwardly to a position against the outside portion of the rear end of the jaw A' between the lugs $e e$.

The outer or working faces of the jaws $A A'$ are hollowed out or concave at $a^5 a^5$ to provide for the reception of the head of the spike or bolt, and is also provided with the lower inwardly-projecting edges $a^6 a^6$ to engage beneath the said head, so that the grasp of the jaws may be effectual at the respective points of contact.

In the operation of the implement the forward ends of the jaws $A A'$, which are automatically thrown apart by the spring E , is introduced beneath the head of the spike, and the under surface of the rockers are placed upon the tie. In this position the foot is placed upon the bar c and the lever D held from movement, which action causes a slight rocking movement of the rockers $A A'$ and a partial closing of the forward end of the jaws upon the head of the spike. Power is then applied to the long arm of the lever D , which is rocked backward, thereby rocking the jaws $A A'$ upon under surfaces and forcing the wedge-shaped extremity of rib d^3 between the rear end portion of the jaws. This action causes the working surfaces of the jaws to grasp the shank of the spike, and the bearing or lines of force are nearly vertical, thus

bringing the weight upon the rockers without deflecting the fulcrum-post, and preventing the fulcrum-post from bending and wearing at the shoulder. When from use the jaws become worn or injured, the screw-bolt is removed and another jaw or fulcrum-post substituted, thus enabling the parts to be replaced with little trouble and expeditiously. I am also enabled to reduce the length of the spike-grasping jaws in the position in which the lever is connected with the fulcrum-post, and thus enable the spike to be extracted with the application of less power to the operating-lever.

Having fully described my invention, what I now claim as new, and desire to secure by Letters Patent, is—

1. A spike-extractor composed of oscillating spike-grasping jaws, and ears upon the opposite inner sides of said jaws adapted to overlap and provided with a vertical registering perforation, a vertical fulcrum-post, a pivot upon the lower end of said post upon which the jaws oscillate extending within the perforation in said ears and a lever having a recessed lower end portion pivotally connected with said fulcrum-post, and a rib having a downwardly-extended oppositely-inclined portion or wedge at its lower extremity adapted to engage with the opposing sides of the rear ends of said jaws, as and for the purpose described.

2. A spike-extractor composed of oscillating spike-grasping jaws, said jaws having curved bearing-surfaces and an intermediate hinged connection, a fulcrum-post, a lever having a recessed lower end portion pivotally connected with said fulcrum-post and a wedge at the extremity of the lower end of the recessed portion of said lever, and a laterally-extended bar on the said fulcrum-post, as and for the purpose described.

3. The combination in a spike-extractor with the oscillating hinged jaws of the vertical fulcrum-post, a recessed block pivotally connected with the upper end of the said post having a downwardly-extended rib, and a wedge at the lower extremity of said rib, and an upwardly and rearwardly deflected lever connected with the said block, lugs on the outer side and rear end portion of one of said jaws and a spring-plate connected at one end with the pivot on said fulcrum-post for said recessed block and having the other end retained between the lugs on the side of said jaw, substantially as and for the purpose described.

ARTEMUS WELSH.

Witnesses:

W. J. COMER,
S. L. C. HASSON.