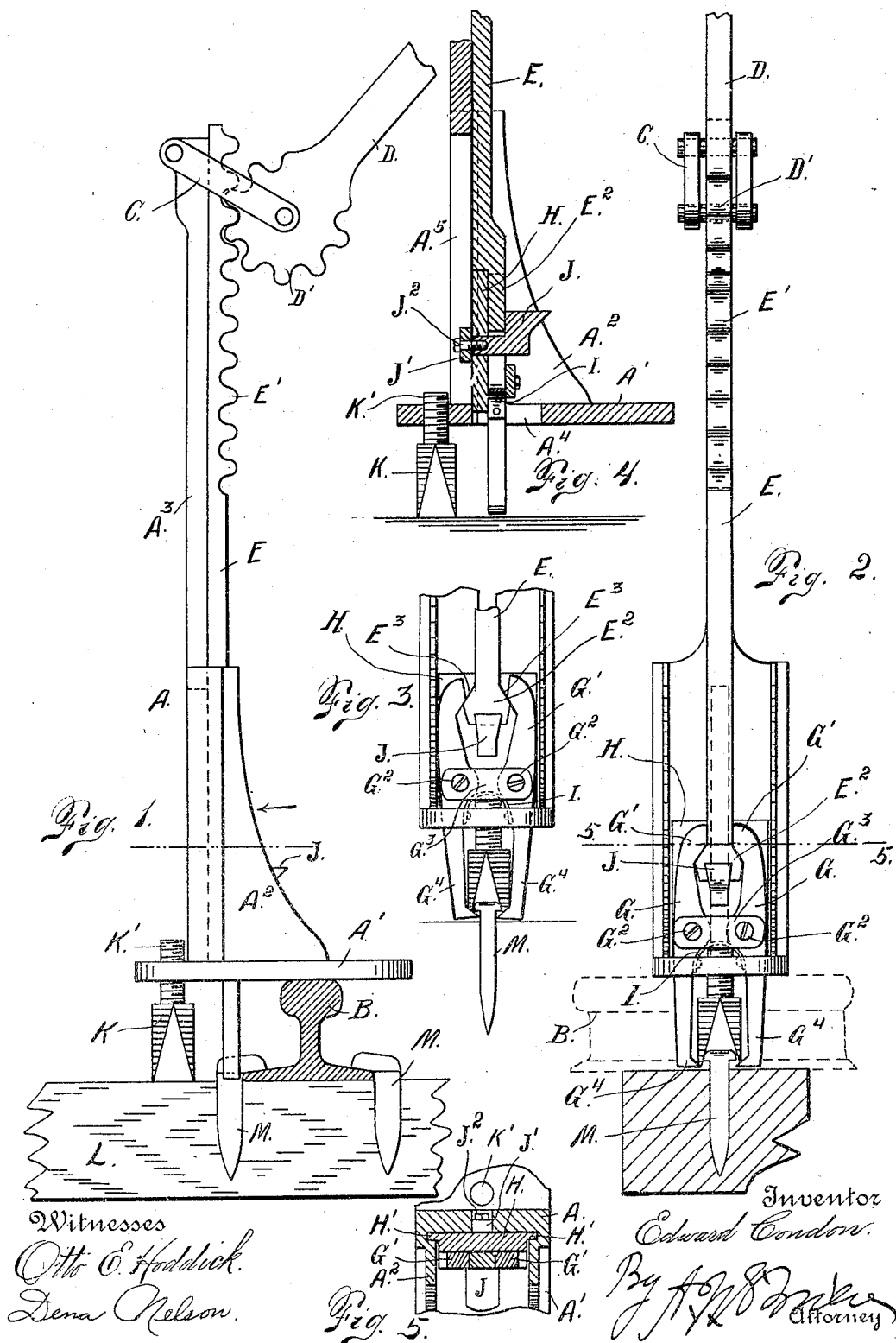


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SPIKE PULLER.
APPLICATION FILED JAN. 11, 1904.



UNITED STATES PATENT OFFICE.

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SPIKE-PULLER.

SPECIFICATION forming part of Letters Patent No. 779,028, dated January 3, 1905.

Application filed January 11, 1904. Serial No. 188,674.

To all whom it may concern:

Be it known that I, EDWARD CONDON, a citizen of the United States of America, residing at Silverton, in the county of San Juan and State of Colorado, have invented certain new and useful Improvements in Spike-Pullers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in spike-pullers, being more especially intended for the pulling of spikes of the character employed in fastening railway-rails to the ties.

My improved device consists of a suitable relatively stationary frame adapted to rest on the rail and tie, a bar slidably connected therewith, and also a plate carrying a pair of pivoted jaws, with which the bar is connected and relatively movable, the said jaw-carrying plate having a part adapted to receive the foot of the user, whereby the jaw-carrying plate may be held relatively stationary until the bar is actuated sufficiently to close the lower extremities of the jaws, whereby they are adapted to grasp the head of the spike, after which the jaw-plate is moved with the bar until the spike is pulled or extracted. The connection between the lower extremity of the bar and the spike-pulling jaws is such that while the bar may be moved relatively sufficiently to actuate the jaws or cause their lower extremities to engage the head of the spike this movement is not sufficient to release the bar from the jaws, and the bar is connected so that after the jaws have assumed the holding position on the spike-head the jaw-carrying plate and the bar move in unison.

Having briefly outlined my improved construction and explained its use or function, I will proceed to describe the same in detail, reference being made to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side elevation of my improved device shown in position for use.

Fig. 2 is a front view of the same or a view looking in the direction of the arrow in Fig. 1. Fig. 3 is a view of the lower part of the device, showing the jaws in the closed position, or the position engaging the head of the spike to be pulled. Fig. 4 is a central vertical section taken through the device. Fig. 5 is a section taken on the line 5 5, Fig. 2.

The same reference characters indicate the same parts in all the views.

Let A designate the framework or relatively stationary part of my improved device considered in its entirety. This frame consists of a base-plate A', adapted to rest upon the top of the rail B, a sort of housing A², located above the plate A', and an upwardly-extending shank A³, to the upper extremity of which is connected a pair of links C. The opposite extremities of these links are connected with the cogged extremity D' of a lever-arm D. The extremity D' of this lever-arm coöperates with the cogged or rack portion E' of a vertically-movable bar E, whose lower extremity E² is somewhat enlarged and provided with beveled shoulders E³. This extremity E² of the bar E is adapted to occupy a position between the upper extremities G' of a pair of lever-like jaws G, pivotally connected with a plate H, slidable in the housing part A² of the frame. As shown in the drawings, the jaws G are pivoted on pins G², made fast to the plate H, and a link or strap G³ is applied to the pins on the outside of the jaws and held in place by suitable fastening means. Below their pivots the jaws are engaged by a spring I, which has a tendency to normally hold their lower or spike-engaging extremities G⁴ apart or sufficiently separated to allow the head of the spike to pass between the jaws until the device is lowered to the operating position. It will be observed that the base of the frame is provided with an opening A⁴, through which the lower portion of the jaws pass and in which the jaws are adapted to move freely during the operation of pulling the spike. In order to enable the user to hold the jaw-plate in position to allow the bar E sufficient movement to throw the jaws to the spike-pulling position shown in Fig. 3, I employ a lug J,

which is inserted in an opening formed in the jaw-carrying plate and protrudes into a slot A⁵, formed in the back part of the frame. To the inner extremity of this lug 5 is applied a small block J' by means of a screw J². This block allows the lug and the plate H to slide freely on the frame, but at the same time prevents the lug from pulling out through the opening in the plate when 10 the parts are assembled in operative relation. It will be observed that the shank of this lug occupies a position between the two jaws G' and protrudes sufficiently from the sides of the housing to enable the user to place his 15 foot thereon and hold the jaw-plate relatively stationary during the operation of closing the jaws on the spike-head.

In order to give the device a thoroughly stable support during the spike-pulling operation, I employ a support K, adapted to rest 20 upon the tie L and whose upper portion consists of a threaded shank K', adapted to enter a threaded opening formed in the base A'. Since the threaded shank enters a threaded 25 opening, the device K may be adjusted to suit the requirements of any particular case. As shown in the drawings, the lower part of the device K is bifurcated, and its extremities are sufficiently sharp to indent the wooden tie and 30 hold the device in the proper position, thus preventing accidental displacement.

From the foregoing description it is believed that the use and operation of my improved device will be readily understood. Assuming that the parts are in the position 35 shown in Figs. 1 and 2 of the drawings, if it is desired to pull a spike M the foot of the user is placed upon the lug J and sufficient resistance offered to prevent the upward movement of the jaw-plate H until the bar E has 40 moved sufficiently to spread the upper extremities of the jaws and close their lower extremities upon the spike-head. This movement of the bar E is imparted by pressing 45 downwardly on the lever D, whereby its cogged extremity being in engagement with the rack E' of the bar, as aforesaid, acts to raise the bar E. As soon as the bar E has moved sufficiently to close the lower extremities of the jaws upon the spike-head the upper 50 portions of the jaws engage the sides A² of the housing part of the frame and prevent the jaws from spreading farther, and consequently prevent the jaws from releasing the bar, after which the upward movement of the 55 bar takes the plate and jaws with it, and consequently pulls the spike.

It will be observed that the guide-block J' also forms a stop to prevent the jaw-plate from 60 moving downwardly farther than is necessary through the opening A⁴, and it also forms a stop against the unnecessary upward movement of the said plate.

The plate H, vertically slidable in the frame, 65 as heretofore explained, is provided with ver-

tical tongues H', which engage counterpart ways or guides formed in the frame. (See Fig. 5.)

Having thus described my invention, what I claim is—

1. The combination with a suitable frame, 70 of a bar connected therewith and relatively movable thereon, a plate movable in the frame, a pair of spring-held jaws pivotally mounted on the plate, the lower extremity of the bar 75 engaging the said jaws above their pivots, and occupying a position between them, the bar having a limited independent movement and being shaped to spread the upper extremities 80 of the jaws during this independent movement, whereby the lower extremities of the jaws, are caused to move toward each other to engage the head of the spike to be pulled, suitable 85 means connected with the frame and acting on the vertically-movable bar, for actuating the latter together with the jaw-plate and jaws, and a foot-rest connected with the jaw-plate for the purpose set forth.

2. The combination with a suitable relatively stationary frame, of a bar slidably movable 90 thereon, a plate also movable in the frame and having a pair of spike-pulling jaws, a spring engaging these jaws whereby their lower extremities are held normally open while their upper extremities have a tendency to 95 close, the lower extremity of the movable bar being enlarged and occupying a position between the upper extremities of the jaws and adapted to have a limited movement independently of the jaws whereby the upper extremities 100 of the latter are spread apart and their lower extremities correspondingly closed, and a lug or foot-rest connected with the jaw-plate, whereby the user may hold the jaw-plate relatively stationary, while the bar is given a 105 limited movement sufficient to actuate the jaws, substantially as described.

3. The combination with a relatively stationary frame, adapted to rest upon a suitable support above the spike to be pulled, and 110 provided with a base having an opening, the said frame also having sides extending outwardly above the base, a plate slidable in ways formed in the frame, a pair of jaws pivotally mounted on the plate and occupying a position 115 between the sides of the frame, a bar movable on the frame and whose lower extremity occupies a position between the upper extremities of the jaws, the said extremity of the bar and the jaws being constructed to cause the 120 jaws to spread apart as the bar is given an independent movement, the sides of the frame on opposite sides of the jaws, forming stops to prevent the jaws from moving far enough in response to the movement of the bar, to release the bar, and suitable means connected 125 with the stationary frame and engaging the relatively movable bar for actuating the latter, substantially as described.

4. In a device of the class described, the com- 130

5 bination of a relatively stationary frame, a plate slidable in said frame, a pair of jaws pivotally connected with the plate, a spring connected with the jaws, whereby their lower extremities are held normally open while their upper extremities have a tendency to close, a bar relatively movable on the frame and whose lower extremity occupies a position between the upper extremities of the jaws and is provided with beveled shoulders, engaging corresponding bevels formed on the jaws, whereby as the bar is moved independently of the jaws, the upper extremities of the latter are forced apart, the frame being provided with parts which limit the outward movement of the jaws to prevent the latter from releasing the bar, the upper portion of the bar being cogged, and a lever connected with the frame and having a cogged extremity engaging the cogs of the bar in operative relation whereby the latter is actuated, substantially as described.

10 5. In a spike-puller, the combination with a suitable frame, provided with a base projecting both forwardly and rearwardly from an upwardly-projecting bar, an adjustable support connected with the rear extremity of the base, a plate slidably movable in the frame, a pair of spring-held jaws pivoted on the plate and adapted to extend below the base the lat-

ter being provided with an opening therefor, and a relatively movable bar connected with the jaws to have a limited independent movement, and engaging the jaws to spread their upper extremities during such movement, the frame having sides to limit the outward movement of the upper extremities of the jaws to prevent the bar from becoming detached from the jaws, and a suitable operative connection between the bar of the frame and the vertically-movable bar, substantially as described.

15 6. In a device of the class described, the combination with a suitable frame, of a plate slidably mounted therein, jaws pivotally mounted thereon, a foot-rest connected with the said plate, and a vertically-movable bar having a part located between the jaws on one side of their pivots and having a limited independent movement to separate the jaws at one extremity and cause them to approach each other at the opposite extremity, without detaching the bar from the jaws and whereby the jaws and bar travel together after the independent movement of the bar ceases.

20 In testimony whereof I affix my signature in presence of two witnesses.

EDWARD CONDON.

Witnesses:

DENA NELSON,
A. J. O'BRIEN.