

No. 711,341.

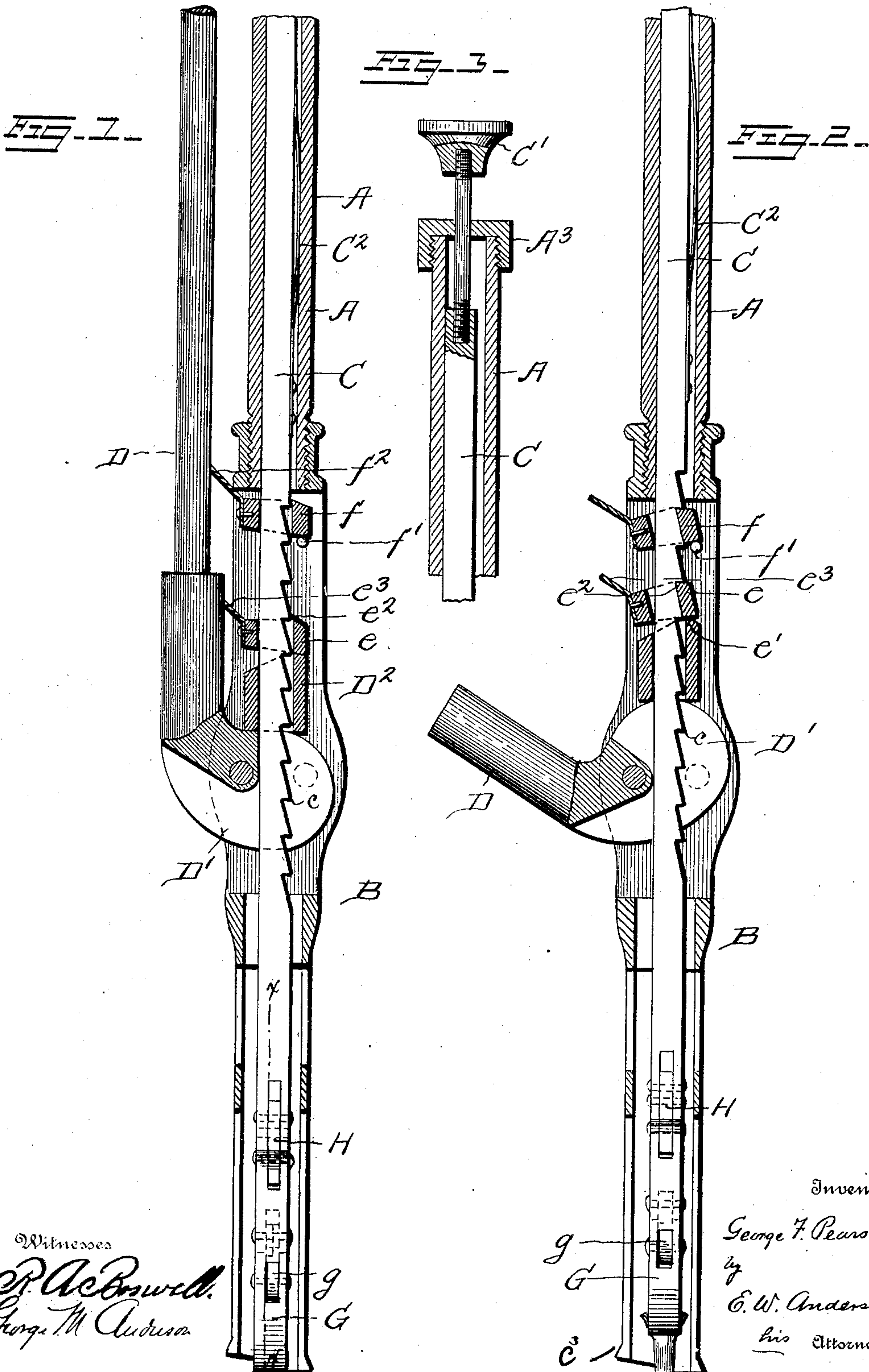
Patented Oct. 14, 1902.

G. F. PEARSON.
SPIKE DRAWER OR EXTRACTOR.

(Application filed Jan. 8, 1902.)

(No Model.)

2 Sheets—Sheet 1.



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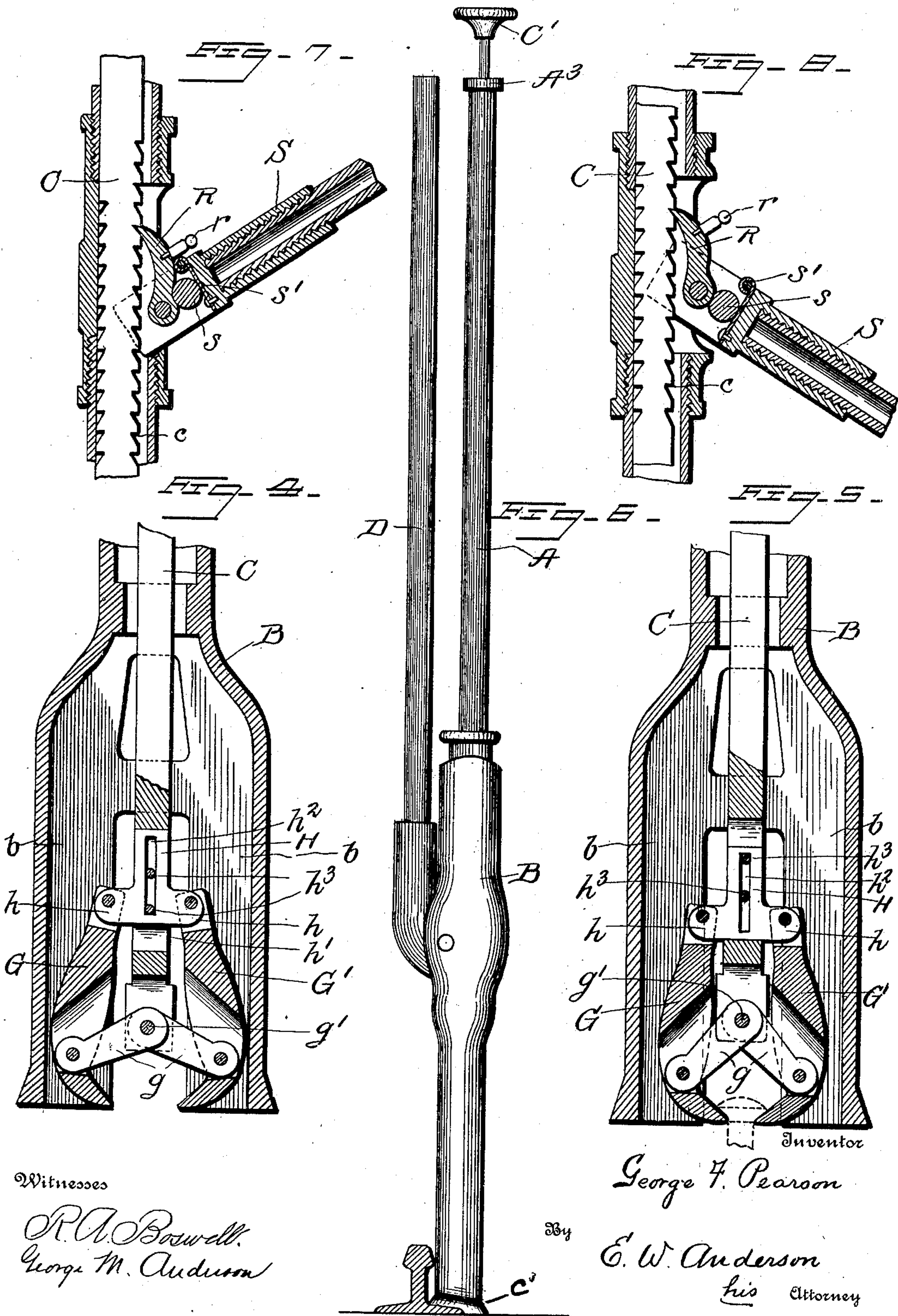
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UNITED STATES PATENT OFFICE.

GEORGE FOSTER PEARSON, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO SARAH C. MORRILL, OF NEW YORK, N. Y., TRADING AS CHARLES MORRILL.

SPIKE DRAWER OR EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 711,341, dated October 14, 1902.

Application filed January 8, 1902. Serial No. 88,921. (No model.)

To all whom it may concern:

Be it known that I, GEORGE FOSTER PEARSON, a citizen of the United States, and a resident of Lowell, in the county of Middlesex and State of Massachusetts, have made a certain new and useful Invention in Spike Drawers or Extractors; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a central longitudinal section of my invention, the handle-lever being shown as raised. Fig. 2 is a similar view with handle-lever depressed. Fig. 3 is a fragmentary sectional view of the upper end of frame A. Figs. 4 and 5 are sectional views on line $x x$, Fig. 1, on a larger scale and showing jaws G G' open and closed. Fig. 6 is a side elevation of the extractor as applied. Figs. 7 and 8 illustrate a modified form of the invention.

This invention has relation to spike drawers or extractors, and has for its object the provision of such a device of novel and efficient character, as hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, the letter A designates the tubular frame of my device, having a base portion B of skeleton character and terminating below in downwardly-extending branches or bifurcations b of channel form in cross-section and designed to rest upon the rail flange and tie to which their lower surfaces conform.

In the tubular frame A is the rack-bar C, provided at its lower end with the spike-gripping jaws hereinafter described, such bar having along one side thereof the teeth c , and in order to raise such bar the following devices are provided.

D is the handle-lever, pivoted to base B and having a cam end portion D' , projecting within such base below and in engagement with sleeve-support D^2 , which surrounds bar C

and rests upon said cam end portion. Upon sleeve D^2 rests floating pawl e of tubular or sleeve character and through the opening in which passes the rack-bar. This pawl operates or turns upon a raised edge e' of sleeve D^2 and has at one side an acute wall or tooth e^2 , arranged to engage the teeth of the rack-bar, and at the opposite side an operating lug e^3 , projecting through an opening of the base. This pawl is weighted to normally tip into engagement with the teeth of the rack-bar, which it raises upon upward movement of the handle-lever, while upon downward movement of such lever, the sleeve D^2 and pawl falling, the tooth of the pawl will slip down upon the rack-bar into engagement with the tooth next below, the rack-bar being held in raised position by upper pawl f of similar character to the lower pawl e and resting and turning upon pin f' of the frame and weighted to normally tip into engagement with the teeth of the rack-bar at one side, while at the opposite side thereof an operating lug f^2 projects through an opening of the frame. Upon sufficient upward movement of the handle-lever it is successively brought into engagement with the lugs of the pawls to release the same from engagement with the rack-bar, which may then be pushed downwardly.

G G' represent the twin lever-jaws for gripping the spike, which are inclosed and guarded by the branches of the footpiece B and have lower ends or jaws proper of converging-wedge character arranged to operate upon opposite sides of the spike-head, such jaws being pivoted through toggle-links g to pin g' , engaging the lower end of the rack-bar, such links being received at their upper ends in the slot between the branches of such lower end portion of the rack-bar, which is bifurcated, and at their lower ends in central slots through the lever-jaws, to which they are connected intermediately of the lengths of such jaws. The upper ends of the jaws are pivoted to lateral lugs h of a guide-plate or slide H, reciprocating in a slot h' of the rack-bar and having a guide-slot h^2 therein engaging

pins h^3 of the rack-bar. The jaws are of straight character between their fulcrum and toggle pivots. These jaws close by gravity to the spike and under strain through the
 5 rack-bar have a powerful leverage exerted thereupon through the toggle-links aforesaid to close tightly to the spike, and the greater this strain caused by greater resistance of the spike the tighter the jaws close thereupon.
 10 As the jaws close they fall, the guide-plate H moving downwardly in the rack-bar and the upper ends of the jaws fulcruming upon their connections to such slide.

In operation the device is placed over the
 15 spike to be extracted, with the footpiece C^3 resting upon the rail-flange and tie at opposite sides of the spike, and, assuming that a spike has been previously withdrawn, the rack-bar is pushed downwardly through its
 20 upper headed extension C' , passing through an opening in the screw-cap A^3 of the upper tube-section, such movement being checked by the plate-spring C^2 , carried by such bar and bearing against the inner wall of the tube.
 25 As the rack continues to move downwardly the jaws thereof, which are substantially parallel when completely closed, take a bearing against the head of the spike and being pressed upwardly rise, taking sliding ful-
 30 crums at their upper ends and spreading apart through separation of the toggle-links aforesaid until they fall over the projecting head of the spike at opposite sides thereof. The rack-bar is now forced upwardly step by
 35 step through reciprocation of the handle-lever D, thus closing the toggle-links g together, and thereby the jaws to the spike, under the head thereof. The rack-bar is forced upwardly until the spike has been com-
 40 pletely extracted, when the lever-jaws will occupy the upper portion of the hollow foot-piece, the spike occupying the lower portion thereof and falling over to one side between the bifurcations of such footpiece as the rack-
 45 bar is in turn again moved downwardly when placed over a second spike for the removal of the same from its seat.

In Figs. 7 and 8 of the drawings I have shown a modification of my invention. In
 50 this modification the rack-bar is raised by a pawl R, pivoted to and operated by movement of the handle-lever S, provided with a fulcrum bearing upon pin s . The center of the pivot-pin of the pawl R is distant
 55 about one-half of an inch from the center of the pivot-pin of lever S, which lever has a length of working arm of about two feet, whereby a powerful leverage is exerted to raise the rack-bar step by step and yet in an
 60 expeditious manner. The pawl R is pressed to the teeth of the rack-bar at the upward limit of the stroke of the handle-lever through
 65 pate-spring s' , which is secured to the rear wall of the slotted end portion of such lever in which works the pawl R. A projecting

lug or pin r upon such pawl allows it to be pressed backwardly out of the way when it is desired to disengage the same from the rack-bar.

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

1. In a spike-puller, the reciprocatory rack-bar, a spring-brake for checking the fall of such bar, the handle-lever, a pawl device op-
 75 erated by said handle-lever to raise said bar, and the gripping device carried by said rack-bar, substantially as specified.

2. In a spike-extractor, the tubular frame, the reciprocatory rack-bar in said frame, and
 80 having an upper headed extension through the top of such frame, the spring-brake in such frame for checking the fall of such bar, the handle-lever, a pawl device operated by
 85 said handle-lever to raise said bar, and the gripping device carried by said rack-bar, substantially as specified.

3. In a spike-extractor, the reciprocatory rack-bar, the handle-lever, the pawl device operated by said handle-lever to raise said
 90 bar, the slide working in said bar, the gravity-closing jaws fulcruming upon bearings carried by said slide, the toggle-links connecting said jaws intermediately of the lengths there-
 95 of with said bar below such slide, said slide being arranged to abut against said bar to limit the outward movement of said jaws, and said jaws being arranged to abut against said bar to limit their inward movement, sub-
 100 stantially as specified.

4. In a spike-extractor, the combination with the reciprocatory rack-bar carrying a gripping device and working in a tubular frame, of the handle-lever pivoted to said
 105 frame, and having a cam end portion, a loose support carried by said cam end portion, a separate pawl device having a fulcrum upon said loose support and disconnected there-
 110 from, and means for preventing fall of said bar between the strokes of the lever, substantially as specified.

5. In a spike-extractor, the tubular frame, the reciprocatory rack-bar in said frame, and having an upper extension through the top of
 115 such frame, the spring-brake in such frame for checking the fall of such bar, the handle-lever, the pawl device operated by said handle-lever to raise said bar, the slide working in said bar, the jaws fulcruming upon bear-
 120 ings carried by said slide, and the toggle-links connecting said jaws intermediately of the lengths thereof, with said bar below such slide, substantially as specified.

6. In a spike-extractor, the combination with the reciprocatory rack-bar, having a
 125 gripping device of the handle-lever having a cam end portion, a support carried by said cam end portion, and having a raised edge, a lower pawl device arranged to turn upon said edge into engagement with the teeth of
 130

the rack, and an upper pawl device for preventing fall of said bar between strokes of the lever, substantially as specified.

5 7. In a spike-extractor, the reciprocatory rack-bar, having a gripping device, the handle-lever, pawl devices for raising said bar and for retaining said bar as raised upon opposite strokes of such lever, and means for releasing

both said pawl devices at the limit of the up-stroke of said lever, substantially as specified. 10

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

GEORGE FOSTER PEARSON.

Witnesses:

CHARLES H. WORCESTER,
GEORGE BRYAN.