J. C. CHAPMAN.
Nail-Extractor.

No. 204,536. Patented June 4, 1878.

Fig. 1.

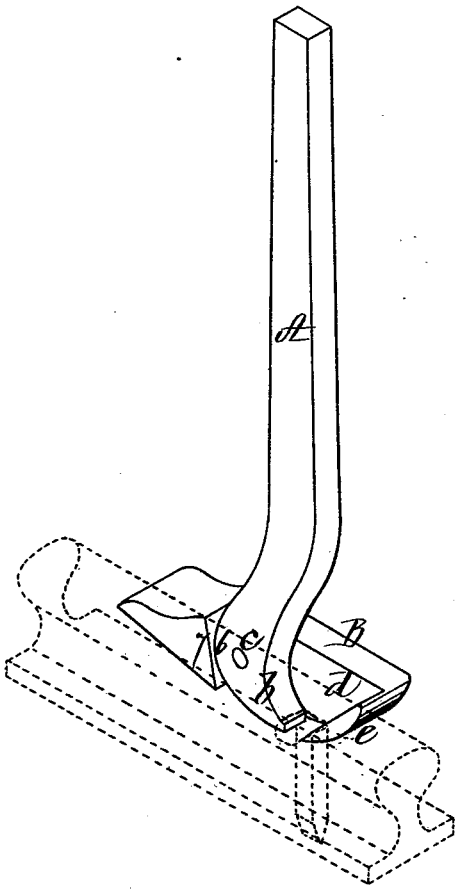


Fig. 2.

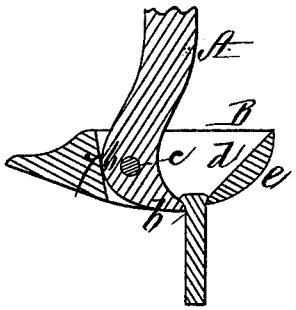


Fig. 3.

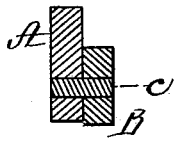


Fig. 4.

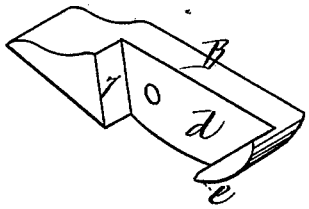
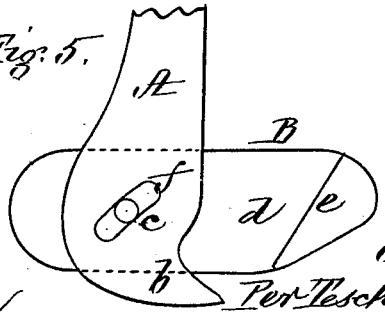


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN C. CHAPMAN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN NAIL-EXTRACTORS.

Specification forming part of Letters Patent No. **204,536**, dated June 4, 1878; application filed December 4, 1877.

To all whom it may concern:

Be it known that I, JOHN C. CHAPMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Spike, Bolt, and Nail Extractor, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my improved implement. Fig. 2 is a longitudinal vertical section through the same. Fig. 3 is a transverse vertical section. Fig. 4 is a perspective view of the foot-piece. Fig. 5 is a modification.

My present invention has for its object to simplify the construction of implements for drawing spikes, bolts, and nails; and consists in a recessed or slotted foot-piece, provided at one end with an inclined side, and at its opposite end with a jaw, in combination with a bar or lever pivoted near its lower end to the foot-piece, within its recess or slot, and provided with a curved portion and griping-jaw, arranged opposite to the jaw of the foot-piece, and acting in connection therewith, the spike, bolt, or nail being drawn out in a straight line without bending by a series of short successive movements of the lever in an easy and convenient manner.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I carry it out.

In the said drawings, A represents a bar or lever, the lower portion of which is bent into the shape seen in Figs. 1 and 2, its point *b* forming a wedge-shaped jaw. This bar A is pivoted by a strong pin, *c*, to a foot-piece, B, which is provided with a recess, *d*, to receive the end of the bar, which, when in place, lies flush or nearly so with the outer surface of the foot-piece. One end of this foot-piece is so constructed as to form an inclined wedge-shaped jaw, *e*, which is located directly opposite to the griping-jaw *b* of the lever A. The biting-edges of the jaws may, however, be notched, serrated, or otherwise suitably formed to adapt them to the purpose for which they are to be used.

In operating my improved implement, the foot-piece is placed upon the surface from which the spike or bolt is to be drawn. The lever A is then moved so as to cause the jaw *b* to recede from the jaw *e*, to admit the head of the spike or bolt between them, after which it is griped by moving the lever in the opposite direction. This latter movement of the lever causes the biting-edges of the jaws to be forced under the head of the spike, the wedging action of the jaws assisting to start it. As the lever A is still farther moved in the same direction, the foot-piece B is rocked thereby, the curved form of the bottom of the foot-piece causing the distance of the fulcrum from the spike or bolt to vary with the position of the lever; and it will be seen that the force with which the jaws gripe the spike or bolt will increase in proportion to the resistance offered in drawing it.

After the spike or bolt has been partially drawn, the gripe thereon is released by carrying the lever back in the opposite direction, which causes the jaw *b* to recede from the jaw *e*, and a new hold is then taken, and the lever moved as before, to still farther draw the spike or bolt, which, as it is withdrawn by the successive vibrations of the lever, passes freely up through the recess *d* in the foot-piece B; and it will thus be seen that, with this implement, a spike or bolt can be readily griped at any portion of its length by the jaws, and withdrawn in a straight line, without being bent, by a series of short successive vibrations of the lever, and a much more powerful leverage is thus obtained than with an implement constructed to take but one hold of the spike or bolt at the head and draw it out at a single movement of the bar or lever.

The curved portion 6 of the lower end of the lever A bears against the adjacent side 7 of the recess *d*, which thus serves as a support to relieve the strain on the pin *c*, and prevent it from being bent or broken.

Instead of constructing the foot-piece B with a recess, *d*, as shown, it may be provided with a slot for the reception of the lower end of the lever A; but when the implement is designed for drawing railroad-spikes I prefer the recess, for the reason that it allows the jaws *b e* to be placed close alongside of and in line with the rail, as seen in Fig. 1, in a position to readily seize the head of the spike, and with the foot-

piece B or jaw *b* resting firmly on the flange or lower portion of the rail, so as to secure a solid bearing or fulcrum—important advantages, which will be appreciated by railroadmen.

If preferred, the lever A may be provided with a slot, *f*, as seen in Fig. 5, through which the pin *c* passes, by which construction the implement is better enabled to gripe spikes and bolts of various sizes.

What I claim as my invention, and desire to secure by Letters Patent, is—

The recessed or slotted foot-piece B, with its inclined side 7 and jaw *e*, in combination with the bar or lever A, pivoted near its lower end to the foot-piece within its recess or slot, and provided with a curved portion, 6, and griping-jaw *b*, arranged opposite to the jaw *e*, and acting in connection therewith, the several parts constructed and relatively arranged to operate substantially in the manner and for the purpose set forth.

Witness my hand this 1st day of December, A. D. 1877.

JOHN C. CHAPMAN.

In presence of—

P. E. TESCHEMACHER,

N. W. STEARNS.