W. F. KENGLE.

STUMP-EXTRACTOR.

No. 169,909. Patented Nov. 16, 1875.

Fig. 1.

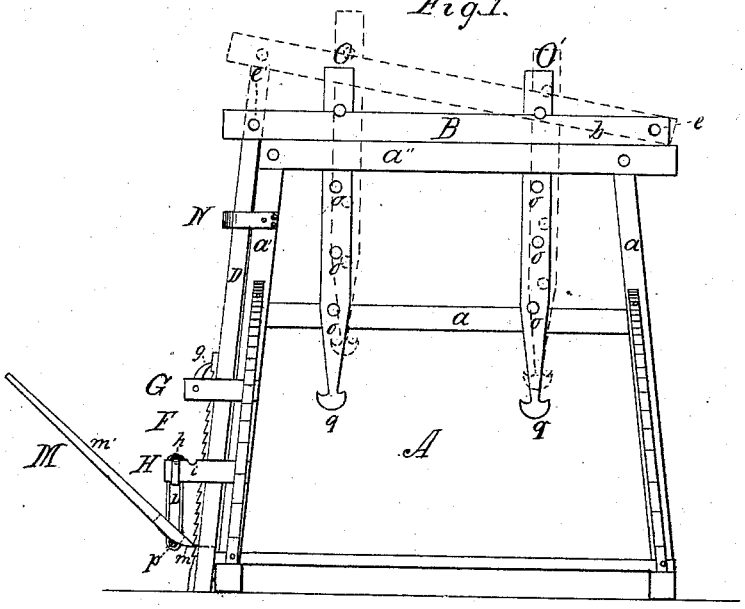


Fig. 2.

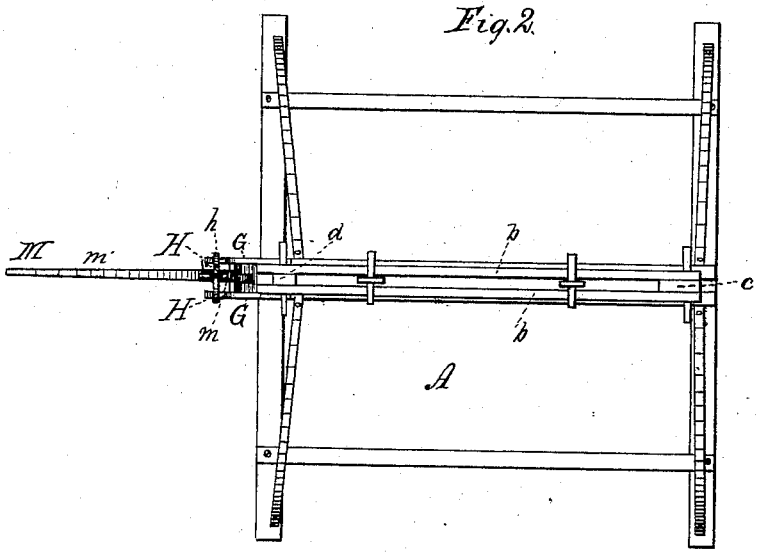
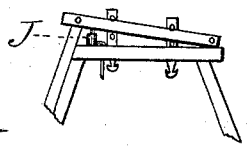


Fig. 3.



WITNESSES

Phil. M. Zeale,

James Maidren

INVENTOR

William F. Kengle

By Edward Kenyon & Co.

Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM F. KENGLE, OF ROCKPORT, PENNSYLVANIA.

IMPROVEMENT IN STUMP-EXTRACTORS.

Specification forming part of Letters Patent No. **169,909**, dated November 16, 1875; application filed October 11, 1875.

To all whom it may concern:

Be it known that I, WILLIAM F. KENGLE, of Rockport, in the county of Carbon and State of Pennsylvania, have invented certain new and useful Improvements in Stump-Extractors; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to an improvement in stump-extractors; and consists, generally, in a combination of levers and lifting-bars, suitably connected, and mounted upon a frame, which straddles the stump to be operated upon. The various devices and combinations thereof involved in my invention, and the manner of their operation, will be hereinafter particularly described with reference to the accompanying drawing, in which—

Figure 1 is a side elevation of my invention. Fig. 2 is a plan view, and Fig. 3 shows a modification.

A is the frame, which straddles the stump. *a a a' a''* are the timbers of said frame. B is a lever, one end of which rests upon the rear part of the top of frame A. The lever B is composed of two parallel bars, *b b*, separated by a block, *c*, at the rear end of the lever, and by end *d* of beam D at the front end of said lever. Through the bars *b b* and block *c* at the rear end and end *d* of beam D at the front end of the lever pass pins *e e'*, for retaining the parts in position. D is a beam, extending downward along the front leg *a'* of frame A, the upper end of said beam passing between bars *b b* of lever B, and secured loosely thereto by pin *e'*. To the front side of beam D is attached a ratchet-plate, F. G G and H H are arms, arranged in pairs, as shown, Fig. 2, and projecting forward from leg *a'* of frame A. A pawl, *g*, is journaled between arms G G, and projects upward into the teeth of ratchet-plate F. *h* is a bar, having downward-bent ends, and resting upon arms H H, being held in proper position by notches *i i*. L is a link, passing over said bar *h*, and supported thereupon. This link L extends downward, and passes through a slot in hand-lever M, a pin, *p*, passing through said link and under lever M, to serve as a fulcrum. The short arm *m* of lever has its end beveled, and the upper and acute edge of said end takes into the teeth of ratchet-plate F, as shown in Fig. 1. The long arm *m'* of lever M may be of any desired length with reference to the power to be exerted. N is a metal strap, attached to leg *a'* and surrounding beam D, for which it serves as a guide. The top timber *a''* of frame A is composed of two parallel bars, separated about the same distance as the bars composing lever B. O O' are lifting-bars, perforated with holes *o o o o*. The upper ends of these lifting-bars extend upward between the bars composing the top timber of frame A, and also between the bars *b b* composing lever B, while the lower ends of said lifting-bars hang downward a suitable distance and terminate in hooks *q q'*.

The operation of my invention is as follows: The frame A is arranged astride a stump, and a chain, securely attached to the stump, is then attached taut to the hook *q'* of the rear lifting-bar O'. The long arm *m'* of lever M is then raised, in order that the acute edge of short arm *m* may take into the lower teeth of ratchet-plate F. A pin having been inserted into the hole *o* of lifting-bar O', immediately above the lever B, downward pressure is now applied to the long arm *m'* of lever M, thus raising beam D, lever B, and bars O O' to the positions shown in dotted lines, Fig. 1. The pawl *g* supports the parts in this position while a fresh hold is taken by lever M. After having raised a stump as far as the adjustment of the apparatus will allow, if it is desired to there suspend it or to raise it higher, a pin must be inserted in one of the holes *o* of the lifting-bar, immediately above the top timber *a''*. The parts may then, except O', be lowered to their original positions, and the operation just explained repeated.

The rear lifting-bar O', it will be seen, can be used for exerting greater power than can the front bar O, owing to its point of support being nearest the fulcrum of lever B. It should, therefore, be used for starting refractory stumps and lifting heavy weights. The front lifting-bar O is capable of raising higher than the rear bar, and may be used for rais-

ing a stump higher which has been started by means of the rear bar O′.

In the modification shown in Fig. 3, J is a hydraulic jack, located on top of frame A, in proper position to lift lever B. The use of the hydraulic jack will only be necessary in cases where a greater lifting-power is required than can be conveniently applied by means of hand-lever M; and as such cases will very seldom occur, I do not propose to attach such jacks permanently to the apparatus, but to apply them only temporarily, as needed.

Having now fully explained the construction and operation of my invention, I claim and desire to secure by Letters Patent—

1. The combination of lever B, one or more lifting-bars, O O′, frame A, beam D, having ratchet-plate F, and lever M, substantially as shown and described.

2. The combination of frame A, lever B, lifting-bars O O′, beam D, having ratchet-plate F, pawl *g*, and lever M, substantially as described.

In testimony that I claim the foregoing as my own invention, I affix my signature in presence of two witnesses.

WILLIAM F. KENGLE.

Witnesses:

GEO. C. KENGLE,

L. KENGLE.