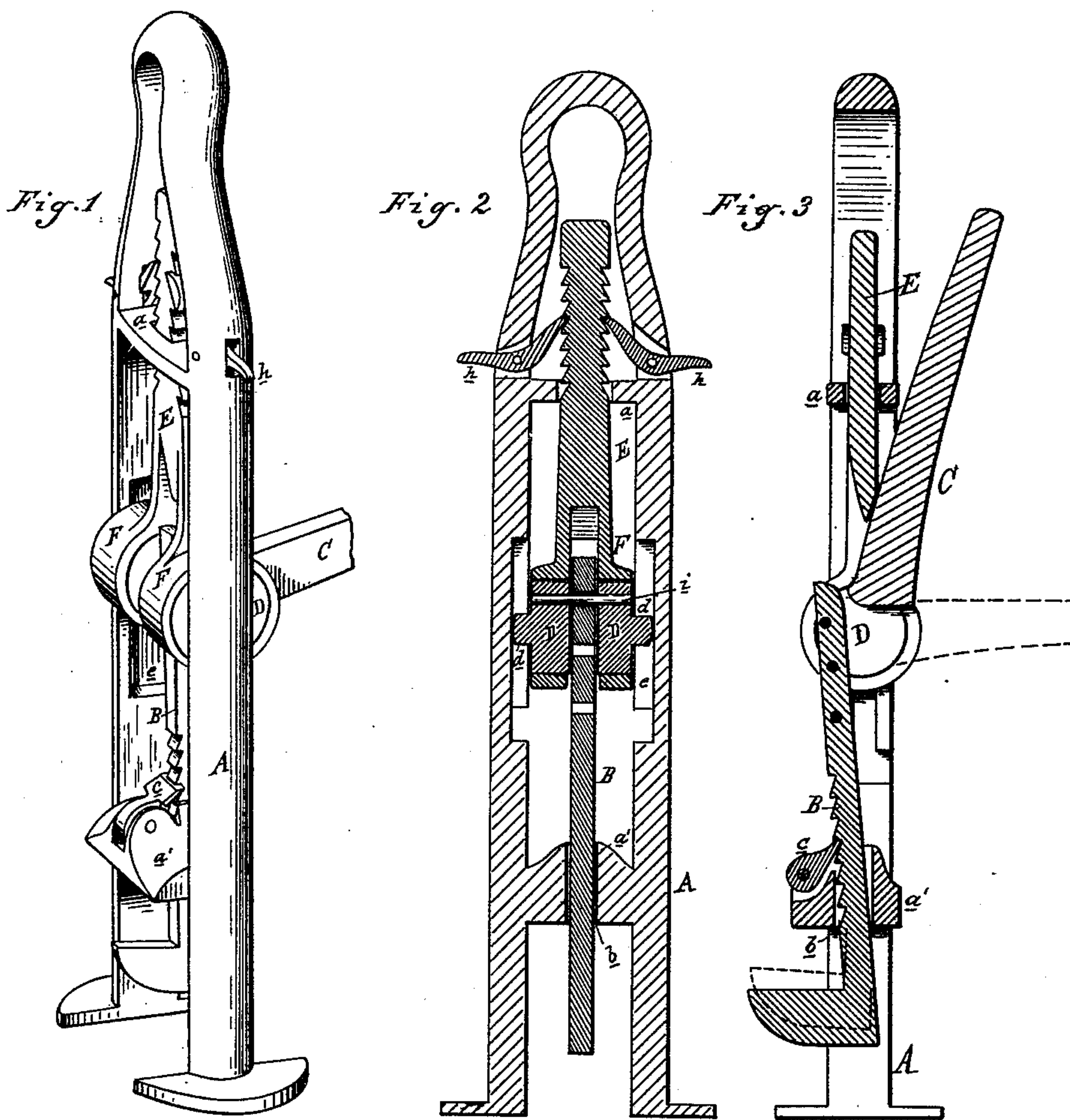


A. N. WOODARD.
Lifting-Jack.

No. 220,897.

Patented Oct. 21, 1879.



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UNITED STATES PATENT OFFICE

ALVIN N. WOODARD, OF HADLEY, MICHIGAN.

IMPROVEMENT IN LIFTING-JACKS.

Specification forming part of Letters Patent No. **220,897**, dated October 21, 1879; application filed June 4, 1879.

To all whom it may concern:

Be it known that I, ALVIN N. WOODARD, of Hadley, in the county of Lapeer, in the State of Michigan, have invented an Improvement in Lifting-Jacks, of which the following is a specification.

The nature of this invention relates to new and useful improvements in that class of machines known as "lifting-jacks;" and the invention consists in the peculiar construction and arrangement within a standard or frame of certain ratchet-bars, which are operated by a peculiarly-constructed cam-lever, all as more fully hereinafter described.

In the drawings, Figure 1 is a perspective view. Fig. 2 is a vertical central longitudinal section, and Fig. 3 is a vertical longitudinal cross-section.

In the accompanying drawings, which form a part of this specification, A represents a jack-frame provided with the feet A', connected together by the tie-girts a a'. A slot, b, is formed vertically through the girts a a', through which the ratchet-faced hook-bar B has vertical play. A pawl, c, is pivoted in the girt a', which engages with the ratchet upon the hook-bar B and retains it in its elevated positions.

C is a lever, the inner end of which is bifurcated in cam-plates D, the outer faces of which are provided with the outwardly-projecting studs or pins d, which slide vertically in the longitudinal recesses e formed upon the inner faces of the frame A, these studs or pins being at the center of the cam-plates, and are preferably round, so that as the lever is oscillated the cam-plates will have a partial rotation in the recesses. A pin, i, passing through these cam-plates eccentrically to their centers and the upper end of the ratchet-bar B, communicates motion to the latter as the lever C is oscillated.

E is a ratchet-bar, which has vertical play through the girt a, its lower end being bifur-

cated and terminating in a yoke, F, the lower ends of which embrace the periphery of the cam-plates D. h h are pawls properly pivoted in the frame so as to engage with the ratchet-faces of the bar E.

In practice, when it is desired to lift a weight, the hook of the bar B is inserted under such weight. By elevating the lever C into the position shown in Fig. 3, the ratchet-bar E is compelled to rise through the girt a, at which point the dogs h engage with the ratchets upon the said bar E and retain it in such elevated position. A depression of the lever exerts a draw upon the bar B, causing it to slide upward through the girt a', consequently raising, to a certain degree, the weight under which the hook is placed. The pawl c, engaging with the ratchet, retains said bar B in its elevated position. A continued elevating and depressing of the lever C will cause the weight to which the device is placed to be elevated to the desired height.

This device can also be advantageously employed for the purpose of pulling stumps by hanging the frame in a suitable derrick or tripod and connecting the hook of the bar B to the stump by means of a chain.

What I claim as my invention is—

1. A lifting-jack wherein the rack-bar B is actuated by a rack-bar, E, by means of intermediate rolling cams D and a lever, C, said bars B E being provided with pawls c h, substantially as and for the purposes set forth.

2. In combination with the frame A, the yokes F, embracing the cams D, which latter are provided with lugs d, susceptible of a rolling and a vertical motion in the slots e of the frame, the rack-bars B E, and the pawls c h, and lever C, the parts being constructed and arranged to operate substantially as described.

ALVIN N. WOODARD.

Witnesses:

CHAS. THURMAN,
H. S. SPRAGUE.