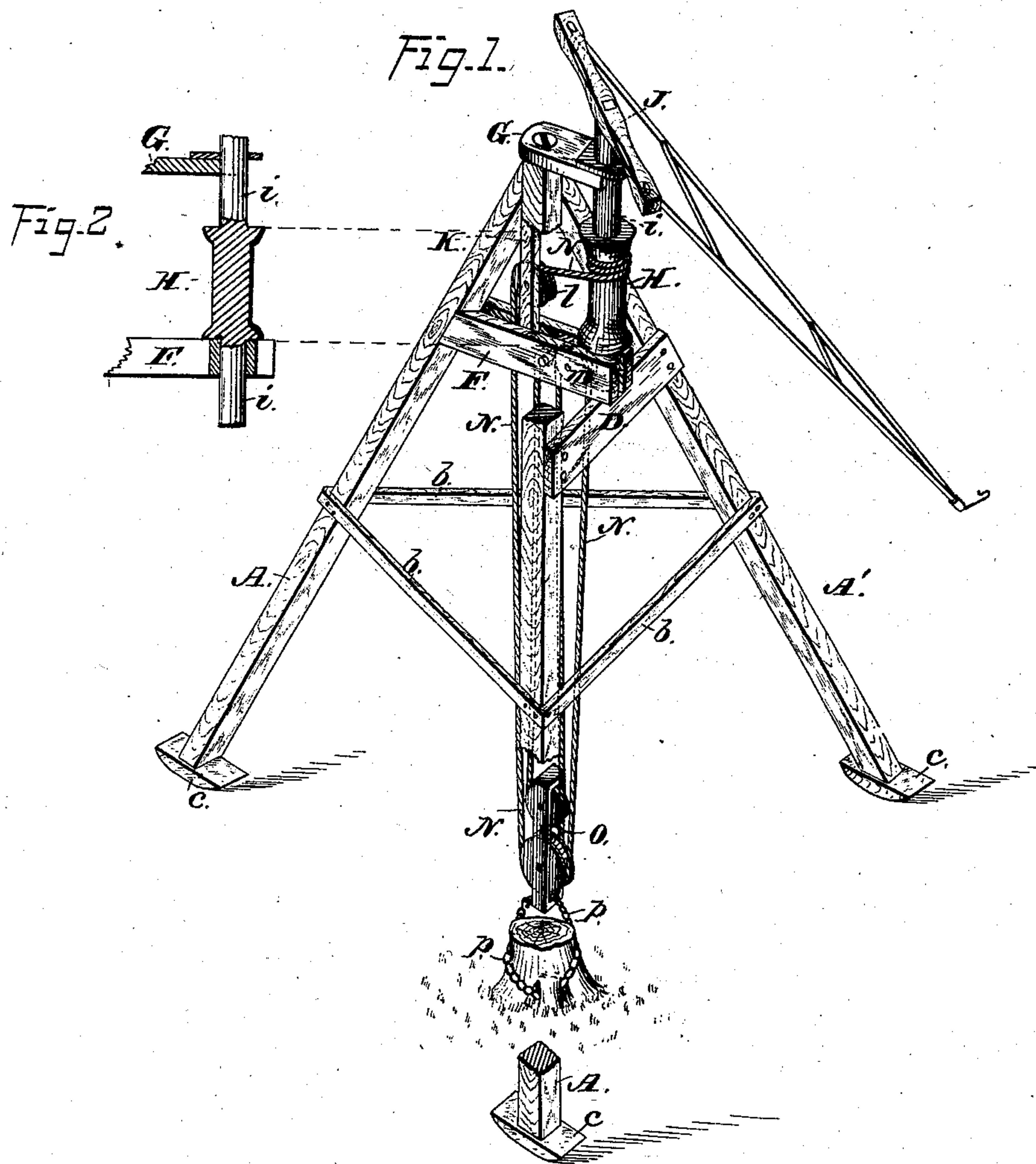


W. ARMSTRONG.
Stump-Extractor.

No. 224,376.

Patented Feb. 10, 1880.



WITNESSES:

Geo. E. Hutchinson.

J. A. Rutherford

INVENTOR.

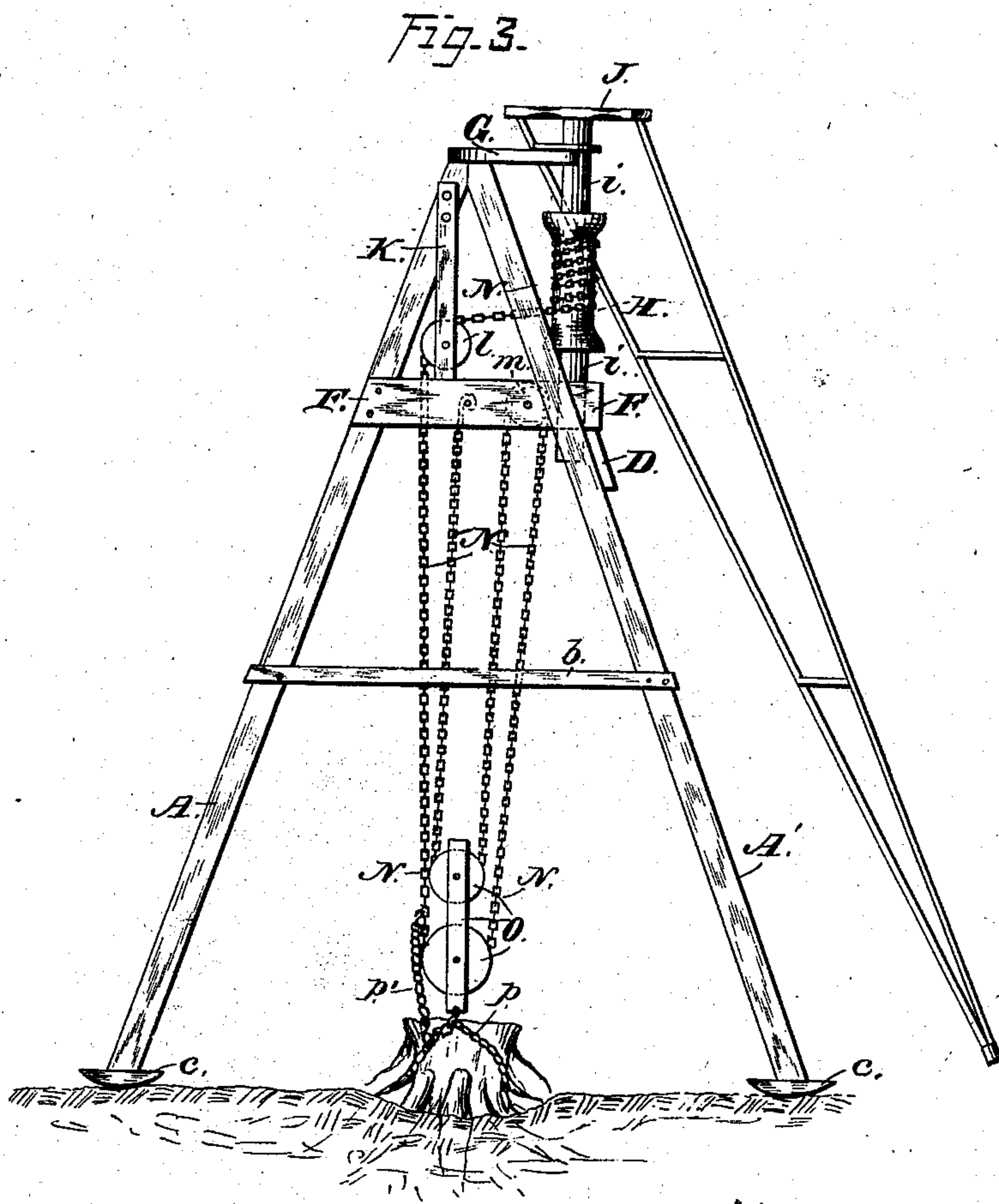
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UNITED STATES PATENT OFFICE.

WILLIAM ARMSTRONG, OF DE PERE, WISCONSIN.

STUMP-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 224,376, dated February 10, 1880.

Application filed January 12, 1880

To all whom it may concern:

Be it known that I, WILLIAM ARMSTRONG, a citizen of the United States, residing at De Pere, in the county of Brown and State of Wisconsin, have invented a new and useful Stump-Extractor, of which the following is a specification.

This invention relates to that class of stump-extractors consisting generally of a windlass and chain or rope tackle mounted upon a portable frame and arranged to be operated by horse-power. Its object is to obviate the riding and violent rubbing of the rope or chain upon its successive coils as it is wound upon the windlass.

In all machines of this class of which I am aware the rope or chain, after passing around the several sheaves of the tackle used, passes from a stationary pulley to a stationary windlass or drum, and consequently while the rope or chain is being wound upon the drum or windlass at one side of a straight line from the pulley the coils will be at some distance apart, and at the other side of this line they will be jammed violently together and the extended portion will ride upon and rub each coil as formed. A rope is soon worn out, and in the case of a chain the strain and jarring resulting from the temporary locking of the links and their slipping under the pressure to which they are subjected by the riding of the last coil has been found to detract very greatly from the power of the machine, and to so strain the frame and its bearings as to necessitate frequent repairs.

In overcoming these disadvantages my invention consists in leading the rope or chain from a final stationary pulley to a windlass or drum having a free longitudinal movement, the said rope or chain passing always in a straight line from the pulley to said windlass or drum, and the pressure of the said rope or chain against each coil as formed forcing the said windlass or drum gradually in the direction opposite to that in which the rope or chain is being wound, so that each coil is gradually moved from the path of the stretched portion, and will not be ridden upon or violently rubbed or abraded thereby.

It also consists in a novel means of hitching

the lifting rope or chain to a stump or other load.

In the accompanying drawings, Figure 1 is a perspective view of a stump-extractor constructed according to my invention; Fig. 2, a detached sectional view of the windlass and bearings. Fig. 3 is a side view of the apparatus.

The letters A A' A' indicate the main supporting beams or standards, spread apart at their feet and meeting and firmly secured together at their tops to form a tripod. These beams are well braced by horizontal braces b b, and are provided with runner-shoes c, to facilitate the removal of the apparatus from place to place.

Near the top of the tripod a cross-beam, D, is firmly secured to two of the beams A' A', to form the support for one end of a horizontal beam, F, in which is formed one of the bearings for the elongated journals of the windlass, the other end of said cross-beam being firmly secured to the other beam, A. From the top of the tripod an arm, G, extends laterally, and has formed in it the bearing of the upper windlass-journal, said bearing being directly above that in the beam F.

The letter H designates a vertical windlass having elongated journals *i i*, respectively extending through the bearings in the beam F and arm G, the upper journal having secured to its projecting end a sweep, J, by means of which the power of the horses is applied.

A post, K, extends from the beam F to the top of the tripod, and has arranged upon it a stationary pulley, l, and another stationary pulley, m, is supported by the said beam F. A rope, N, has one end fixed to the beam F, and after passing thence around the sheaves of a double pulley, O, and the pulley m, passes over the stationary pulley l, and in a horizontal direction to the windlass, preferably being connected to the top of the latter.

In use the double pulley O is connected with a stump or other object to be raised or moved by means of the chain p, and, the windlass being then rotated in a direction to wind the rope thereon, successive coils of said rope are formed, and the rope winding presses laterally against the last coil wound so as to force the windlass

in a direction opposite to that in which the successive coils are being laid. In this manner the windlass is moved upward its entire length, the elongated journals moving longitudinally in their bearings as well as rotating. 5 When the windlass has traveled its length its inclined head causes the direction of winding of the rope to be reversed, as usual, and the windlass also reverses its direction of travel, so 10 that the coils wound are always removed out of the way of the stretched and winding portion of the rope or chain.

When a chain is used on the pulleys and windlass in lifting light stumps and in other 15 light work, I use a supplementary chain, p' , one end of which I connect to the root-chain and the other end to the first strand or ply of the chain which leads over the last stationary pulley to the windlass. Such a supplementary 20 chain may also be used with a rope on the pulleys and windlass by providing said rope with loops, rings, or other suitable means of engaging the hook of the supplementary chain.

What I claim is—

1. In a stump-extractor, the combination of 25 a supporting-frame, a movable pulley and rope of a final stationary pulley, and a rotary and longitudinally-reciprocating windlass or drum, substantially as described, and for the purpose set forth.

2. The combination of the beams A, cross-beam D, horizontal beam F, having formed therein a lower bearing for the windlass and carrying a stationary pulley, the arm G, provided with the upper bearing of the windlass, 35 the windlass having elongated journals playing in said bearings, the stationary pulley l , the movable pulley, and a rope or chain applied to said pulleys and windlass, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of the subscribing witnesses. 40

WILLIAM ARMSTRONG.

Witnesses:

W. M. WORKMAN,
H. H. HURD.