

B. S. MILES.
Stump-Puller.

No. 227,914.

Patented May 25, 1880.

Fig. 1.

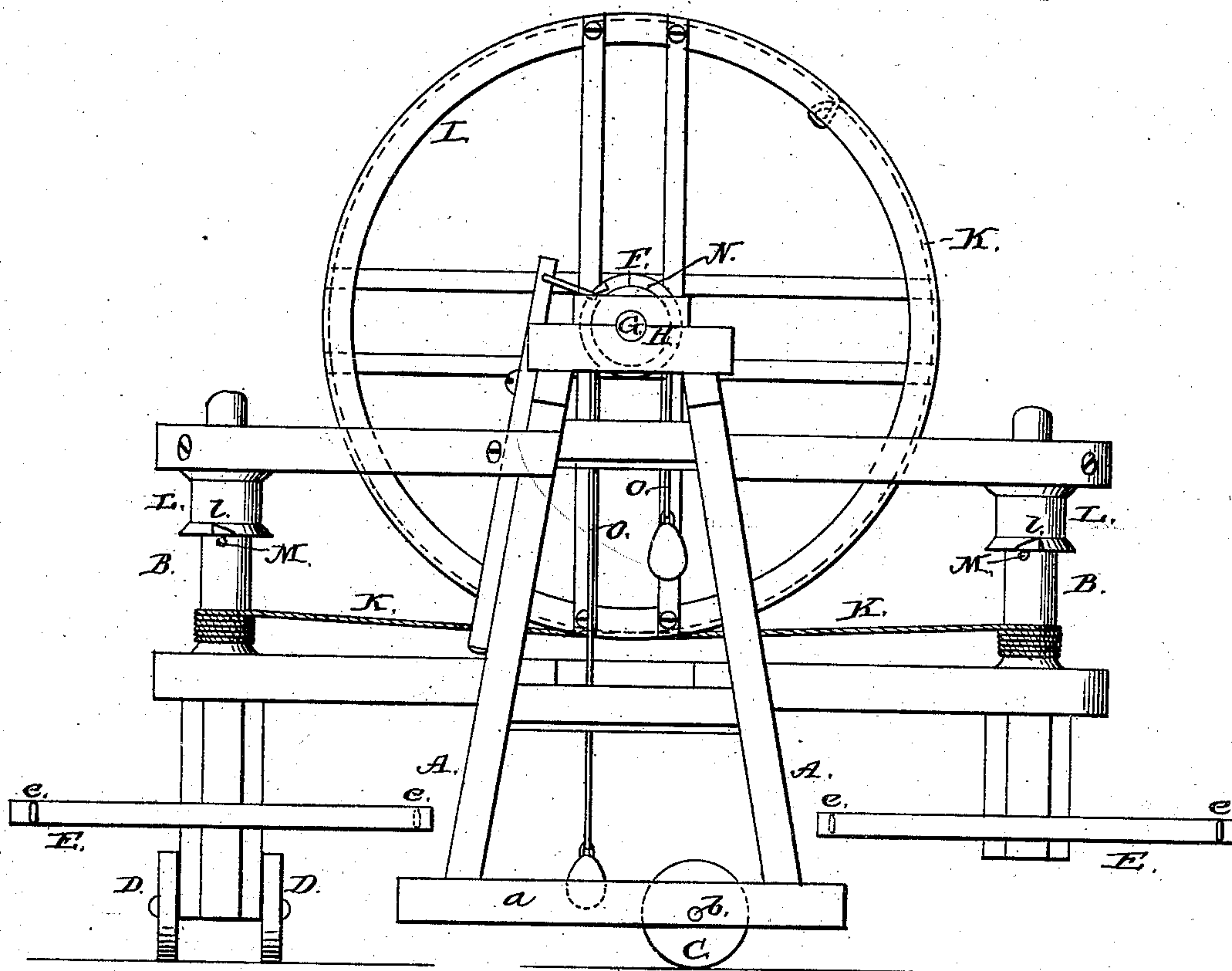
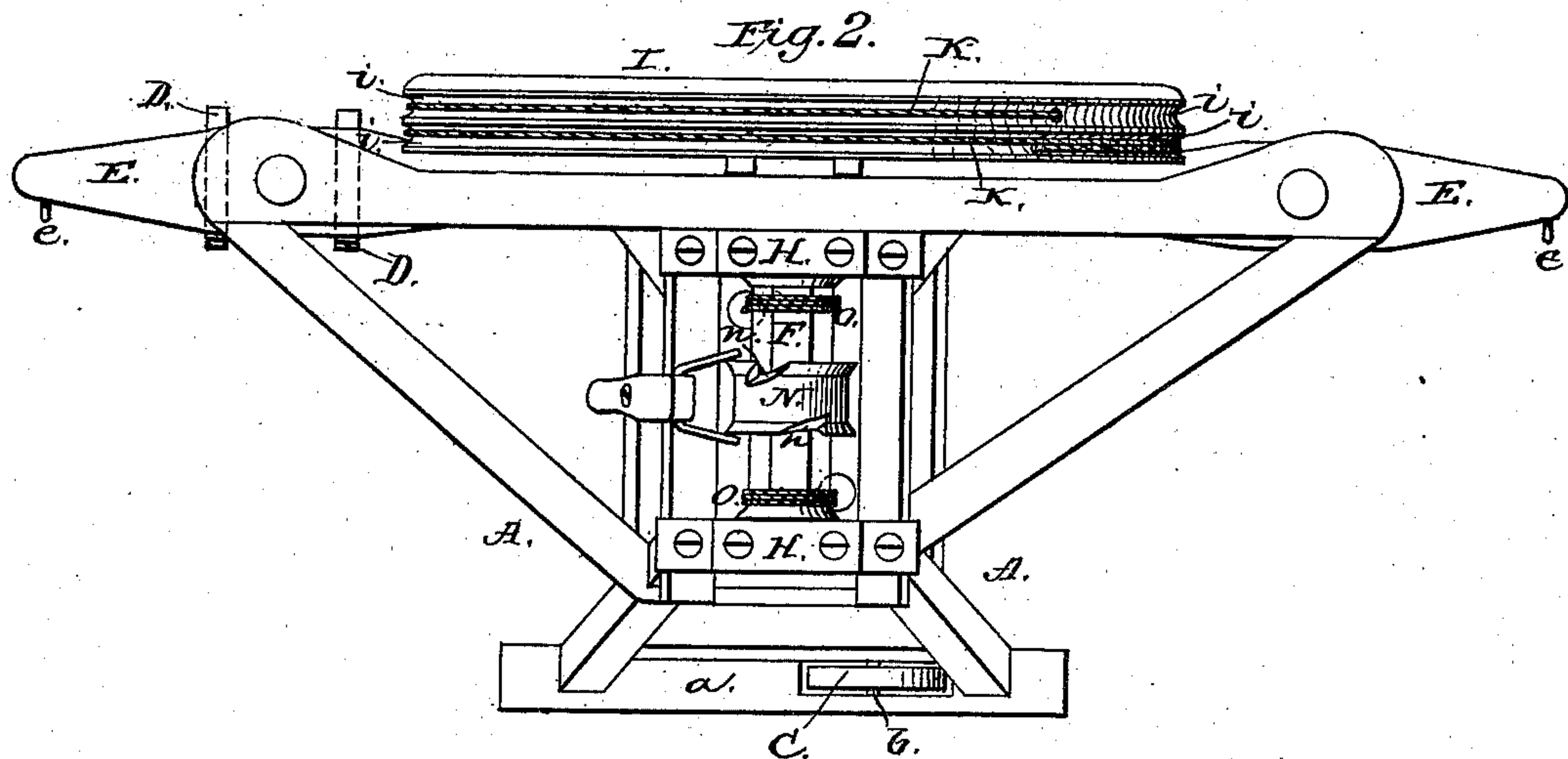


Fig. 2.



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STUMP-PULLER.

SPECIFICATION forming part of Letters Patent No. 227,914, dated May 25, 1880.

Application filed December 18, 1879.

To all whom it may concern:

Be it known that I, BRADFORD S. MILES, of Gray's Summit, in the county of Franklin and State of Missouri, have invented certain new and useful Improvements in Stump-Pullers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in stump-extractors; and it has for its object to provide a portable machine that may be readily conveyed from place to place, and in which the parts, while being operated in one direction to extract the stump, will be automatically arranged to be operated in a reverse direction for a succeeding operation, whereby the delay necessary in bringing the parts to a normal position to begin operations, common to the ordinary stump-extractors, is obviated, and also for varying the power, and consequently the speed, of the parts, whereby the stump may be started at the beginning of the operation, and quickly withdrawn toward the end of the operation, when properly loosened.

To this end the invention consists in a powerful frame, constructed of wood or iron and mounted on wheels, for facilitating transportation, the said frame having at each end a vertical capstan, the forward capstan, at its lower end, carrying the guide-wheels of the apparatus. Said frame is also provided with a horizontal windlass mounted upon a suitable shaft journaled in bearings in the frame, the forward end of said shaft being provided with a large pulley or wheel, which is connected with the capstans, respectively, by means of chains secured to the periphery of said pulley or wheel in parallel grooves, and passing around the same in opposite directions, whereby the pulley or wheel may be rotated in either direction by operating one or the other of the capstans.

The windlass is provided with suitable lifting-chains depending from opposite sides of the same, the said lifting-chains, as well as the capstan, being arranged in such manner that as one is unwound the other will be wound,

so as to automatically arrange the parts at each operation for the next succeeding operation. The capstans and the windlass are each provided with a movable drum having angular recesses at one or both edges, the said drums being capable of being shifted so as to engage the chains and increase the circumference of the winding-surfaces for accelerating the operation of the apparatus, as more fully hereinafter specified.

In the drawings, Figure 1 represents a side elevation of my improved stump-extractor, and Fig. 2 a top view of the apparatus.

The letter A indicates the frame of the apparatus, which may be constructed of heavy timber, iron, or other material of requisite strength. The said frame has mounted in suitable bearings at the front and rear ends the vertical capstans B. The base-rails *a* of the frame A are journaled in suitable bearings, the shafts *b* carrying the wheels C, upon which the main weight of the apparatus is supported. The lower end of the forward capstan is provided with wheels D, which form the guide-wheels of the apparatus in transporting the same from place to place. Each capstan is provided with the levers E, which have hitching attachments *e* at their ends, by means of which horses or other draft-animals may be attached for operating the capstans, the levers of the forward capstan also serving as a means by which the animals may be secured to the apparatus for drawing it from place to place.

The letter F indicates a windlass mounted on a horizontal shaft, G, which is journaled in suitable bearings, H, at the upper part of the frame A. Said shaft, at its forward end, is provided with a large pulley or wheel, I, which is provided with two parallel grooves, *i*, on its periphery, in which are secured at one end the chains K, which are passed in opposite directions around the wheel or pulley, one being attached to each capstan.

The capstans are each provided with a movable drum, L, having angular notches *l* at its lower end, said drums being held in a normal position by the pins M, and capable of being dropped by the removal of said pins, so as to engage the chains and wind the same thereon when it is desired to accelerate the motion of the pulley and windlass. The windlass is pro-

vided with a similar drum, N, having similar inclined recesses *n* at both edges, in order that it may engage either of the lifting-chains O for a similar purpose.

5 The chains O are attached at one end to the windlass, and are passed in opposite directions over the same, and are provided with weights to keep them taut, so that as one is wound upon the windlass in exerting a strain upon a stump the other is unwound, so as to be ready
10 for a succeeding operation, the proper chain being secured to the stump by any ordinary or convenient means.

The operation of my invention will be apparent from the above description. The apparatus is hauled over the stump, so as to bring the windlass into proper position. The unwound chain of the windlass is then secured to the stump, and power is applied to the capstan from which the chain is unwound. Upon
20 rotating said capstan the chain attached to the same will be wound thereon, rotating the pulley and windlass and starting the stump. When the stump is properly started the drums on the capstan and windlass are thrown into
25 operation, so as to seize and carry their respective chains, whereby the stump is quickly removed. During the operation of the above-mentioned capstan the other capstan is un-

wound, and the wound chain on the windlass 30 is unwound, thus putting the parts in position for a succeeding operation.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is— 35

1. The combination, in a stump-extractor, of a frame provided with two capstans, connected by means of suitable chains to a pulley mounted on a shaft carrying a windlass having oppositely-wound lifting-chains, where-
40 by said windlass may be operated alternately in opposite directions, substantially as and for the purposes specified.

2. The combination, in a stump-extractor, of the supporting and guide wheels, the capstans and pulley mounted on the windlass-shaft, the windlass and its oppositely-wound lifting-chains, and the drums on the capstans and windlass, the whole arranged to operate
50 substantially in the manner specified.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of November, 1879.

BRADFORD S. MILES.

Witnesses:

P. E. REINHOLZ,
D. H. RHUDY.