(No Model.)

W. SMITH.

STUMP EXTRACTOR.

No. 297,026. Patented Apr. 15, 1884.

Fig. 1.

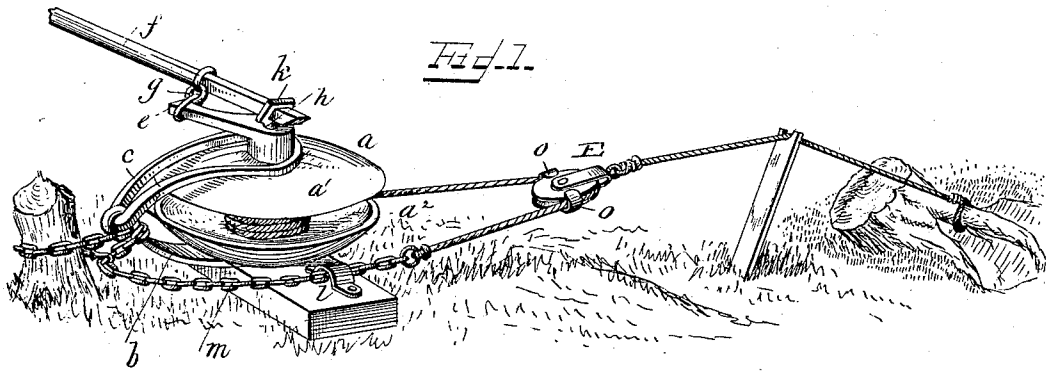


Fig. 2.

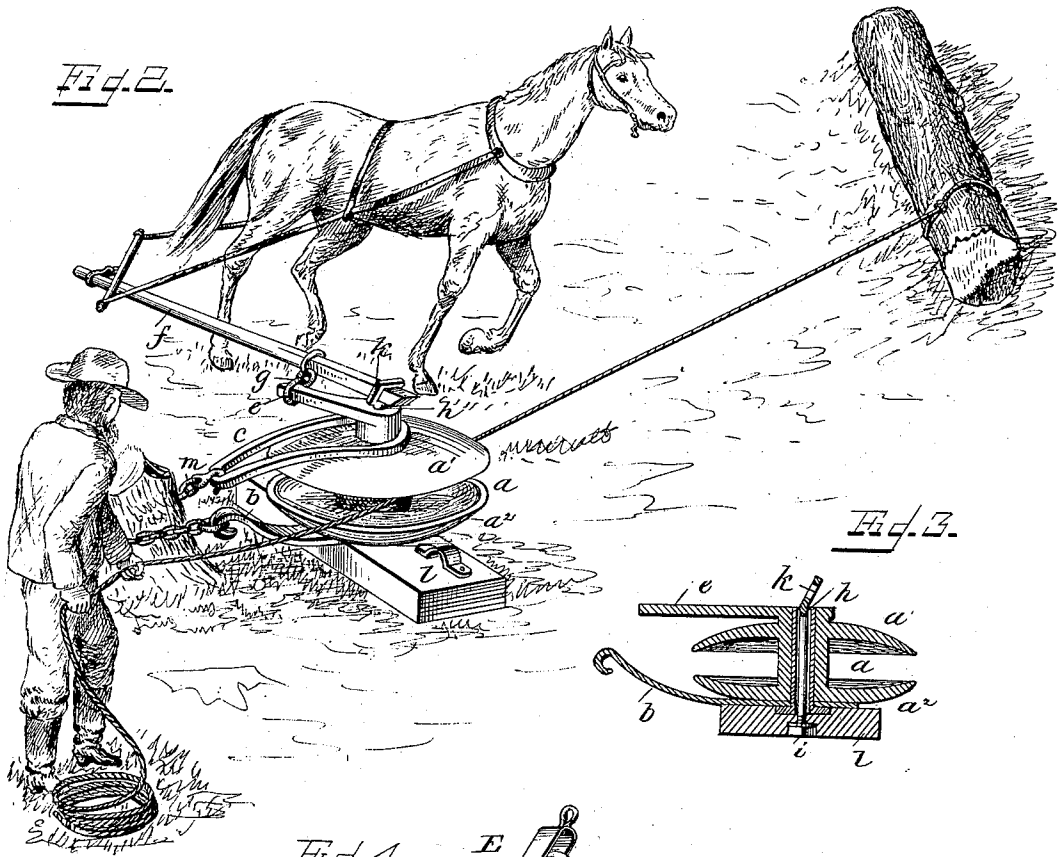
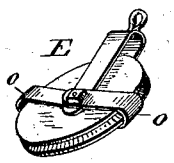


Fig. 3.

Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM SMITH, OF TOMAH, WISCONSIN.

STUMP-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 297,026, dated April 15, 1884.

Application filed February 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SMITH, a citizen of the United States, residing at Tomah, in the county of Monroe and State of Wisconsin, have invented a new and useful Stump-Extractor, of which the following is a specification, reference being had to the accompanying drawings.

This invention has relation to a portable windlass and pulley combined; and it consists in the construction and novel arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims appended.

Figure 1 is a view in perspective of a windlass embodying the improvements of my invention in position ready to be operated. Fig. 2 is a view in perspective of the device, showing the horse hitched to the lever, a man coiling the rope as it leaves the drum, the rope being attached directly to the end of a log without the intervention of the pulley. Fig. 3 is a modified form of the windlass, and Fig. 4 is a detail view of the improved pulley.

The object of my invention is to produce a strong, powerful, cheap, light, and convenient portable windlass, that can be anchored or chained down at any desired point to a stake or other suitable object, and operated by a man or a horse to pull in any direction stones, timbers, logs, stumps, trees, buildings, boats, cars, &c., with comparative ease and certainty. Prior to my invention this class of machines were immense wooden structures, heavy and expensive, and requiring great labor and loss of time to move and operate them. In the older structures the clevis or frame for supporting the drum was made in one piece, which rendered it exceedingly difficult to manufacture and impossible to get on and off unless the drum was made in two pieces, which is another objection. In these prior machines the rope goes onto the drum one wind over another, following one flange and winding clear out over the flange before the drum has been filled. Guards and pulleys were necessitated to prevent the rope from winding out over the flange, thereby adding weight and expense and increasing the friction on the rope caused by the rope chafing on the guards while being wound in. At the same time in these machines the rope, while being wound in, wears and chafes the full width of the flange. The loop at the upper end of the center-bolt, on which the drum revolves in the old machines, is straight—*i. e.*, is formed in a straight line with the bolt—and fails to hold the operating-lever up to permit the drum to revolve backward without removing the lever. The pulley used in connection with the old machines is also objectionable, in this, that when the rope has been slacked it drops down off of the pulley, and when it is tightened up again the rope pulls through the pulley-clevis, instead of over the pulley. These are among the main objections to this class of machines as now constructed and used. My aim is to overcome these defects and to produce a machine that is more desirable in every way.

Referring by letter to the accompanying drawings, *a* designates a concave flanged winding-drum, *a'* and *a²* being the upper and lower flanges, which are fixed to the drum. The lower end of the drum *a* rests on the arm of half-clevis *b*, and a link, *c*, connects the drum above the upper flange, *a'*, with the rear end of the half clevis *b*, thereby forming a complete clevis. The upper end of the drum *a* is provided with an arm, *e*, which is formed integral therewith or otherwise secured thereto, to which is connected the operating-lever *f* by three links, *g*. A central bolt, *h*, is passed down through the drum and forms its axis. This bolt is secured in the clevis by a nut, *i*, at its lower end, and its upper end is provided with a loop, *k*, extending obliquely to the axis of the bolt *h*, so that when the inner end of the lever *f* is entered therein the outer end of the lever will be elevated high enough for a man to grasp it and carry it round to operate the windlass when man-power is employed.

To the under face of the half-clevis *b* is secured a cross-plank, *l*, upon which the windlass rests, it forming the base for the same. The windlass should be anchored to a stake or other rigid object by a chain, *m*. One end of the rope is made fast to the anchor-chain, and the other end is passed around the pulley E and fastened to the drum of the windlass. By going round with the operating-lever the drum will be revolved and the rope wound in, thus drawing the object to which the pulley is connected toward the windlass. In case it should be necessary to take in more rope than this

adjustment will accommodate, the end of the rope need not be fastened to the drum, but should be pulled off and coiled as it winds in, as shown in Fig. 2. By throwing the link off of the arm of the drum to disconnect it from the lever, the drum will be permitted to revolve backward to let the rope off when wound up. The clevis in this construction is made in two parts, is light, cheap, and substantial, and is easily put in place and removed when necessary. In this construction the concave or inward projections of the flanges crowd the rope back to the drum, thus filling the drum before the rope can get outside of the flanges. When the rope bears on the rim of the flanges, the pressure on the rim of the flanges swings the windlass either up or down and throws the flange away from the rope, thus doing away with the friction caused by the rope wearing on the full face of the flange.

To prevent the pulley E from dropping off of the rope and pulling through the clevis of the pulley, I provide two pivoted adjustable pulley guards or guides, *o o*, on the axis of the pulley, secured in place by nuts or otherwise, and extending out in opposite directions over the rim of the pulley and around the rope on each opposite side, as shown. These guards hold the rope always in place, and may be adjusted to suit the different directions in which the rope may be operated.

I wish it to be distinctly understood that I do not limit myself to the precise arrangement shown, as in case a cheaper windlass is wanted for light work the rear end of the half-clevis and the link need not be connected, the anchor-chain being used instead, as shown in Fig. 2, or by using a fixed vertical hollow standard on the half-clevis for the drum to revolve on and for the looped bolt to go down through, in which case the link can be dispensed with, the anchor-chain being made fast to the rear end of the half-clevis, as shown in Fig. 3.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a portable windlass, the combination, with the drum, of the upper and lower concave flanges, substantially as specified.

2. In a portable windlass, the combination, with the concave-flanged drum having the arm at its upper end, of the half-clevis and link forming the frame therefor, and mechanism for winding the drum, substantially as specified.

3. In a portable windlass, the combination, with the drum having the concave flanges at the upper and lower ends, the arm at the top, and the clevis forming the frame for the drum, of the center-bolt having the oblique loop at its upper end, and the operating-lever provided with the three links, whereby it may be connected to the arm and the oblique loop to operate the windlass, substantially as specified.

4. In a portable windlass, the combination, with the concave-flanged drum having the arm and oblique loop at its upper end, and supported in bearings in a suitable frame, of the rope and the pulley, having the pivoted guards for holding the rope in place, and an operating-lever for winding the drum, substantially as specified.

5. In a portable windlass, the combination, with the drum and clevis and mechanism for operating the drum, of the cross-plank secured to the under face of the half-clevis and forming a base for the machine, substantially as specified.

6. In a portable windlass, the combination, with the drum having the upper and lower concave flanges, the upper arm, and operating-lever, of a suitable frame forming bearings for the drum, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM SMITH.

Witnesses:

A. D. BENJAMIN,

W. D. STANNARD.