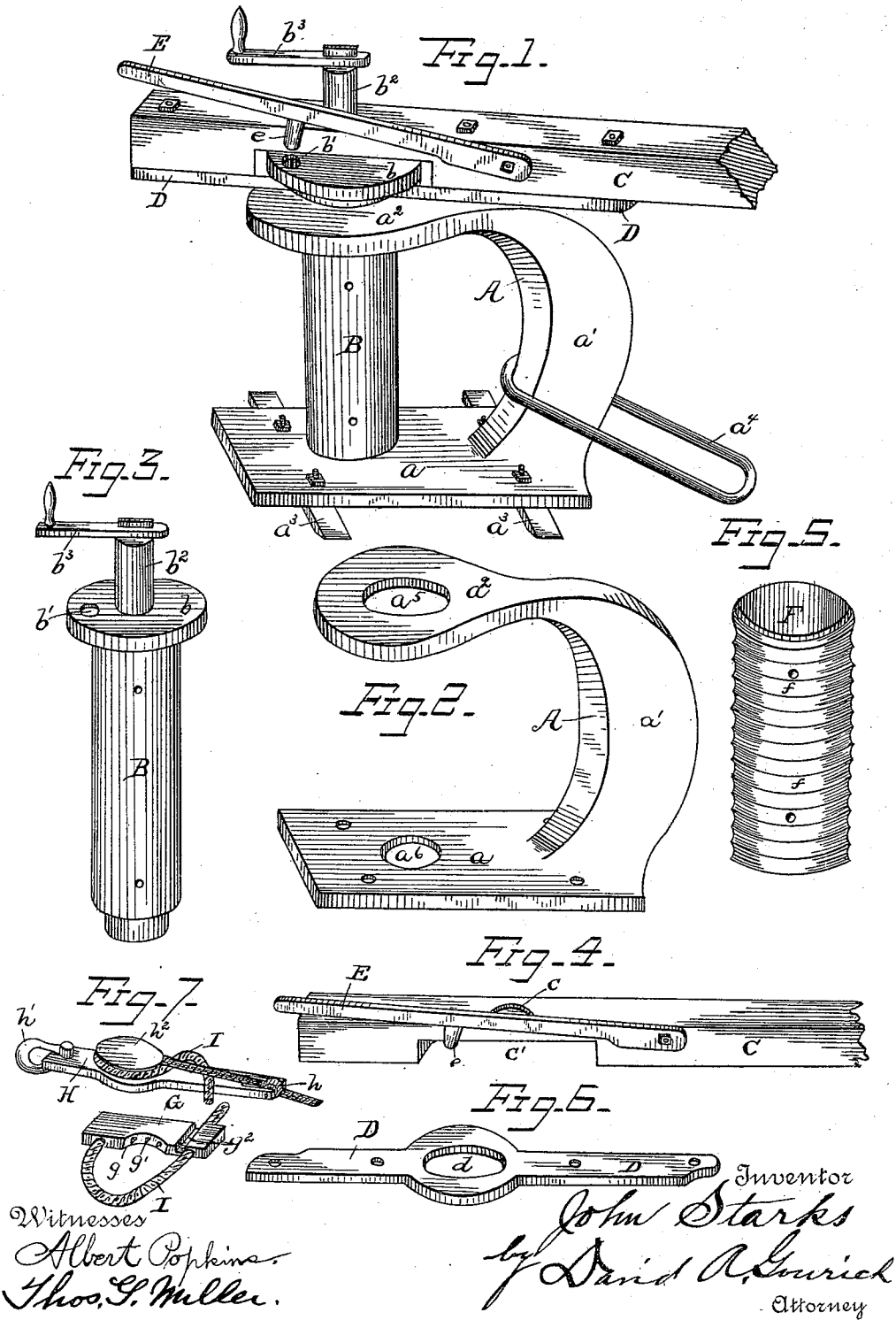


(No Model.)

J. STARKS.  
GRUBBING MACHINE.

No. 472,279.

Patented Apr. 5, 1892



# UNITED STATES PATENT OFFICE.

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## GRUBBING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,279, dated April 5, 1892.

Application filed April 7, 1891. Serial No. 388,014. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN STARKS, a citizen of the United States, residing in Fairview township, in the county of Jones and State of Iowa, have invented a new and useful Improvement in Grubbing-Machines, of which the following is a specification.

My invention relates generally to stump-extractors, and more particularly to that class thereof known as "capstan and windlass" extractors; and the object is to provide certain novel constructions whereby the rope may be wound and unwound independently of the action of the sweep.

It is also the object of my invention to provide means whereby the rope is guided around the winding-drum, and also means whereby it can be quickly and effectually secured to the stump to be extracted.

With these various objects in view my invention consists in the peculiar construction of certain parts and their novel combination or arrangement, all of which will be more fully hereinafter described and claimed.

A sheet of drawings accompanies this specification as a part thereof.

Figure 1 is a perspective view of my improved extractor. Fig. 2 is a perspective view of the frame. Fig. 3 is a detail view of the winding-drum. Fig. 4 is a detail view of the sweep and its attached parts. Fig. 5 is a perspective view of the rope-guiding shell. Fig. 6 is a plate detached from the sweep, and Fig. 7 shows detail views of the attaching and connecting blocks with the rope attached thereto.

In the practical embodiment of my invention I employ a windlass-frame A, consisting of the base  $a$ , supporting-standard  $a'$ , and horizontal arm  $a^2$ , said parts being preferably made integral. Runners  $a^3$  are secured to the under side of the base, so that the machine may be easily transported. An anchoring-link  $a^4$  is arranged upon the supporting-standard and secured to a stump or a stake to hold the machine in place while it is being operated. The outer end of the horizontal arm  $a^2$  extends over the base and is provided with a circular opening  $a^5$ , and in the base is a smaller opening  $a^6$ , in vertical alignment with

the opening  $a^5$ . The winding-drum B is arranged to turn in the opening of the horizontal arm, the lower end of said drum being reduced to fit the opening  $a^5$ . The winding-drum B is provided at its upper end above the horizontal arm with a laterally-projecting annular flange  $b$ , having an aperture  $b'$  or a plurality of apertures produced in the flange near the outer edge of same. Above the flange  $b$  the winding-drum is reduced, producing the post  $b^2$ , a crank  $b^3$  being detachably connected with the outer end of said post for the purpose of winding or unwinding the rope without operating the sweep.

For the purpose of revolving the winding-drum I employ a sweep C, said sweep having an aperture  $c$  near one end, adapted to fit over the post  $b^2$ , the under side of the sweep being recessed at  $c'$  to allow the flanged portion  $b$  to fit into the sweep, and the flanged portion is held within the recess by means of the metallic plate D, secured to the under side of the sweep, said plate being apertured at  $d$  to permit the winding-drum to pass through the same, and it will of course be understood that the winding-drum is passed through the plate D either before or at the time it is passed through the opening of the horizontal arm. It is preferred to secure the sweep to the drum before it is passed through the arm. A locking-lever E is pivoted to one side of the sweep, said lever being provided with a depending lug or tongue  $e$ , which is adapted to engage an aperture in the flanged portion and lock the sweep and winding-drum rigid with each other. Instead of having an annular flange, laterally-projecting ears may be employed, said ears having apertures or notches, as desired, to receive the depending lug. From the above it will be seen that I provide a windlass whereby the winding-drum can be revolved by means of a sweep, and by throwing the locking-lever out of engagement with the apertured flange of the drum said drum is free to unwind or may be wound by means of the crank applied to the post of the drum, thus having the windlass always under the control of the operator and avoiding the necessity of stopping the horse when it is desired to check the winding.

In order to guide and coil the rope properly around the winding-drum, I employ a cylindrical shell F, which is secured to the drum between the base  $a$  and the arm  $a^2$  and has on its outer face a series of transverse grooves  $f$ , adapted to receive and guide the rope as it is wound upon the drum, thus preventing the rope binding and scraping upon itself, which is very damaging.

10 In Fig. 7 I have shown the attaching-block G and connecting-block H, the attaching-block G being secured to the extreme end of the rope I and is preferably made of iron, having a curved recess  $g$ , adapted to receive the curve of the stump or tree, and provided with a series of pins or prongs  $g'$ , by means of which the block is prevented from slipping. The rope is attached to one end of the block, and in the opposite end is formed a transverse angular groove  $g^2$ , in which the rope is placed after encircling the stump or tree to be extracted. The connecting-block H is arranged upon the rope intermediate its ends and is adapted to take up slack and also connect stumps located at one side of the rope with the rope. The connecting-block is also of iron and is slotted at one end, carrying a pulley  $h$  at said end, and at the opposite end is arranged a clevis  $h'$ , by means of which it can be easily moved. Intermediate of the ends is arranged a cleat  $h^2$ , around which the rope is wound. When it is desired to connect the rope with a stump to one side of the rope, a part of the rope is drawn through the slotted end, (which is always nearest the windlass,) passed around the stump, and then wound around the cleat. By means of the attaching and connecting blocks I am enabled to extract about four stumps at each complete winding of the rope upon the drum. The rope being attached and connected to two remote stumps, the windlass is operated and the stumps extracted, by which time one-half of the rope may be wound upon the drum, and by throwing up the locking-lever, disconnecting the rope from the extracted stumps, attaching it to two more stumps, and then throwing the locking-lever down again

four stumps can be extracted at a single winding of the rope without stopping the action of the sweep.

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

1. In a stump-extractor, the combination, with the base, of the supporting-standard and horizontal arm, the winding-drum arranged to turn in the base and arm, said drum having a laterally-projecting apertured flange, a sweep having a recess in its under side, and a locking-lever with a depending lug attached thereto, substantially as and for the purpose described.

2. In a stump-extractor, the combination, with the winding-drum arranged as described, said drum having a laterally-projecting apertured flange near its upper end, of the sweep having a recess in its under side adapted to receive the said flange, an apertured plate secured to the under side of the sweep and beneath the apertured flange, and the locking-lever pivoted to one side of the sweep and provided with a depending lug adapted to engage the aperture of the flange and lock the sweep and drum rigid with each other, substantially as shown and described.

3. The combination, with the connecting-block slotted at one end and carrying a pulley at said slotted end and provided with a cleat intermediate its ends, of the rope passing through the slotted end around the cleat, substantially as and for the purpose described.

4. The combination, with the attaching-block G, formed of a single piece having a recess  $g$  intermediate its ends and a transverse angular groove  $g^2$  adjacent to one of its ends, of the series of pins or prongs  $g'$ , arranged in the recess, and a rope I, attached to the end of block opposite the groove, said rope being adapted to encircle the stump and be inserted in the angular groove, substantially as shown and described.

JOHN STARKS.

Witnesses:

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H. T. KEELER.