

(No Model.)

F. M. WILSON.
STUMP PULLER.

No. 534,538.

Patented Feb. 19, 1895.

Fig. 1.

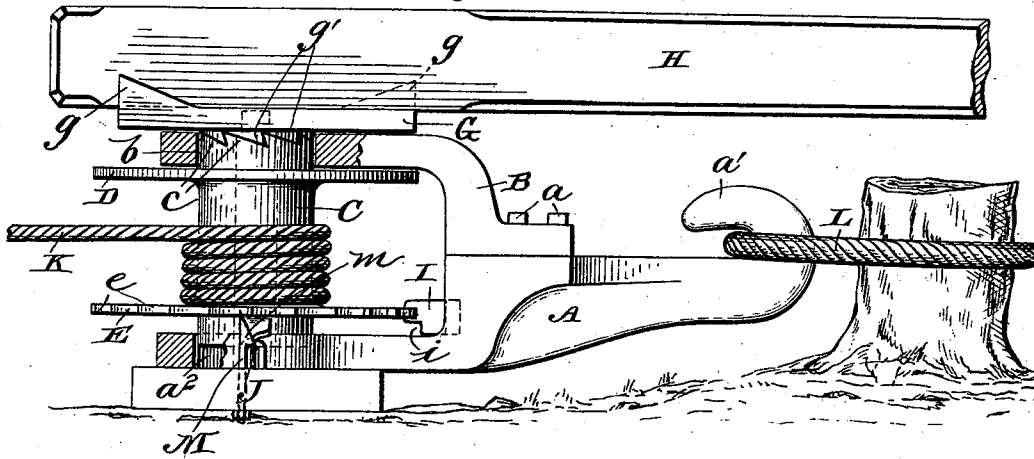


Fig. 2.

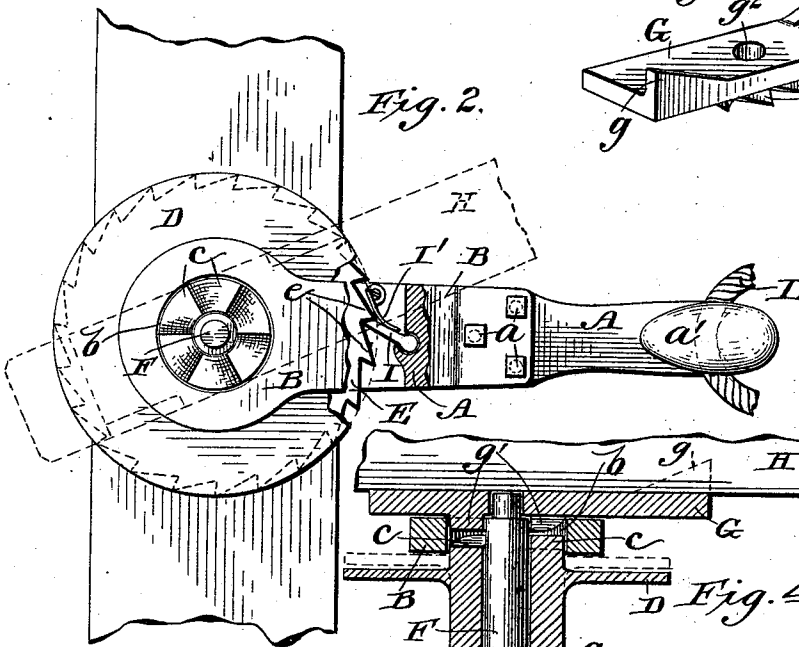


Fig. 3.

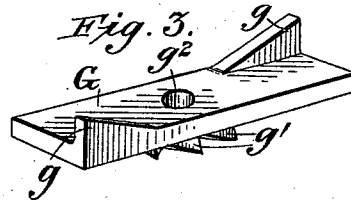
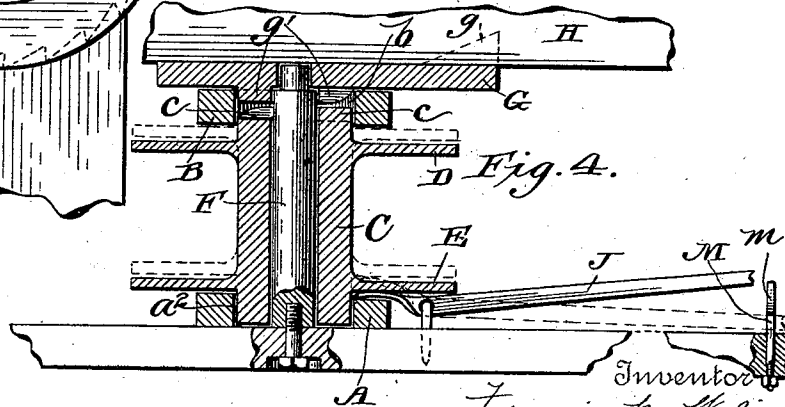


Fig. 4.



Witnesses

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STUMP-PULLER.

SPECIFICATION forming part of Letters Patent No. 534,538, dated February 19, 1895.

Application filed September 18, 1894. Serial No. 523,385. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS M. WILSON, a citizen of the United States, residing at Sigourney, in the county of Keokuk and State of Iowa, 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.

My invention relates to machines for pulling stumps, and it consists in certain novel constructions, combinations and arrangements of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved stump puller, a portion of the drum being sectioned to show some of the hidden parts more clearly. Fig. 2 is a top view of a portion of the machine, parts being broken away and sectioned in order to exhibit the lock more clearly. Fig. 3 is a perspective view of the cap plate, and Fig. 4 is a partial side elevation of a portion of the machine and a vertical section through the drum taken at right angles to Fig. 1.

A in the drawings represents a lower casting and B an upper casting, which when united by bolts *a*, constitute the frame work of a capstan. The lower casting A is formed with a rearwardly extending hook *a'* and is provided near its forward end with a vertical circular passage *a*². The upper casting B is of the shape shown in the drawings and is formed with a vertical passage *b* corresponding in size and shape to the passage *a*², and which, when the two castings are in position, coincides with the same.

C represents a pulley or drum which is formed at its upper edge with upwardly extending inclined teeth *c*, and on its periphery, near its top and bottom, with horizontally extending, circular flanges D and E, the lower one E being provided with ratchet teeth *e* on its periphery. The upper and lower ends of the pulley or drum are seated in the passages *a*² and *b* of the capstan frame, and the pulley is provided with a central vertical passage, through which a journal F is passed. The journal is rigidly and firmly secured in position at its lower end to a suitable platform by a screw and nut, as shown in Fig. 4. The

upper end of the journal F is reduced to form a shoulder upon which is seated a cap plate G. The cap plate as shown in Fig. 3, is formed on its top surface with upwardly extending side flanges *g* and on its under surface with downwardly extending, inclined teeth *g'* corresponding to the teeth *c* on the drum C, and it is also provided with a vertical passage *g*² through which the upper, reduced end of the journal F extends. A lever or bar H is placed on top of the cap plate G between the flanges *g* and secured to the same in any suitable manner. To the outer end of this lever, a team of horses is attached or other suitable power applied by which it is caused to revolve.

A recess is formed in the lower casting A in which is pivoted a pawl I, said pawl being reduced or formed with a notch on its outer lower surface as at *i*. This pawl is held in operative position by means of a spring I' attached to the lower casting as shown in Fig. 2, and the pawl engages the teeth on the periphery of the lower flange E of the drum C when the drum is in operative condition, as will be hereinafter described, and prevents the same from turning backward and unwinding.

Sufficient space is provided between the upper and lower castings of the capstan frame to permit the drum to be moved up and down, and this movement is accomplished by means of a long lever J which is adapted to be operated by the foot of a person using the machine.

When the drum is down as in Fig. 4, it is out of gear, and it can be revolved freely, either backward or forward, the journal F and cap plate G in such operation, remaining stationary. When it is desired to raise the drum and thereby put the machine in gear, the outer end of the foot lever J is pressed downward, which causes the inner end of said lever to rise and strike the under side of the flange E and accordingly lift the drum. In doing so the teeth on the upper end of the drum are brought into mesh with the teeth on the under side of the cap plate, and at the same time, the pawl or lock I enters the teeth on the lower flange of the drum. A rope K is attached by one of its ends to the drum and its other end is securely fastened to a tree or

stump which it is desired to extract. A rope L is also attached to the hook α' of the capstan frame and passed around and secured to a stump or other suitable object which serves
5 as an anchor. Now by driving the team attached to the outer end of the lever H, in a circular direction, the rope K will be wound around the drum, and the drum prevented
10 from slipping or turning backward by means of the pawl or lock I. The tension on the rope K and the peculiar shape of the teeth on the upper end of the drum, and of those on
15 the under side of the cap plate, will hold them firmly locked, and prevent the drum from slipping down out of gear.

It will be observed that in my machine, the lever or bar H and the cap plate G have no vertical movement, and that the vertical shaft
20 or rod F is stationary; and that when it is desired to put the machine into and out of gear, only the drum is raised and lowered, and that when the machine is in operation, only the
25 vertical shaft or journal remains stationary; and this I consider a great advantage over machines wherein the drum is stationary and the cap plate and lever have to be moved up
and down and wherein the vertical shaft or journal revolves.

M represents a hook provided with a nose
30 m under which the lever J is adapted to be passed and when in this position as shown in Figs. 1 and 4, holds the outer end of the said lever down and consequently the inner end
35 of the lever up in contact with the under side of the drum C, so that the drum will be held up in gear with the teeth on the cap plate G whether there is any tension on the drum or

not. The hook M is secured vertically in the platform or base of the machine and is screw threaded on its lower end and is provided with
40 a nut to hold it more securely in place as clearly shown in Fig. 4.

What I claim as my invention is—

In a stump extractor, the combination of a suitable capstan frame, a revoluble drum
45 capable of vertical movement and provided with a vertical passage, and having horizontal flanges or collars near its upper and lower ends, the periphery of the lower flange and the upper edge of the drum being provided
50 with ratchet teeth, a vertical, stationary shaft rigidly secured in the capstan frame and passed through the drum, a cap plate loosely journaled on the upper end of the shaft and
55 capable of rotary movement only, and provided on its under side with downwardly extending ratchet teeth, which are adapted to be engaged by the teeth on the upper edge of
60 the drum, by said drum being raised into engagement therewith, a sweep lever or bar secured to the cap plate for revolving the drum and cap plate independently of the shaft, a
spring actuated pawl which engages the teeth on the lower flange of the drum, a lever for
65 raising the drum, and a hook for holding the lever in engagement with the drum, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

FRANCIS M. WILSON.

Witnesses:

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W. M. WELLS.