

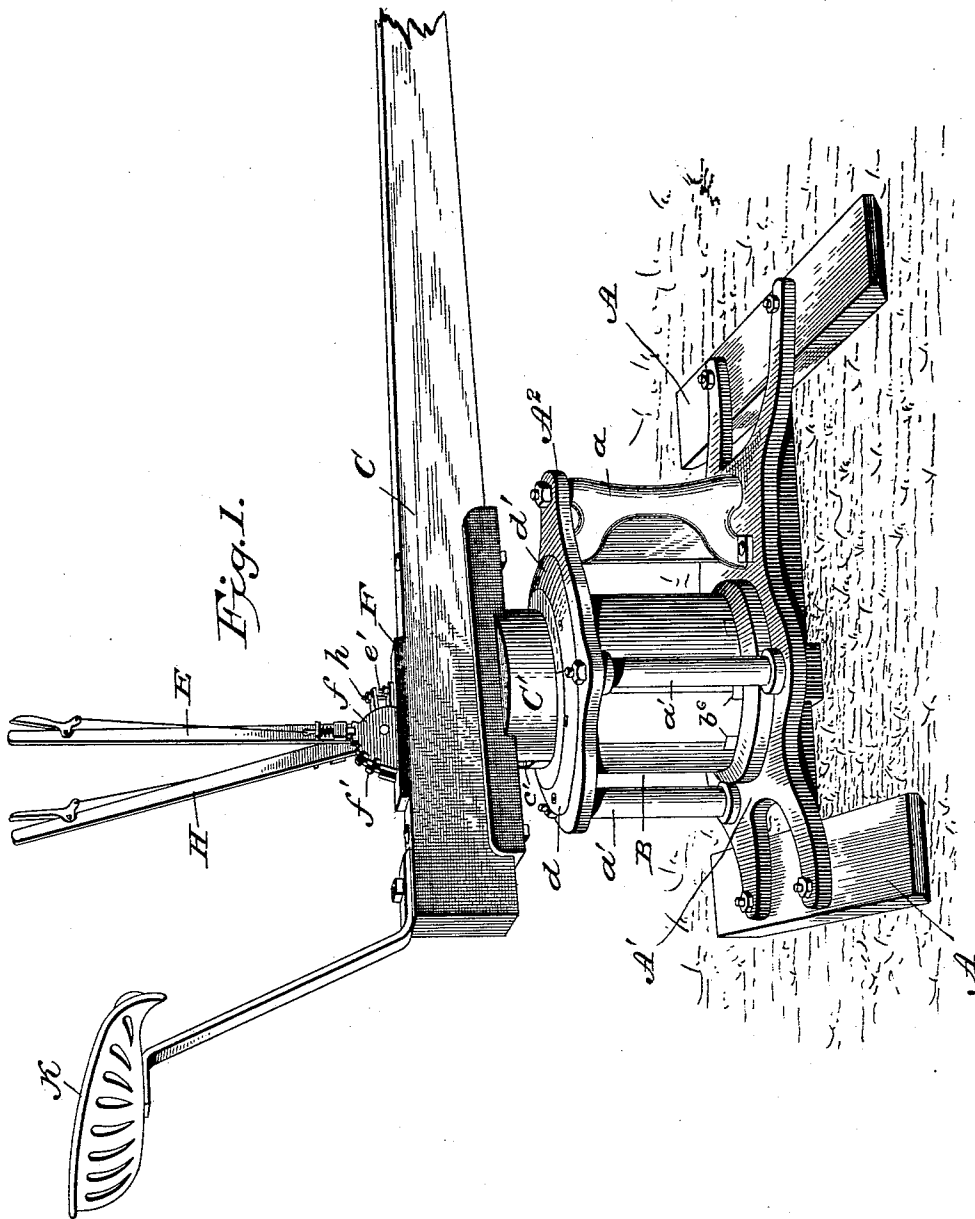
(No Model.)

2 Sheets—Sheet 1.

J. J. MILNE.
STUMP EXTRACTOR.

No. 569,507.

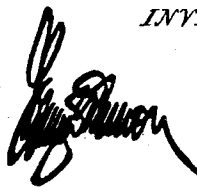
Patented Oct. 13, 1896.



Joseph J. Milne

INVENTOR

WITNESSES
L. S. Elliott.
A. Johnson.

by 

Attorney

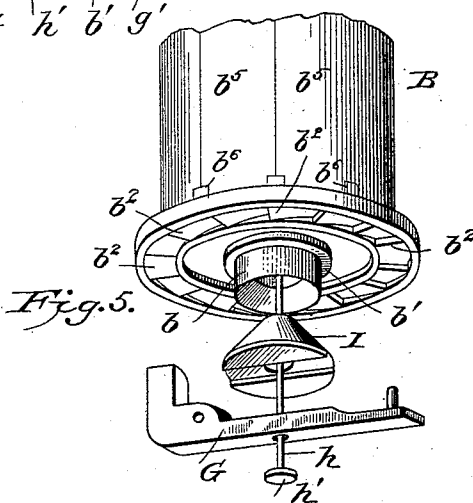
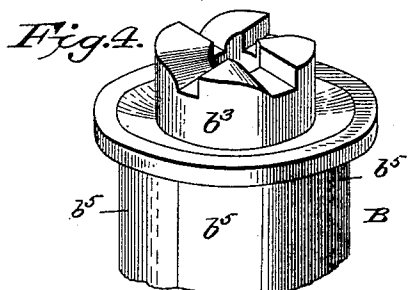
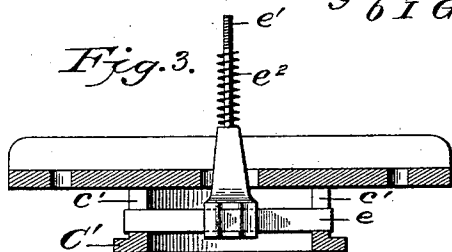
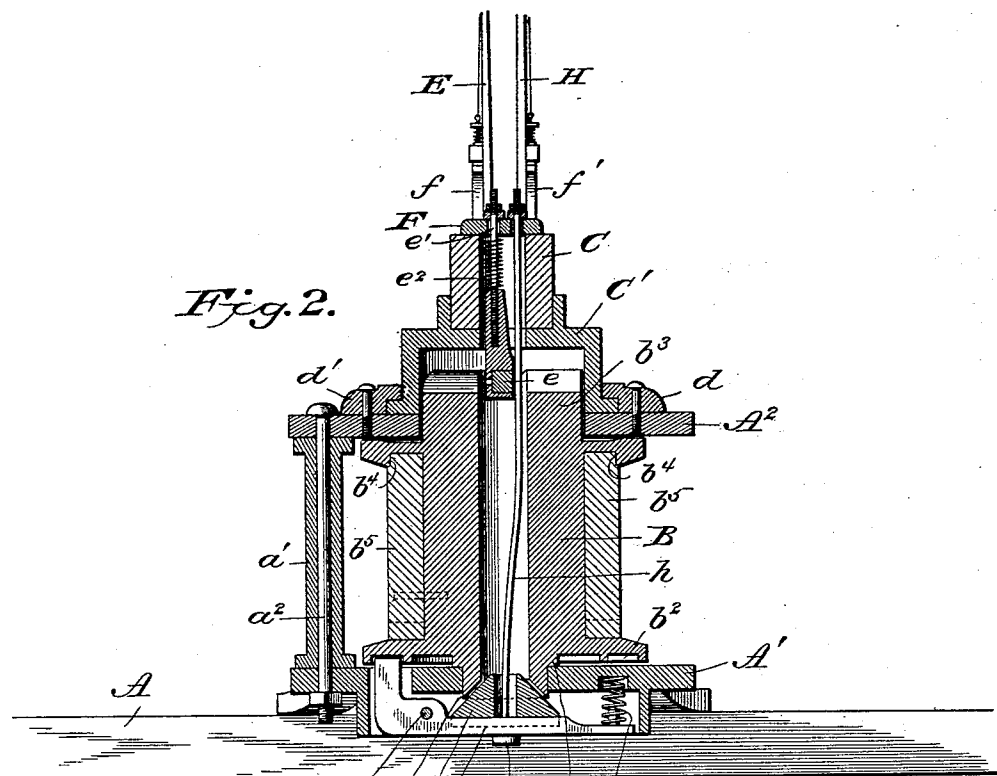
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JOSEPH J. MILNE, OF MONMOUTH, ILLINOIS, ASSIGNOR TO THE MILNE
MANUFACTURING COMPANY, OF SAME PLACE.

STUMP-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 569,507, dated October 13, 1896.

Application filed March 12, 1896. Serial No. 582,943. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH J. MILNE, a citizen of the United States of America, residing at Monmouth, in the county of Warren and State of Illinois, have invented certain new and useful Improvements in Stump-Extractors; 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 improvements in stump-extractors of that class which are operated by horse-power; and it comprises a drum supported in a suitable frame and adapted to be rotated by a sweep carrying a bracket having an annular bearing-surface which bears upon the supporting-frame, said sweep also carrying two levers, which are connected to independent pawls, one of said pawls being adapted to throw the sweep in engagement with the drum and the other engaging ratchet-teeth in the lower end of said drum to prevent backward rotation thereof, the connecting-rod of the latter pawl carrying a conical block which bears in a corresponding recess in the drum to act as a brake upon the same when said pawl is thrown out of engagement with the ratchet-teeth.

The invention consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of a stump-extractor constructed in accordance with my invention. Fig. 2 is a vertical sectional view, and Figs. 3, 4, and 5 are detail views.

A A designate runners upon which the supporting-frame of the machine is mounted, said supporting-frame consisting of a base-plate A', secured at its ends to the runners A and provided with three or more standards or uprights $a\ a'\ a'$, upon which the upper plate A² of the supporting-frame rests and is secured thereto. The standards or uprights are pre-

erably hollow, so that the bolts a^2 , which connect the upper plate of the frame thereto, pass through said standards and receive nuts at their upper ends, which are screwed down upon the plate to form a rigid frame. The standard a , which is located at the forward end of the frame, is provided with a reinforcing-web, as shown, and to this standard the draft mechanism is attached.

B designates the drum which is placed between the plates A' and A² before the plate A² is bolted in position, and this drum is provided at its lower end with a hub b , having an axial recess forming a continuation of a vertical recess through the drum. The hub b is provided with an annular bearing-surface b' , adjoining the head of the drum which bears upon the base-plate A', the hub passing through an opening in said base-plate. The lower head of the drum B is provided near its outer edge, and on the under side thereof, with ratchet-teeth b^2 , with which a pawl, hereinafter described, engages, and the outer end of the hub b is beveled inward, as shown, to provide a bearing-surface for the brake mechanism. The upper head of the drum B has formed thereon a hub b^3 , which passes through an opening therefor in the upper plate A² of the frame, and the end of this hub has a series of ratchet-teeth or projections forming transverse recesses with which a vertically-sliding bar or pawl c , carried by a bracket C', secured to the sweep C, is adapted to engage to throw said sweep in engagement with the drum.

The bracket C' consists of a flanged plate, to which the sweep is rigidly secured, and depending from this flanged plate is a cylindrical casing or housing, which lies over the hub b^3 of the drum B and presents an annular surface, which bears upon the upper plate A² of the supporting-frame, the lower end of said casing or housing having an outwardly-projecting flange over which lie two segmental plates d and d' , attached to the plate A² and adapted to retain the bracket C' and sweep carried thereby in connection with the supporting-frame. The depending casing or housing of the bracket C' is provided with vertical slots or recesses c' , located dia-

metrically opposite each other, and within these slots the ends of the vertically-moving cross-bar or pawl e bear, said cross-bar or pawl being connected to a rod e' , which extends up through an opening in the bracket C' and sweep C and is connected at its upper end to an operating-lever E. The lever E is fulcrumed or pivoted to a segment-rack f , projecting from a base-plate F, which is secured in place upon the upper side of the sweep C, and the lever is provided with the usual sliding dog, which engages the teeth of the segment-rack to hold said lever in an adjusted position. The lever E is operated to move the cross-bar or pawl e in and out of engagement with the ratchet-teeth at the upper end of the hub b^3 , and when in engagement with said ratchet-teeth the movement of the sweep in the proper direction will rotate the drum B, while an opposite movement of the sweep would cause said cross-bar or pawl to ride over the inclined surfaces of the teeth, the pawl being allowed to slide upon the connecting-rod e' and is forced down by a helical spring e^2 , which encircles said connecting-rod and is interposed between a shoulder thereon and the plate F.

The under side of the base-plate A' is provided with depending flanges providing a pocket in which is located a pawl G, which is pivoted therein by a pin g , the end of the pawl adjoining the pivot having a projection which passes through an opening in the base-plate A' and engages the ratchet-teeth b^2 on the lower head of the drum, the other end of said pawl projecting across the hub b of the drum, where it is engaged by a helical spring g' , interposed between the pawl and base-plate. The spring g' acts to throw the opposite end of the pawl G in engagement with the ratchet-teeth b^2 , these teeth being pitched with respect to the teeth at the upper end of said drum, so as to prevent backward rotation of the latter. Through the pawl G passes a rod h , the lower end of which is provided with a nut or head h' , which bears upon the under side of the pawl, and this rod extends upwardly through the drum B, bracket C', and sweep C, the upper end thereof being connected by an adjustable nut to a second operating-lever H, pivoted to a segment-rack f' , projecting from the plate F and provided with a sliding dog adapted to hold said lever in an adjusted position.

Upon the lower end of the connecting-rod h , above the pawl G, is mounted a conical block I, which is adapted to be brought in contact with the corresponding surface at the lower end of the hub b when the lever is operated to draw upon the rod h . It will be here noted that when the connecting-rod h is drawn upon the operation first throws the pawl G out of engagement with the ratchet-teeth b^2 and then moves the conical block in engagement with the hub b , so that it will act as a brake upon the drum.

A seat K is mounted upon the sweep C in position so that the operating-levers E and H will be within easy reach thereof.

The body of the drum B may be cast in a single piece; but I prefer to construct the same as shown in the accompanying drawings, in which the core is cast integral with the heads and is constructed to provide a number of flat surfaces adapted to receive a wood covering. At one end of each flat surface the adjoining head of the drum is provided with a recess or seat b^4 , adapted to receive the reduced end of a wooden block b^5 , the other end of said block being also reduced to fit between lugs b^6 , which project from the opposite head of the drum. The block is further held in place by a screw which passes through the same into the core, or the screw may be passed through one of the heads of the drum into the end of the block. By this arrangement the body of the drum is made up of a series of wooden blocks secured in place around the core, and when these blocks are worn they can be readily removed and new ones substituted. One of the blocks is provided with the usual means for connecting the rope to the drum and for guiding the second bite of said rope.

From the foregoing description the operation of the machine will be readily understood, as when the sweep is turned by a horse or other power and the pawls e and G are in engagement with their ratchet-teeth the drum will be rotated to wind the rope thereon, and when it is desired to check the rotation of the drum it is only necessary to operate the lever E to move the cross-bar or pawl e out of engagement with the ratchet-teeth at the upper end of said drum. In unwinding the rope or paying it out from the drum the lever H is operated, which disengages the pawl G and operates the brake-block I, as hereinbefore described.

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

1. The combination with a suitably-supported drum having ratchet-teeth at each end, of a sweep, pawls adapted to engage the ratchet-teeth, and independent levers mounted on said sweep and connected to the pawls, substantially as shown and described.

2. The combination with a suitably-supported sweep and a drum having two sets of ratchet-teeth, of pawls adapted to be thrown in and out of engagement with said ratchet-teeth, and independent levers mounted on the sweep and connected to said pawls, substantially as shown and for the purpose set forth.

3. The combination with a suitably-supported sweep and a drum having two sets of ratchet-teeth, of pawls adapted to be thrown in and out of engagement with the ratchet-teeth, independent levers mounted on the sweep and connected to the pawls, and a brake-block mounted on one of the connect-

ing-rods so that when the pawl is thrown out of engagement with its ratchet-teeth the block will be brought in contact with the drum, substantially as shown and described.

5 4. The combination with a suitable supported sweep and a drum having two sets of ratchet-teeth, of pawls adapted to be thrown in and out of engagement with said ratchet-teeth, independent levers mounted on the
10 sweep and connected to the pawls by rods, and a conical block mounted on one of the connecting-rods so as to be thrown in engagement with a corresponding recess in the drum, substantially as shown and for the purpose
15 set forth.

5 5. The combination with a frame, a drum journaled in said frame and having two sets of ratchet-teeth, of a sweep mounted on said frame, a pawl adapted to engage one set of
20 ratchet-teeth, a second pawl pivoted to the frame and adapted to engage the other set of ratchet-teeth, together with independent levers mounted on the sweep and connected to said pawls, substantially as shown and for the purpose set forth.
25

6. The combination with a frame, of a drum journaled therein and provided with ratchet-teeth at its upper end, a bracket or turn-table mounted on said frame, a sweep, a transverse
30 bar or pawl vertically movable and bearing at its ends in slots in said bracket or turn-table, and an operating-lever pivoted on the sweep and connected to said pawl by a rod, substantially as shown and for the purpose
35 set forth.

7. The combination with a frame, of a drum journaled therein and provided with ratchet-teeth at its upper end, a bracket or turn-table mounted on said frame, a sweep, a vertically-
40 movable pawl bearing at its ends in said bracket or turn-table, an operating-lever mounted on the sweep, a rod connecting the pawl with the lever, and a spring for normally depressing said pawl, substantially as shown and described.
45

8. The combination with a suitable supporting-frame, of a drum journaled therein and provided with a central opening through the same, ratchet-teeth formed on each end
50 of the drum, a bracket or turn-table mounted on the frame, a sweep and a pawl carried by said turn-table and adapted to engage the ratchet-teeth at the upper end of the drum, a pawl pivoted to the under side of the frame
55 to engage the ratchet-teeth at the lower end of the drum, independent operating-levers mounted upon the sweep, and rods connecting said levers to the pawls, substantially as shown and described.

9. The combination with a suitable supporting-frame, of a drum journaled therein and provided with a central opening through the same, ratchet-teeth formed on each end
60 of the drum, a bracket or turn-table mounted on the frame, a sweep and a pawl adapted to engage the ratchet-teeth at the upper end of the drum, a pawl pivoted to the under side of

the frame to engage the ratchet-teeth at the lower end of the drum, independent levers
70 mounted on the sweep, rods connecting said levers to the pawls, and a block mounted on one of the connecting-rods so as to bear against one end of the drum, substantially as shown and for the purpose set forth.

10. The combination with a suitable supporting-frame, of a drum journaled therein and provided with a central opening through the same, ratchet-teeth formed on each end
75 of the drum, a bracket or turn-table mounted on the frame, a sweep and a pawl adapted to engage the ratchet-teeth at the upper end of the drum, a pawl pivoted to the under side of the frame to engage the ratchet-teeth at the
80 lower end of the drum, springs for throwing the pawls in engagement with the ratchet-teeth, independent levers mounted upon the sweep, and rods connecting said levers to the pawls, substantially as shown and for the purpose set forth.
85

11. The combination with a suitable supporting-frame, of a drum journaled therein and provided with a central opening through the same, the lower end of said drum having
90 ratchet-teeth and a conical recess, as shown, a pawl pivoted to the under side of the frame so as to engage said ratchet-teeth, a sweep mounted upon the frame so as to turn thereon, an operating-lever pivoted upon the sweep by
95 a rod which passes through the drum and connected to the pawl, and a conical block mounted upon the connecting-rod above the
100 pawl so as to engage the conical recess in the drum when the lever is operated to disengage the pawl from its ratchet-teeth, substantially as shown and described.
105

12. In a stump-extractor, the combination, of a frame mounted on runners and consisting of upper and lower plates connected to each other by standards, a drum journaled between
110 said plates and provided with a central opening through the same, a bracket or turn-table mounted on the frame, a sweep and a vertically-movable pawl adapted to engage ratchet-teeth at the upper end of the drum, a pawl
115 pivoted to the lower plate of the frame so as to engage ratchet-teeth at the lower end of the drum; together with independent levers pivoted upon the sweep-rods connected to the pawls and to the levers, and a brake-block located on one of the connecting-rods so as to
120 bear against the drum when the lever which is connected to said rod is operated, substantially as shown and described.

13. In a stump-extractor, the combination, of a frame mounted on runners and consisting
125 of upper and lower plates connected to each other by standards, a drum journaled between said plates and provided with a recess through the same and with ratchet-teeth at each end, a bracket or turn-table mounted on the frame
130 and held in engagement therewith by segmental plates, a sweep secured to said bracket or turn-table, a vertically-movable bar or pawl bearing at its ends in said bracket or

turn-table and adapted to engage the ratchet-teeth at the upper end of the drum; a pawl pivoted to the under side of the frame so as to engage the ratchet-teeth at the lower end of the drum, and springs for actuating said pawls; together with operating-levers pivoted upon the sweep and connected to said pawls for throwing them out of engagement with

their ratchet-teeth, substantially as shown and for the purpose set forth. 10

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

JOSEPH J. MILNE.

Witnesses:

CLARENCE P. LATTI,

R. M. THOMAS.