(No Model.)

H. L. BENNETT.

STUMP PULLER.

No. 326,095. Patented Sept. 15, 1885.

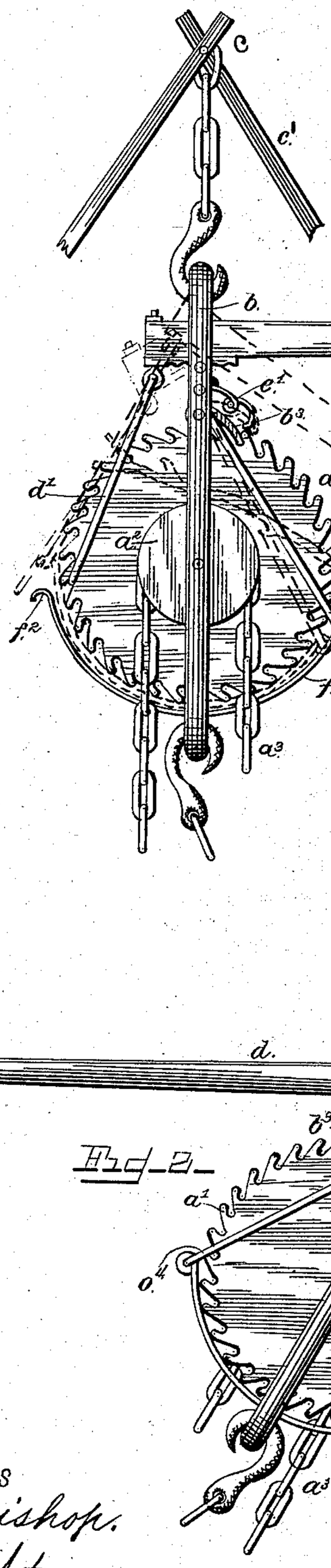


Fig 1

Fig 3

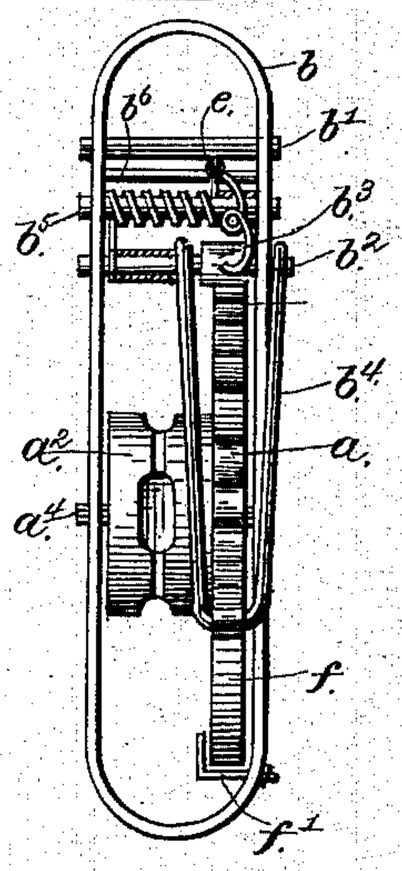
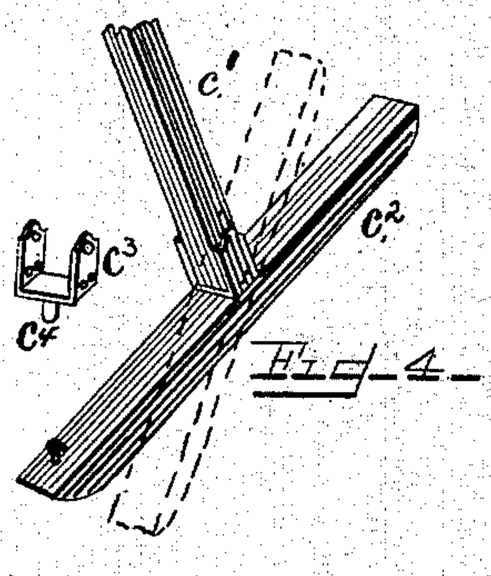


Fig 2

Fig 4



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STUMP-PULLER.

SPECIFICATION forming part of Letters Patent No. 326,095, dated September 15, 1885.

Application filed July 31, 1885. (No model.)

To all whom it may concern:

Be it known that I, HARNELL L. BENNETT, a citizen of the United States, residing at Westerville, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Stump-Pullers; and I do 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 the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to that class of stump-pullers operated by a single hand-lever; and it consists in the combination and arrangement of the several parts, as hereinafter explained.

In the drawings, Figure 1 is a side elevation. Fig. 2 shows the reverse side of the machine. Fig. 3 is an edge view with some of the operating parts removed, and Fig. 4 shows a clip-fastening adapted to hold the foot of each leg of the tripod on the runner or sill.

I have not shown the tripod in full, because I employ only a well-known form of such construction. The clip-fastening in Fig. 4 is employed by me in constructing my tripod, in order that the parts may be readily separated for purposes of storage, and so that when put together a strong joint is made, and the clip being provided with a round pin on its lower end, and the runner has a round hole instead of the angular mortises heretofore used. This allows the runner to which the single post is attached to be turned and set at different angles.

a is the power-wheel having the peripheral ratchet-teeth *a'*. The power-wheel has arranged at its side a pulley, a^2, adapted to carry the lifting-chain a^3. The power-wheel and pulley are both cast in one piece, and are supported on the same shaft a^4, as shown. The power-wheel and pulley are journaled in the yoke *b*, which is suspended from the tripod or frame *c*, or other suitable support. Near the upper edge of the yoke a fulcrum bar, *b'*, is placed, on which the lever *d* rests. Nearer to the periphery of the power-wheel another cross-bar, b^2, is placed, and on which the gravity-pawl b^3 and the bail b^4 are pivoted. The pawl is arranged to engage the teeth of the power-wheel and prevent the backward movement of the latter. The bail carries the end of the brake hereinafter described. Just above the cross-bar b^2 another cross-bar, b^5, is placed, and on which a spring-arm, *e*, fixed to which is secured a retracting hooked arm, *e'*, which is arranged to be caught upon the free end of the pawl b^3 and hold the latter disengaged from the power-wheel when and for the purposes hereinafter set forth. The spring-arm is made, preferably, from a piece of suitable wire, one end of which is coiled around the bar b^5, which construction gives it greater elasticity and efficiency. The arm is prevented from flying too far back by a small pin or bar, b^6. The hook-arm *e'* is also provided with a coil midway its ends, which greatly adds to its efficiency, and is made slightly shorter than the pawl, so that it has to be drawn forward in order to catch it over the end of said pawl, as shown in dotted lines, Fig. 1. When thus caught over the pawl, the retracting force of the spring-arm *e* causes it to raise and hold the said pawl when released clear of the power-wheel.

To the lower end of the bail b^3, I hinge the end of the brake *f*, which passes under the power-wheel to the opposite side of the yoke, and is held from dropping too low by a hooked guide or support, *f'*, projected from the inner side of one of the side bars of the yoke. A straight bar extended across from one side bar to the other would give good results; but I prefer the hook form, as shown, as greater accuracy in movement is secured thereby. The free end of the brake is provided with a hook, f^2, on which the operating-link *d'*, pivoted on the end of the lever *d*, may be engaged. The operating-link engages the teeth *a'* on the power-wheel, and the latter is turned thereby. As the power-wheel is turned the joint-pawl drops into place and prevents backward revolution of said wheel. The chain a^3 is passed over the pulley a^2 and around another pulley, (not shown,) and is hooked in the yoke. This arrangement being common and well known, I have not deemed it necessary to illustrate it in full.

After a stump has been pulled the grapplers suspended in the chain a^3, must be lowered in

order to release the weight and to bring them into position for further work. The pawl b^4 is, as shown, wider than the thickness of the wheel a, so that its side projects sufficiently to provide facilities for attaching the hook-arm e' thereon before it is disengaged from the teeth a'. The hook-arm is drawn forward and is caught over the projecting side of the pawl. The lever d is raised and the end of the link d' is disengaged by the operator with a stick or other suitable means from its hold in the teeth a'. If the link be held outward, and be lowered by raising the lever d, its end will drop over and hook onto the hook f^2 on the brake. By drawing the lever d down the brake is drawn firmly against the ends of the ratchet-wheel teeth a', and the wheel a will be turned sufficient to release the pawl b^3. The action of the spring-arm and hook-arm will raise and hold the pawl clear of the teeth. Now, by gently letting up the lever d, the wheel a will turn back and lower the weight to the ground. By this construction I am enabled to let the weight down easily and quickly. By former methods it took much time and labor to lower the weight.

It is not always practicable to rig the machine so that it will stand exactly vertical over the weight to be lifted. It will sometimes be necessary to arrange it to do its work while in an inclined position, as shown in Fig. 2. When thus inclined, it is apparent that the link d' would not automatically engage the teeth. It has heretofore been necessary to put the link in position by hand. To obviate this I employ a hook, g, which is provided with a coiled shank, g', which permits it to be stretched slightly. The inner end of the hook is attached to one of the side bars of the yoke, so that when not needed to hold the link it may be dropped, as indicated in dotted lines. When the machine is in the position shown in Fig. 2, the hook is caught over the link d', and the latter will be kept to its work. When the weight is being lowered the hook is released from the link.

The mechanism for operating the pawl automatically could be dispensed with, and the said pawl could be raised by the hand or other means. I prefer the automatic means shown and described.

I have also shown the bail b^4, having its upper end pivoted to the yoke above the axis of the power-wheel. This is done so as to give facilities for greater length of brake, for thereby better results are gained; but it will be clearly understood that the said bail may be pivoted on the side bars of the yoke at any point below the said axis. Again, the brake could be attached to swing on a fixed pin or bar placed in the yoke just below the periphery of the wheel, and a supplemental link could be employed to turn the wheel sufficiently to release the pawl and the end of the link d'; but these arrangements are somewhat more complicated and do not give such perfect results as those more particularly hereinbefore described.

Instead of forming the retracting-hook e' in a separate piece from the spring-arm e, the latter could be lengthened and bent into proper form, so that by a slight pressure it could be pressed down and caught upon the pawl. By making the arm and hook in separate pieces the latter is more readily engaged with the pawl.

The single leg c' of the tripod or derrick is attached to the runner c^2 through the medium of a clip, c^3, which embraces the lower end of the leg and is secured thereto. The clip has a round pin, c^4, projected from it, which fits into a round hole in the runner. The purpose of this clip attachment is to permit the setting of the runner at different angles to the leg, thereby enabling the operator to adjust the derrick quicker to its position over the stump or weight.

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

1. In a stump-puller, the combination, with the power-wheel, the operating-lever, and link, of a brake arranged to bear upon the periphery of the wheel, and having one end pivoted to the yoke or frame, and its other end adapted to be engaged by the operating-link, substantially as set forth.

2. The combination, with the yoke, the power-wheel, the hand-lever, and link d', of the bail b^4, pivoted to the yoke above the power-wheel and arranged opposite to the link d', and the brake having one end pivoted to the lower end of the bail, and its other end extended to the opposite side of the yoke and provided with a hook, substantially as and for the purposes set forth.

3. The combination, with the yoke and the power-wheel, of the pawl pivoted to the yoke and a retracting-hook supported in the yoke and adapted to be caught upon and automatically lift the pawl, substantially as set forth.

4. The combination, with the yoke and the cross-bar b^5, of the spring-arm e, having its shank coiled around the cross-bar b^5, the hook e', pivoted to the inner end of the spring-arm and its outer end arranged to engage the end of the pawl b^3, and the stop b^6, arranged behind the spring-arm, substantially as set forth.

5. The combination, with the yoke b and the link d', of the yielding hook g, substantially as and for the purposes set forth.

6. The combination, with the yoke, the power-wheel, and the pivoted brake passed between the side bars of the yoke, of a guide and support, f, arranged below the brake, substantially as and for the purposes set forth.

7. The combination, with the yoke, the power-wheel, the hand-lever, the lifting-link, and the pawl, of the pivoted bail b^4, the brake f, having one of its ends pivoted to the bail, and its other end provided with a hook and extended to the opposite side of the wheel in

position to be engaged by the lifting-link, and the retracting-hook arranged above in position to engage the end of the pawl, substantially as set forth.

8. The combination, with the power mechanism and the derrick having the adjustable runner on its single leg, of the clip c^3, secured to the leg c', and provided with the round pin c^4, adapted to fit into the round mortise in the runner c^2, substantially as and for the purposes set forth.

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

HARNELL L. BENNETT.

Witnesses:
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