(No Model.) 2 Sheets—Sheet 1.

P. HANSEN.

STUMP EXTRACTOR.

No. 481,944. Patented Sept. 6, 1892.

FIG. 1.

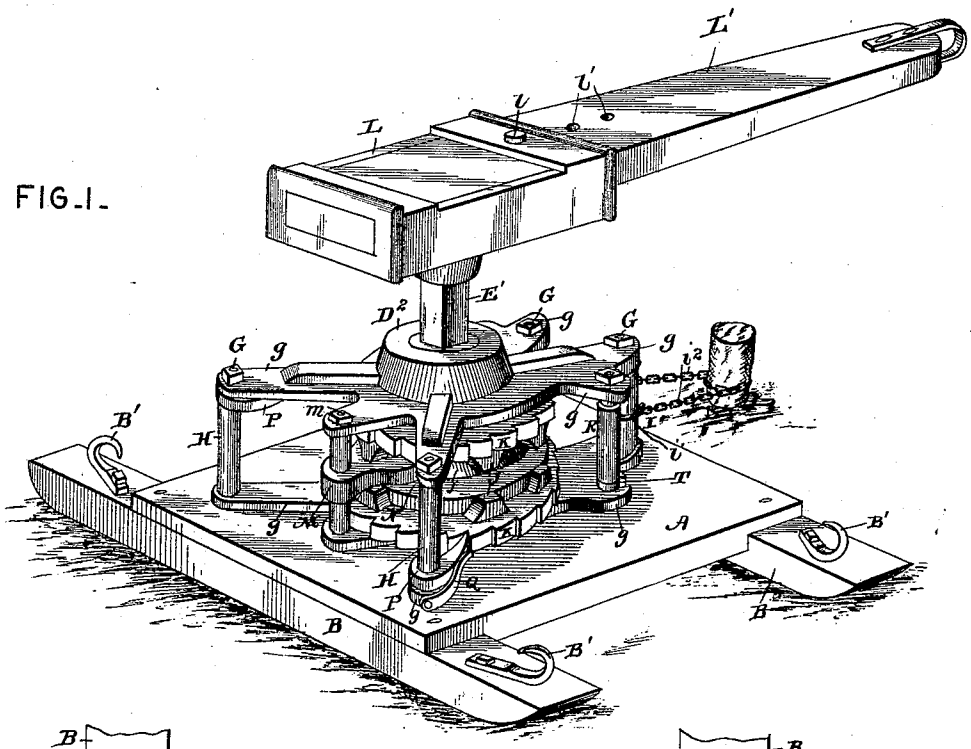
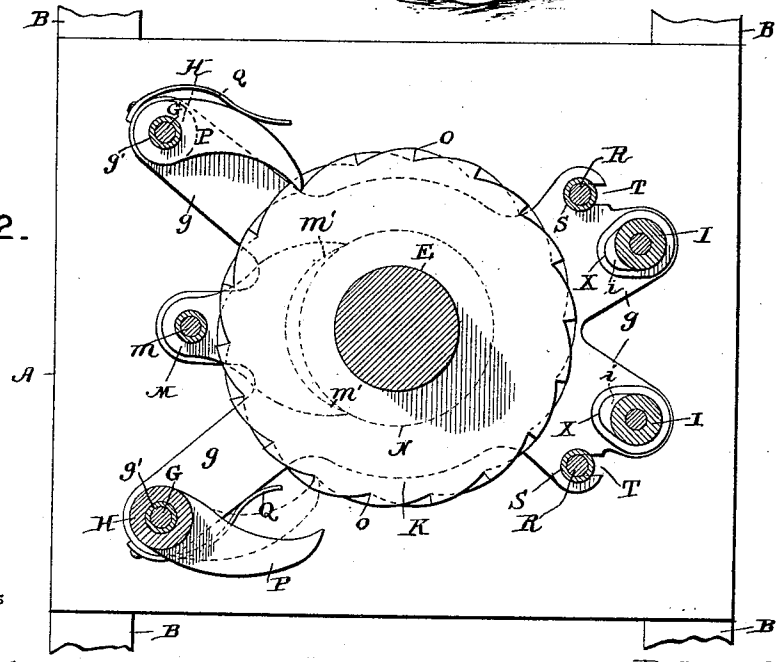


FIG. 2.



Witnesses

Jas. K. McCathran

D. P. Wolhampter

Inventor

Peter Hansen

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(No Model.) 2 Sheets—Sheet 2.

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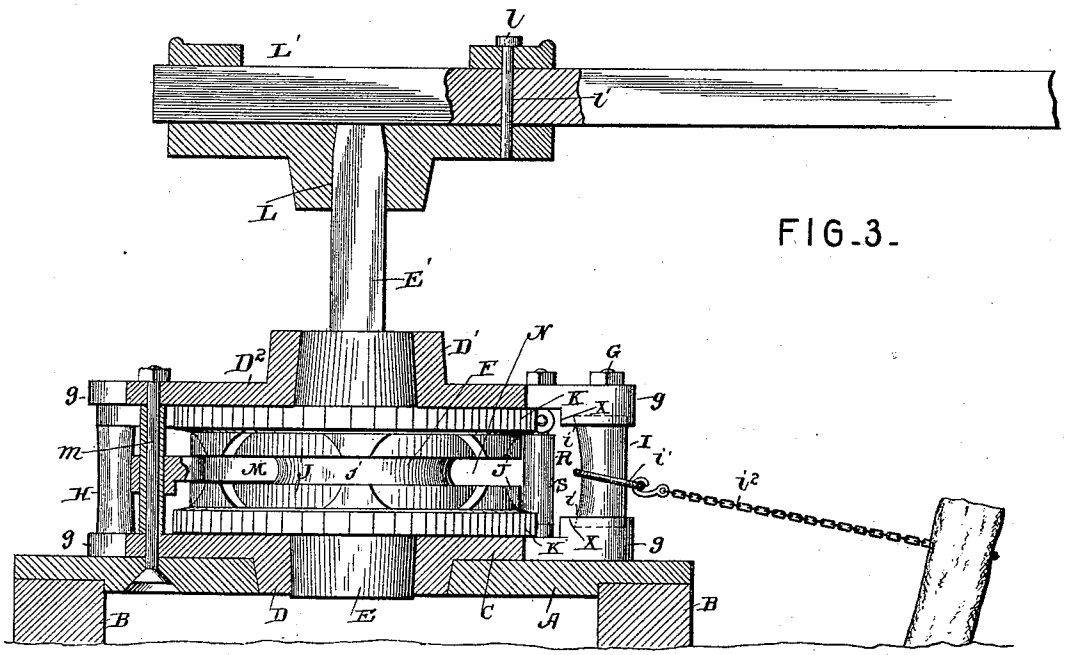
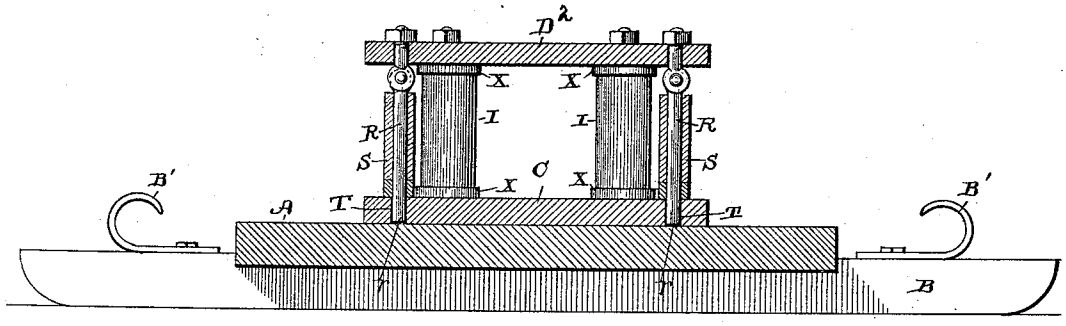


FIG. 3.

FIG. 4.



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UNITED STATES PATENT OFFICE.

PETER HANSEN, OF ANTIGO, WISCONSIN.

STUMP-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 481,944, dated September 6, 1892.

Application filed May 3, 1892. Serial No. 431,645. (No model.)

To all whom it may concern:

Be it known that I, PETER HANSEN, a citizen of the United States, residing at Antigo, in the county of Langlade and State of Wisconsin, have invented a new and useful Stump-Extractor, of which the following is a specification.

This invention relates to stump-extractors; and it has for its object to provide an improved chain stump-extractor which shall be simple in construction and effective in operation.

To this end the invention is designed to provide an improved stump-extractor of this class which, while providing means for the ready extraction of stumps within a reasonable distance of the machine, at the same time provides for the checking of the winding devices so as to avoid injurious results, and also to provide means for running the chain through the machine independent of the chain-wheel, and also improved anchoring and other devices forming important constructions in an effective and strongly-made stump-extractor of this class.

With these and many other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a stump-extractor constructed in accordance with this invention. Fig. 2 is a vertical horizontal sectional view of the same directly under the cap-plate and above the chain-wheel. Fig. 3 is a central vertical sectional view. Fig. 4 is a vertical sectional view in rear of the wheel-shaft.

Referring to the accompanying drawings, A represents a supporting-sled platform mounted upon the opposite runners B, which are provided with the draft-hooks B′, by means of which the sled may be drawn from one place to another in operating the extractor.

Mounted upon the platform A is the main base-plate or casting C, having the central bearing-collar D, which receives the lower end of the hub or shaft E, upon which the chain-wheel F is mounted, while the upper end of the hub or shaft E works within the bearing-collar D′ of the top or cap plate D^2, corresponding in shape to the lower companion base-plate C and clamped thereto and over the exposed chain-wheel F by means of the front and rear pairs of clamping-bolts G, passing through the arms *g* of each of said plates and bolted through the platform of the sled so as to rigidly and firmly secure the extractor to the sled. The clamping-bolts G, passing through the front pair of plate-arms *g*, are surrounded by the spacing-sleeves *g′*, interposed between the arms of the upper and lower plates, so as to evenly space the same apart, while at the same time allowing the chain-wheel F to freely revolve between said plates and in the bearings therefor. Mounted to freely revolve over the front pairs of clamping-bolts and spacing-sleeves thereon are the opposite guide-rollers H, which are designed to ease the extracting-chain as it passes onto the chain-wheel at one side and off at the other, as is usual in extractors of this character, and thus avoiding any undue friction or impediment to the drawing in the chain by the chain-wheel. The corresponding rear pairs of clamping-bolts accommodate the anchor-chain blocks I, which are seated in the eccentric flanges X, arising from the base-plate and holding the blocks in place, so as not to give to any tendency of the machine to rise or tip to the side where the chain is drawn on the wheel when the machine is being used to pull a high stump. The said blocks I are tapered both ways from their centers, as at *i*, to form wedge portions and eccentric ends, over which the anchor-chain rings *i′* will not pass and allow the entire machine to give to any tendency to rise or tip to one side. A suitable anchoring-chain i^2 is connected to the adjacent and opposite rings *i′* and to a suitable point of attachment, so that it will be readily seen that the stump-extractor is anchored from two separate fastenings which will serve to hold the same more securely in position and avoid the objections noted.

The horizontal chain-wheel F, mounted to revolve between the top and bottom plates, is provided with the ordinary link-seats J and their communicating slots *j*, which are designed to receive the links of the chain and as the wheel revolves cause the chain to be carried around by the wheel, and thereby ex-

tract the stump to which one end of the chain is connected. The said chain-wheel F is further provided with the upper and lower projecting flanges K, which project beyond the outer edges of the link-seats and serve not only to direct the chain into the said link-seats and the communicating slots when the same enters the wheel, but to also hold the chain in the wheel until it reaches the front, where the slack of the same is run off. The wheel F is revolved in any direction by means of the shaft upon which the same is mounted, and said shaft E is provided with an upwardly-extended portion E′, which receives the sweep-socket L, removably fitted to the upper squared end of the shaft and receiving the horizontal sweep L′, operated in the usual manner and secured within the socket by means of the securing-pin *l*, passing through the top of the socket and engaging any one of the series of perforations *l′* in one end of the sweep. Now it will be readily seen that as the sweep L′ is operated to revolve the chain-wheel the extracting-chain, passing entirely around the chain-wheel from the front, will be drawn in at one side from the front, while at the same time the slack of the chain will be also deposited at the front of the machine, but from the opposite side to that where the chain enters.

In order to prevent the slack chain from being carried directly up to the taut portion of the chain drawn in at one side of the wheel, I employ a horizontal chain parting and lifting plate M. The said plate M is pivotally mounted upon the clamping-bolt *m*, intermediate of the two opposite guide-rollers H, and is provided with an inner curved end *m′*, taking into and working through the deep circular groove N, formed in the chain-wheel F in the bottom of the chain-receiving seats and centrally cutting the same, said plate being adapted to yield to unevenness of strain upon the chain and is thus itself relieved from undue strain tending to wrench it out of position. It will be readily seen that in whatever direction the chain-wheel F is revolved to extract the stump the said lifting-plate serves to part the taut and slack portions of the chain on opposite sides of the wheel, while at the same time the ends of said plate lift the slack side of the chain out of the chain-wheel and causes it to be deposited in front of the machine.

The projecting flanges K are provided with a peripheral series of ratchet-teeth *o*, reversely arranged on one flange with respect to those on the other flange and are designed to be engaged one flange at a time by the spring-actuated dogs P, so that when the wheel is revolved in either direction either dog allows the chain to be drawn to and around the wheel and at the same time holds the wheel fast when the same stops. The spring-actuated dogs P are pivotally mounted at one end upon the front clamping-bolts under the upper cap-plate and upon the lower and are designed to engage the upper and lower notched flanges, respectively, according to the direction of rotation of the chain-wheel. Pivotally secured at one end to the upper and lower plates, respectively, adjacent to said dogs are the pivoted leaf-springs Q, which are designed to be moved against the dogs to hold the same in engagement with their respective ratchet or away from the same, where they are not in use, as will be readily apparent. It will of course be seen that only one dog at a time is brought into play, according to the direction the wheel is turned, so that the dog not in use is readily swung back out of the way after its actuating-spring has been lifted therefrom.

Secured to the upper plate D^2 and adjacent to the chain-blocks are the depending swinging bolts R. The said swinging bolts R accommodate the chain-relieving rollers S, loosely working thereon, and also have lower projecting ends *r*, taking into the notches T, formed in the base-plate C. When the swinging bolts are swung into position, so that their lower projecting ends rest in the notches T, a sufficient space is left between the same and the rear anchor-chain blocks I to allow the extracting-chain to pass therethrough. When the chain is desired to be run out farther in order to secure the same to a stump the chain already paid out will not reach, or to entirely remove the chain from the machine, I then employ the chain-relieving rollers mounted upon the swinging bolts already described. By swinging the said bolts out of their respective notches in the base-plate the portion of the chain passing around the chain-wheel may be lifted out of the wheel and placed back of said relieving-rollers upon the bolts R, which are then replaced in position within said notches. Now it will be seen that the chain is entirely free from the chain-wheel and that by pulling upon the same it may be freely drawn out from the machine any distance desired or entirely removed without having to revolve the chain-wheel to wind the chain out of the extractor, which process is not only slow, but also causes the sweep to swing around dangerously fast.

With these points in view it is thought that the construction, operation, and many advantages of the herein-described stump-extractor are now apparent without further description.

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

1. In a stump-extractor, the upper and lower spaced plates having a series of front and rear extended arms and bearing-collars, clamping bolts passing through said arms, spacing-sleeves mounted upon the front pair of bolts between said arms, guide-rollers loosely mounted upon said front spacing-sleeve, a chain-wheel revolving between said plates and provided with integral hubs bearing in said collars and an upwardly-extending integral squared portion, a chain-parting plate loosely

supported between the front guide-rollers and at the front of the chain-wheel, and a sweep removably connected with the squared portion of said wheel extension, substantially as set forth.

2. In a stump-extractor, the upper and lower frame-plates having integral eccentric flanges, a chain-wheel mounted to revolve between said plates, opposite guide-rollers arranged at the front of said wheel, opposite wedge-shaped anchor-chain blocks having eccentric ends resting in said eccentric flanges, chain-rings mounted upon said wedge-shaped blocks, and a single anchoring-chain having its ends connected to said rings, substantially as set forth.

3. In a stump-extractor, the combination, with the upper and lower spaced plates, the lower of which is provided with opposite notches and the chain-wheel mounted to revolve between said plates, of the swinging bolts depending from opposite sides of the upper plate and provided with lower projecting ends adapted to be sprung into and out of the notches in the lower plate, and chain-relieving rollers loosely working upon said bolts and designed to receive the chain to relieve the same from the wheel, substantially as set forth.

4. In a stump-extractor, the upper and lower frame-plates, a chain-wheel mounted to rotate between said plates and provided with upper and lower projecting flanges having a peripheral series of reversely-disposed ratchet-teeth, opposite dogs pivoted to suitable points of attachment and adapted to engage and be disengaged from their respective ratchets, and movable leaf-springs pivoted to the upper and lower frame-plates adjacent to said dogs and adapted to be moved over and away from the latter, substantially as set forth.

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

PETER HANSEN.

Witnesses:
A. D. RICE,
CHAS. FRANZKE.