

1,216,148.

Fig. 1.

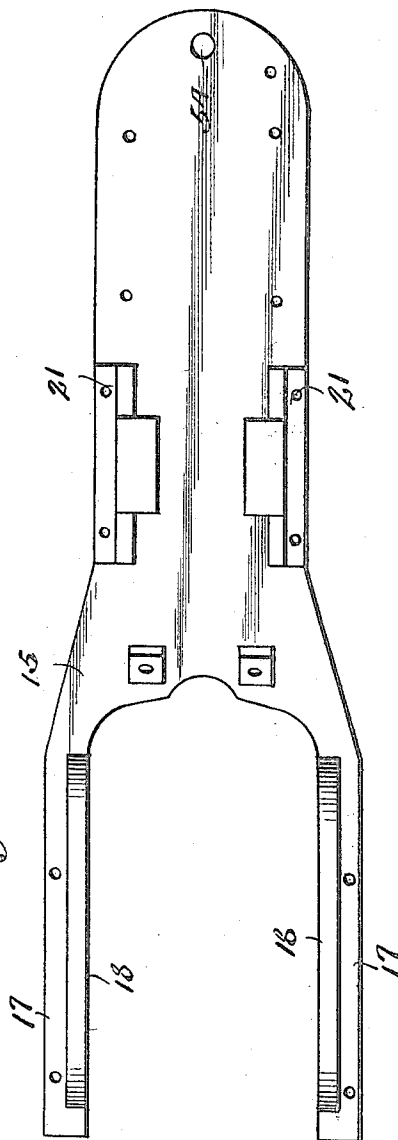


Fig. 6.

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STUMP PULLER.
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Patented Feb. 13, 1917.
3 SHEETS—SHEET 2.

Fig. 2.

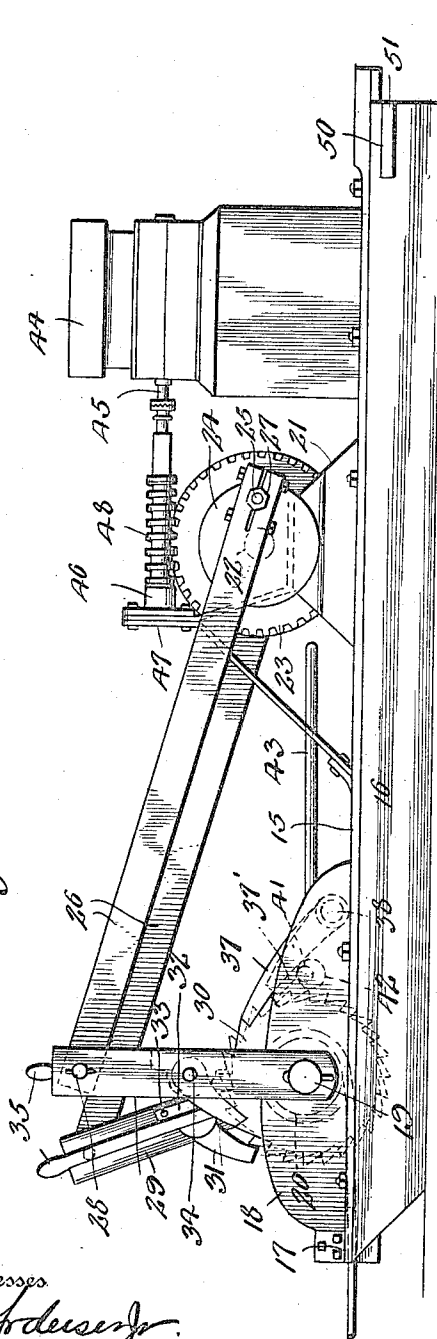
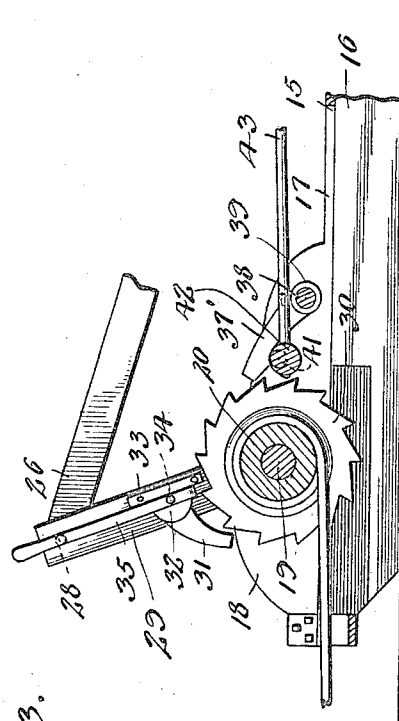


Fig. 3.



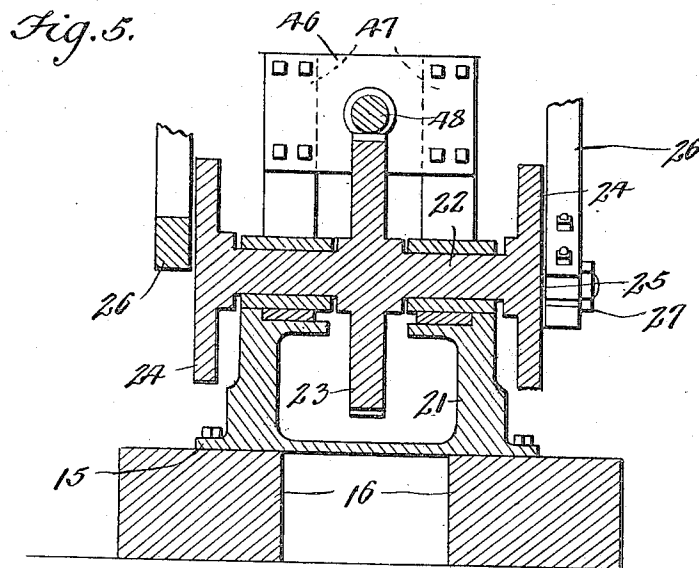
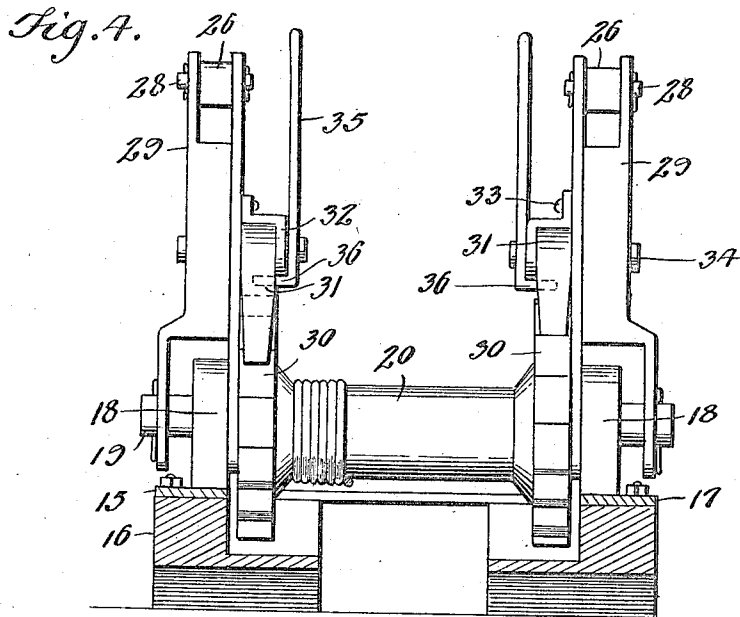
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UNITED STATES PATENT OFFICE.

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STUMP-PULLER.

1,216,148.

Specification of Letters Patent.

Patented Feb. 13, 1917.

Application filed July 5, 1916. Serial No. 107,653.

To all whom it may concern:

Be it known that I, IRA G. LONGWELL, a citizen of the United States, residing at Woodburn, in the county of Marion and State of Oregon, have invented new and useful Improvements in Stump-Pullers, of which the following is a specification.

This invention relates to that class of machines or devices which are generally known as stump pullers and which are used specifically for extracting stumps from the ground although they may be utilized in different ways and for different purposes.

The present invention has for its object to produce an organized machine of this class of simple, improved and thoroughly effective construction.

A further object of the invention is to produce a machine of the class described which will be mounted on runners for convenience in transportation and in which the component parts including the bed frame and the means for transmitting motion from an engine mounted on such frame to a rotary cable drum is of simple and improved construction.

A further object of the invention is to produce simple and improved means to prevent the machine from tilting by the stress exerted when in operation and also to assist in anchoring the machine in position.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—

Figure 1 is a top plan view of a machine constructed in accordance with the invention.

Fig. 2 is a side elevation of the same.

Fig. 3 is a longitudinal sectional detail view taken through the cable drum and related parts, on the line 3—3 in Fig. 1.

Fig. 4 is a transverse sectional view taken on the line 4—4 in Fig. 1.

Fig. 5 is a transverse sectional view taken on the line 5—5 in Fig. 1.

Fig. 6 is a detail plan view of the bed plate or frame.

Corresponding parts in the several figures are denoted by like characters of reference.

The bed plate 15 of the machine is mounted on runners 16 where it is firmly secured by fastening means such as bolts or the like. The bed plate is provided with forwardly extending arms 17 having upstanding flanges 18 that constitute bearings for the shaft 19 carrying the cable drum 20. The drum is accommodated between the arms 17 and may, therefore, be set relatively close to the ground which is the most advantageous position for extracting stumps, it being also possible to build the machine low so as to occupy but little space. The bed plate is also provided intermediate its front and rear ends with flanges 21 affording bearings for the driving shaft 22. The driving shaft carries about midway between its ends a worm gear 23, and at the ends of the driving shaft are crank disks 24. The worm gear 23 and the disks 24 have been shown as being cast or formed integrally with the driving shaft, but it is obvious that the said gear and disks may be constructed separate from the shaft and keyed or otherwise secured thereon. The disks 24 are each provided with a wrist pin 25, said wrist pins being threaded into the disks and said wrist pins being disposed in diametrically opposite relation on the two disks. The wrist pins serve for the attachment of pitmen 26 which are secured thereon by nuts 27. The forward ends of the pitmen are connected by pivot members 28 with levers 29 that are fulcrumed or mounted for rocking movement on the shaft 19 of the cable drum. The shaft 19 is provided with ratchet wheels 30 that are firmly secured thereon, said ratchet wheels being engaged by pawls or dogs 31 pivoted on the levers 29 and gravitationally engaging the said ratchet wheels. The dogs 31 are reinforced by braces 32 secured on the levers 29 by fastening members 33, the object of said braces being to relieve the pivot members 34 on which the dogs are mounted from excessive strain during the operation of the machine. Fulcrumed on each pivot member 34 is a hand lever 35, said hand lever being positioned adjacent to the dog 31 and provided at its lower end with a lug 36 that extends later-

ally beneath the dog and serving when the upper end of the hand lever 35 is rocked in a rearward direction to lift the dog from engagement with the ratchet wheel 30. The parts may be so arranged and proportioned that the hand levers will be gravitationally retained in adjusted position with the dogs in engaging or in non-engaging position with relation to the ratchet wheels, but it is obvious that within the scope of the invention means of any well known kind or type may be employed for positively retaining the hand levers 35 in adjusted position at either end of the limits of their respective movements.

As will be best seen in Fig. 2 of the drawings, the ratchet wheels 30 at the two sides of the machine are preferably so disposed that the teeth of said wheels will be in staggered relation. The teeth of said wheels are engaged by safety dogs 37, 37' which are of slightly different length, said dogs being pivotally supported on a transverse shaft 38 terminally supported in the flanges 18, said dogs being secured against lateral movement on said shaft by means of collars 39 having set screws 40. A rock shaft 41 which is terminally supported in the flange 18 has an eccentric portion 42 that extends beneath the dogs 37, 37'. Said rock shaft is also equipped with a lever 43 whereby it may be manipulated, thereby causing the eccentric portion 42 to lift the safety dogs from engagement with the ratchet wheels.

Supported on the rearward portion of the bed plate which constitutes a platform extending between the runners 16 is a motor, such as an internal combustion engine 44, having a driven shaft 45 for which an additional bearing 46 is provided, said bearing being supported by means of braces 47. The shaft 45 has a worm 48 meshing with the worm gear 23 which may thus be rotated together with the shaft 22 and the crank disks 24.

Bolted or otherwise secured on one of the runners is a bracket member 49 that extends laterally and rearwardly with respect to said runner. The rearward ends of the runners are provided with notches 50 accommodating a cross bar 51 which is of such length as to project materially, say about four feet, at each side of the machine. The cross bar 51 is pivotally connected at 52 with the bracket member 49, and a bolt or fastening member 53 serves to connect the cross bar 51 detachably with the bed plate near the rearward end of the latter. It will be seen that by removing the fastening member 53 the cross bar 51 may be swung about the axis of the pivot member 52 to a position where it will extend lengthwise adjacent to the outer face of the runner with which the bracket member 49 is connected,

this being for convenience in transporting the machine, the progress of which would be obstructed by the cross bar 51. The bed plate is provided near its rearward end with an aperture 54 with which an anchoring cable may be connected. It may also be stated that when the machine is in operation it may be securely anchored by driving stakes adjacent to the cross bar 51.

In the operation of this invention the worm gear is driven by the motor, and motion is transmitted from the crank disks 24 through the medium of the pitmen 26 to the levers 28 which will thus be rocked, one of said levers being rocked in a forward direction, while the other is retracted, this being due to the connection of the pitmen with the crank disks at diametrically opposite sides. Substantially continuous rotation of the drum carrying shaft 19 will thus be produced, and the motion will be free from the intermittent rocking which would result if the levers were driven synchronously. Connected with and wound upon the drum 20 is a cable 55 which extends forwardly beneath the drum and which is connected directly or in any desired manner with the stump that is to be extracted or the load that is to be moved. Reverse rotation of the cable carrying drum is prevented by the safety dogs 37, 37'. When it is desired to release tension on the drum, the hand levers 35 are actuated to disengage the dogs 31 from the ratchet wheels 30; the rock shaft 41 is then rocked by means of the lever or handle 43, thereby causing the eccentric portion 42 of said shaft to simultaneously move the pawls or dogs 37, 37' out of engagement with the ratchet wheels.

The improved machine is simple in construction, easily moved or transported, and it may be conveniently anchored at the point where it is to be used. It may be constructed at a moderate expense, and it will be found thoroughly efficient for the purposes for which it is provided.

Having thus described the invention, what is claimed as new, is:—

1. In a device of the class described, a pair of runners, a bed plate mounted on said runners and having forwardly extending arms with upstanding flanges, said bed plate being also provided with upstanding flanges intermediate its front and rear ends, a shaft supported on the first mentioned flanges, a drum on said shaft, said drum being accommodated between the forwardly extending arms, a driving shaft supported on the last mentioned flanges, a motor mounted on the bed plate, and means for transmitting motion from the motor to the driving shaft and from the driving shaft to the drum carrying shaft.

2. In a machine of the class described, a pair of runners having notches at their

rearward ends, a bracket connected with one
of the runners and extending laterally and
rearwardly with respect thereto, a cross bar
supported in the notches of the runners and
5 extending materially beyond the sides of
the runners, and a pivot member connect-
ing the cross bar with the bracket.

3. In a machine of the class described,
a pair of runners having notches at their
10 rearward ends, a bracket connected with one
of the runners and extending laterally and

rearwardly with respect thereto, a cross bar
supported in the notches of the runners and
extending materially beyond the sides of
the runners, a pivot member connecting the 15
cross bar with the bracket, and a fastening
member whereby the cross bar may be se-
cured against swinging movement about the
axis of the pivot member.

In testimony whereof I affix my signature. 20

IRA G. LONGWELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."