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PATENTED DEC. 25, 1906.

H. RUSTAD.
STUMP EXTRACTOR.
APPLICATION FILED JUNE 1, 1906.

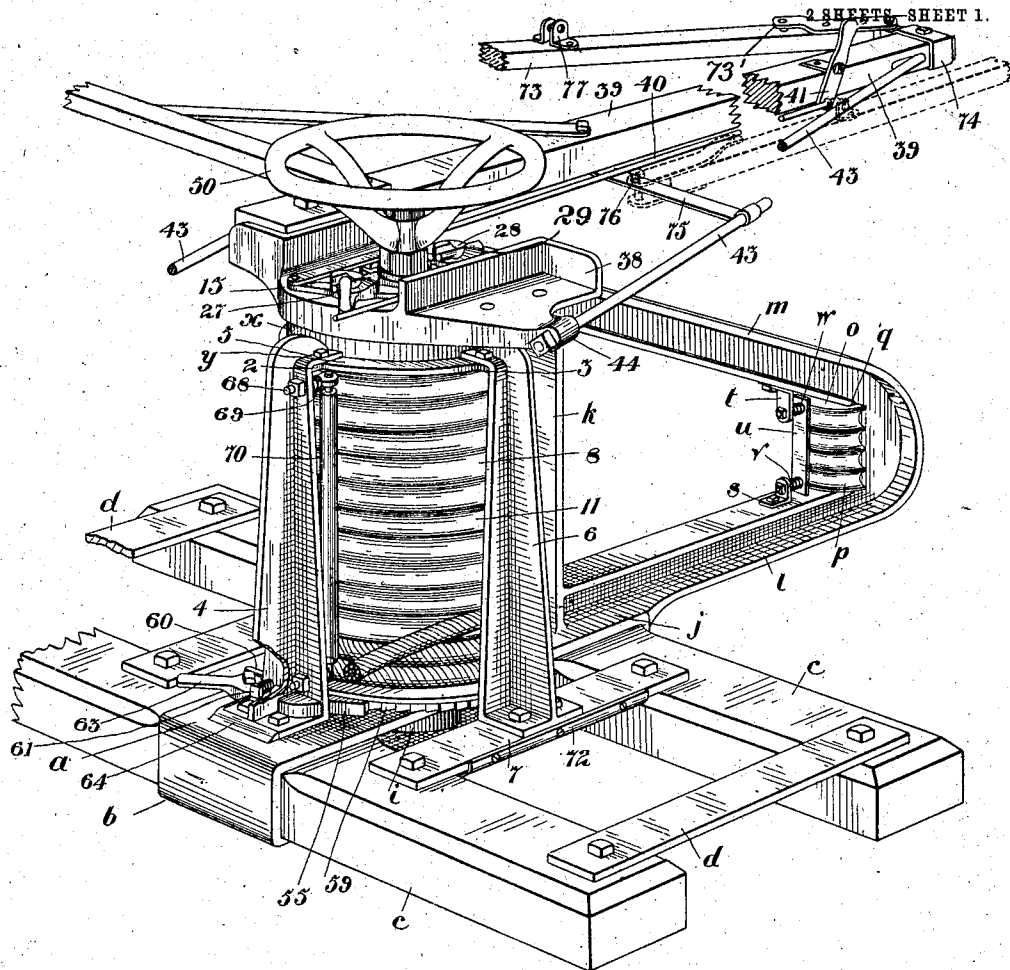


Fig. 1.

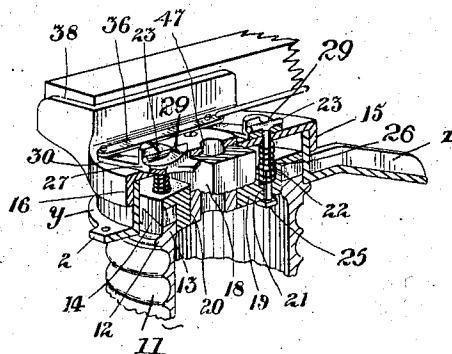


Fig. 3.

Witnesses.

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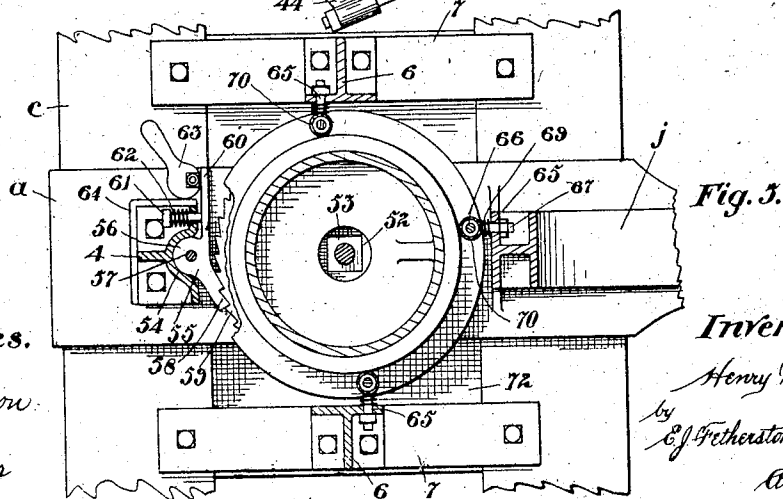
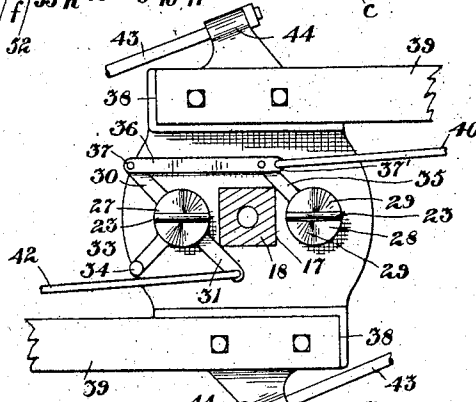
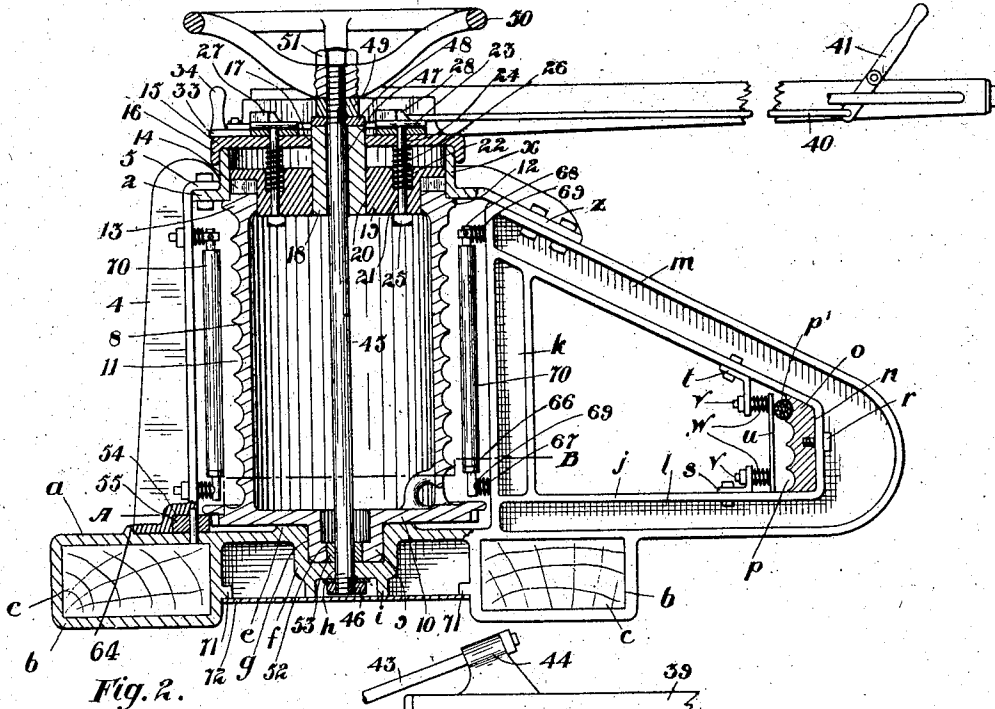
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by E. J. Fetherstonhaugh
Att'y

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2 SHEETS—SHEET 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY RUSTAD, OF LINDSAY, ONTARIO, CANADA.

STUMP-EXTRACTOR.

No. 839,212.

Specification of Letters Patent.

Patented Dec. 25, 1906.

Application filed June 1, 1906. Serial No. 319,795.

To all whom it may concern:

Be it known that I, HENRY RUSTAD, of the town of Lindsay, in the county of Victoria, Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in Stump-Extractors; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to improvements in stump-extractors, as described in the present specification and illustrated in the accompanying drawings, that form part of the same.

The invention consists, essentially, of bed-beams and the base of the device secured thereto, having an upwardly and rearwardly projecting frame therefrom, a frame secured to the aforesaid frame and superposed above the base, standards supporting said frame, a frame rotatably supported on said superposed frame, means for rotating said frame, a drum turning in a suitable bearing in said base, means supported from said rotatable frame for engaging said drum, means for releasing from engagement the aforesaid means, a rotatable vertical shaft journaled in said base and extending upwardly through said rotatable frame, means from said shaft for engaging said drum, and means for rotating said shaft.

The objects of the invention are to provide a means for rotating the drum by hand which will be clear of all obstructions, to obviate the troubles arising from a sudden reverse movement of the horizontally - rotatable frame, to insure the engagement of the clutch mechanism with the drum, to preserve the even winding of the cable upon the drum, to provide an adjustable means for anchoring said machine, and generally to provide an efficient machine which shall be cheap to manufacture, strong and durable, and whereby the operation thereof will be greatly simplified.

In the drawings, Figure 1 is a perspective view of the device, portions thereof being broken away and one of the sweeps removed. Fig. 2 is a vertical section through the machine. Fig. 3 is a sectional perspective view of the upper portion of the drum and rotatable frame, showing the clutch mechanism. Fig. 4 is a plan view of the rotatable frame, showing the means for operating the clutch mechanism. Fig. 5 is a sectional plan through the line A B, Fig. 2.

Like characters of reference indicate corresponding parts in each figure.

Referring to the drawings, *a* is the base of the machine, having the looped-shaped portions *b*, through which the bed-beams *c* extend. The bed-beams *c* are firmly secured in said loops by suitable bolts or lag-screws and are held apart at the outer ends by the cross-bars *d*, which are rigidly secured thereto by suitable bolts. The base *a* has a circular boss *e* centrally located between the loop portions *b*, and a central depression *f*, forming in the center of said base a circular recess or bearing *g*. The depression *f* is closed in at the bottom and has a small circular orifice *h* therethrough centrally located.

i is a circular flange extending downwardly from the bottom of the circular depression *f*. *j* is a triangular frame forming part with the base *a* and extending rearwardly and upwardly therefrom, the arms thereof being preferably I-shaped in cross-section. The arm *k* of the triangular frame *j* rises vertically from the base *a* to the rear of the center and above one of the loop portions *b*, and the lower arm *l* extends rearwardly from said arm *k*, preferably horizontally. The upper arm *n* extends from the upper end of the arm *k* downwardly and meets the arm *l*, forming the apex of the frame. The inner flange of the arms *l* and *m* is flattened at *n*, presenting a flat vertical surface.

o is a block fitting between the arms *l* and *m* and abutting the flattened surface *n*. The block *o* is preferably semicylindrical in form and has in its outer face horizontal grooves *p* to receive the anchor-cable *p'*.

q is a vertical slot formed in the back of the block *o*, in which the flange *n* rests, and *r* is a suitable tap-bolt screwed into said block through the flange *n* and holding the block securely in place.

It will be seen that the block *o* will be held securely from slipping sidewise from engagement with the frame, as the flange *n* fits snugly within the said slot.

s is a bracket suitably secured to the inner flange of the arm *l* forward of the block *o*, and *t* is a similar bracket secured to the inner flange of the arm *m* preferably in vertical alinement with the bracket *s*.

u is a plate or bar vertically arranged in proximity to the face of the block *o* and has

secured near the ends thereof the pins or bolts *v*. The pins *v* extend through suitable orifices in the extending portions of the brackets *s* and *t* and are screw-threaded and have suitable nuts screwed thereon.

w represents spiral springs encircling the pins *v* and inserted between the plate *u* and the brackets *s* and *t*.

The spring-held bar *u* may be adjusted to any distance from the face of the block *o* by means of the nuts on the pins *v*, and thus allow any size of cable to rest in the grooves in the said block, but at the same time will prevent the said cable from dropping out of the groove in which it is placed. It will be seen, however, that the cable may be shifted from one groove to another by merely pushing against the plate *u* and forcing it forward against the springs *w* in order to allow the cable to slip downwardly or upwardly from one groove to another.

An anchor-block such as described provides a means of shifting the height of the anchor-cable very quickly and at the same time retains the said anchor-cable in the position in which it is placed should the tension on the machine be released at any time.

x is a cylindrical frame centrally located above the depression *f* in the base *a* and having a suitable flange *y* extending around the lower edge thereof, thereby making the said frame very rigid.

z is a lug or bracket preferably forming part with the frame *x* and extending rearwardly therefrom and is rigidly secured to the upper flange of the arm *m* of the triangular frame *j*.

2 is an extension or lug forming part with the flange *x* and preferably diametrically opposite the extending portion *z*.

3 represents extension-lugs forming part with the flange *x* preferably diametrically opposite and at right angles to the portions *z* and 2.

4 is a standard resting on and secured to the base *a* of the machine diametrically opposite the arm *k* of the frame *j* and having an upper flanged portion 5 registering with and secured to the projecting lug 2 on the frame *x* by suitable bolts.

6 represents standards similar to the standard 4, secured to the projecting lugs 3 on the frame *x*, and are supported at the bottom on the cross-bars 7, which rest upon and are firmly secured to the bed-beams *c* by suitable bolts.

A frame constructed as described, with the standards 4 and 6 supporting it, is very rigid and does not allow any springing whatsoever in the cylindrical frame *x* when strain is put upon it.

8 is a drum having a centrally-located hollow boss or projection 9 extending downwardly from the bottom thereof and fitting within the circular recess *g* in the base *a* and

journalled therein. The bottom 10 of the drum 8 rests upon the raised boss *e* of the base *a*. The drum 8 is shown with a spiral groove 11 on the outer periphery; but it will be readily understood that a drum with a smooth surface may be used. The drum 8 extends upwardly within the cylindrical frame *x* and has a flange or rib 12 arranged around its periphery below the said frame to prevent it from lifting upwardly. The top edge of the drum 8 is enlarged at 13, having a ring of ratchet-teeth 14 on the upper face.

15 is a horizontal swinging frame resting upon the upper edge of the cylindrical frame *x* and having a downwardly-depending flange 16 encircling the outer periphery of the frame *x*.

17 is an orifice through the center of the frame 15 and is preferably square.

18 is a square block which fits the orifice 17 and projects downwardly through the said frame. The block 18 is flanged at the top end and is secured to the top of the frame 15 by suitable bolts passing through said flanges.

The orifice 17 and block 18 are shown square; but it must be understood that any suitable shape of block and orifice might be used that would not depend on the bolts which secure the block to the frame to take any twisting or torsional strain put upon the said block.

19 is a clutch-block fitting loosely within the frame *x* and having a central orifice 20, corresponding to the shape of the block 18, and a ring of ratchet-teeth on the outer edge of the under face thereof to engage the ring of teeth 14 on the top of the drum 8. The block 19 fits loosely around the depending portion of the block 18 and is free to move vertically independently of the same.

21 represents a pair of vertical orifices through the block 19 and arranged diametrically opposite, said orifices being preferably square.

22 represents cylindrical orifices centrally located above the orifices 21.

23 represents T-headed bolts projecting downwardly through the orifices 24 in the frame 15 and passing through the orifices 22 and 21, the lower ends being squared and fitting loosely in the orifices 21, and 25 are suitable nuts secured on the ends of said bolts under said clutch-block. 26 represents spiral springs encircling said bolts, the lower ends thereof resting in the orifices 22 and the upper ends bearing against the under side of the frame 15. The springs 26 hold the ratchet-teeth of the clutch-block 19 closely in engagement with the ratchet-teeth 14 of said drum.

It will be seen that if the frame 15 is rotated in the forward direction the block 18, and consequently the clutch-block 19, will rotate therewith and cause the drum to be ro-

tated. Should the frame 15 be moved in the opposite direction, the sloped surface of the ratchet-teeth on the clutch-block 19 will slide upwardly on the sloped surface of the teeth 14 on the drum and compress the springs 26 into the orifices 22. The bolts 23 are free in the clutch-block, but should they become rusted or get stuck in any manner they are free to lift upwardly above the frame 15.

27 and 28 are circular blocks surrounding the bolts 23 and having the upper face thereof formed with double-inclined surfaces 29. The heads of the T-headed bolts 23 normally rest at the bottom of these inclined faces and are free to move upwardly. The block 27 has an arm 30 projecting from one side thereof, preferably close to the bottom, and an arm 31 projecting from the opposite side thereof in line with the arm 30.

33 is an arm similar to the arms 30 and 31, but projecting from the block 27 at right angles to the said arms and having an upright handle portion 34. The block 28 has a single arm 35 projecting therefrom corresponding to the arm 30 of the block 27. The arms 30 and 35 are provided at their outer ends with upright portions forming pivots. 36 is a bar having orifices 37 adapted to engage the said upright pivotal portions and has an extending eye portion 37' projecting beyond the arm 35.

38 represents sockets forming part with the horizontal swinging frame 15, in which the sweeps 39 are securely fastened.

40 is a bar one end of which passes through the eye portion 37' of the bar 36 and is pivotally secured therein, and the other end extends outwardly from the frame of the machine to a point in proximity to the outer end of the sweep and is pivotally secured in the lower end of a lever 41, which is pivoted on the said sweep.

42 is a bar similar to the bar 40 and is pivotally secured at the inner end to the arm 31 of the block 27, the outer end being pivotally secured in a pivoted lever at the outer end of the opposite sweep.

It will be seen, therefore, that the clutch-block 19 may be lifted from engagement with the drum 8 from the outer end of either of the sweeps by throwing the lever 41, and through the rods 40 or 42 and the arrangement of arms connected with the blocks 27 and 28, previously described, rotate said blocks, and consequently lift upwardly upon the T-headed bolts 23 by turning the inclined surfaces of the blocks under the T-shaped heads, and thereby lifting the clutch-block 19 in an upward direction.

The sweeps 39 are braced from the horizontal swinging frame 15 by the truss-rods 43, which are fixedly secured in the extending portions 44 of the said frame and in the outer ends of the sweeps.

The horizontal swinging frame 15 is securely held downwardly to the cylindrical frame x by a center shaft 45. The shaft 45 projects downwardly through the drum and the circular orifice h in the bottom of the depression f in the frame a , and the nut 46 is screwed thereon. A suitable washer may be inserted between the frame and the nut. The upper end of the shaft 45 passes through a central cylindrical orifice 47 in the block 18, and a washer 48 is placed over the end of said shaft and rests upon the upper surface of the block 18.

49 is an adjusting-nut which is threaded and screwed onto the upper threaded end of the shaft 45. The frame 15 is consequently held securely in position and cannot lift upwardly from engagement with the frame x .

50 is a hand-wheel also threaded and screwed upon the upper end of the shaft 45 and tightened down against the nut 49, and 51 is a lock-nut placed above the hub of said hand-wheel to hold it securely in position.

The bottom end of the hollow boss or projection 9 from the drum 8 has a centrally-squared orifice 52 extending therethrough, and 53 is a nut or squared shoulder fixedly secured to or forming part with the shaft 45 and resting within the said squared orifice. It will therefore be seen that if the clutch-block 19 is raised out of engagement with the ratchet-teeth 14 of the drum the said drum may be rotated by means of the hand-wheel and central vertical shaft, the squared shoulder 53 forming the connection between the drum and the shaft. The drum may also be rotated by hand if the clutch-block 19 is left in engagement with the drum, as the springs 26 will compress and allow the clutch-block to work as a ratchet.

The bottom end of the standard 4 has a pocket-shaped recess 54 formed therein, said pocket-shaped recess being preferably semicylindrical in shape on the interior surface.

55 is a ratchet-dog having a partially cylindrical body portion 56, preferably of the same radius as the semicylindrical recess 54 and resting within said recess.

57 is a pin extending upwardly through the frame a and the center of the circular portion of the dog 55 and holding the said dog securely in position in the recess 54, effectually preventing it from falling outward.

The forward end of the ratchet-dog 55 is provided with suitable ratchet-teeth 58 to engage the ratchet-teeth 59 on the lower flange of the drum 8.

60 is a tailpiece forming part with the dog 55 and extending outwardly beyond the side of the standard 4.

61 is a bolt passing through an orifice in one of the flanges of the standard 4 and is secured in the tail portion 60 of the dog 55, and 62 is a spiral spring encircling the said bolt between the flange of the standard and

the head of the bolt. The said spring is placed around said bolt in compression and pulls outwardly on the tail of the dog, thus holding the teeth 58 thereof closely in engagement with the ratchet-teeth 59 of the drum.

63 is a cam-lever pivotally secured to the base *a* in close proximity to the standard 4, the cam-surface thereof abutting the tail portion 60 of the dog 55. By turning the cam-lever 63 upon its pivot the larger portion of the cam will be turned toward the tail of the dog, and consequently tilt the said dog upon its pivot, and thereby throw the toothed portion 58 out of engagement with the ratchet-teeth 59 of the drum.

It will be understood that all the strain that is to be put upon the cable which is wound upon the drum will be transferred to the dog 55 should the horses stop pulling, and in order to further support the base of the standard 4 a rib or projecting shoulder 64 is provided, forming part with the base *a*.

One of the flanges of each of the standards supporting the cylindrical frame *x* and the arm *k* have recesses 65 extending there-through in proximity to the top and bottom thereof.

66 represents upright bars having portions 67 secured to the lower end thereof at right angles thereto and passing through the lower orifices 65 in the said standards.

68 represents eyebolts encircling the upper ends of the bars 66 and suitably secured thereto and passing through the upper orifices 65.

69 represents coiled springs surrounding the portions 67 and the eyebolts 68 between the bar 66 and the flange of the standards and pressing outwardly from said standards. The projecting portions 67 and the eyebolts 68 have suitable nuts screwed thereon outside of said flange.

70 represents rollers rotatably mounted on the rods 66 and in proximity to the outer peripheral surface of the drum 8. The rollers 70 are thus spring-held to their position and form a yielding means for insuring the even winding of the cable on the drum.

71 represents flanges formed on the inner side of the loop portions *d* of the frame and preferably in line with the under edge of the depending flange or ring *i*, formed on the base.

72 is a plate extending across the under side of the machine and bent upwardly at both ends and lapped against the outer edge of the bars 7 and securely fastened thereto. The plate 72 forms a guard or shield for the under portion of the machine and prevents stones or other obstructions from damaging the said portion and also prevents the machine from digging into the ground when being moved from place to place, effectually preventing loose dirt from getting into the bearing of the drum.

73 represents tongues pivotally secured to a bracket 74 at the extreme end of the sweeps 39, the pivotal portion being formed by a plate 73', secured to the top and bottom of said tongue through which a suitable king-bolt may be passed. The forward end of the plate 73' is bent upwardly, as shown, to receive suitable whiffletrees to which the horses operating the machine may be harnessed.

75 is a flat bar secured to the under side of the sweep and having the outer end secured to the stay-rod 43, and 76 is a hole through said bar intermediate of its length.

77 is a bracket secured on the top of the tongue, having a channel or groove running angularly across the said tongue and a hole through the sides of said bracket.

When it is desired to move the machine, the tongue may be disconnected from the sweep by removing the king-bolt and placing the tongue so that the inner end will engage the bar 75 and the king-bolt be passed through the end and through the hole 76. The tie-bar 43 fits into the channel in the bracket 77, and a suitable bolt is passed through the holes in the sides thereof and above said rod, thus supporting the outer end of the tongue and making the tongue and sweep form practically a single guiding-tongue. The whiffletrees may be connected to the bar *d* by suitable chains and the machine drawn over the ground.

A machine constructed as described is operated in the following manner: A suitable anchor-cable is looped around the anchor-block *o* and secured to a suitable anchoring-stump, thereby holding the machine securely to a certain position. The anchor-cable may be quickly adjusted vertically at any time, as previously described. The cable winding on the drum is then drawn out and looped around the stump to be pulled and is provided with suitable means for gripping the said stump. The horses are hitched to the sweeps in the usual manner, and the clutch-block 19 is dropped downwardly by means of the levers 41 and cam-blocks 27 and 28 until the ratchet-teeth of said clutch-block engage the teeth 14 on the top of the drum 8. The springs 26 hold the clutch-block closely in engagement with the drum and insure the said clutch remaining in engagement with said drum. When the horses begin to move, the horizontal swinging frame 15 is necessarily rotated, and as the said frame is rotated the block 18 and clutch-block 19 are rotated with it, consequently rotating the drum 8. The ratchet-dog 55 is spring-held in engagement with the ratchet-teeth 58 on the bottom end of the drum and should the horses stop pulling at any time the said dog will hold the said drum from rotating backward. The strain put upon said dog will necessarily equal the pull exerted upon the drum by the

horses, and the dog must therefore be of very strong construction and also must be well supported. The practice in former machines has been that the ratchet-dog for holding the drum has been placed between the back portion of the frame and the drum, and consequently a double strain was put upon the frame between the anchor and the center of the drum, whereas by placing the ratchet-dog to the forward side of the machine the force exerted by the drum against the dog is practically in the same direction as the pull of the stump-pulling cable. Thus a single strain or the strain of the cable against the drum is the only strain exerted on the portion of the frame between the center of the drum and the anchor-cable. The means for engaging and disengaging the ratchet-dog is also located in a position on the frame which is very easily accessible, being right in front of the machine. The construction described enables the ratchet-dog to be made very strongly, and the strength of the supporting parts which take the strain on the ratchet-dog is readily apparent.

The construction shown and described forms a frame having a rigid back portion and standards rigidly supporting the upper part of the frame, so that the whole is very rigid and cannot be sprung in any manner. It will therefore be seen that the drum will not be pinched at any time by the action of the horses pulling unevenly on the sweep, and consequently cause the bearing portions of the drum to bind or get out of alinement.

Should the horses balk or back suddenly when the clutch-block 19 is in engagement with the drum, no damage to the mechanism will occur, as the clutch-block will lift upwardly freely against the tension of the springs 26 and merely drop downwardly into each succeeding tooth as the horizontal swinging frame is turned. In other constructions clutches somewhat similar have been used; but the advantages of a spring-held clutch over a clutch which is solidly operated are very apparent, as in a clutch operated by fixed working parts should the horses back against the machine the clutch and operating mechanism would be put under great strain and in many instances would break.

The clutch mechanism may be readily operated from the end of either sweep, or should the operator of the machine be close to the machine he may throw the clutch in or out of gear by means of the handle 34. The means for raising and lowering the clutch-block 19 is very positive and has absolutely no feature which is liable to get out of order.

The cable in winding upon the drum is held closely in engagement with said drum at four points by means of the spring-held vertical rollers, which are placed in close proximity to the drum and necessarily guide the said cable and prevent it from jumping or

lifting from the grooves or from the surface of the drum; but as they are spring-held they are free to move inward or outward, and thus accommodate themselves to any unevenness in the cable, or should any unforeseen accident occur and the cable get lapped the said guiding-rollers will recede against their springs and not be broken.

The means provided in this machine for winding up loose cable or taking up the slack is very simple, and the operating-wheel, by means of which the center shaft is turned, is high and clear of all obstructions. The operator of the machine may stand up to the machine and grasp the hand-wheel, having perfect freedom of movement in rotating the drum. As the frame of the machine is very rigid and all the parts are held securely to their place, it will be seen that the drum may be rotated very easily by means of the large hand-wheel, as the frame will not be strained in any direction and will not bind.

The movement of the machine from place to place is accomplished in a very simple manner. The tongue is merely disconnected from the end of the sweep and connected to the cross-bar 75 and held from swinging sidewise by the bracket 77, which grasps the stay-rod 43. The whiffletrees are suitably secured to the frame of the machine, as previously mentioned, and the whole machine readily transported from place to place. The shield or mud-guard 71 forms a shoe underneath the frame, and when the said machine is being dragged over the ground the sloped portion of the said plate will rise over the ground, thus preventing the machine from digging into the ground, and consequently keeping the loose earth from getting under the drum and fouling the bearings.

What I claim as my invention is—

1. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having an upwardly and rearwardly projecting frame therefrom, a frame secured to the aforesaid frame and superposed above the base, standards supporting said frame, a rotatable frame supported on said frame, means for rotating said frame, a drum turning in suitable bearings in said base and said superposed frame, means for holding said drum, means supported from said rotatable frame for engaging said drum, means for releasing from engagement the aforesaid means, a rotatable vertical shaft journaled in said base and extending upwardly through said rotatable frame, means from said shaft for engaging said drum, means for rotating said shaft, a cable winding on said drum, and means for anchoring said frame, as and for the purpose specified.

2. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having a central depression therein forming a bearing and an up-

wardly and rearwardly projecting frame therefrom, a cylindrical frame secured to the aforesaid frame superposed centrally above said base, standards supporting said frame, 5 a rotatable frame supported on said frame, means for rotating said frame, a drum having a trunnion projecting from the bottom thereof and journaled in the bearing in said base and turning in said superposed frame, 10 means supported from said rotatable frame for engaging said drum, means for releasing from engagement the aforesaid means, a rotatable vertical shaft journaled in said base and extending upwardly through said rotatable frame, means from said shaft for engaging 15 said drum, means for rotating said shaft, a cable winding on said drum, and means for anchoring said frame, as and for the purpose specified.

3. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having a central depression therein forming a bearing and an upwardly and rearwardly projecting frame 25 therefrom, a cylindrical frame secured to the aforesaid frame superposed centrally above said base, standards supporting said frame, a rotatable frame supported on said frame, means for rotating said frame, a drum having 30 a hollow trunnion projecting from the bottom thereof and journaled in the bearing in said base and turning in said superposed frame and a ring of ratchet-teeth around the bottom of said drum, a spring-held ratchet-dog engaging said ratchet-teeth, means for 35 holding said ratchet out of engagement with said drum, means supported from said rotatable frame for engaging said drum, means for releasing from engagement the aforesaid means, a rotatable vertical shaft journaled in 40 said base and extending upwardly through said rotatable frame, means from said shaft for engaging said drum, means for rotating said shaft, a cable winding on said drum, and 45 means for anchoring said frame, as and for the purpose specified.

4. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having a central depression therein forming a bearing and an upwardly and rearwardly projecting frame 50 therefrom, a cylindrical frame secured to the aforesaid frame superposed centrally above said base, standards supporting said frame, a rotatable frame supported on said frame, 55 means for rotating said frame, a drum journaled in the bearing in said base and turning in said superposed frame having a ring of ratchet-teeth on the upper end thereof, means 60 for holding said drum, a clutch-block having ratchet-teeth on the under side thereof engaging the ratchet-teeth of said drum and supported from said rotatable frame and spring-held therefrom, means from said rotatable 65 frame for engaging said clutch-block, means

for releasing said clutch-block from engagement with said drum, a rotatable vertical shaft journaled in said base and extending upwardly through said drum and rotatable frame, means from said shaft for engaging 70 said drum, means for rotating said shaft, a cable winding on said drum, means for preserving the even winding of said cable on said drum, and means for anchoring said frame, as and for the purpose specified. 75

5. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having a central depression therein forming a bearing and an upwardly and rearwardly projecting frame 80 therefrom, a cylindrical frame secured to the aforesaid frame superposed centrally above said base, standards supporting said frame, a rotatable frame supported on said frame, 85 means for rotating said frame, a drum journaled in the bearing in said base and turning in said superposed frame having a ring of ratchet-teeth on the upper end thereof, means for holding said drum, a clutch-block 90 having ratchet-teeth on the under side thereof engaging the ratchet-teeth of said drum and supported from said rotatable frame and spring-held therefrom, means from said rotatable frame for engaging said clutch-block, 95 means for releasing said clutch-block from engagement with said drum, a rotatable vertical shaft journaled in said base and extending upwardly through said drum and rotatable frame, means from said shaft for engaging 100 said drum, means for rotating said shaft, a cable winding on said drum, rods vertically disposed and spring-held to said drum from said standards, rollers on said rods, means for adjusting said rods to and from said drum, 105 and means for anchoring said frame, as and for the purpose specified.

6. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having a central depression therein forming a bearing and an upwardly and rearwardly projecting frame 110 therefrom, a cylindrical frame secured to the aforesaid frame superposed centrally above said base and having an annular flange projecting therefrom, a standard arranged preferably diametrically opposite the upright 115 portion of said frame secured to the flange of said cylindrical frame and to the base of the machine and having a recess formed in the base thereof, a pair of standards supported 120 from said bed-beams and secured to the flange of said cylindrical frame, a rotatable frame supported on said cylindrical frame having a central angularly-shaped orifice therethrough and sockets in the upper side 125 thereof, an angularly-shaped block fitting the orifice in said frame and projecting downwardly therefrom having a central orifice therethrough, sweeps secured in said sockets, braces from said frame supporting said 130

sweeps, a drum having a projecting trunnion from the bottom thereof turning in the bearing in said base and turning in said cylindrical frame, a ring of ratchet-teeth around the base of said drum, a ratchet-dog pivoted in the recess in the base of one of the said standards and bearing against said standard, a ring of ratchet-teeth around the upper edge of said drum, a clutch-block supported from said rotatable frame having a central angular orifice therethrough corresponding to the central orifice in the rotatable frame and surrounding said downwardly-projecting block and sliding free thereon and a ring of ratchet-teeth on the under side engaging the teeth on said drum, means for holding said clutch-block in engagement with said drum, means for disengaging said clutch-block from said drum, a rotatable vertical shaft journaled in the base of said machine and held therein and projecting upwardly through said angularly-shaped block, means for holding said rotating frame to its seat, means for rotating said drum from said shaft, means for rotating said shaft, a cable winding on said drum, and means for anchoring said machine, as and for the purpose specified.

7. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having a central depression therein forming a bearing and an upwardly and rearwardly projecting frame therefrom, a cylindrical frame secured to the aforesaid frame superposed centrally above said base and having an annular flange projecting therefrom, standards supported from the base and bed-beams fixedly secured to said flange and supporting said frame, a drum journaled in the depression in said base and in said cylindrical frame having a ring of ratchet-teeth around the outer periphery of the bottom thereof and a ring of ratchet-teeth around the upper edge thereof, a ratchet-dog pivoted in the base of one of said standards and spring-held in engagement with the lower ring of ratchet-teeth on said drum, a cam-lever pivoted on the base of the machine and engaging said ratchet-dog, a rotatable frame supported on said cylindrical frame having a flange embracing the edge of said frame and a central squared orifice therethrough and a pair of circular orifices through said frame diametrically opposite and equidistant from the center thereof, a squared block having flanges at the top thereof and a central circular orifice there-through secured to said frame and projecting downwardly through said squared orifice, a clutch-block having a ring of teeth corresponding to the teeth on said drum and a central squared orifice loosely surrounding said squared block and a pair of orifices diametrically opposite registering with the pair of orifices in said rotatable frame having the top portion thereof formed cylindrical and the

lower portion reduced and squared, a pair of T-headed bolts projecting downwardly from said rotatable frame through said orifices and passing through the orifices in said clutch-block, and having square portions at the lower ends and nuts on the ends thereof, coil-springs surrounding said bolts resting in said orifices and abutting the under side of said rotatable frame, a pair of cam-blocks surrounding said bolts and resting on the upper side of said rotatable frame and engaging the heads of said bolts, means for rotating said cam-blocks, means for rotating said rotatable frame, a vertical shaft journaled in the base of said machine and held securely therein and projecting upwardly through and beyond the aforesaid square block and threaded at the upper end, a washer surrounding said shaft and resting on said square block, an adjusting-nut on said shaft above said washer, a hand-wheel threaded on said shaft, a lock-nut on said shaft above said hand-wheel, means from said shaft for engaging said drum, a cable winding on said drum, and means for anchoring said machine, as and for the purpose specified.

8. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having a central depression therein forming a bearing and a central orifice therethrough and a triangular frame extending rearwardly from said base, a cylindrical frame superposed centrally above said base having a projection therefrom secured to said triangular frame, standards supporting said cylindrical frame, a rotatable frame supported on said cylindrical frame, means for rotating said frame, a drum having a trunnion from the bottom thereof and a central squared orifice in the end of said trunnion, a shaft journaled in said base and securely held thereto projecting upwardly through said squared orifice and said rotatable frame having a squared shoulder fitting within the said squared orifice, means for rotating said shaft, a cable winding on said drum, and means for anchoring said frame, as and for the purpose specified.

9. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having a journal-bearing therein and a triangular frame extending rearwardly therefrom, an anchor-block having a plurality of grooves therein secured in said frame, a cylindrical frame secured to said triangular frame and superposed above said base, standards supporting said frame, a rotatable frame supported on said base, means for rotating said frame, a drum turning in the journal in said base and said cylindrical frame, means for holding said drum, means supported from said rotatable frame for engaging said drum, means for releasing from engagement the aforesaid means, a rotatable vertical shaft journaled in said base

and extending upwardly through said rotatable frame, means from said shaft for engaging said drum, means for rotating said shaft, a cable winding on said drum, and means for preserving the even winding of said cable on said drum, as and for the purpose specified.

10. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having a journal-bearing therein and a triangular frame extending rearwardly therefrom, said triangular frame having a flattened end portion, an anchor-block preferably semicylindrical in shape and fitting against said flattened portion of said frame and having a plurality of horizontal grooves in the face thereof, means for holding said block securely in said frame, a spring-held bar secured to said frame in proximity to the face of said block, an anchor-cable embracing said block and fitting in said grooves, a cylindrical frame secured to said triangular frame and superposed above said base, standards supporting said frame, a rotatable frame supported on said frame, means for rotating said frame, a drum turning in the journal in said base and said cylindrical frame, means for holding said drum, means supported from said rotatable frame for engaging said drum, means for releasing from engagement the aforesaid means, a rotatable vertical shaft journaled in said base and extending upwardly through said rotatable frame, means from said shaft for engaging said drum, means for rotating said shaft, a cable winding on said drum, and means for preserving the even winding of said cable on said drum, as and for the purpose specified.

11. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having an upwardly and rearwardly projecting frame therefrom, a frame secured to the aforesaid frame and superposed above the base, standards supporting said frame, a rotatable frame supported on said frame, sweeps fixedly secured to said frame, braces from said frame to the outer ends of said sweeps, a bar secured to one of said sweeps intermediate of its length and embracing the said brace and having a

hole therethrough, a tongue pivotally secured to the end of said sweeps, a bracket on said tongue having lugs diagonally arranged and a hole through the top of said lugs, a drum turning in suitable bearings in said base and said superposed frame, means for holding said drum, means supported from said rotatable frame for engaging said drum, means for releasing from engagement the aforesaid means, a rotatable vertical shaft journaled in said base and extending upwardly through said rotatable frame, means from said shaft for engaging said drum, means for rotating said shaft, a cable winding on said drum, and means for anchoring said frame, as and for the purpose specified.

12. In a stump-extractor, the combination with the bed-beams, and the base of the device secured thereto having a central depression therein forming a bearing and a projecting flange on the bottom of said depression and an upwardly and rearwardly projecting frame therefrom, a guard-plate bearing against said flange and bent upwardly at the ends and forming a shoe or skid, a cylindrical frame secured to the aforesaid frame superposed centrally above said base, standards supporting said frame, a rotatable frame supported on said frame, means for rotating said frame, a drum having a trunnion projecting from the bottom thereof and journaled in the bearing in said base and turning in said superposed frame, means supported from said rotatable frame for engaging said drum, means for releasing from engagement the aforesaid means, a rotatable vertical shaft journaled in said base and extending upwardly through said rotatable frame, means from said shaft for engaging said drum, means for rotating said shaft, a cable winding on said drum, and means for anchoring said frame, as and for the purpose specified.

Signed at the city of Toronto, in the county of York, Province of Ontario, in the Dominion of Canada, this 11th day of April, 1906.

HENRY RUSTAD.

Witnesses:

H. DENNISON,
ALFRED T. SMITH.