

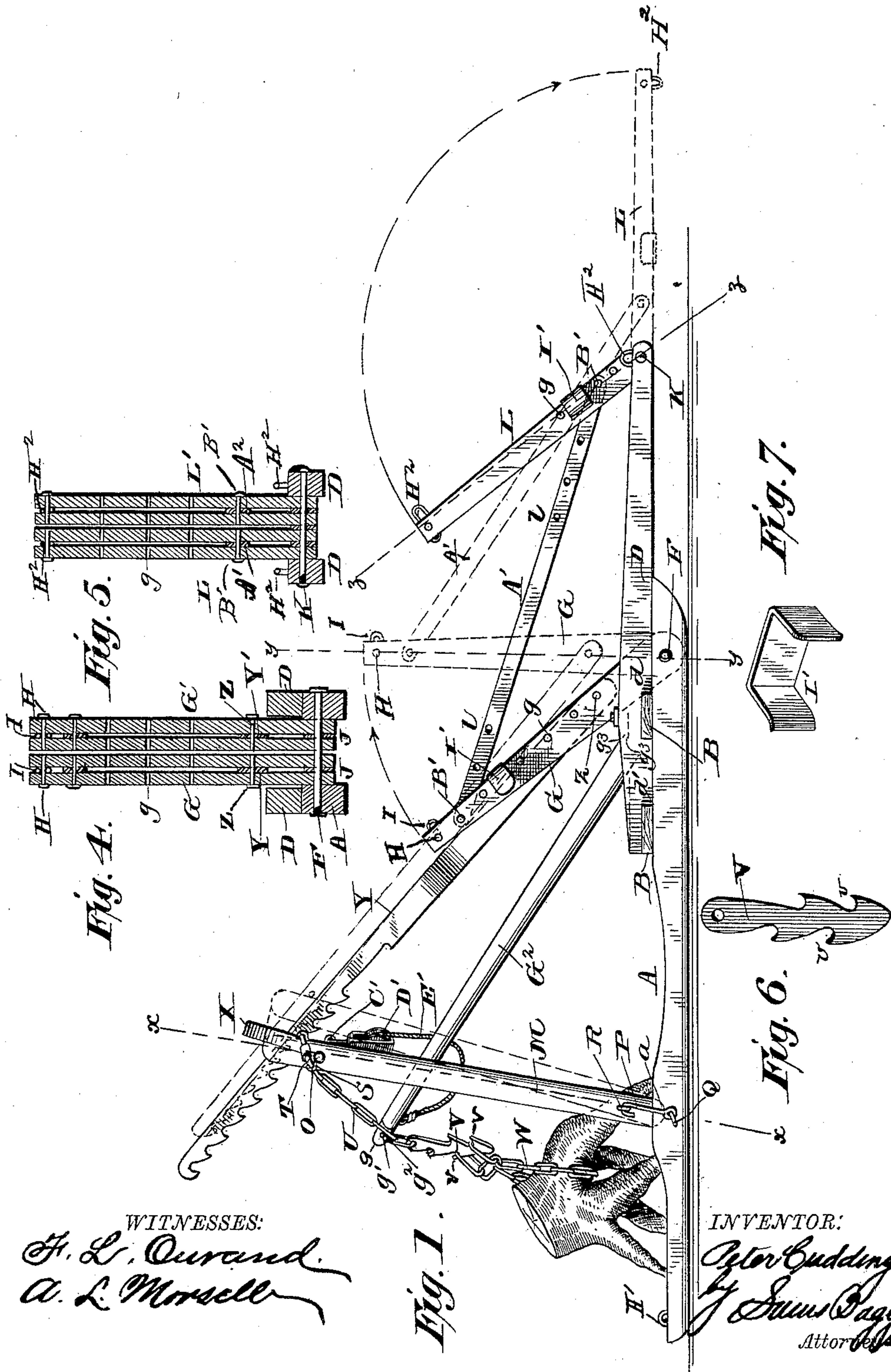
(No Model.)

2 Sheets—Sheet 1.

P. CUDDINGTON.  
STUMP PULLER.

No. 430,422.

Patented June 17, 1890.



WITNESSES:  
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A. L. Morrell

INVENTOR:  
Peter Cuddington,  
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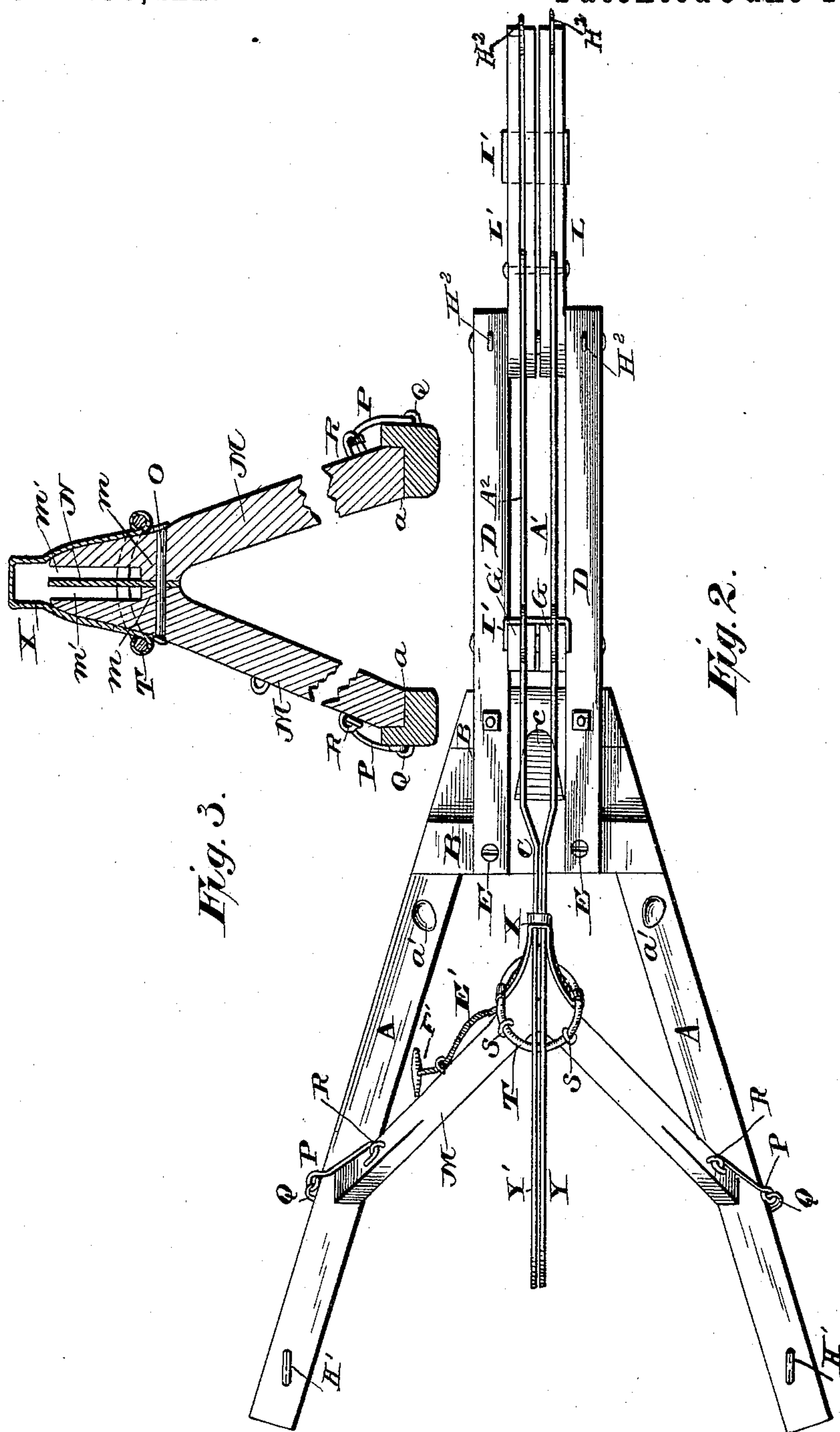
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*Fig. 3.*

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# UNITED STATES PATENT OFFICE.

PETER CUDDINGTON, OF COURTLAND, MICHIGAN.

## STUMP-PULLER.

SPECIFICATION forming part of Letters Patent No. 430,422, dated June 17, 1890.

Application filed March 4, 1890. Serial No. 342,555. (No model.)

*To all whom it may concern:*

Be it known that I, PETER CUDDINGTON, a citizen of the United States, and a resident of Courtland, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Stump-Pullers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to improvements in stump-pullers.

The object of the invention is to provide a construction whereby the greatest amount of power is attained in a simple and expeditious manner; furthermore, in providing for the taking up of any slack in the root-chain by the employment of a novel spear-shaped hook; and a further object is to provide for the ready transportation of the device from one stump to another or from one field to another.

With these and other objects in view the invention consists in the improved construction and combination of parts, as hereinafter more fully set forth and described.

In the accompanying drawings, Figure 1 is a side elevation of the complete device, showing the guy-lever in proper position and the hook applied to the root-chain, the dotted lines indicating the position the levers assume when drawn forward by the team. Fig. 2 is a plan of the device with the guy-lever removed. Figs. 3 and 4 are vertical sections on the lines  $x x$  and  $y y$ , respectively, Fig. 1. Fig. 5 is a similar view on the line  $z z$ , Fig. 1. Fig. 6 is a detail view of the spear-shaped hook, and Fig. 7 is a detail view of one of the U-shaped metallic locks.

Like letters of reference refer to like parts throughout the several views.

Referring to the drawings, the letter A indicates the base-pieces, arranged in such a manner as to have their inner ends converge. These inner ends are connected by transverse strips B B, and connecting these transverse strips is a longitudinal strip C.

The letters D D indicate arms or beams provided with end notches  $d d$ , which fit over the forward transverse strip B, and notches  $d' d'$ , which fit over the rear transverse strip B.

These beams or arms, as will be observed, are arranged upon each side of the longitudinal strip C, so that the latter will occupy an intermediate position, and are secured to the transverse strips by means of screws E or equivalents.

Journaled upon a transverse bolt F, at the converging ends of the base-pieces, are forward levers G G', said levers being free to turn upon the bolt. Each one of these levers is preferably composed of two pieces connected at the upper ends by transverse pins H H, which carry tug-irons or loops I I for the attachment of the team. The transverse bolt F above referred to carries a series of washers J, which are interposed between the opposing faces of the levers. A transverse bolt K also connects the rear ends of the beams or arms D D, and upon this bolt are arranged the rear levers L L', which, being similar in all respects to the forward levers, require no specific description.

The letters M M indicate two inclined uprights forming a crotch, said uprights being provided near their upper ends with inwardly-extending flanges  $m m$ , the flat or smooth faces of which receive between them the lower end of a metallic plate N and a transverse bolt O, passing through these flanges and through the lower end of said metallic plate, serves to connect the parts. The extreme upper end of these inclined uprights diverge above the inwardly-extending flanges, so as to form a bifurcated or recessed portion  $m'$ , into which the upper end of the metallic plate N passes. It is of course obvious that instead of constructing the crotch of two uprights, in the manner just described, the same may be formed of a single piece of wood cut into inverted-V shape and provided with the recess in its upper end. The lower ends of the inclined uprights M M are rounded and fit into correspondingly-shaped recesses  $a a$  in the base-pieces, being connected thereto by hooks P P, secured to staples Q Q in the base-pieces and engaging with their hooked ends staples R R in the uprights.

Surrounding the upper ends of the uprights and secured thereto by means of staples S is a ring T, said ring being arranged thereon at an incline, the forward portion thereof occu-



pying the lowermost position. Secured to this forward portion of the ring is a chain U, said chain consisting of a series of links, preferably of oblong form, the lowermost link 5 having secured thereto a hook V, which is in the form of a spear, as clearly exemplified by the detail view of the drawings, and is provided upon opposite edges with a series of alternately-arranged prongs or teeth *v v*, adapted to engage the links of a root-chain W. 10

The letter X indicates an inverted-V-shaped guide, the ends of which are secured to opposite points of ring T.

Passing between the upper bifurcated portion of the crotch and with the metallic plate N intermediate are ratchet-plates Y Y', the teeth of which are adapted to engage the rear upper portion of ring T, said plates being prevented from working out of the bifurcation by means of the guide X, just referred to. These ratchets are extended rearwardly (or said extensions may be separate and welded thereto, if preferred) and pass between the two strips forming the levers G G', 20 the ends thereof being secured by means of transverse pins Z Z, said pins merely extending through the two strips forming each lever. It will be noticed that the levers are provided with a series of perforations *g*, by means of which the ratchet-bars may be adjusted so 30 as to either increase or decrease their leverage.

The letters A' A<sup>2</sup> indicate connecting-arms, each of which has its forward end pivoted 35 between the upper ends of the forward levers and its rear end pivoted between the lower ends of the rear levers L L'. These last-named levers also have a series of perforations *l*, by means of which, in connection with transverse 40 pins B' B', the connecting-arms may be adjusted, so as to increase or decrease their leverage in like manner as the ratchet-bars.

Secured to a staple C' upon the rear of the upper end of the crotch is a pulley-sheave 45 D', over the pulley of which extends a guy-rope E', the lower end of said rope carrying a weight F' and the upper end secured to a guy-lever G<sup>2</sup>. This lever has its forward end tenoned at *g*, so as to fit in one of the links 50 of the chain U, and this tenoned end may be provided with a perforation *g'* to receive a transverse pin *g*<sup>2</sup>, to hold the same in proper position in the link. The rear end of the lever is recessed or slightly bifurcated, thus 55 forming projecting fingers *g*<sup>3</sup> *g*<sup>3</sup>, which are adapted to be inserted in a recess *c* in the longitudinal strip C. If preferred, however, this rear end of the lever may be inserted into recesses *a'* *a'* formed in the base-pieces.

60 In order to provide for the convenient and ready removal of the device from one portion of the field to another, I secure to the outer ends of the base-pieces and the arms or beams projecting therefrom, respectively, staples H' 65 H' and H<sup>2</sup> H<sup>2</sup>, to which a team may be hitched, in this manner transferring the puller to the

next stump to be extracted; also, when necessary to remove the machine from one farm to another, the end of the same may be secured to the rear or tail of a wagon without 70 the necessity of dismantling or taking the device apart.

The letter I' indicates U-shaped metallic locks or keys which are intended to connect 75 both the sets of front and rear levers, so that each set may be made to operate as a single lever.

Having described the construction of my improved stump-puller, the operation of the same is as follows: When it is desired to 80 use both sets of levers, so that each one of the set will act independently of the other, the U-shaped metallic locks are removed and the team attached to the tug-iron of the rear lever L by means of a common draft chain 85 or rope or blocks and tackle. For the sake of clearness, we will assume that the levers at the time the team is attached are thrown forward to their limit. The moment the animal begins to move away from the machine 90 the lever L is brought rearward and with it the forward lever G by means of the connecting-arm A'. As this forward lever is brought rearward, the ratchet-bar Y, connected thereto, and the teeth of which engage the ring at 95 the upper end of the crotch, acts upon said ring and carries the upper end of the crotch rearward, this movement being attained through the rounded bearings of the uprights thereof. As this movement is given to the upper end of 100 the crotch the engaging-tooth of the ratchet-bar Y' is made to ride the ring until the next lower tooth engages the same; or, in other words, the ratchet-bar Y' is moving forward while ratchet-bar Y is moving rearward. After 105 the team has reached its limit the tendency of the rear lever is to return to its former position, causing a pull on the team and backing the same, thus, of course, forcing ratchet-bar Y forward one tooth. This operation is repeated 110 until the stump is entirely extracted. If preferred, a team may be attached to each of the rear levers L L', in which case, of course, the levers will act alternately, one team returning while the other is going out. If it is 115 desired to use only the forward levers, all that is necessary is simply to remove the connecting transverse bolts of the rear levers L L' and also the transverse bolts of the connecting-arms A' A<sup>2</sup>. The team is then at- 120 tached to the tug-iron of either of the forward levers, or two teams may be employed, if preferred—one to each of the levers—and the device operated in exactly the same manner pointed out with respect to the rear le- 125 vers. I also provide the U-shaped metallic locks, which are adjusted to the levers in the manner illustrated in the drawings. When these are employed, they cause the forward and rear levers to be operated as though 130 there were but a single lever forward and rear and cause the ratchet-bars to move simulta-



neously one tooth on each outgoing movement of the team.

When it is desired to use the guy-lever G<sup>2</sup>, the same is adjusted in the manner already pointed out. When this guy-lever is employed, the stump is extracted much more rapidly, being lifted entirely clear of the ground by one full operation of the levers, and at the same time is pushed away from the machine, thereby taking out the roots of the stump which may be under the machine, while in other lever-machines the roots of the stumps have to be cut off and left in the ground.

The manner of adjusting the root-chain and the spear-shaped hook is as follows: One of the end links of the root-chain is passed over a finger or prong of the spear-shaped hook, and the chain is then carried down into the ground under a root of the stump to be pulled, and then continued up upon the opposite side of the hook, where the link is passed over one of the opposite projecting fingers or prongs. It will be observed that there are two fingers or prongs on each side of the hook arranged alternately, so that should there be any slack in the root-chain either end can be placed on the finger or prong next above and so cause the chain to be taut. It is obvious, however, that any number of these fingers or teeth may be employed, if preferred.

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

1. In a stump-puller, the combination of base-pieces, an oscillatory crotch secured thereto, having its upper end recessed, an inclined ring secured to said upper end of the crotch, a guide secured to the inclined ring, levers pivoted to the rear of the base-pieces, ratchet-bars pivoted to said levers and having their upper toothed ends passing into the recess of the crotch and their teeth engaging the rear of the inclined ring, and a root-chain having connection with the forward portion of the inclined ring, substantially as set forth.

2. In a stump-puller, the combination of base-pieces, an oscillatory crotch secured thereto, having its upper end recessed, an inclined ring secured to said upper end of the crotch, a guide secured to the inclined ring, forward levers pivoted between the base-pieces, rear levers pivoted between the extensions of the base-pieces, pivoted arms connecting said forward and rear levers, ratchet-bars pivoted to the forward levers and having their upper toothed ends passing into the recess of the crotch and their teeth engaging the rear of the inclined ring, and a root-chain secured to the forward portion of the inclined ring, substantially as set forth.

3. In a stump-puller, the combination of base-pieces, an oscillatory crotch secured thereto, having its upper end recessed, an inclined ring secured to said upper end of the

crotch, a guide secured to the inclined ring, interchangeable forward and rear levers pivoted to the base-pieces, each lever of a set adapted to act independently of its companion or in conjunction therewith, pivoted arms connecting said forward and rear levers, ratchet-bars pivoted to the forward levers and having their upper toothed ends passing into the recess of the crotch and their teeth engaging the rear of the inclined ring, and a root-chain secured to the forward portion of the inclined ring, substantially as set forth.

4. In a stump-puller, the combination of base-pieces, an oscillatory crotch secured thereto, having its upper end recessed, an inclined ring secured to said upper end of the crotch, a guide secured to the inclined ring, forward levers pivoted between the base-pieces, removable U-shaped metallic locks or keys for connecting the levers of each set, pivoted arms connecting the forward and rear levers, ratchet-bars pivoted to the forward levers and having their upper toothed ends passing into the recess of the crotch and their teeth engaging the rear of the inclined ring, and a root-chain secured to the forward portion of the inclined ring, substantially as set forth.

5. In a stump-puller, the combination of base-pieces, inclined uprights or standards extending therefrom, provided near their upper ends with inwardly-extending meeting flanges, and their extreme upper ends flaring to form a recess, the lower ends of said standards being rounded and fitting in correspondingly-shaped recesses in the base-pieces, hooks secured to the base-pieces and engaging staples in the uprights, a metallic plate having its lower end fitting between the meeting flanges of the uprights, a transverse bolt passing through the uprights and metallic plates, an inclined ring secured to the upper ends of the inclined standards, a root-chain having connection with the lower forward portion of the ring, a guide, levers pivoted to the rear of the base-pieces, and ratchet-bars pivoted to said levers and having their upper toothed ends passing into the recess formed by the upper ends of the standards, and their teeth engaging the rear portion of the ring, substantially as set forth.

6. In a stump-puller, the combination of base-pieces provided with oppositely-arranged recesses, transverse strips connecting the rear converging ends of said base-pieces, a longitudinal strip connecting said transverse strips, said longitudinal strip provided with a recess, an oscillatory crotch secured to the base-pieces, levers and ratchets for operating said crotch, a pulley secured to said crotch, a guy-rope passing over the pulley and having secured to its lower end a weight, a guy-lever secured to the upper end of the guy-rope, said lever provided with a tenoned outer end and a recessed inner end, a chain depending from the oscillatory crotch



and formed of a series of oblong loops adapted to receive the tenoned end of the guy-lever, a hook secured to said chain, and a root-chain engaging said hook, substantially as set forth.

5 7. In a stump-puller of the described class, the combination of base-pieces, an oscillatory crotch secured thereto, levers and ratchets for operating said crotch, a chain depending from the crotch, a spear-shaped hook secured  
10 to said chain, said hook provided upon op-

posite edges with alternately-arranged prongs or teeth, and a root-chain for engaging the teeth of said hook, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature 15 in presence of two witnesses.

PETER CUDDINGTON.

Witnesses:

WILLIAM SIMMONS,  
HOMER B. STERNS.