

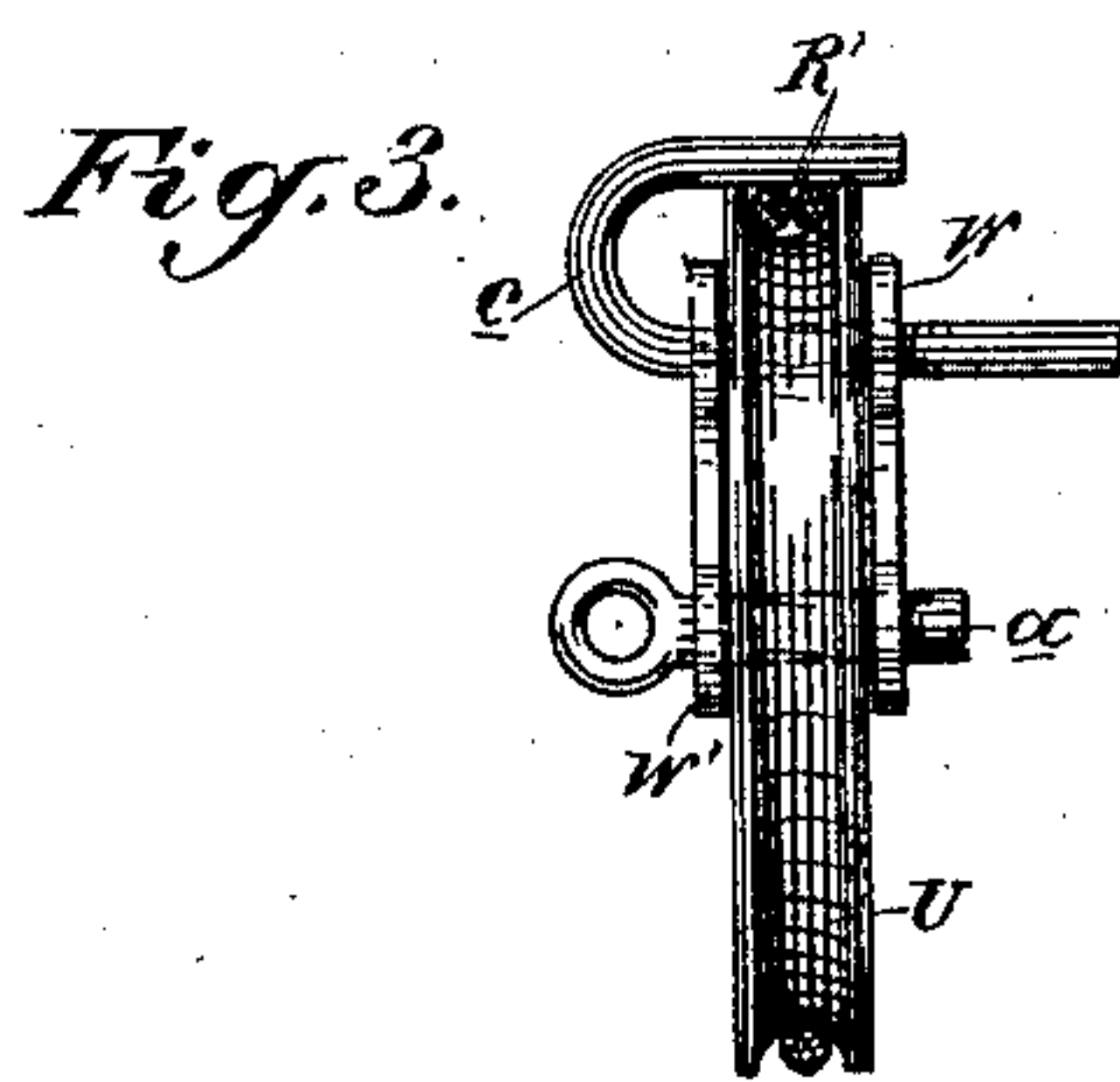
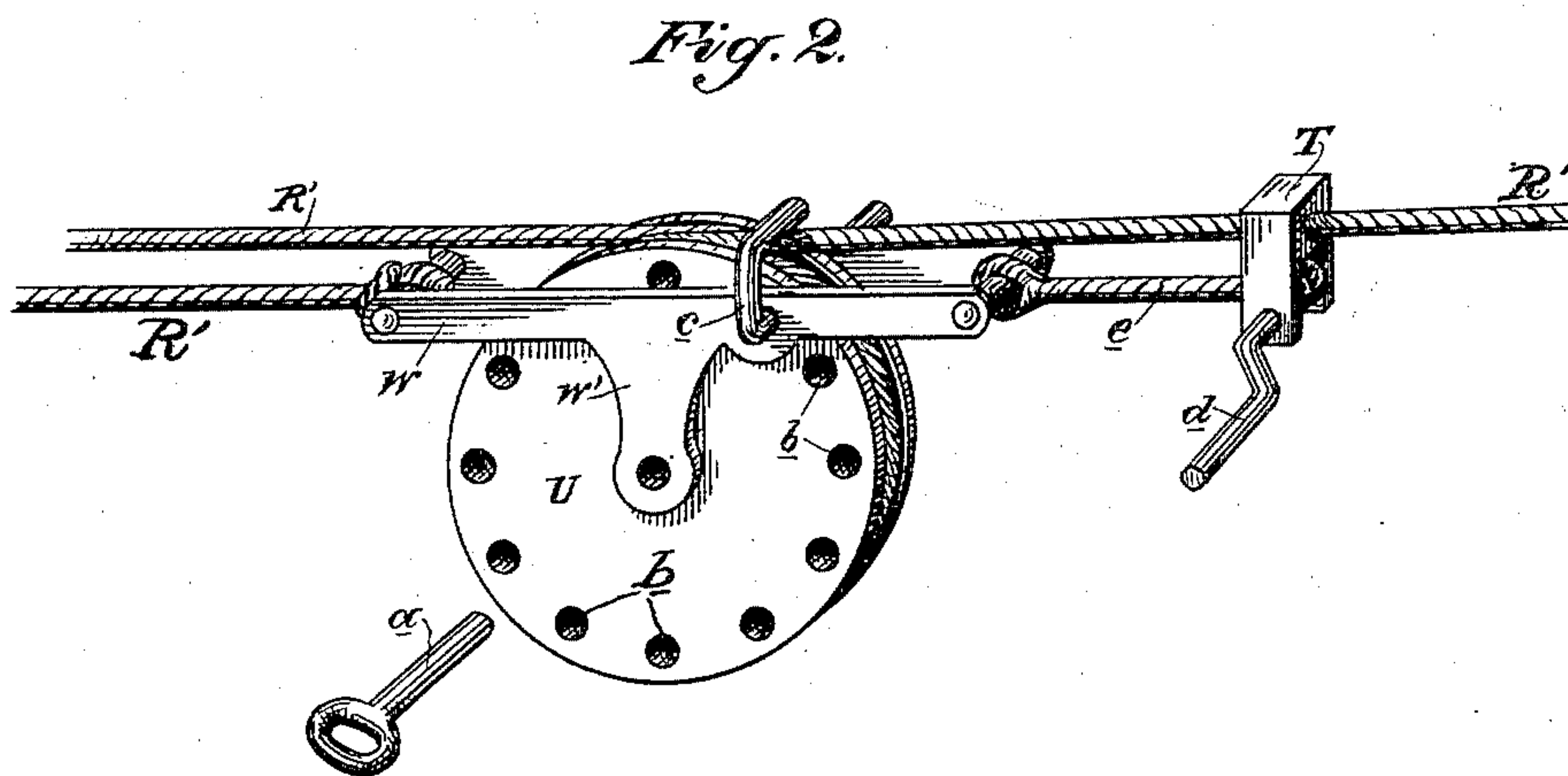
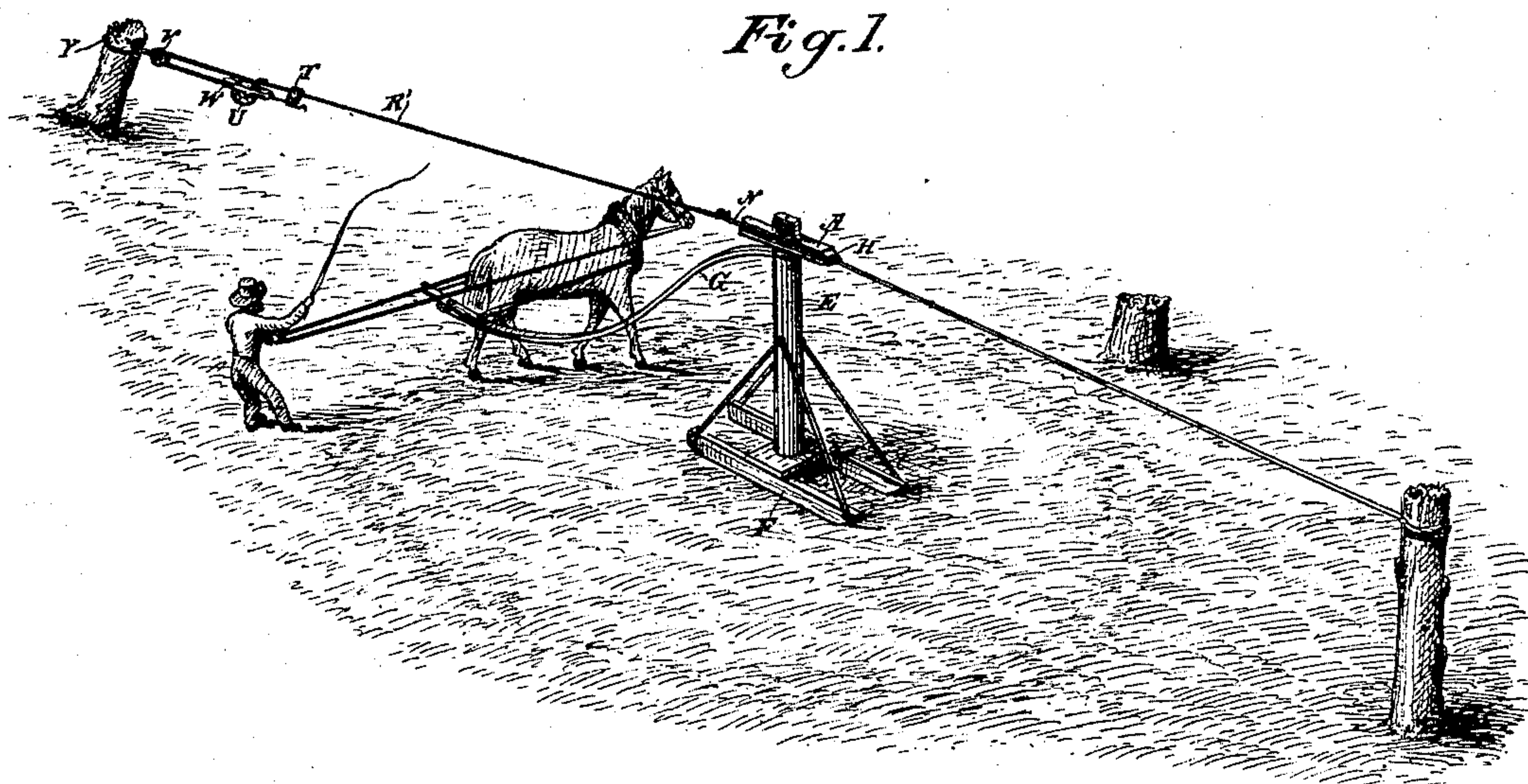
(No Model.)

3 Sheets—Sheet 1.

W. B. MORRIS.  
STUMP PULLER.

No. 457,092.

Patented Aug. 4, 1891.



Witnesses,  
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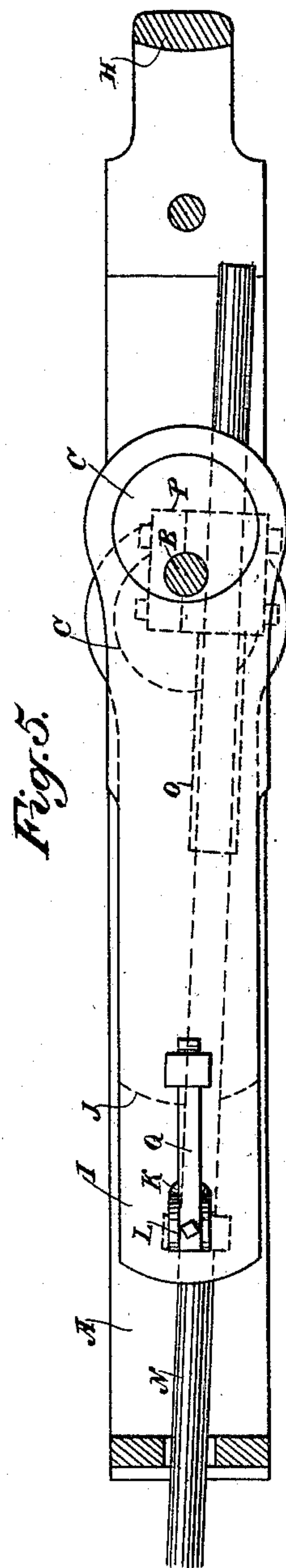
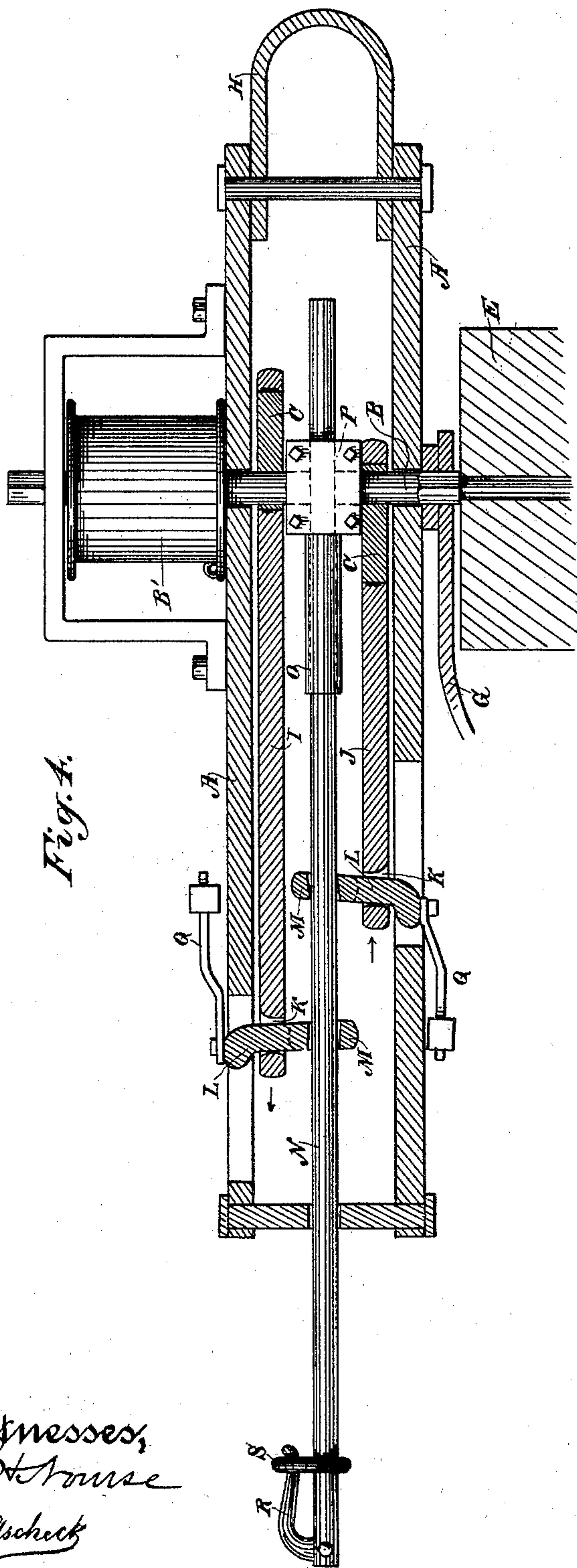
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3 Sheets—Sheet 2.

W. B. MORRIS.  
STUMP PULLER.

No. 457,092.

Patented Aug. 4, 1891.



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(No Model.)

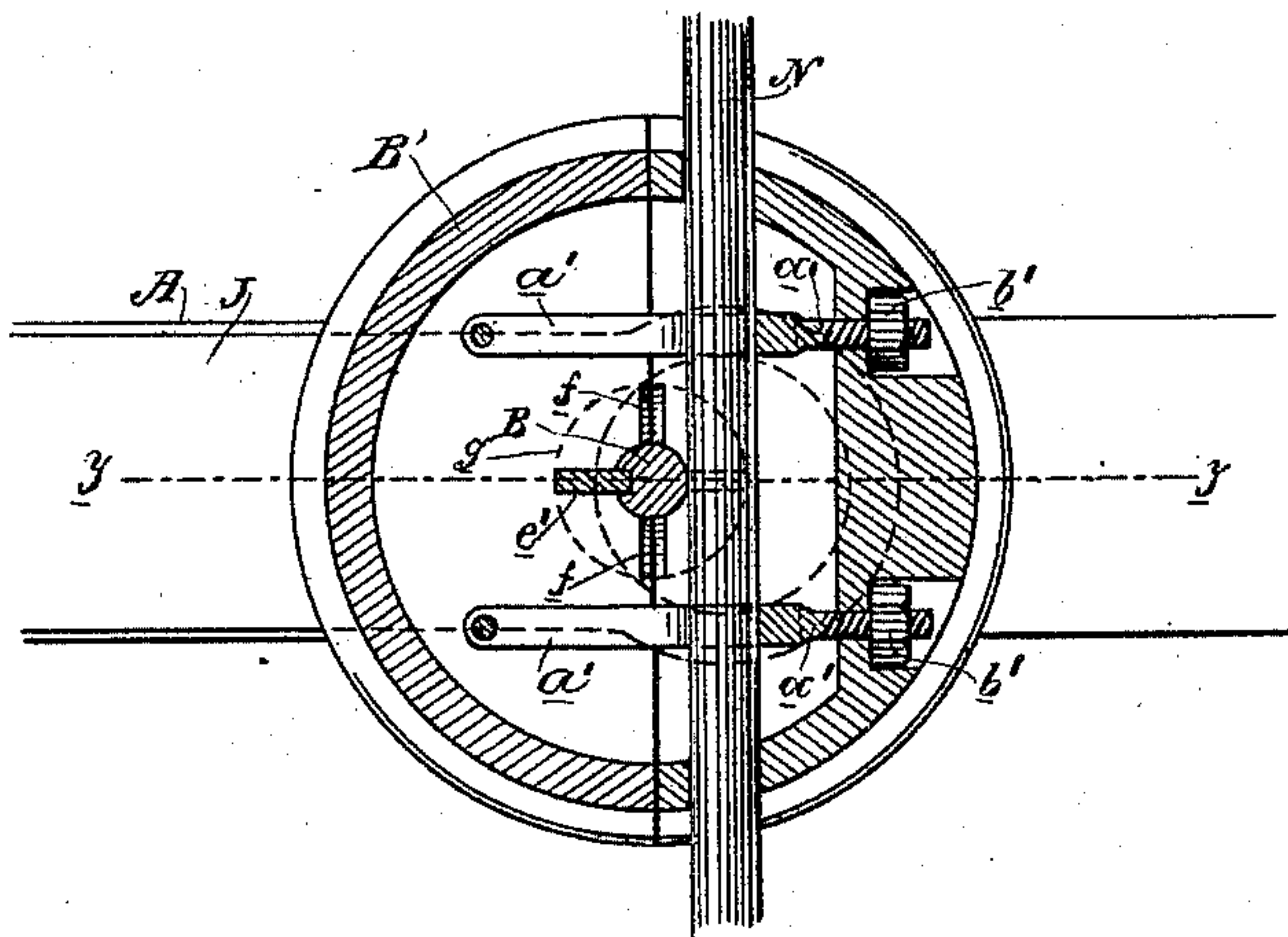
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W. B. MORRIS.  
STUMP PULLER.

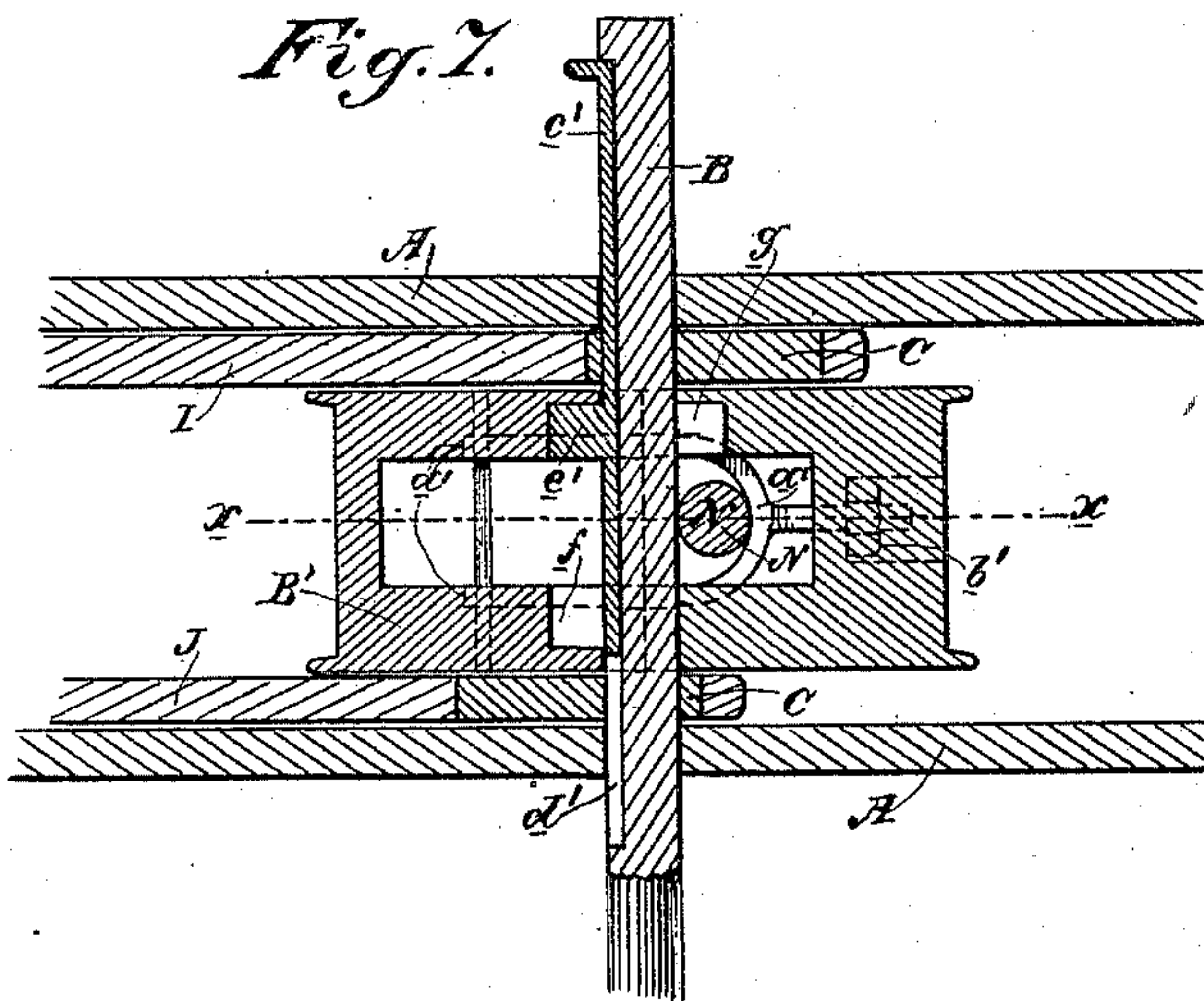
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*Fig. 6.*



*Fig. 7.*



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# UNITED STATES PATENT OFFICE.

WILLIAM B. MORRIS, OF SEATTLE, WASHINGTON.

## STUMP-PULLER.

SPECIFICATION forming part of Letters Patent No. 457,092, dated August 4, 1891.

Application filed June 3, 1891. Serial No. 394,977. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM B. MORRIS, a citizen of the United States, residing at Seattle, King county, State of Washington, have  
5 invented an Improvement in Stump-Pullers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved apparatus for extracting stumps, pulling heavy  
10 weights, or for other similar heavy work.

It consists of eccentrics or cranks fixed to a suitably-journaled shaft, with means whereby it may be anchored and rotated, and a draft-bar with automatically-operating locking  
15 devices, whereby each of the eccentrics alternately pulls upon the draft-bar.

It also consists in a means for taking up any slack rope and in certain details of construction which will be more fully explained by  
20 reference to the accompanying drawings, in which—

Figure 1 is a general view of my device. Fig. 2 is a detail of the tightening apparatus. Fig. 3 is an edge view of the same. Fig. 4 is  
25 a vertical section of the main frame and the parts it incloses. Fig. 5 is a plan view of the same, the top plate of the frame being removed. Fig. 6 is a horizontal section of the drum. Fig. 7 is a vertical section of the  
30 drum.

A is a stout frame, having a shaft B extending transversely through it. Upon this shaft are fixed the eccentrics or cranks C, having their throw in opposition to each other. The  
35 shaft B extends vertically downward from the frame A and passes into the top of a post E, which is mounted upon a suitable portable sled or support F. The shaft turns freely in the top of the post, and by means of a sweep  
40 G, which is fitted to the shaft either above or below the frame A, according to the height of the work and the convenience, the sweep is placed either upon the squared upper end of the shaft or upon a similar squared portion  
45 below the frame A. When the sweep is turned around, it turns the shaft and with it the eccentrics, which move in opposite directions.

H is a stout yoke through which a rope or  
50 chain is passed, leading to a tree or stump, which serves as an anchor for the apparatus.

The eccentrics have straps with extensions

I and J. In the outer ends of these extensions are made vertical openings K, and through these openings pass the shanks L of  
55 the rings M. These rings have holes made through them of sufficient size to receive the draw-bar N. This draw-bar is a long iron or steel rod of sufficient strength, one end of which passes through a guide O, which is  
60 fixed to a sleeve or collar P, and the other extends out through a hole in the end of the frame A. The sleeve or collar surrounds the shaft between the eccentrics, and the shaft turns loosely within it. The holes made  
65 through the rings are of such shape, as shown clearly in the drawings, that when one of the eccentrics is drawn backward by the rotation of the shaft the ring will grip the draw bar or rod and pull it along in the same direc-  
70 tion. The gripping of the bar is made more certain by means of the weighted arms Q, connected with the ends of the shanks of the grips, these weights acting to hold the gripping-edges of the holes in contact with the  
75 bar. When in the rotation of the shaft either of the eccentrics moves forward again, the grip-ring slips easily along the bar in that direction, and as the two eccentrics are set opposite to each other it will be manifest  
80 that when one of the eccentrics is pulling backward upon the bar the other will be moving forward, and its grip will slip along the bar until the eccentric again commences to  
85 move backward, when it will in turn move the bar while the other one commences to move forward. The bar is of sufficient length for any required length or pull, and it extends out through a guiding-hole in the front end of the frame A. In the outer end of this  
90 bar is pivoted a hook R, and a ring S, slipping over the inner end of the hook, keeps it in place when the rope R' is passed through the hook extending from it toward the stump to be pulled. If it is desired for any reason  
95 to release the rope suddenly, it is done by knocking off the ring and allowing the hook to straighten out. The rope R' passes through a hole in one end of the block T, thence it makes one or more turns around a  
100 grooved pulley U, thence it passes to and around the pulley V and back to the link W, in which the pulley U is journaled.

From the block of the pulley V a rope Y



leads to the stump which is to be pulled. The link W extends upon each side of the pulley U and has projecting flanges upon each side, through which and the center of the pulley the pin *a* passes. This allows the pulley to be turned upon this pin whenever desired. Around the periphery of the pulley a number of holes *b* are made at intervals, passing through it from side to side, and through the flanges or plates W', connecting with the link W, corresponding holes are made. A U-shaped pin *c* is formed with one end to pass through these holes in the plates and also through one of the holes in the rim of the pulley. The other end of the U portion passes above the rope R' and thus prevents its being moved about the pulley. The block T, through which the rope R' passes, has a crank-shaft and crank *d* in the end opposite to the one through which the rope passes. A short cord or rope *e* connects this crank-shaft with the rear end of the link W. When the rope R' is passed around the pulley V and attached, as previously described, if it is desired to take up the rope, the pin passing through the center of the pulley and the plates upon either side being in place, the curved or U-shaped pin *c* is withdrawn from the hole in the pulley through which it passes. The crank *d* in the block T being turned, the block will bind upon the rope R' in the manner of a tent-rope-tightening device, and the cord or rope *e*, which connects with the crank-shaft of this device, being wound up will draw the link W toward this device T, which is being held upon the rope R'. By this movement the link W, being drawn toward the block T, will pull the bight of the rope around the fixed pulley V, and will thus correspondingly shorten the rope. As the rope passes around the pulley U, the latter will be rotated by this motion, and as the U-shaped pin has been withdrawn temporarily it allows the pulley to turn upon the center pin *a*. When the rope has been tightened sufficiently, the U-shaped pin *c* is again put into place, passing through the holes in the side plates W' of the link and through one of the holes in the periphery of the pulley. The other end of the U-shaped pin passes above the rope R', and thus locks the rope in place. The pin passing through the center of the pulley may then be withdrawn and the crank of the tightening device T released, so that the device hangs loosely upon the rope R'. The rope will not then slip, being kept in place by the eccentricity of the position of the pin *c*, passing through its periphery, and the binding of the rope by the other leg of the pin.

Whenever by the operation of the eccentrics the draw-bar has been pulled backward as far as it can go, it may at any time be released from the gripping devices and pushed forward by simply lifting up on the weighted arms Q connected with the grips. It will then slide easily forward through its guide and

through the grips and will be ready for another hold, the rope R' being correspondingly shortened and adjusted for the purpose. By this means I provide a powerful and effective pulling apparatus.

In order to employ my apparatus to advantage for hauling logs or pulling when greater rapidity and less power are needed, I have shown a winding-drum secured to the vertical shaft B. This drum may be fixed to the upper end of the shaft, as shown at B' in Fig. 4; but I prefer to make the drum in two halves, as shown in Figs. 6 and 7. These sections are made hollow for lightness and are fitted around the shaft B between the two eccentrics C C, being secured together by means of yoke-bolts *a' a'*, the nuts *b' b'* fitting into countersunk openings, so as to lie below the surface of the drum and not chafe or interfere with the rope when the drum is used. A hole is made transversely through the drum at one side of the shaft, and the draw-rod N slides through this hole, which thus forms the guide for its inner end and occupies the place of the sleeve P, which is employed when the drum is not used. The drum ordinarily fits loosely upon the shaft, and the latter turns within it when the eccentrics and draw-rod are used as above described; but when the drum is to be used the draw-rod N is removed and the key or feather *c'* is pushed down, sliding in a keyway *d'* in the shaft B until the lug *e'* upon the opposite side of this feather engages a corresponding slot *f*, which is formed in the lower part of the drum. When this is done, power applied to the shaft will also rotate the drum. When the key is drawn up, the lug *e'* lies within a circular groove or channel *g*, made in the upper part of the drum, and thus allows the shaft to turn loosely within the drum when the eccentrics and draw-rod are being used.

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

1. In a stump-puller, the rotary shaft having eccentrics fixed to it, straps surrounding said eccentrics with parallel extensions, a draw bar or rod passing through guides and extending between the extensions of the eccentric-straps, and gripping or clamping rings through which said bar passes, said rings being loosely supported from the ends of the eccentric-straps, substantially as herein described.

2. In a stump-pulling machine, a frame having a shaft journaled transversely across it, a device by which said frame is supported, and means for anchoring it in position, eccentrics fixed upon the shaft so as to be rotated with it and having extension-straps projecting therefrom, a draw-bar, guides through which said bar passes, and clamping-rings supported upon the extensions of the eccentric-straps and adapted to clamp the bar when the eccentrics move backward and



to release it so that the clamps will slip upon the bar when the eccentrics move forward, substantially as herein described.

3. A stump-pulling machine consisting of the alternately-acting eccentrics mounted upon a rotary shaft, a draw-bar and gripping mechanism whereby each eccentric acts alternately to pull the bar backward, a hook hinged to the end of the bar for the attachment of a pulling-rope, and a ring slipping upon the bar and engaging the end of the hook, whereby the latter is retained in place or allowed to open to release the rope, substantially as herein described.

4. In a stump-puller, the draw-bar, eccentrics, and clamps actuated by the eccentrics and gripping the bar so as to move it backwardly, in combination with the rope extending from the end of the draw-bar, the intermediate take-up pulley V, around which the rope is passed, the block to which the rope connected with the stump is fixed and around the sheave of which the pulling-rope R' passes, a link to which the take-up pulley is journaled and to which the end of the pulling-rope R' is fixed, and the mechanism for taking up or tightening the rope, substantially as herein described.

5. A tightening device consisting of the grooved pulley U, around which the draft-rope passes, said pulley having holes made around the periphery, as shown, and a central hole and pin upon which it turns, a link within which the pulley is journaled, said link having holes made through it corresponding with the peripheral holes of the pulley, and a U-shaped pin, one leg of which passes through the holes in the link and one of the holes in the rim of the pulley-wheel, the other leg passing over the pulling-rope, substantially as herein described.

6. The combination, with a stump-pulling mechanism, of a take-up device, consisting of a link W, to one end of which the draft-rope is attached, a block to which the rope from the stump is fixed and around the sheave of which the draft-rope R' passes, a grooved pulley around which the draft-rope makes one or more turns, a central pin passing through the side of the link upon which the pulley turns, a perforated block T, sliding upon the rope R', a crank-shaft journaled in the opposite end and connected with the end of the link opposite the attachment of the rope R', whereby the rope is shortened by turning the crank, and a pin one arm of which passes through holes in the periphery of the pulley and the sides of the link and the other over the rope R, whereby the pulley is locked and prevented from turning, substantially as herein described.

7. In a stump-puller, the draw-bar, eccentrics, and clamps actuated by the eccentrics, a drum loosely surrounding the vertical shaft between the eccentrics and having a hole through which the draw-bar passes when in use, a key sliding in a keyway in the drum-shaft and having a lug upon its opposite face, a corresponding depression or socket within the drum with which the lug is engaged to unite the drum with the shaft, and a circular chamber into which the lug is withdrawn when disengaged from the drum, substantially as herein described.

In witness whereof I have hereunto set my hand.

WILLIAM B. MORRIS.

Witnesses:

S. H. NOURSE,  
J. A. BAYLESS.