

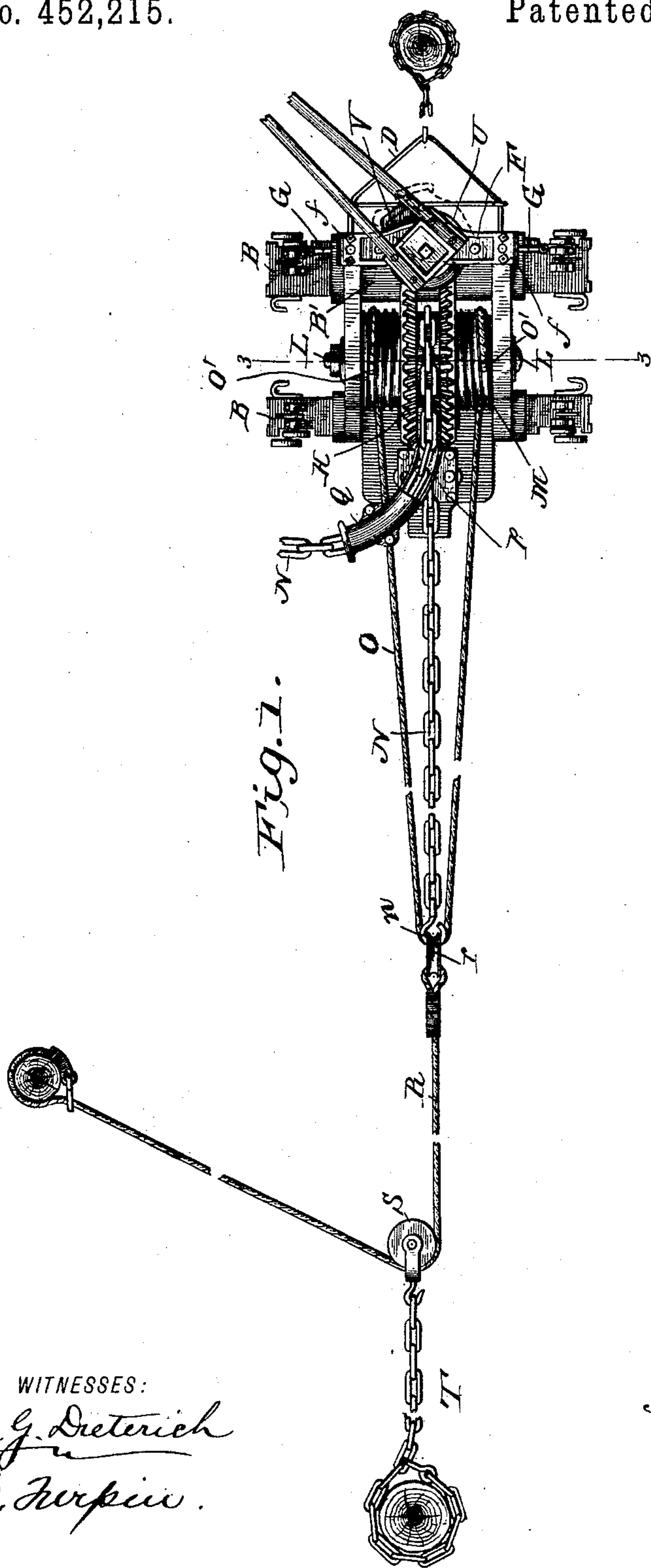
(No Model.)

3 Sheets—Sheet 1.

J. CORNELIUS.
STUMP EXTRACTOR.

No. 452,215.

Patented May 12, 1891.



WITNESSES:

Fred G. Dieterich
P. B. Herpin.

INVENTOR:

John Cornelius.

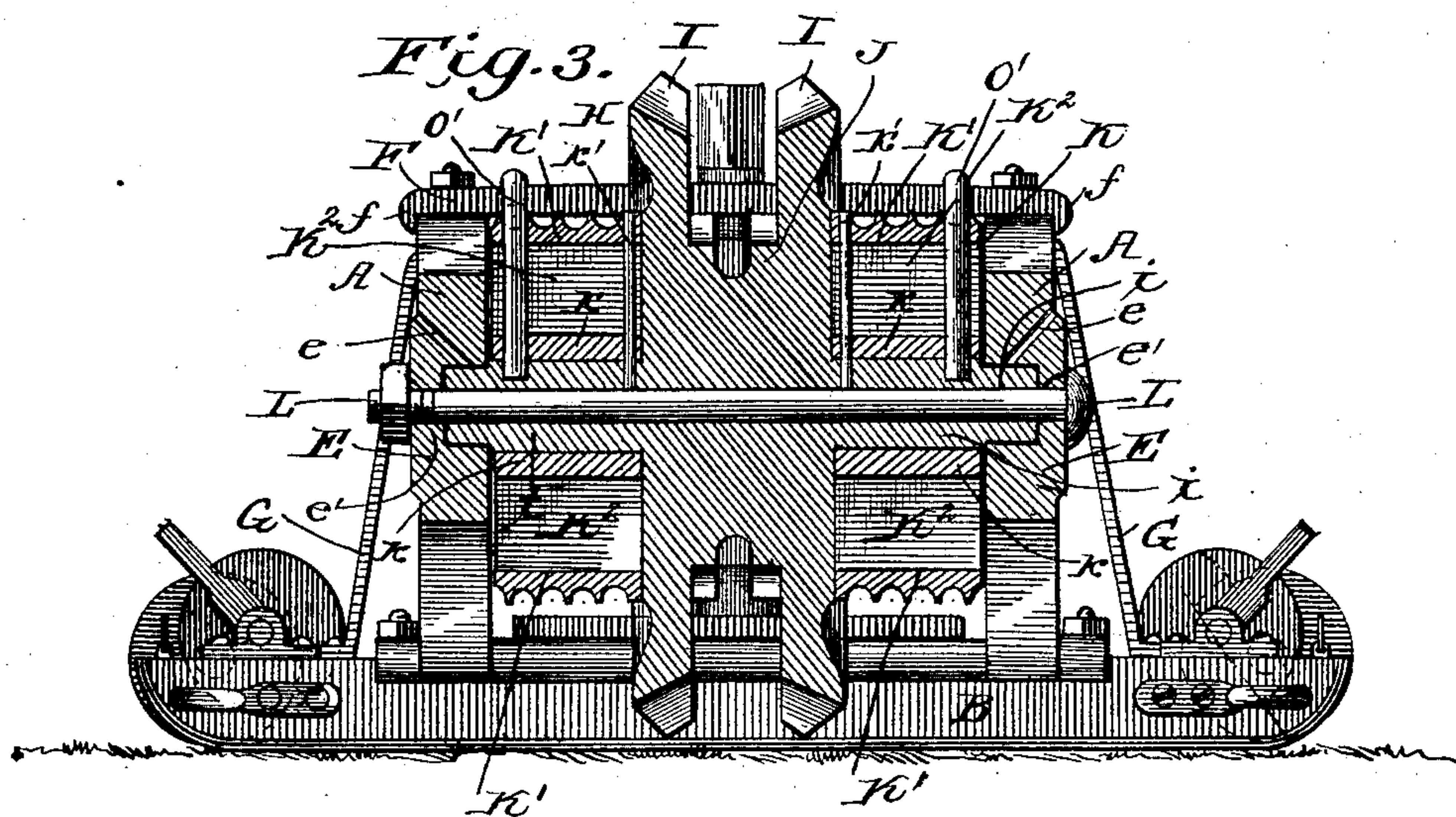
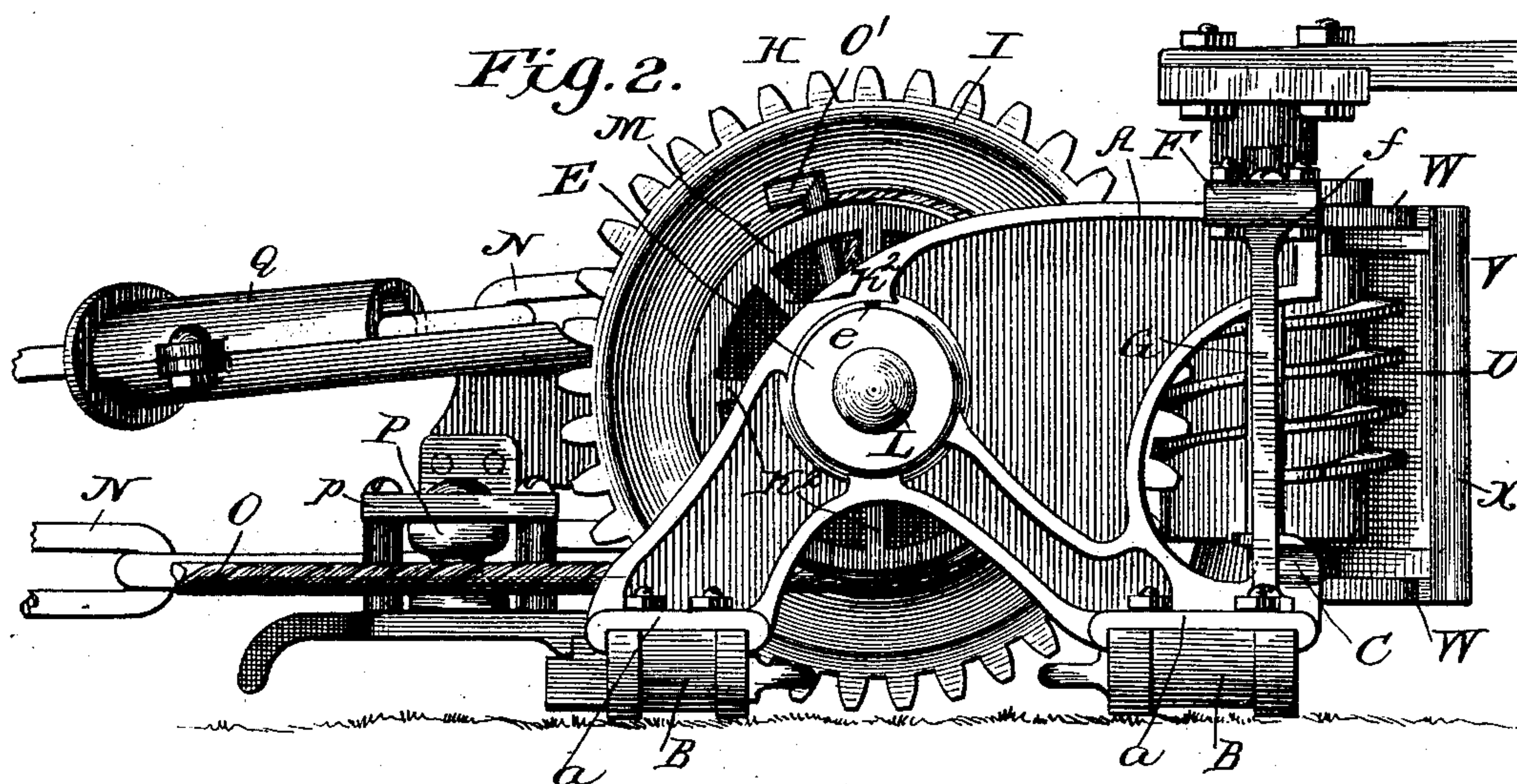
BY

Wm. L.

ATTORNEYS

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Patented May 12, 1891.

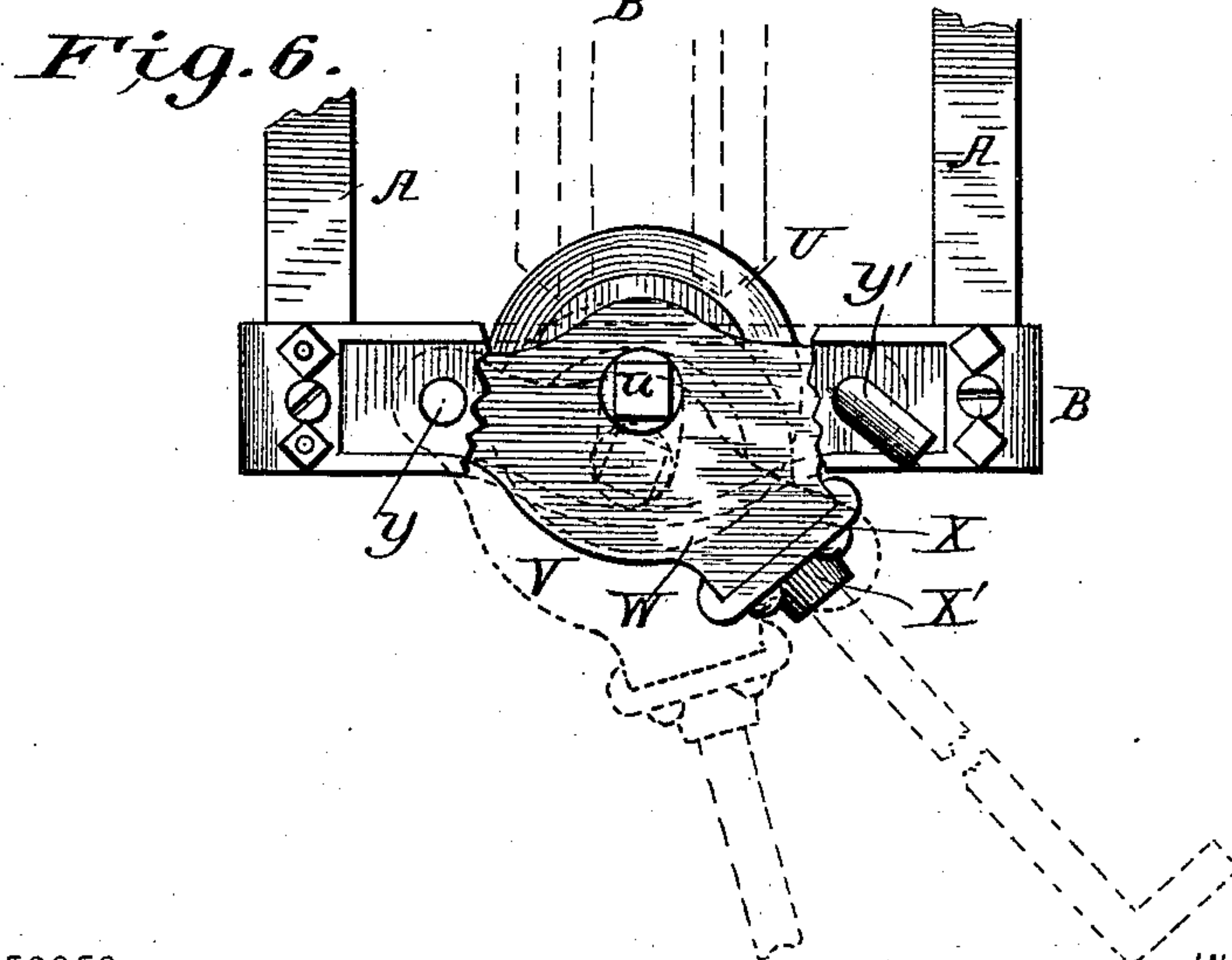
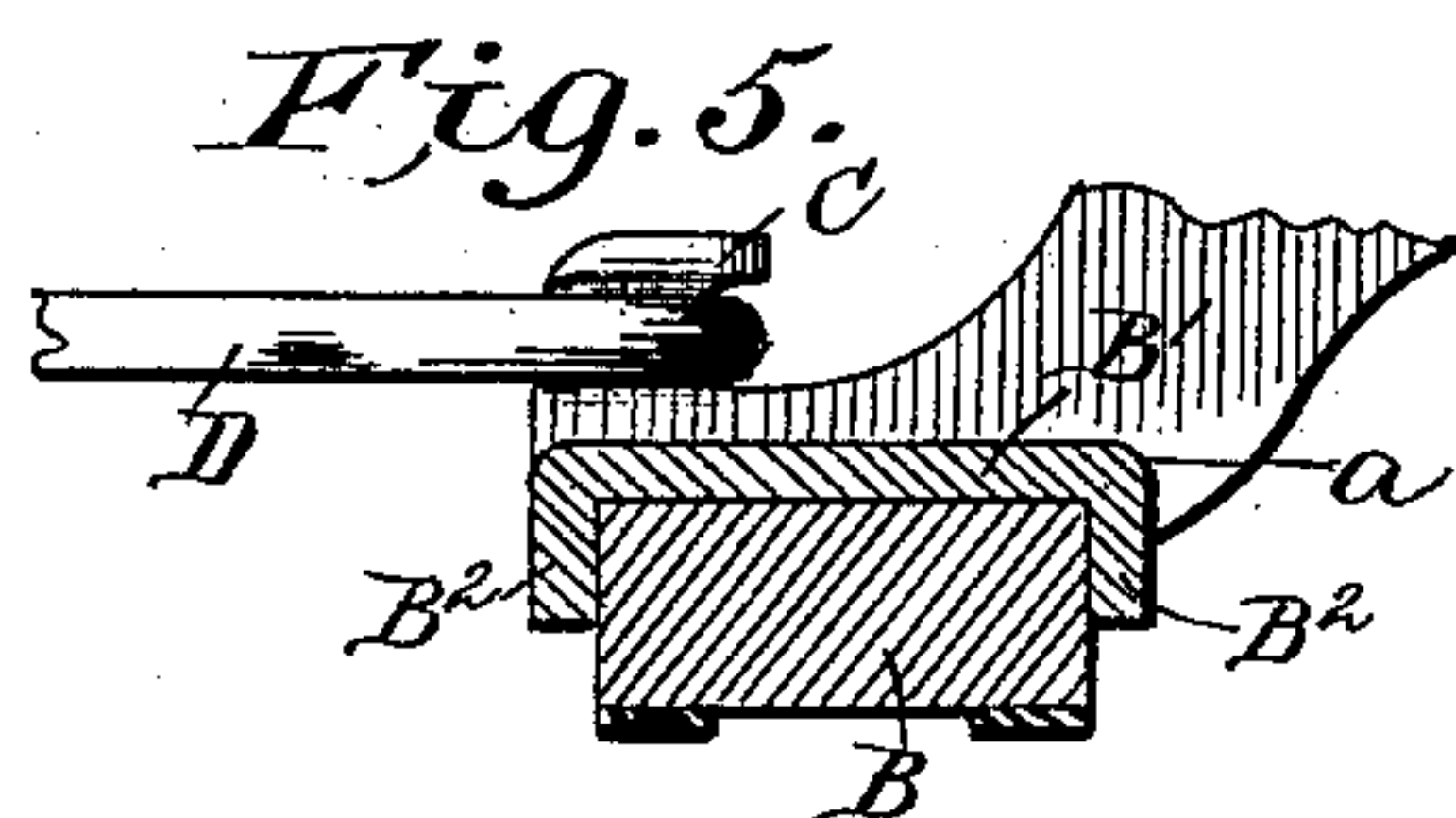


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3 Sheets—Sheet 3.

Patented May 12, 1891.



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UNITED STATES PATENT OFFICE.

JOHN CORNELIUS, OF OAKLAND, MARYLAND, ASSIGNOR OF ONE-HALF TO
FREDERICK T. WOLSIFFER.

STUMP-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 452,215, dated May 12, 1891.

Application filed September 9, 1890. Serial No. 364,486. (No model.)

To all whom it may concern:

Be it known that I, JOHN CORNELIUS, a citizen of the United States, residing at Oakland, in the county of Garrett and State of Maryland, have invented a new and useful Improvement in Stump-Extractors, of which the following is a specification.

My invention is an improvement in stump-pullers intended for extra heavy work, as in the pulling of very large stumps; and the invention has for objects, among others, to provide a construction of framing in which the frame will in no wise interfere with the ready manipulation of the chain and cable; to provide improvements in the mechanism for supporting the drive-worm, looking to the convenient shifting of such worm into and out of mesh with its worm-wheel; to provide a simple construction for the connection of the anchor-bail, and to provide other improvements, as will be hereinafter described.

The invention consists in certain features of construction and novel combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a top plan view of my machine as in use, the worm being thrown out of gear in dotted lines. Fig. 2 is a side view thereof. Fig. 3 is a vertical cross-section of the machine, on about line 3 3 of Fig. 1, through the axis of the main wheel. Fig. 4 is a rear elevation of the machine. Fig. 5 is a detail cross-section, on about line 5 5 of Fig. 4, of the rear shoe and its re-enforce plate; and Fig. 6 shows the manner of supporting the worm and of adjusting such worm into and out of mesh.

The main frame is provided with side plates or frames A, made, preferably, of cast-steel annealed, and formed with feet *a*, which are bolted upon the shoes B B, and have at their front and rear edges flanges which lap along the respective edges of the shoes and brace the side frames firmly to the shoes. The side frames A are of a special construction and form an important feature of my invention. At their rear ends they are provided with upwardly-projected forwardly-facing hooks C, which are formed integral with the side plates A, and form a convenient means of attach-

ment for the anchor-bail D, as shown. By this construction the anchor-bail can be readily applied to and removed from the side frames A, and when engaged therewith will be held to the side frames in a strong rigid manner.

The upper edges of the side frames curve or incline gradually downward from the rear to the front end of the machine, and at a point slightly in advance of the center of the said plates I form bearings E for the main wheel. These bearings are arranged near to the upper edge of the frames A, and at a point just in rear of the point of greatest slope or inclination. By preference I provide the bearings by forming sockets in the inner faces of the side frames, such sockets being fitted to receive the ends of the shaft portions of the chain-wheel, as presently described, and oil-holes *e* being formed to lead inward to the bearings E from the outsides of the frames A, to enable the convenient lubrication of the said bearings E, as will be readily understood. The plates A are perforated at *e'* concentrically of the sockets or bearings E for the passage of the brace-rod.

At their rear ends the side frames A are connected by the top cross-bar F, formed at its ends with flanges *f*, which lap alongside the outer edges of the frames A, the bar F being bolted to the top web or flange of the frame A, as shown. At each side of the machine I provide a strut-brace G, having a foot-piece bolted through the rear shoe B, and a top piece lapped under the top web or flange of the frame A and bolted through such web and through the cross-bar F, as shown.

The main wheel H is composed of the worm-wheel made in the two side sections I I, the chain-wheel J between the said sections, and the drums K, arranged outside the worm-wheel sections.

In the construction shown the worm-wheel sections I are formed integral with the chain-wheel J, and are provided with outwardly-extended axles or trunnion-like portions *i*, which journal at their outer ends in the bearings E, the wheel being held in the said bearings, and the side frames A being braced firmly together by the brace rod or bolt L,

which is passed through the wheel and side frames and secured outside the said side frames, as shown most clearly in Fig. 3.

The drums K are formed with hub sleeves 5 or portions k , which fit on the axle or trunnion portions i of the worm-wheel and are secured by pins k' or in other suitable manner. The rims K' of the drums are supported by spokes K^2 from the hub-sleeves k , and are 10 preferably grooved spirally, as shown, from end to end.

It will be noticed that the relation of the drums K to the side frames is such that the upper and front faces or portions of the drums 15 at M project above and forward clear of the frames A, such relation being aided by the downward curvature or inclination of the upper edge of the frames A toward the forward ends thereof, as shown. Such construction leaves the top and front sides of the 20 drums entirely exposed or unobstructed, so that the wire cables may be readily adjusted on said drums and can be led off therefrom to the side in adjusting the machine for use 25 without such cables coming in contact with the side frames, as will be seen from the drawings.

The chain-wheel J is of equal diameter with the drums K, so that the turning of the main 30 wheel will wind the chain N on the chain-wheel and the cable O on the drum K equally, enabling the lengths of cable and the chain to coact in drawing a stump.

The chain N is guided to its wheel J by 35 the pulleys P in frame p , which frame supports the chain-discharge chute Q, which has the tongue or stripper (not shown) for clearing the chain from its wheel. This discharge-chute leads off laterally and terminates at a 40 point outside the line of the wire cable, so that the discharged chain will not fall upon the wire cable as the operation of pulling proceeds. It will be noticed that the cable O, which is a strong wire rope, is in the form of a bridle, 45 being wound at its opposite ends upon the opposite drums and secured at its ends to the drums by fitting its ends in openings in the drums and securing them by means of wedges O' driven into such openings and clamping 50 the wire therein. In gearing the machine for use this wire cable is looped at its center through a ring r on one end of a cable R, such cable R being passed through a single sheave S, and thence off to a stump, around which it 55 is passed and secured. The chain N has at its free end a hook n looped in the ring r , so that the chain and wire cable pull together. A chain or cable T leads from the sheave S off to the stump to be pulled, and the operation of pulling proceeds by properly turning 60 the main wheel. It will be noticed that the cable ends are secured near the outer ends of the drums and move toward the worm-wheel sections as the cable winds on the drums, 65 such movement of the cable being its natural one, as the stress of pulling tends to draw the cable-lengths inward toward each other, and

it is advantageous in the use of the machine, inasmuch as when the cable winds on the inner ends of the drums and is subject to the 70 greatest strain its lengths are brought close to the worm-wheel sections, thus bringing the resistance and the power into close relation, as desired. The worm U, which is formed to mesh 75 the worm-wheel sections, is supported in a frame V, which is formed with upper and lower plates W and a vertical or connecting bar X, extended between and connecting the plates W. The worm journals in the plates W and 80 fits between the same, its shaft u extending above the upper plate W and up through a slot in the rear cross-bar, which connects the side frames A. At one end the plates W have openings w for the pintle or hinge rod Y, 85 while at their opposite ends they have openings w' for the locking-rod Y', which rods Y Y' pass down through openings in the rear cross-bar, thence through their respective openings in the plates W, and project at their 90 lower ends into sockets in a brace-plate B', fitted and bolted on the rear shoe and having at its front and rear edges flanges B², which lap down alongside the rear shoe and are strongly braced in place thereby.

The locking-rod Y', when removed to unlock 95 the worm-frame, may be inserted in a socket X' in bar X and serve as a lever for throwing the worm-frame out or in to adjust the worm into or out of mesh with the worm-wheel sections. 100

Now it will be understood that in my machine I secure a combined chain and wire-cable pulling action, and it is my purpose to use both the chain and the wire cable for extra 105 heavy work, such as the pulling of unusually large stumps, and the cable and chain may both be used in ordinary work; but it will be seen that in ordinary work the chain may be removed and the wire cable alone be used. When the wire cable and chain have been 110 drawn fully up to or into the machine, the worm may be thrown out of gear and the cable and chain be quickly pulled out to position for use.

Having thus described my invention, what 115 I claim, and desire to secure by Letters Patent, is—

1. The improved stump-puller herein described, comprising the main wheel having the chain-wheel, the worm-wheel sections arranged on opposite sides of such chain-wheel, 120 and the drums arranged alongside the worm-wheel sections and adapted to receive a wire cable, the worm, and the necessary framing, all substantially as and for the purposes set 125 forth.

2. The improved machine herein described, comprising the side frames curved or sloped downward toward their forward ends and provided with bearings for the main wheel, the 130 main wheel journaled in said bearings and formed with the chain-wheel, the worm-wheel having its sections on opposite sides of the chain-wheel, and the drums arranged on oppo-

sides of the worm-wheel and adapted to receive a wire cable, the worm adapted to mesh with the worm-wheel, and supports for such worm, all substantially as and for the purposes set forth.

3. In a machine substantially as described, the combination, with the framing and a main wheel having a worm-wheel, of the worm adapted to said worm-wheel, the frame for said worm-wheel having upper and lower plates provided at one end with openings for the pintle-rod and at their opposite ends with openings for the locking-rod, and the upright bar connecting the upper and lower plates and having a socket, and the pintle and locking rods, the latter being adapted to the socket of the upright bar of the worm-frame, whereby when the locking-rod is removed to release the worm-frame it may be fitted into the socket of the upright bar to serve as a lever in adjusting the worm-frame, substantially as and for the purposes set forth.

4. In a stump-puller, the combination of the shoes, the side frames, the main wheel journaled in the side frames and provided with a worm-wheel, the worm, the worm-frame, the pintle and locking rods for said frame, and the re-enforce plate B', secured upon the rear shoe and provided with sockets adapted to receive the lower ends of the locking and pintle rods, all substantially as and for the purposes set forth.

5. The improved stump-puller herein described, consisting of the main frame having side frames or plates curved or sloped downward toward their front ends and provided at their rear ends with hooks for the anchor-

bail, the main wheel journaled in the bearings of the side frame and provided with the central chain-wheel, the worm-wheel sections alongside the said chain-wheel, and the drums alongside the worm-wheel sections, the worm, and the support for the said worm, all substantially as set forth.

6. In a stump-puller substantially as described, a main wheel having a central chain-wheel J, worm-wheel sections on opposite sides thereof; and shaft-like portions projecting from said worm-wheel sections, and the drums fitted and secured on the said shaft-like portions, substantially as set forth.

7. In a machine substantially as described, the combination of the side frames having bearings for the main wheel and openings concentric with the said bearings, the main wheel journaled at its ends in such bearings and having a worm-wheel, a chain-wheel, and drums, the worm meshing with said worm-wheel, and the brace-rod L, passed axially through the main wheel and through the openings in the side frames and secured at its ends outside of such side frames, substantially as set forth.

8. In a stump-puller, the combination, substantially as described, of a main wheel having a worm-wheel, a chain-wheel, and drums of equal diameter with the chain-wheel, the worm meshing with the said worm-wheel, and the necessary framing, substantially as and for the purposes set forth.

JOHN CORNELIUS.

Witnesses:

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P. B. TURPIN.