

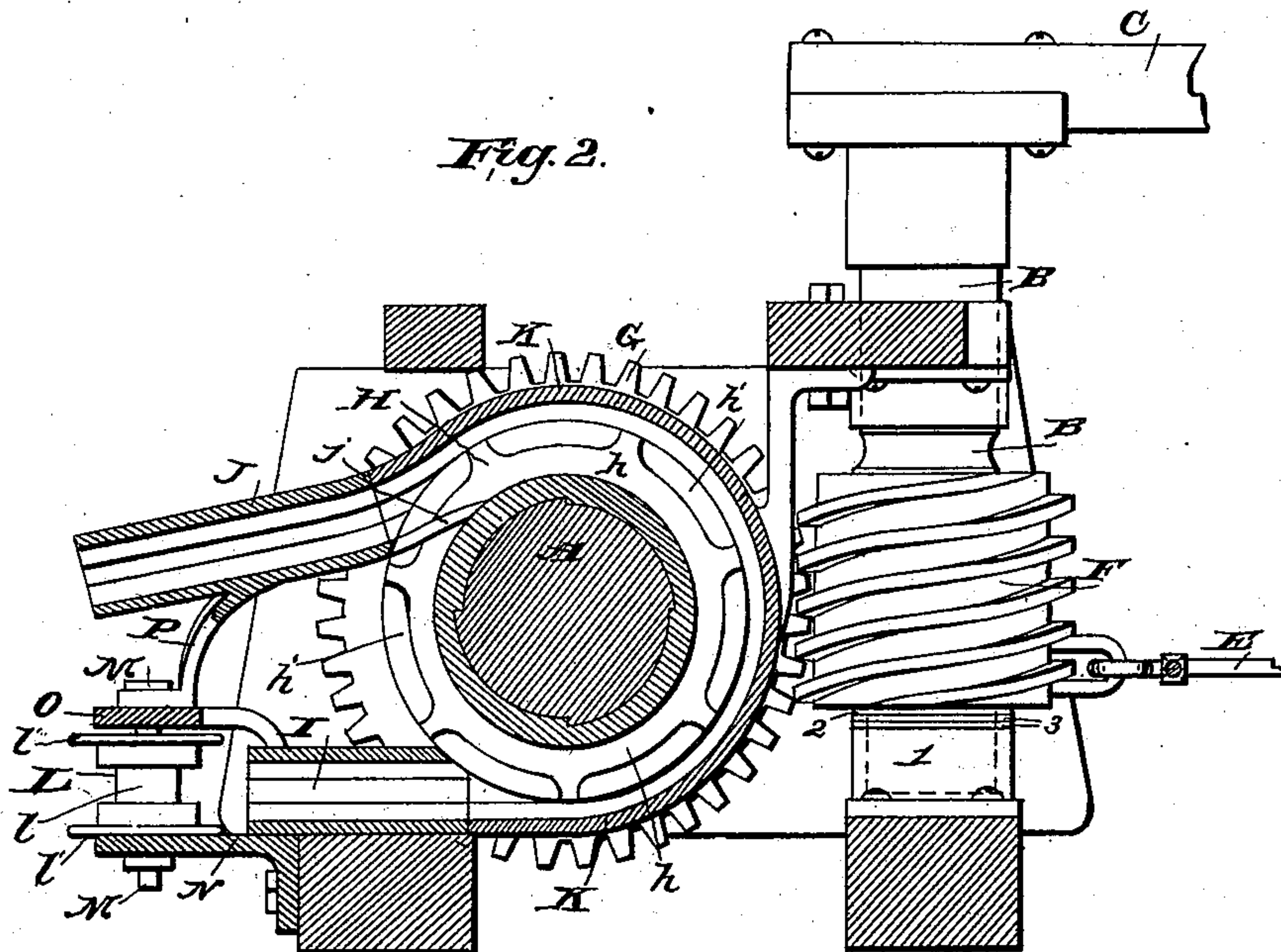
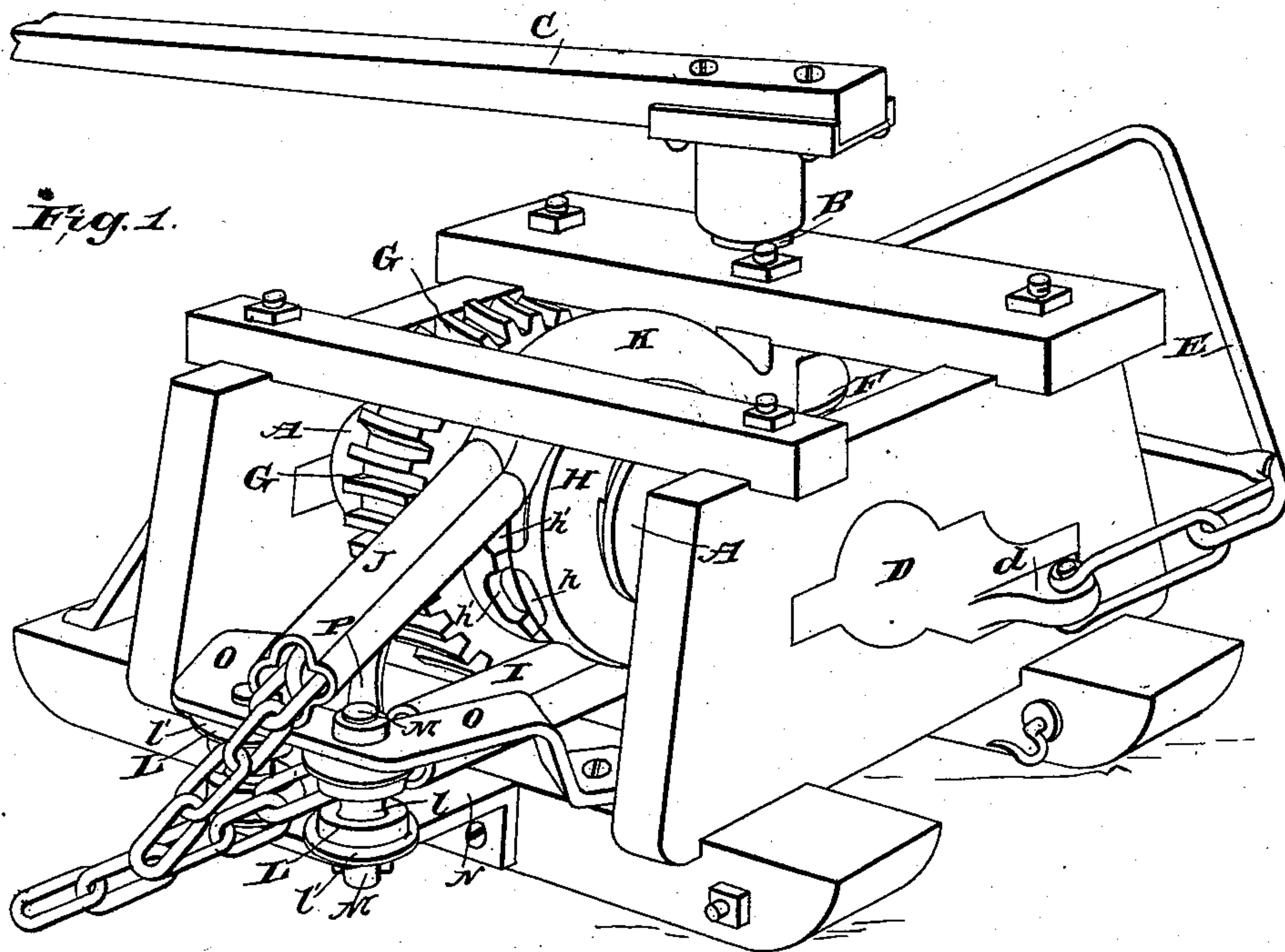
(No Model.)

2 Sheets—Sheet 1.

J. CORNELIUS.  
STUMP EXTRACTOR.

No. 364,092.

Patented May 31, 1887.



WITNESSES:

*Fred G. Dietrich*  
*R. B. Surpin.*

INVENTOR:

*John Cornelius*  
BY *Munn & Co*

ATTORNEYS.

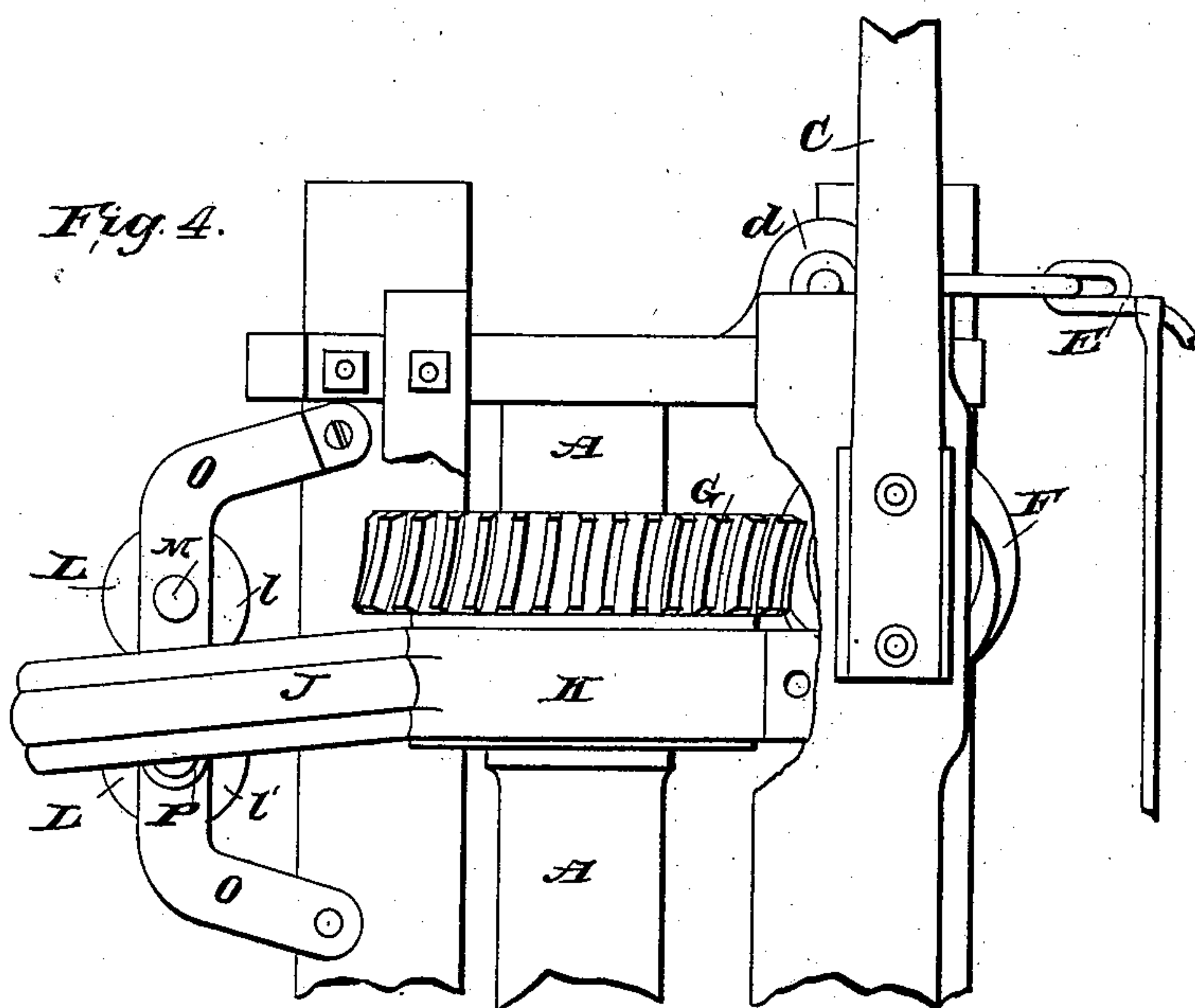
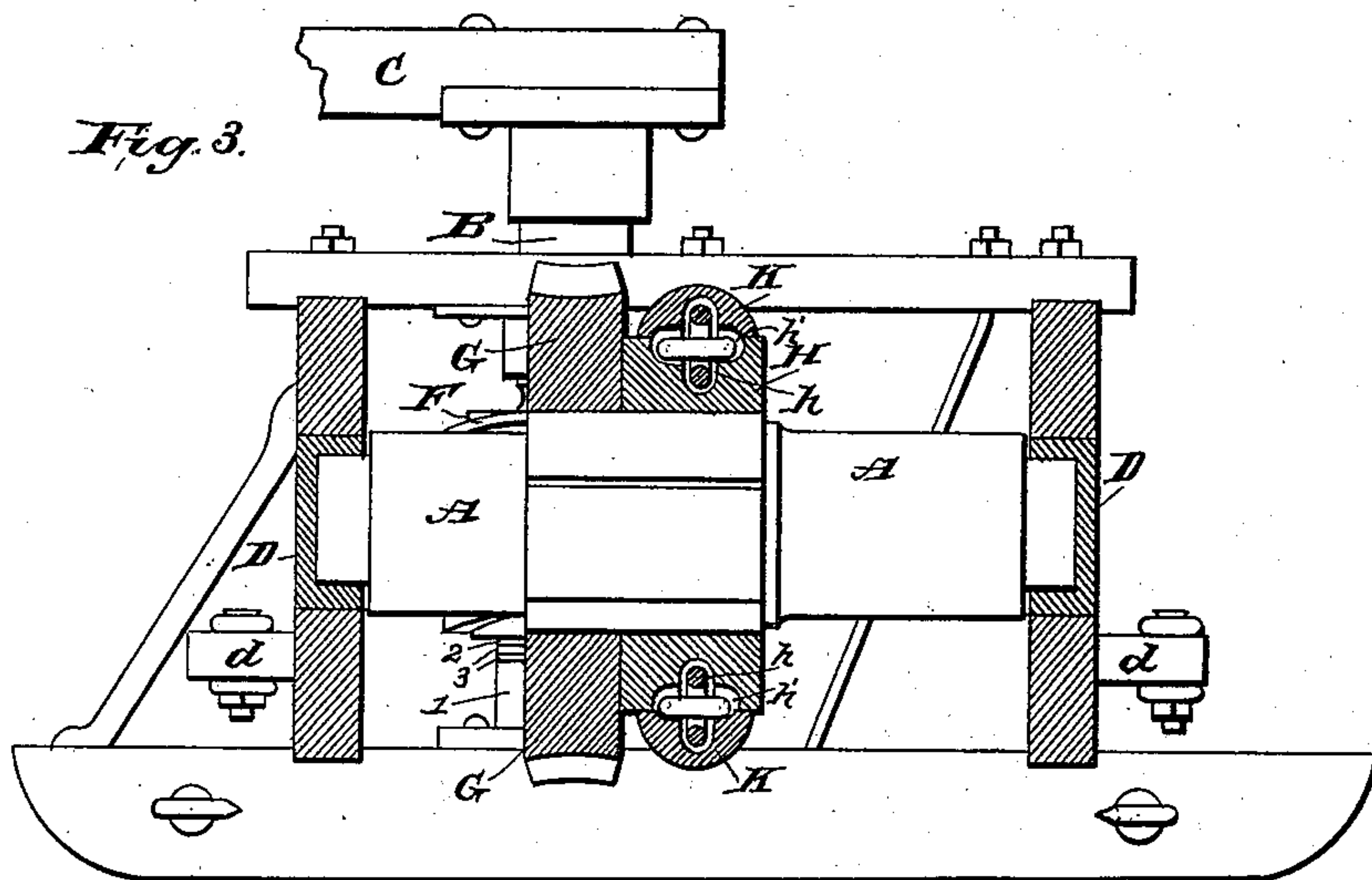
(No Model.)

2 Sheets—Sheet 2.

J. CORNELIUS.  
STUMP EXTRACTOR.

No. 364,092.

Patented May 31, 1887.



WITNESSES:

*Fred G. Dieterich*  
*R. B. Zupfer.*

INVENTOR:

*John Cornelius*  
BY *Munn & Co*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

JOHN CORNELIUS, OF OAKLAND, MARYLAND.

## STUMP-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 364,092, dated May 31, 1887.

Application filed February 28, 1887. Serial No. 229,196. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN CORNELIUS, of 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 improved stump-extractor; and it 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 perspective view of my stump-extractor. Figs. 2 and 3 are sections thereof; and Fig. 4 is a partial plan view, parts being broken away.

The framing of the machine may be of wood or iron. In practice I prefer to make it of iron, because of the greater strength and durability gained thereby. In this frame I journal the horizontal shaft A and the vertical shaft B, the latter being provided with an upward extension to receive the sweep C, to which the team is hitched in the operation of the machine.

The horizontal shaft has bearings in boxes D, which are seated in the framing, and have perforated lugs *d*, to facilitate the attachment of the anchor-bail E, which in practice is anchored in position, it may be in the manner shown or in other suitable manner, as desired.

The vertical shaft is formed or provided with a worm, F, which meshes with a worm-wheel, G, provided on the horizontal shaft, and on this horizontal shaft, and fixed rigidly to the worm-wheel, I also provide a chain-wheel, H, so that the turning of the vertical shaft will, through the medium of the worm-wheel, effect a turning of the chain-wheel, as will be readily understood from the drawings.

The vertical shaft at its lower end has a trunnion, which fits in a socket block or step, 1, and between the shoulder 2 of such shaft and the step 1, I arrange one or two, preferably two, as shown, washers, 3, which avoid any grinding and consequent wear of the shaft and step at their points of contact.

The chain-wheel is in practice conformed to the particular form of chain used, which in the construction shown is a link chain, the adjacent links being in planes at right angles to each other, so the chain-wheel is formed with

a radial circumferential groove, *h*, to receive the links, which are presented edgewise thereto, and with recesses *h'*, to receive the links presented in sidewise position.

Guides I J are provided leading to and from the chain-wheel, the same being constructed in the form of tubes or throats fitted to permit the passage of the chain therethrough.

At the lower side of the discharge-guide J, I provide a tongue, *j*, which extends forward into the groove *h* of the chain-wheel, and serves as a means of freeing the chain therefrom.

If it is purposed to use the machine to pull with either direction of movement for which it is adapted, tongues, as *j*, may be properly provided for both of the guides. It is preferred to connect the guides I and J by a cover-like hood or plate, K, which extends from the receiving-tube I under, in rear of, and over the chain-wheel and connects with the discharge-guide. In front of the receiving-guide I provide two guide-pulleys, L, grooved at *l* and flanged at *l'*, to properly direct the chain into the receiver. These pulleys are in the construction shown supported on shafts M, supported at their lower ends in a plate, N, and having their upper ends extended through a loop-strap, O. The discharge guide is supported by means of a bracket, P, depending from said guide, and secured by one of the shafts M.

From the foregoing the construction of the machine will be understood, and I will now proceed to a description of the operation thereof.

The machine may be anchored to the ground and under strain will assume position with the receiving-guide in the direction of the greatest strain; then, as the line of greatest strain may vary, the machine will conform to the variations in strain. Thus if in drawing several stumps the machine be operated it will adjust to the direction of greatest strain, in the construction shown the guide being toward the strongest stump; then as such stump is loosened the machine will adjust toward the next strongest stump, and so on as the operation proceeds, until the several stumps are extracted. It will be seen that by means of the guide-pulleys and the receiving-throat this adjustment of the machine to the direction of strain is easily and quickly effected.



The machine is of the simplest construction, and by it the greatest pulling power can be exerted with a given motive power. By removing the chain-wheel and replacing one  
5 fitted to receive a larger or smaller chain the machine may be adapted to the work to be done.

In my reference to the chain-wheel as fixed rigidly to the worm-wheel I wish it under-  
10 stood that such connection is as against independent rotary movement of such worm and chain wheels on the shaft, as they need not be held together laterally. Manifestly, the discharge-guide may be covered its entire length,  
15 as shown, or only part way from its inner end, or end next the chain-wheel.

Having thus described my invention, what I claim as new is—

1. The combination, in a stump-extractor, of  
20 the framing, the boxes D, seated in said frame and having lugs *d*, and the horizontal shaft having bearings in said boxes, substantially as set forth.

2. The combination of the main frame, the horizontal shaft having chain and worm  
25 wheels, the worm meshed with said worm-wheel, the pulley-frame N O, the pulleys supported in said frame, the guide J, and the bracket P, mounted on the pulley-frame and supporting the guide J, substantially as set  
30 forth.

3. The combination, in a stump-extractor, of the main frame, the boxes D, seated therein and having lugs *d* and bearings for the horizontal shaft A, the shaft A, having chain-  
35 wheel H and worm-wheel G, the worm F, meshed with worm-wheel G, the pulley-frame N O, the pulleys L L, the guide J, and the bracket P, mounted on the pulley-frame and supporting the guide J, substantially as set  
40 forth.

JOHN CORNELIUS.

Witnesses:

JOE BENSINGER,  
P. B. TURPIN.