

(No Model.)

2 Sheets—Sheet 1.

W. E. HILL.
TREE AND LOG SAWING MACHINE.

No. 329,554.

Patented Nov. 3, 1885.

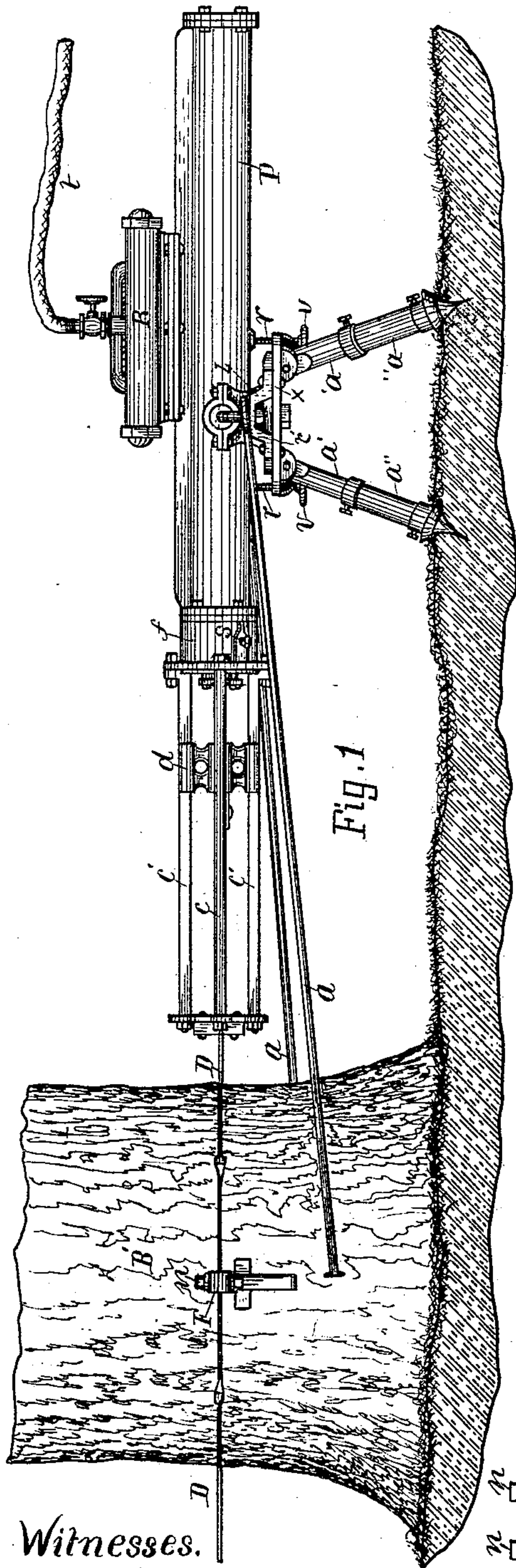


Fig. 1

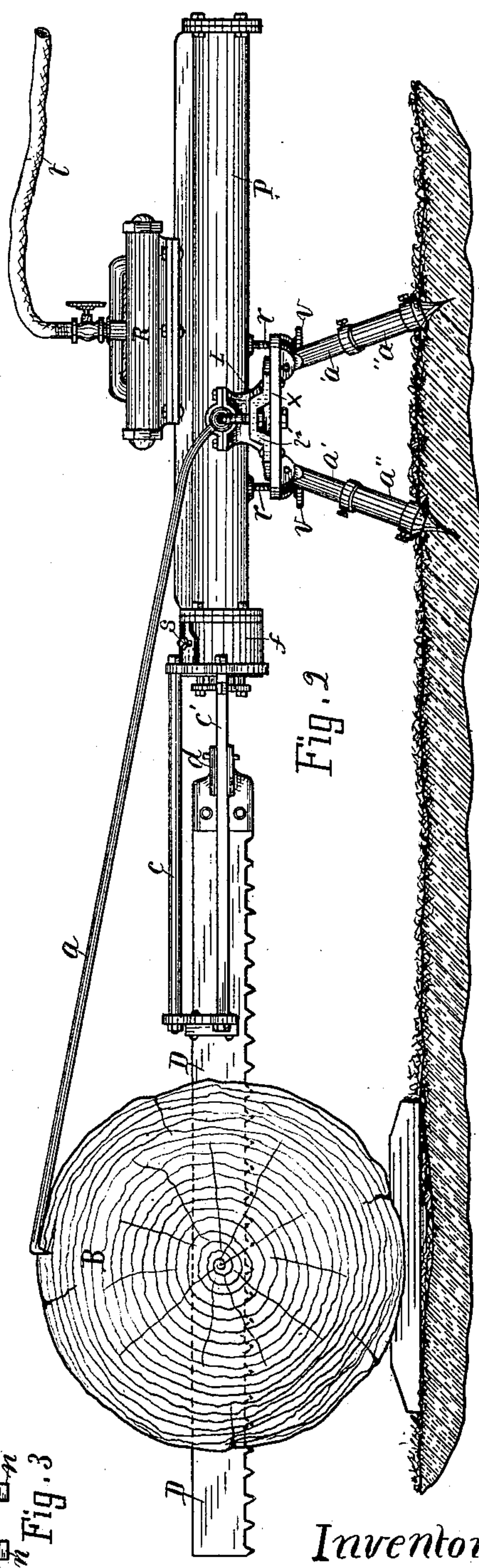


Fig. 2

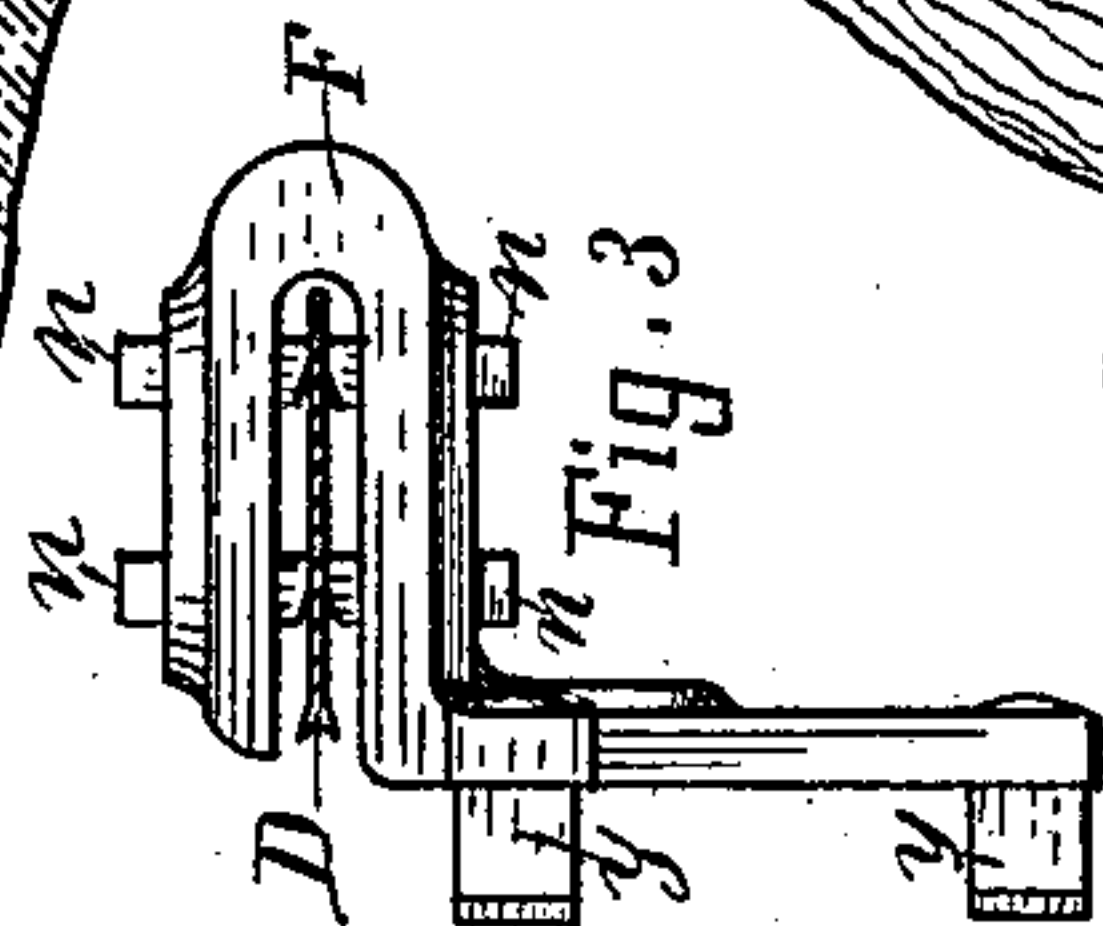


Fig. 3

Witnesses.
John B Perkins.
Charles V. Chase.

Inventor.
William E Hill
By Lucius C West
Atty-

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2 Sheets—Sheet 2.

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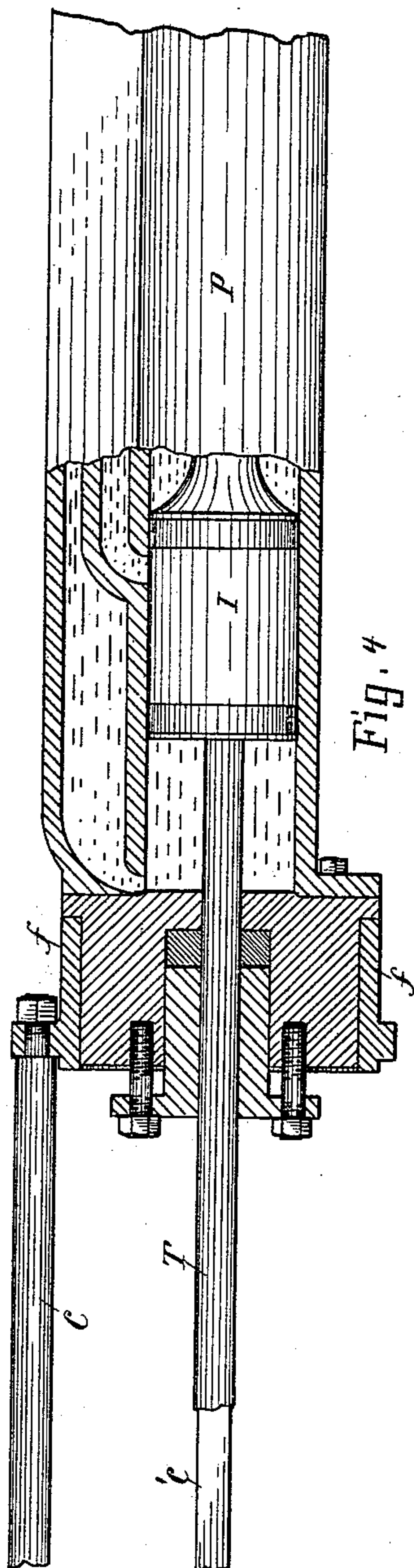


Fig. 4

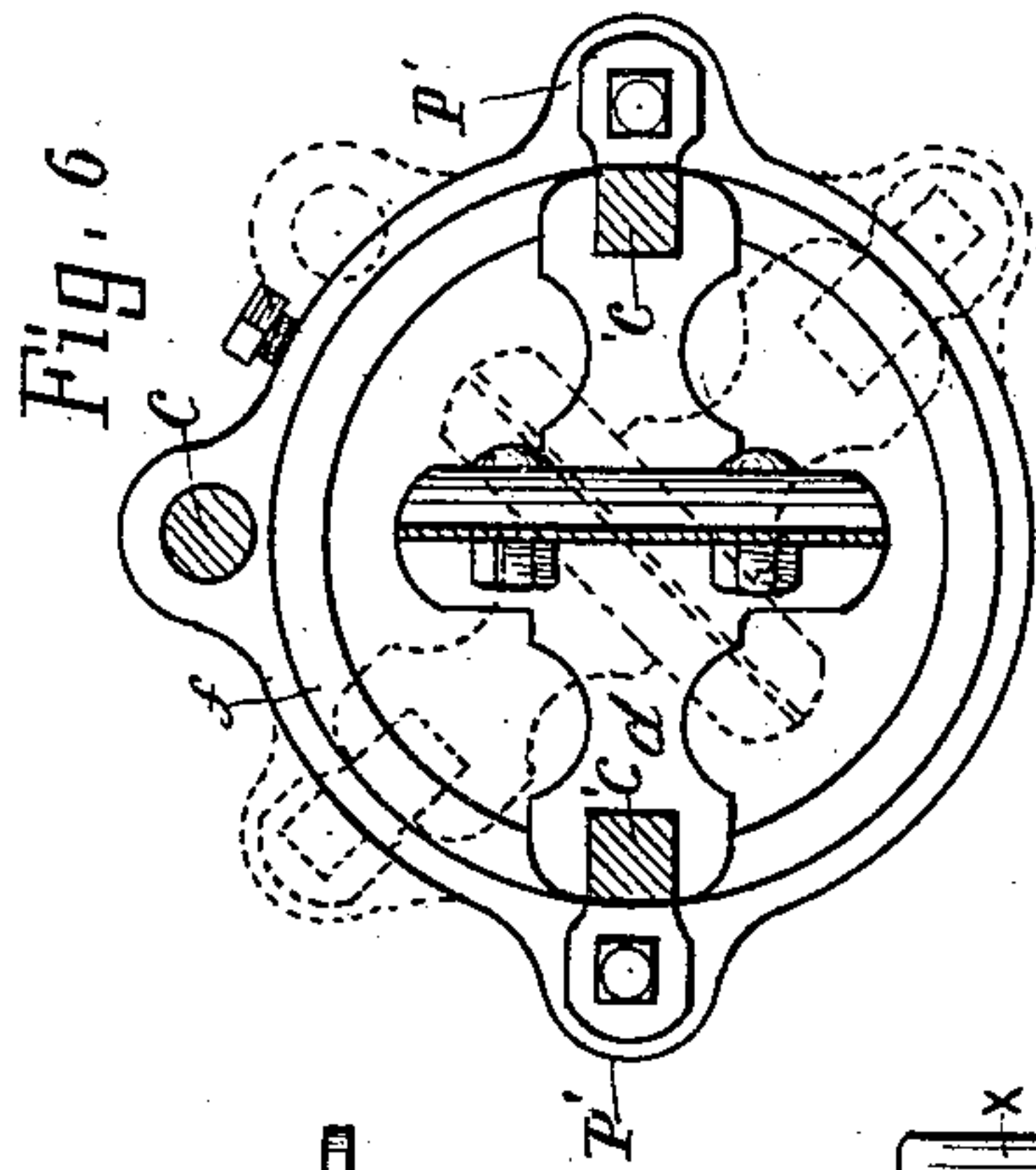


Fig. 6

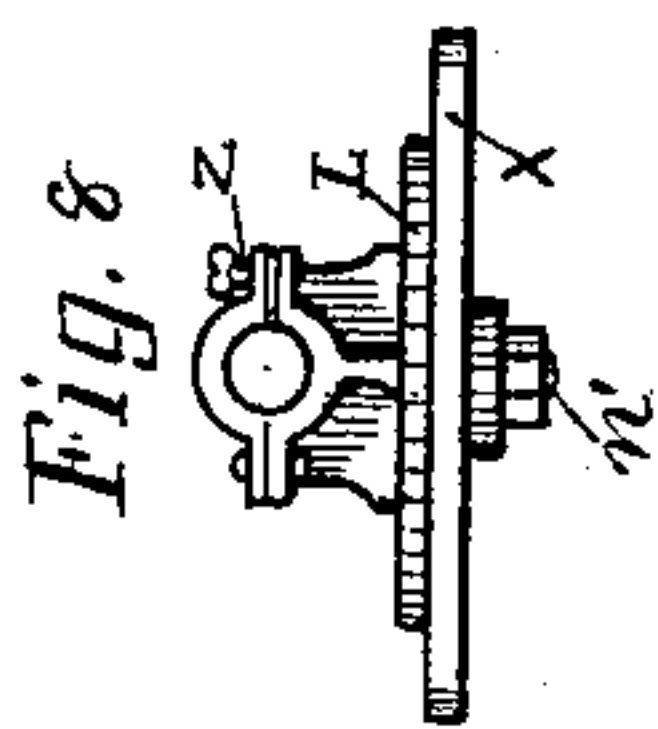


Fig. 8

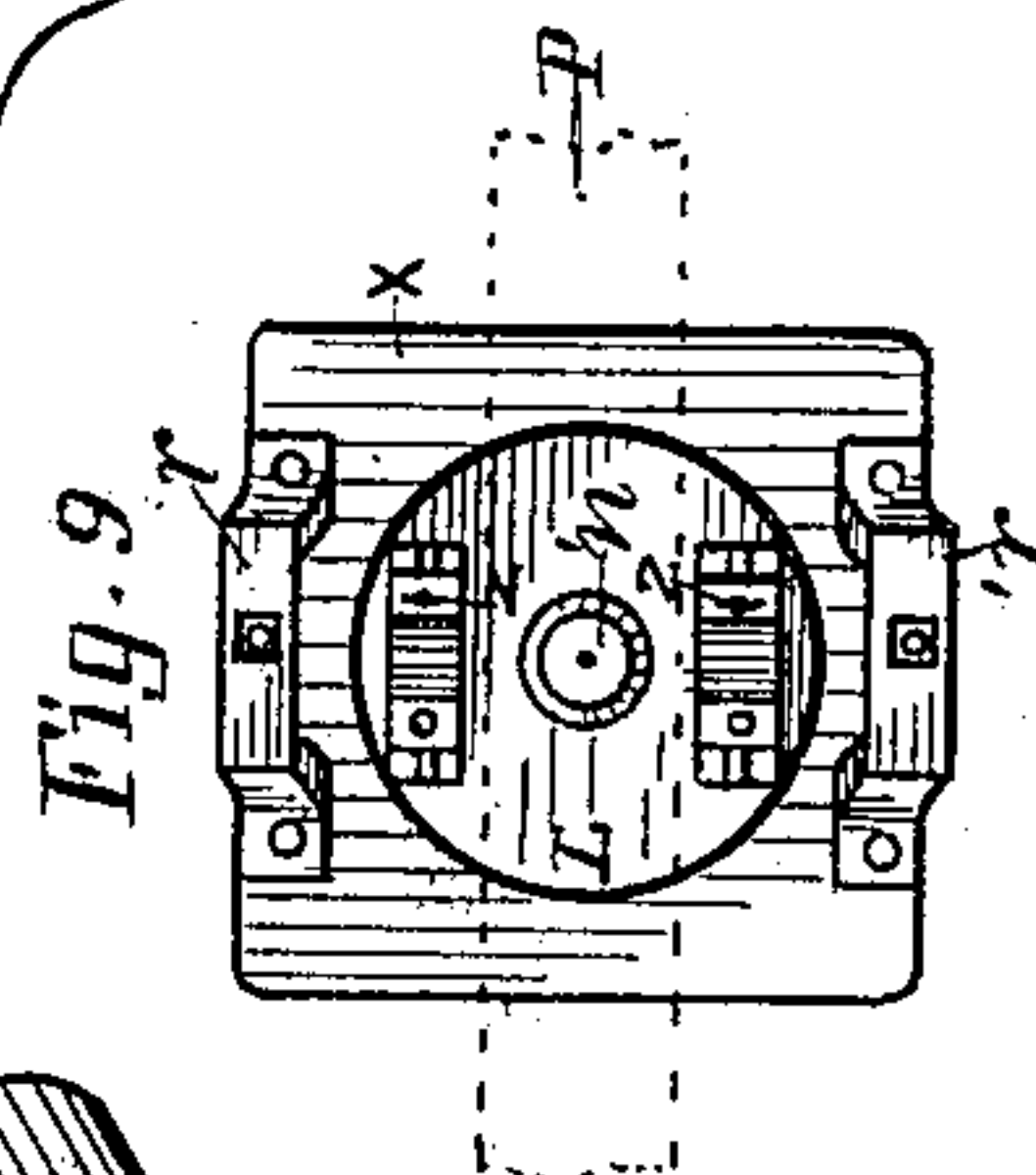


Fig. 9

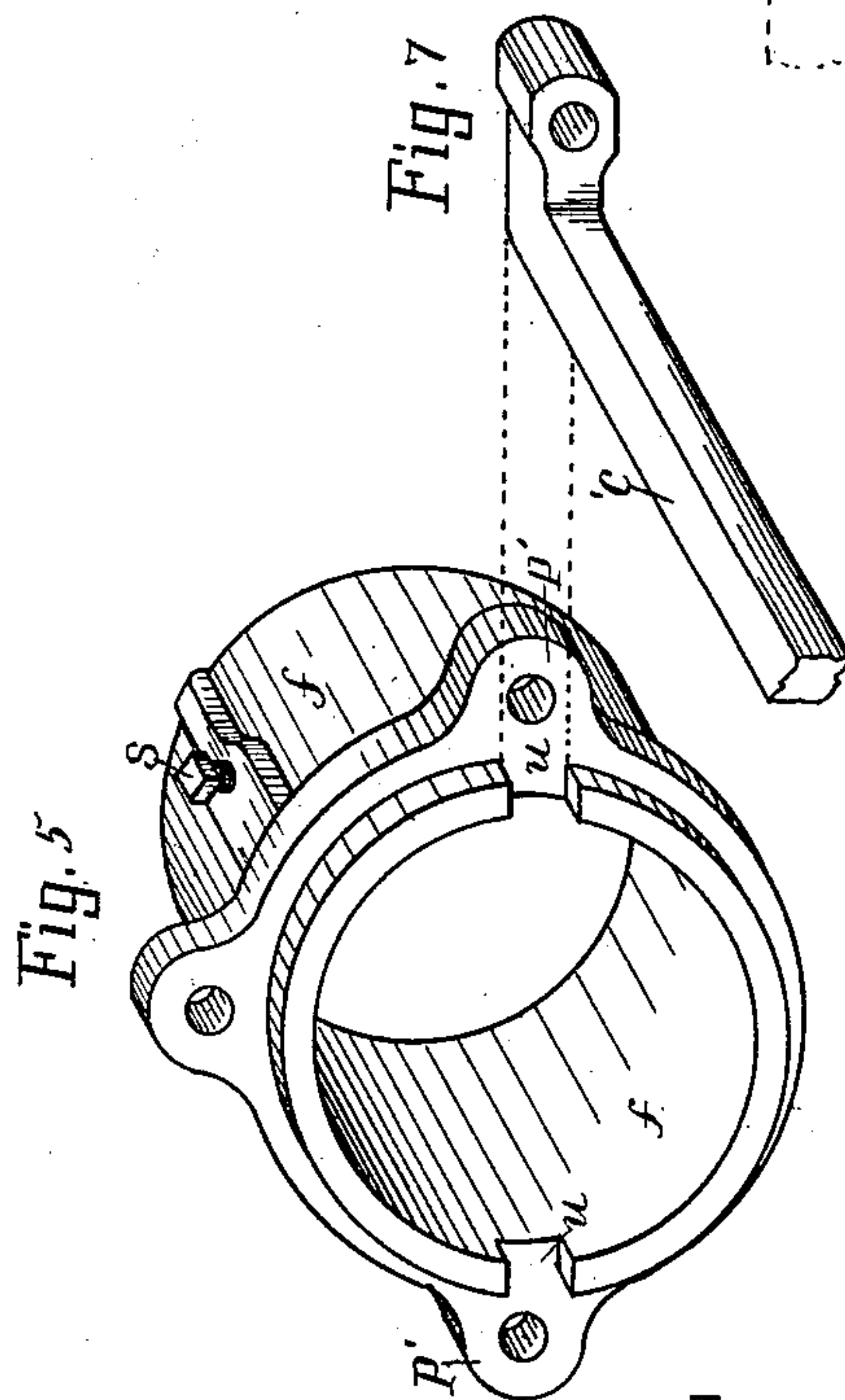


Fig. 5

Fig. 7

Witnesses.
John C. Perkins
Charles V. Chase

Inventor.
William E. Hill
By Lucius C. West
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM E. HILL, OF KALAMAZOO, MICHIGAN.

TREE AND LOG SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 329,554, dated November 3, 1885.

Application filed February 20, 1885. Serial No. 156,494. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. HILL, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Tree and Log Sawing Machine, of which the following is a specification.

This invention has for its object an improved machine for felling trees and cutting up logs.

The principal features of the invention are an engine pivotally supported in a manner to tilt vertically, and swiveled to swing laterally, a saw connecting with the free end of the piston-rod, and a guide-support to the saw connecting with the engine in a manner to tilt with it and the saw, all of which are more particularly described in connection with further details below.

In the drawings forming a part of this specification, Figure 1 is a side view of the machine in the position it occupies when felling trees; Fig. 2, the same, showing a change in position, as when sawing up logs; Fig. 3, a detail in Fig. 1 (marked F) enlarged, hereinafter described; Fig. 4, broken parts of Fig. 1, enlarged portions being in horizontal section; Figs. 5 and 7, enlarged details of Fig. 1 (marked *f c'*) in perspective. Fig. 6 is a view looking against the left-hand end of the engine, enlarged; Fig. 8, a side elevation of Fig. 9, and Fig. 9 is a top view of the engine-support in Figs. 1 and 2.

Referring to the letters of the drawings, P is the engine pivotally supported in a horizontal position in the bearing-support L. This bearing-support is provided with journal-boxes to contain the axial lugs on each side of the engine, thus pivoting the engine in a manner to tilt vertically. The bearing-support L is swiveled in the base-support X in a manner to allow the engine to swing in either lateral direction around said point of swiveling. The base-support X may be supported by pivotally-connecting legs, or may rest on a skid used for moving it from one location to another. The legs here shown consist of parts *a''*, hollow, and parts *a'* passed therein and adapted to slide in or out for adjusting the height. The saw D connects with the free end of the piston-rod. The saw is provided with a guide-block, *d*, at the point of connection

with the piston-rod. Swiveled to the end of the engine-cylinder is a collar, *f*, held at different rotated positions by set-screw S'. This collar has two side bars, *c' c'*, secured thereto, which extend out horizontally parallel with the saw, where they are connected by a plate which is slotted to straddle the saw.

c is a brace and an aligning rod connecting with the collar and end plate. The guide-block *d* is grooved at the sides and plays upon the side bars, *c' c'*. By turning the nut on the end of the combined brace and aligning-rod *c*, above referred to, the desired alignment of the side bars, *c' c'*, with the sliding block *d* may be effected. Anchor-rods *a a* are jointedly connected with the base-support X, each side of the engine P, in a manner to be thrown down, as in Fig. 1, to connect with each side of the stump when felling a tree, or to be thrown up to connect with the log when in a horizontal position in the operation of sawing the log up into blocks, as in Fig. 2. The free ends of the anchor-rods are provided with a sharp right-angled point for driving into the log or tree B B'.

In Fig. 4, I shows the piston in the cylinder-engine P, and T is the piston-rod, to which the saw D in Figs. 1 and 2 is connected. R is the steam-chest, and *t* a flexible induction-pipe, which admits of swinging or tilting the engine to different positions. As the construction of this class of engines is well understood, no further description of details is here needed.

In Fig. 3 a rest, F, is shown for supporting the saw D, when starting it in the tree B'. This rest may not always be needed. It consists of a casting of U form, with a vertical extension connecting one of the free ends, and provided with spurs *y y*, for driving into the stump to hold the rest. Gage-bolts *n n* are inserted in each side of the U portion and adj-justably extended into the opening in which the saw D plays, forming a space between the inner ends of said bolts for the saw to play freely without danger of wobbling.

In the operation of felling trees the saw D, piston-rod T, the saw-support *c, c' c'*, and *d*, and the collar *f* are turned (the collar *f* being swiveled, as before stated, Fig. 4, and the piston being free to turn in the cylinder, admitting of said action) as in Fig. 1, so that

the saw is in a horizontally-flatwise position. When sawing up a log, B, these parts are turned so as to bring the saw in a vertically-edgewise position with the teeth downward, as in Fig. 2. These parts may be so set that the saw will cut at any angle between a horizontal and vertical angle above described.

When sawing down a tree, the saw is caused to feed by gently swinging the engine on its swiveled support L. The engine may be swung on this support from a tree just felled to others which may be near and at proper distance without moving the location of the base-support *x*.

When sawing down a tree, and when moving the machine, it is sometimes desirable to fix the engine P at a stationary angle, so it will not tilt vertically. This may be effected by a series of set-screws, *v r*, with their upper ends in a circular groove on the under side of the engine, (groove not here shown;) but the preferable way is to make the cap of the box of the pivotal bearings of the engine loose and secure it with a set-screw or thumb-nut, *z*, Fig. 8, in a manner that the cap may be set down so tight on the pivotal axle of the engine that the latter cannot tilt.

In sawing up a log, B, the saw is self-feeding, because the machine at the left of the pivotal support of the engine is heavier than at the right hand, Fig. 2, and as the pivotal bearing of the engine in this use is left loose the left-hand end of the machine will automatically tilt downward as fast as the saw cuts its way through the log. In this use of the machine the set-screws *v r* in Fig. 2 are not used, they being shown in this figure merely to indicate their function in other instances, if employed.

In Figs. 4 to 9, inclusive, several de-

tails of the mechanical construction of parts are illustrated, which will be readily understood, and which are suggestive of a possible way of making the machine without further description here.

In Fig. 6 the dotted lines, in connection with the full lines, show the operation of turning the saw and its supporting-frame *c c' c'*, and the swiveled collar *f* from one position to another, as above described in the operation.

Having thus described my invention, what I claim is—

1. A tree-felling machine consisting of the engine, a swiveled support therefor, a saw secured to the free end of the piston-rod, and a guide-frame swiveled to the end of the engine, substantially as set forth.

2. A combined tree-felling and log-sawing machine consisting of the engine, a support therefor, said engine pivoted to said support in a manner to tilt vertically, and the support swiveled to allow the engine to swing laterally, a saw secured to the free end of the piston-rod, and a saw-guide frame swiveled to the end of the engine, substantially as set forth.

3. The combination of a base-plate, a bearing-support swiveled therein, an engine pivoted to said bearing-support in a manner to tilt vertically, a saw connected with the free end of the piston-rod, a saw-guide support swiveled to the end of the engine, and suitable rods for anchoring the machine to the stump or log, substantially as set forth.

In testimony of the foregoing I have hereunto subscribed my name in presence of two witnesses.

WILLIAM E. HILL.

Witnesses:

CHAS. V. CHASE,
D. H. SHEPARDSON.