

No. 844,693.

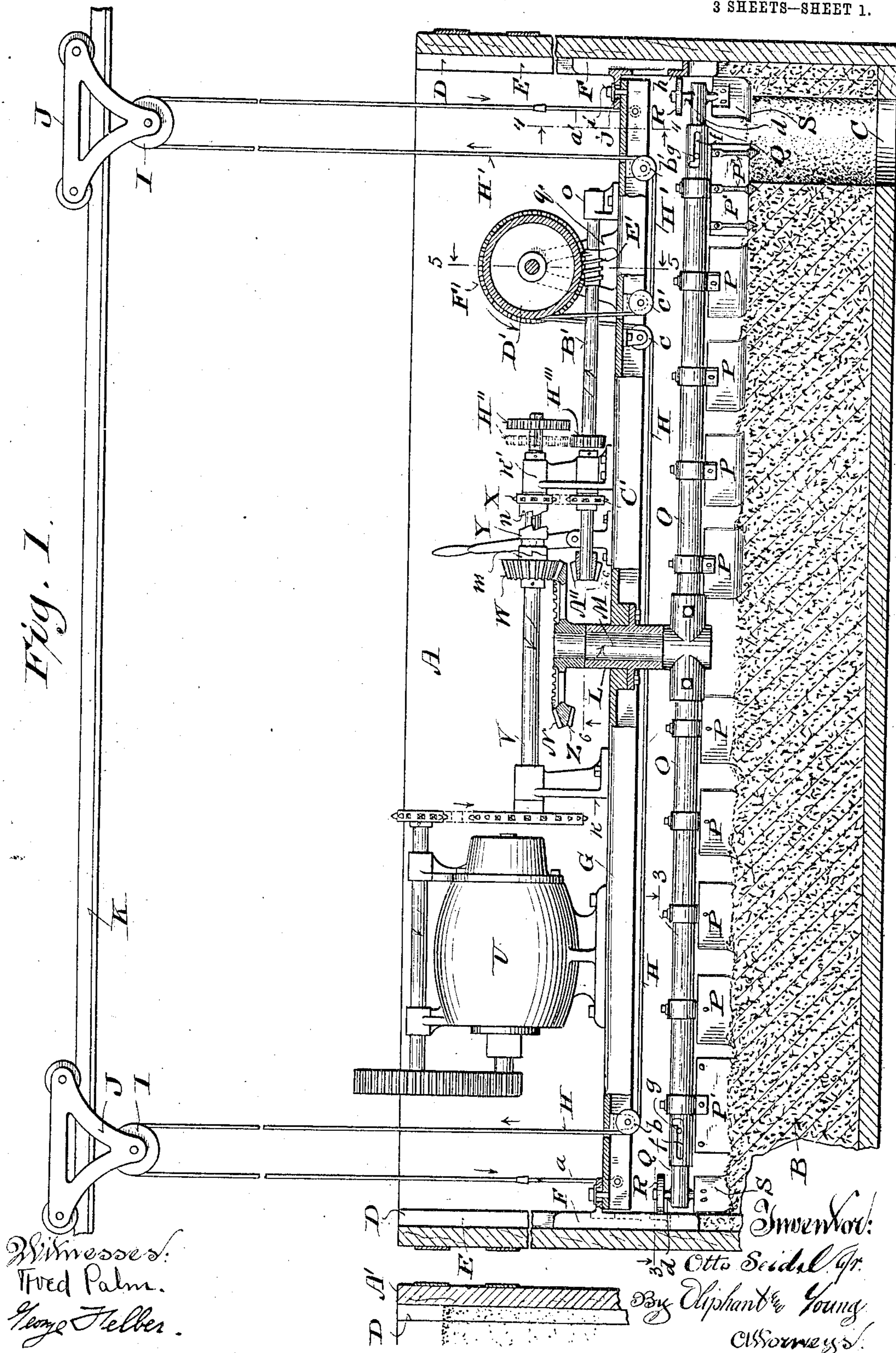
PATENTED FEB. 19, 1907.

O. SEIDEL, JR.
PORTABLE LEACH CLEARING APPARATUS.

APPLICATION FILED MAR. 21, 1906.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

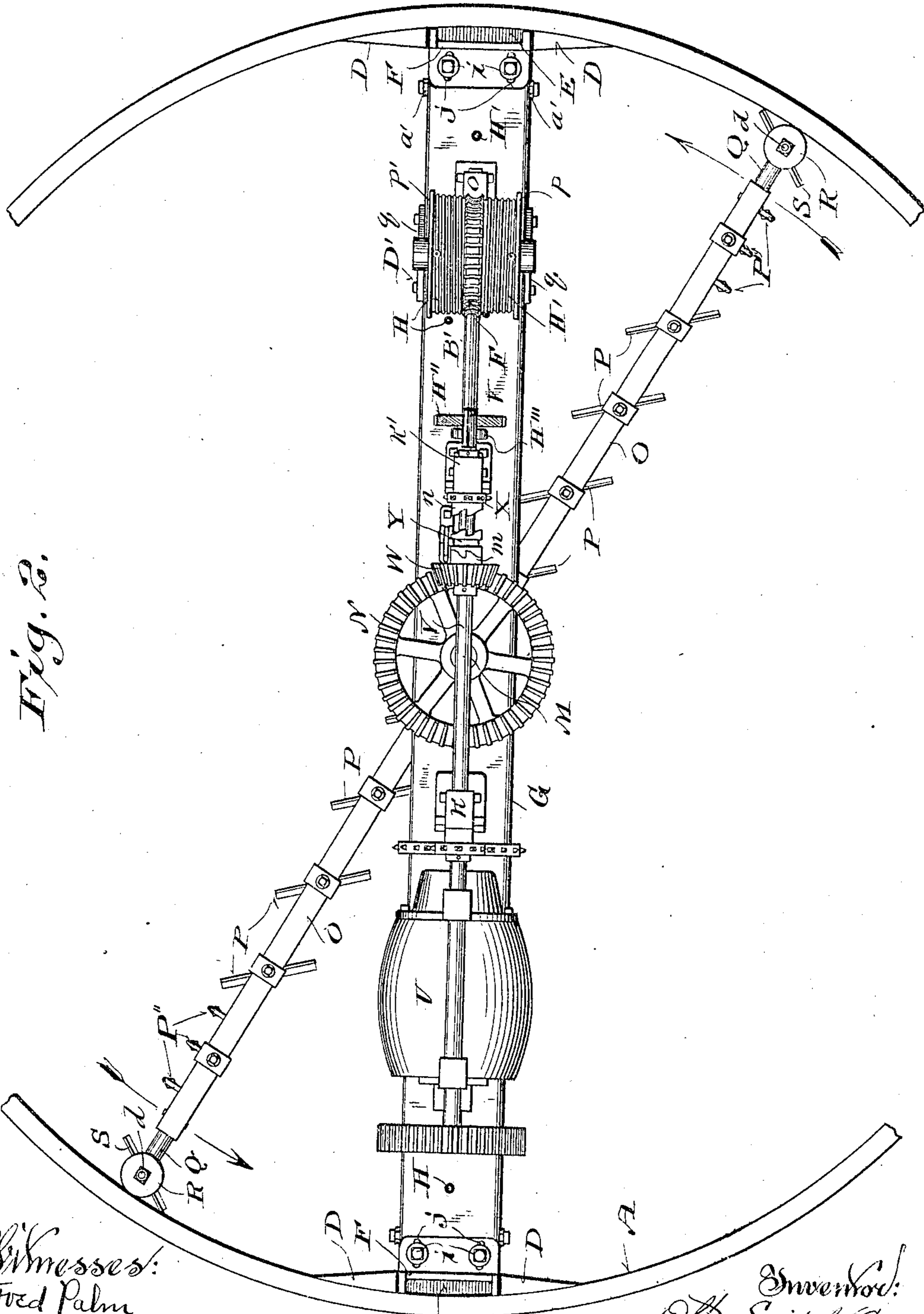


Fig. 2.

Witnesses:
Fred Palm.
G. J. Felber

Inventor:
Otto Seidel Jr.
By Oliphant & Young.
Attorneys.

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3 SHEETS—SHEET 3.

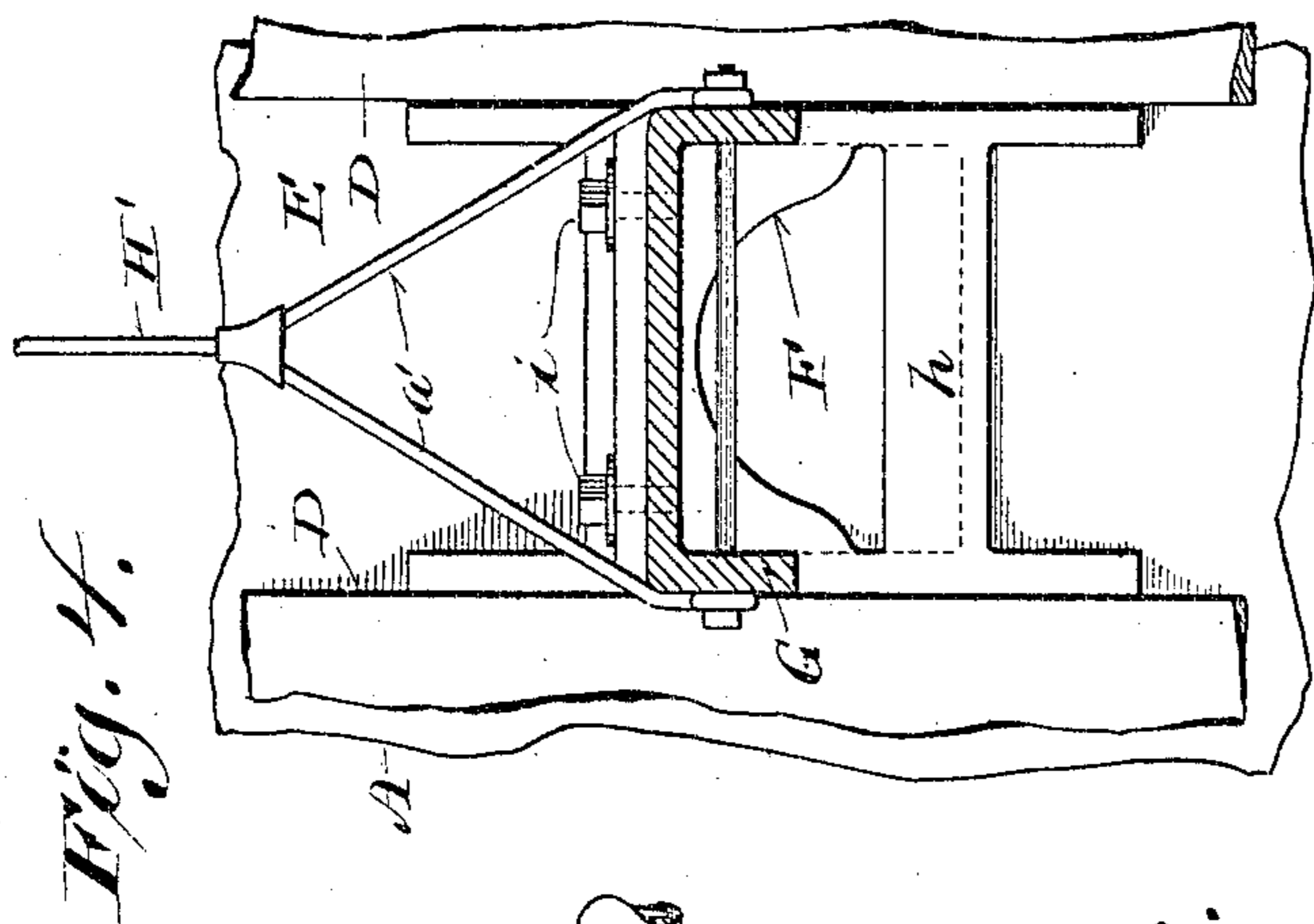


Fig. 4.

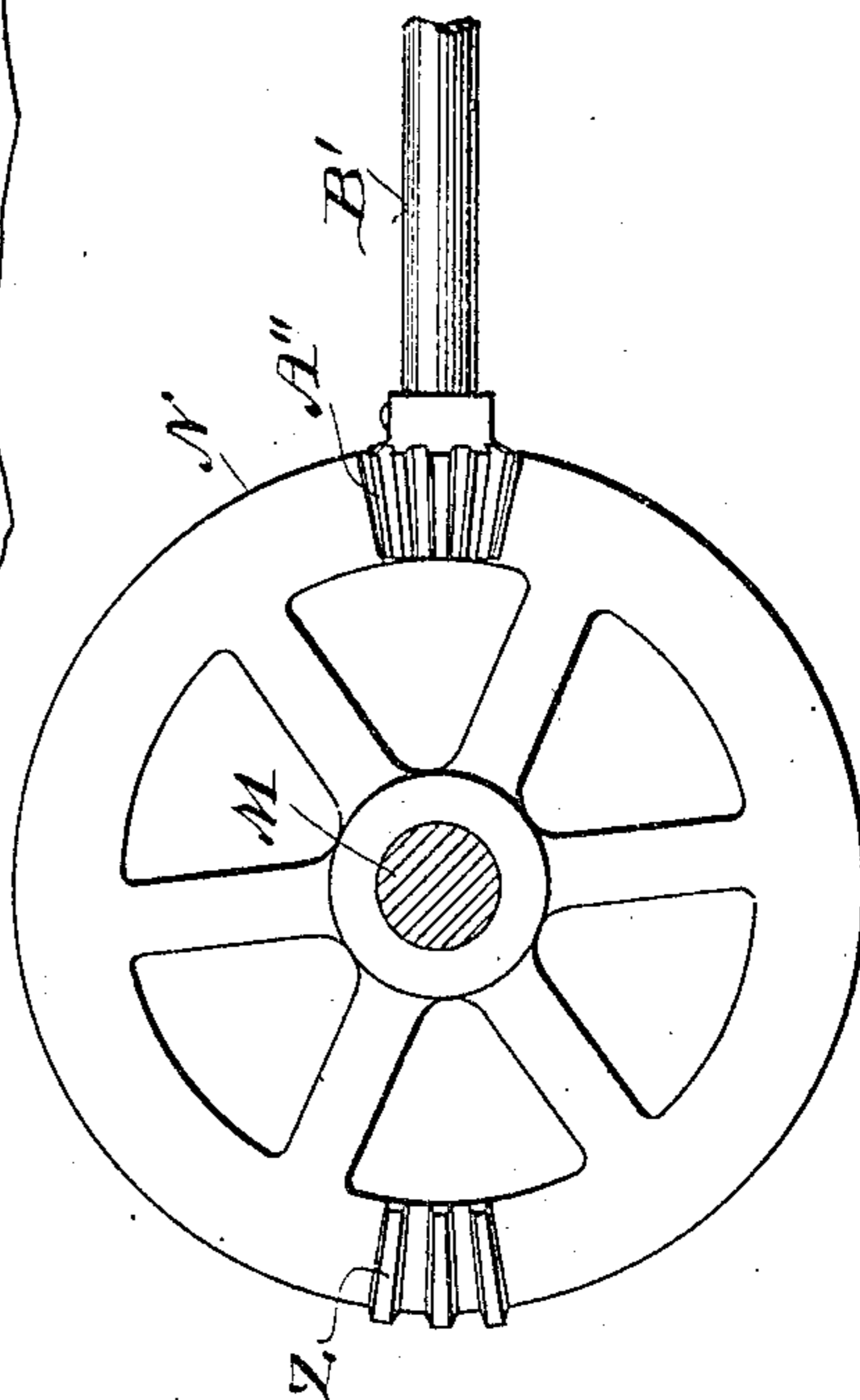


Fig. 6.

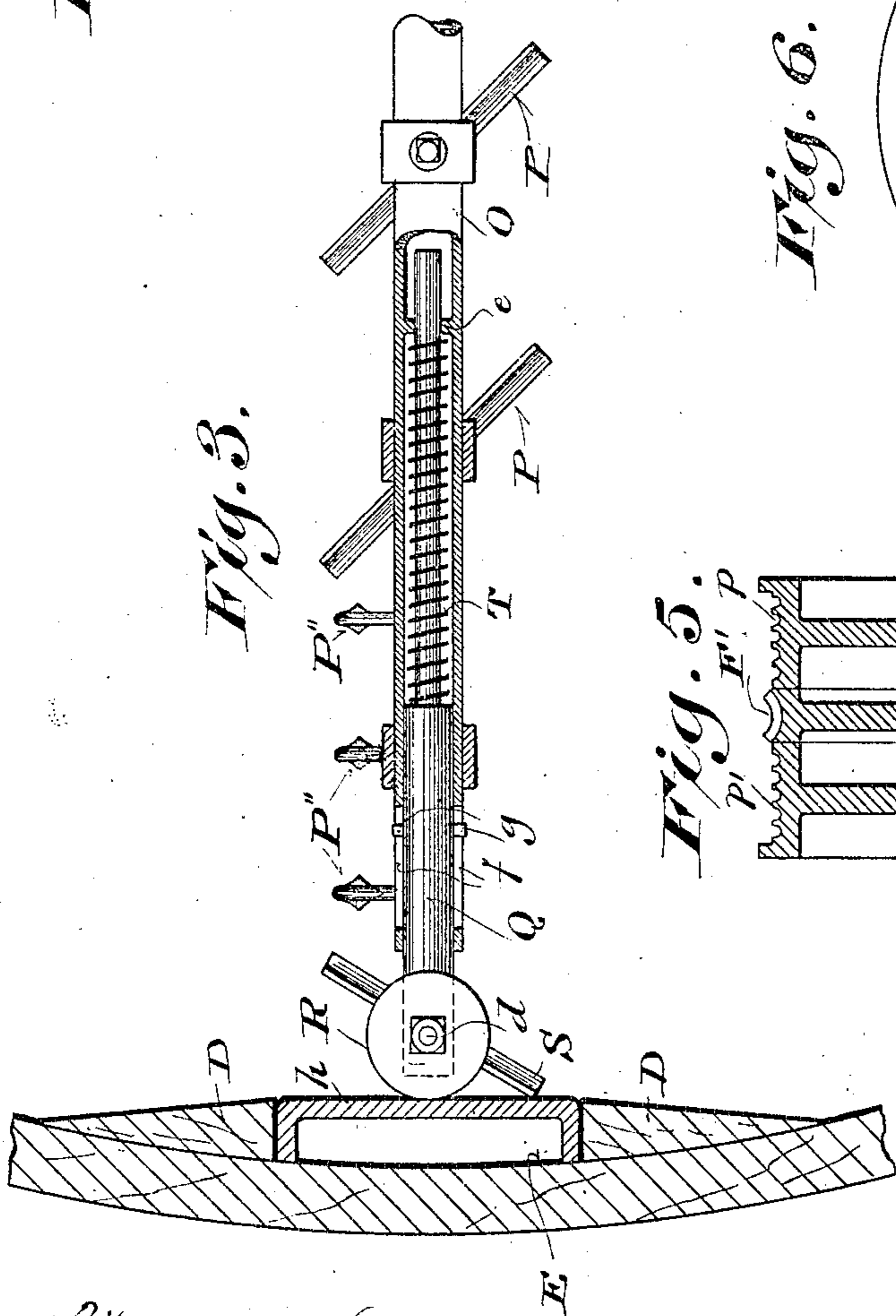


Fig. 3.

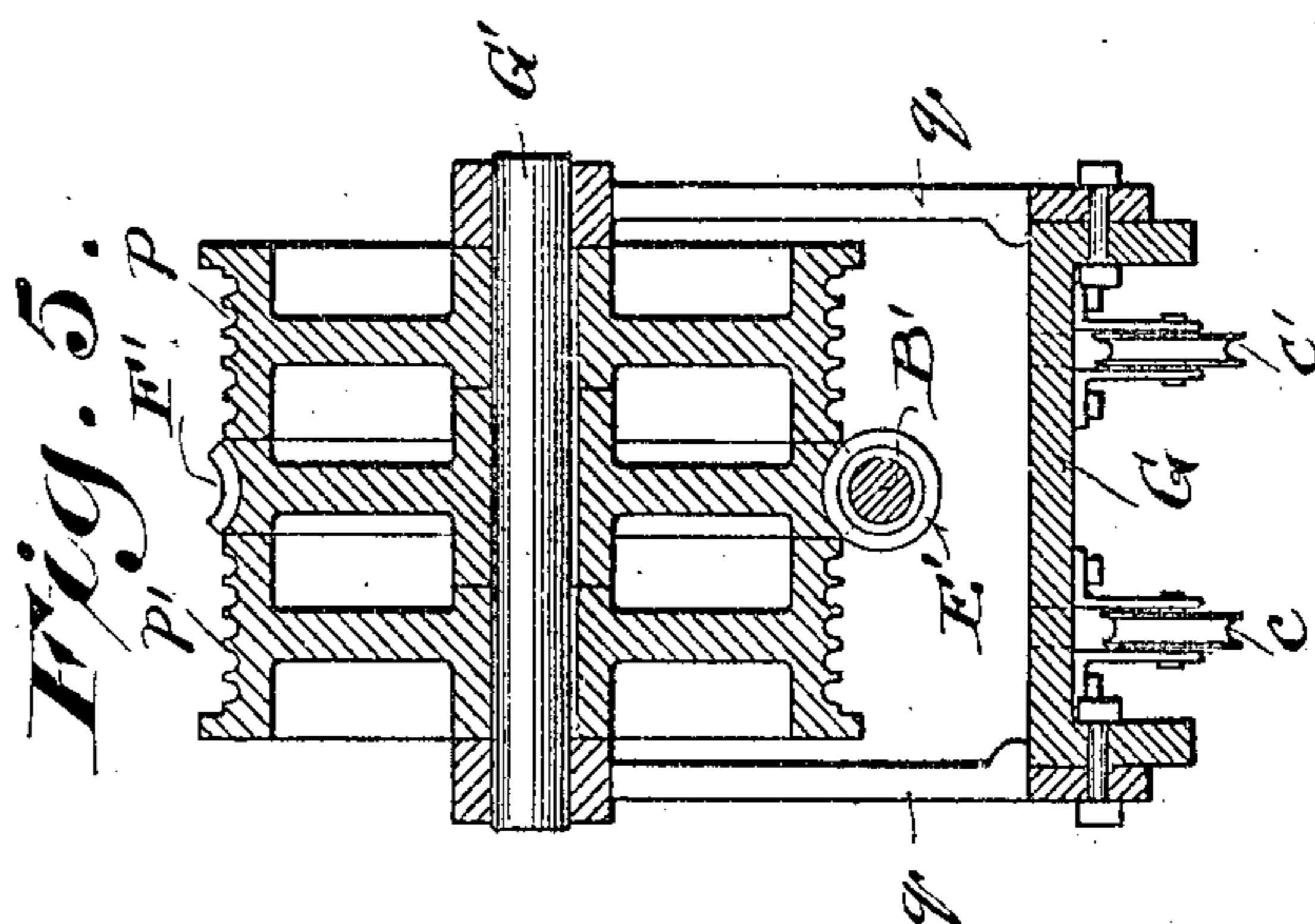


Fig. 5.

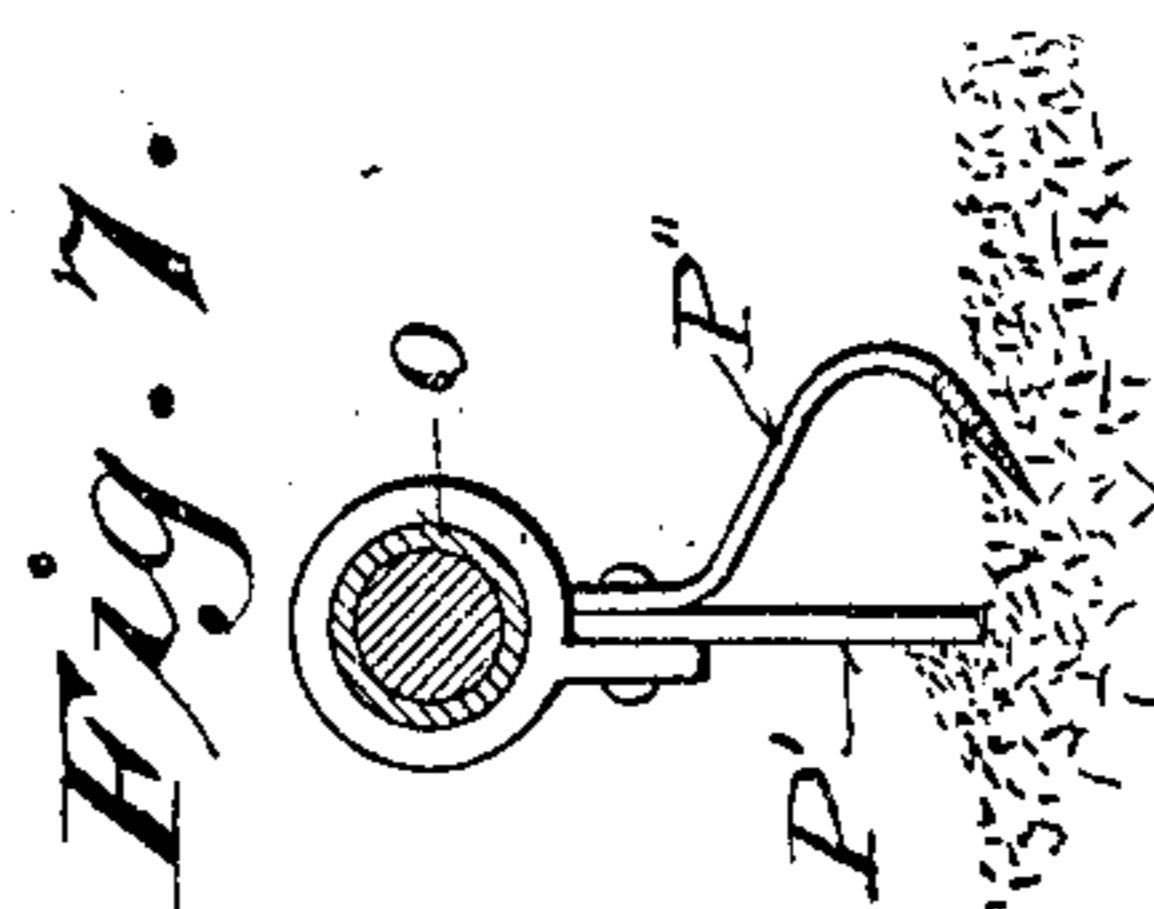


Fig. 7.

Witnesses:
Fred Palm.
George Felber.

Inventor:
Otto Seidel, Jr.
By Oliphant & Young
Attorneys

UNITED STATES PATENT OFFICE.

OTTO SEIDEL, JR., OF MILWAUKEE, WISCONSIN.

PORTABLE LEACH-CLEARING APPARATUS.

No. 844,693.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed March 21, 1906. Serial No. 307,298.

To all whom it may concern:

Be it known that I, OTTO SEIDEL, Jr., a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Portable Leach-Clearing Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof.

The object of my invention is to provide a portable leach-clearing device so arranged with reference to power and operating mechanism as to be readily moved from one leach-tank to another by a suitable system of overhead tracks and trolleys, from which said device is suspended.

Said invention consists in certain peculiarities of construction and combination of parts, as hereinafter set forth with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a vertical section of a leach-tank, showing a leach-clearing device in accordance with my invention suspended therein, the said device being partly broken away and in section to more clearly illustrate the details thereof; Fig. 2, a plan view of the same with portions of the tank broken away; Fig. 3, an enlarged detail section of one end of the bark-scaper, said section being taken on line 3 3 of Fig. 1; Fig. 4, an enlarged cross-section of the leach-clearing scaffold, the section being indicated by line 4 4 of Fig. 1; Fig. 5, a similar view upon a plane as indicated by the line 5 5 of Fig. 1, showing the raising and lowering drum and its connection; Fig. 6, an inverted plan view of the intermittent-driving gear of the drum, and Fig. 7 a detail of one of the end scrapers.

Referring by letter to the drawings, A indicates a leach-tank, and A' a portion of an adjacent one; B, a mass of spent bark in tank A, the plug for the registering crifice in the bottom of this leach-tank A having been removed, thereby leaving an opening in the mass of bark aligned with the crifice C, through which the bark is gradually discharged by the leach-scaper until the tank is entirely cleared. The inner walls of the tanks are provided with diametrically opposite parallel cleats D, having abrupt inner edges which form channels E, adapted to receive shoe extensions F of the leach-clearing frame or scaffold G, the faces of said cleats being inclined so that the outer edges thereof

present an unbroken surface at their junction with the tank-walls. The scaffold G of the device is suspended by means of cables H H', secured to said scaffold at its ends by branches a a'. These cables are then passed up and over pulleys I of a carrier or trolley J and from thence drawn through openings in the aforesaid scaffold to pulleys b b', secured to the under side thereof. From these pulleys the cables are given right-angle turns and are brought together, at which junction they pass under other guide-pulleys c c', up through openings in the scaffold, and over a drum D', to which their free ends are secured after being wound thereon. The trolley J is mounted upon a suitable overhead-track system K, disposed above the leach-tanks, one rail of which is shown in Fig. 1 of the drawings, further illustration being deemed unnecessary, for the reason that the system of tracks and switches may be varied to meet the requirement of the location of the series of said leach-tanks to which my device is to be applied.

Mounted in a central bushing L of the scaffold is a vertical arbor M, having secured at its upper end a bevel driving-gear N, the lower end of the arbor being provided with a T-head, in which are fastened horizontal radial arms O, carrying a series of scraper-blades P, which blades are set at an angle to the path of travel of the arms, the end blades P' being straight and provided with rake-teeth P'', as shown. The ends of said arms are preferably hollow and have telescoped therein plungers Q, having studs d at their ends, upon which are mounted antifriction-rollers R. The said plungers are also provided with scrapers S, inclined at an angle the reverse of that of the scraper-blades P, as shown. The inner ends of the plungers are shouldered and reduced to receive coil-springs T, which are interposed between internal collars e of the arms O and the shouldered portions of said plungers. To prevent the aforesaid plungers from twisting, the ends of said arms O are provided with longitudinal slots f, having right-angle pockets at their inner ends, the slots serving as guides for pins g, projecting from the plungers.

The above-described arrangement of scraper-blades is such that when the arms O are revolved (in the direction of the arrow shown in Fig. 2) the spent bark is scraped from its surface toward the periphery of the tank, where during its travel it is discharged,

by means of the straight blades P', into the opening in the mass of bark and out through the orifice in said tank.

The walls of the leach-tank are cleared of bark by the scrapers S, which have their scraping edges upon the same vertical plane as the periphery of the rollers R, and by reason of the yielding connection between said roller and the arms O the said scrapers are held constant with relation to the tank-walls regardless of variation in the circumference thereof, while at the same time the rollers serve to prevent the scrapers from catching in any irregularities. The shoe extensions F, which travel downward with the scaffold as the leach-tank is cleared, while serving as guides for said scaffold also scrape the channel E clear of spent bark, which would otherwise adhere therein, and in order to prevent the scrapers S from dropping into said channel in their rotation the said shoes are provided with bridges h in the same horizontal plane as the antifriction-roller R, so that when the latter travel up the inclined surfaces of the cleats D under spring tension they will pass over said bridge and down the opposite inclined cleats to the tank-wall.

In order to provide adjustment of the length of the scaffold for slight variations in tanks, the shoes F are secured to said scaffold by bolts i, fitted into slots j of flanges projecting inward from said shoes. A back-gear motor U is bolted to the face of the scaffold in link-belt connection with a drive-shaft V, which shaft is provided with a loose bevel-pinion W, meshing with the bevel-gear N of the arbor M. The shaft V has its bearings in brackets k k', bolted to the said scaffold, and said shaft also carries a loose sprocket X adjacent to the bracket k', and this sprocket, together with the pinion W, are formed with oppositely-disposed clutch-faces n m, respectively, for engagement with a lever-controlled double-face clutch-collar Y, which is splined upon the said drive-shaft V and arranged to transmit motion therefrom to either the bevel-pinion or sprocket. The lower face of bevel-gear N is formed with one or more bevel-teeth Z for intermittent engagement with a bevel-pinion A'', fast on a shaft B', the latter having its bearings in bracket k' and a bracket o adjacent to one end of the scaffold. The said shaft B' carries a sprocket C' in link-belt connection with the loose sprocket X of drive-shaft V, and also secured to the aforesaid shaft B' is a worm E', which meshes with a worm-wheel F' located between the drum members p p'. Said members, together with the worm-wheel, constitute the drum D', they being fast on a shaft G', having its bearings in brackets q, that are bolted to the scaffold.

As shown in Figs. 1 and 2 of the drawings, the clutch is thrown to transmit power from the motor to the scraper-arms, which are

slowly revolved to clear the leach-tank of the spent bark therein, and with each revolution of said scrapers the teeth upon the lower face of the bevel-gear N strike the pinion A'', which, through the worm E', imparts a slight rotation to the drum to unwind the cables thereon, thus causing the entire device to feed down as the spent bark is scraped off and until the tank has been cleared. To remove the leach-clearing apparatus from the tank, the clutch is reversed and coupled with the sprocket X. This action stops the motion of the scrapers and imparts a continuous drive to the shaft B' in a reverse direction from that transmitted to said shaft by the intermitted drive, thereby causing the drum to wind up the cables and raise the leach-clearing apparatus out of the tank. The power may then be disconnected from the driving mechanism by placing the clutch-collar in a central position between the clutch-face of the gear and sprocket. When the apparatus is in the above-described suspended position, the trolleys may be moved on their track to the tank A' of the series and lowered by means of gears H'' H''', the gear H'' being splined upon the shaft V and arranged to be slid into mesh with the gear H''' for the purpose of transmitting reverse motion to the shaft B', to which it is secured.

In raising and lowering the apparatus in the tank the plungers Q are pushed back so as to clear the walls of the tank and locked in this position by twisting the pin g into the right-angle pockets of slots f.

By the above description it will be seen that my device is so constructed as to make it possible to dispense with all obstruction in the body of the leach-tanks, the only addition to said tanks being the cleats upon the side, walls which in no way interfere.

I claim—

1. A leach-clearing apparatus comprising a scaffold, suspension-cables secured to the ends thereof and adapted to be carried by overhead pulleys, a drum mounted on the scaffold to which drum the ends of the cables are secured, a central arbor having its bearing in said scaffold, a drive-gear secured to the upper end of the arbor, a scraper-arm secured to the lower end of said arbor, a counter-shaft mounted upon the aforesaid scaffold and in gear connection with the arbor drive-gear, a motor for the counter-shaft, and driving means in connection with the drum and drive-gear of the arbor, whereby said drum is automatically rotated to feed the scaffold together with the scraper to the spent bark.

2. A leach-clearing apparatus comprising suspension-pulleys over the leach-tank, a scaffold vertically adjustable in the tank, a rotary scraper and driving-gear therefor carried by the scaffold, a drum mounted on said

scaffold and in gear connection with the scraper-driving gear, and cables connected to each end of the aforesaid scaffold and arranged to travel over the suspension-pulleys, 5 ends of said cables being connected to the drum.

3. A leach-clearing apparatus comprising suspension-pulleys over the leach-tank, a scaffold vertically adjustable in the tank, 10 channel-guides for the ends of the scaffold secured to the tank, the said guides having tapered edges, a rotary scraper and driving-gear therefor carried by the scaffold, yielding telescopic scraper-sections carried by the 15 rotary scraper, a drum mounted on said scaffold and in gear connection with the scraper-driving gear, and cables connected to each end of the aforesaid scaffold and arranged to travel over the suspension-pulleys, ends 20 of said cables being connected to the drum.

4. A leach-clearing apparatus comprising a vertically-adjustable scaffold, a rotary scraper carried by the scaffold, channel-guides in the leach-tank, adjustable shoe

extensions carried by the scaffold and 25 adapted to be fitted into the channel-guides, bridges on the shoes in the path of the rotary scraper, yielding telescopic scraper-sections carried by said rotary scraper, and antifric- 30 tion-rollers mounted on the ends of the telescopic sections.

5. A leach-clearing apparatus comprising a vertically-adjustable scaffold having mounted thereon a rotary scraper, driving means 35 for the scraper mounted upon the scaffold, a drum in gear connection with said driving means, in combination with cables secured to each end of the scaffold and adapted to pass over pulleys above the leach-tank, ends 40 of the cables being connected to the drum.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

OTTO SEIDEL, JR.

Witnesses:

GEO. W. YOUNG,
FRED PALM.