

No. 813,211.

PATENTED FEB. 20, 1906.

J. P. JACOBS.
DRILLING MACHINE.
APPLICATION FILED AUG. 22, 1905.

4 SHEETS—SHEET 1.

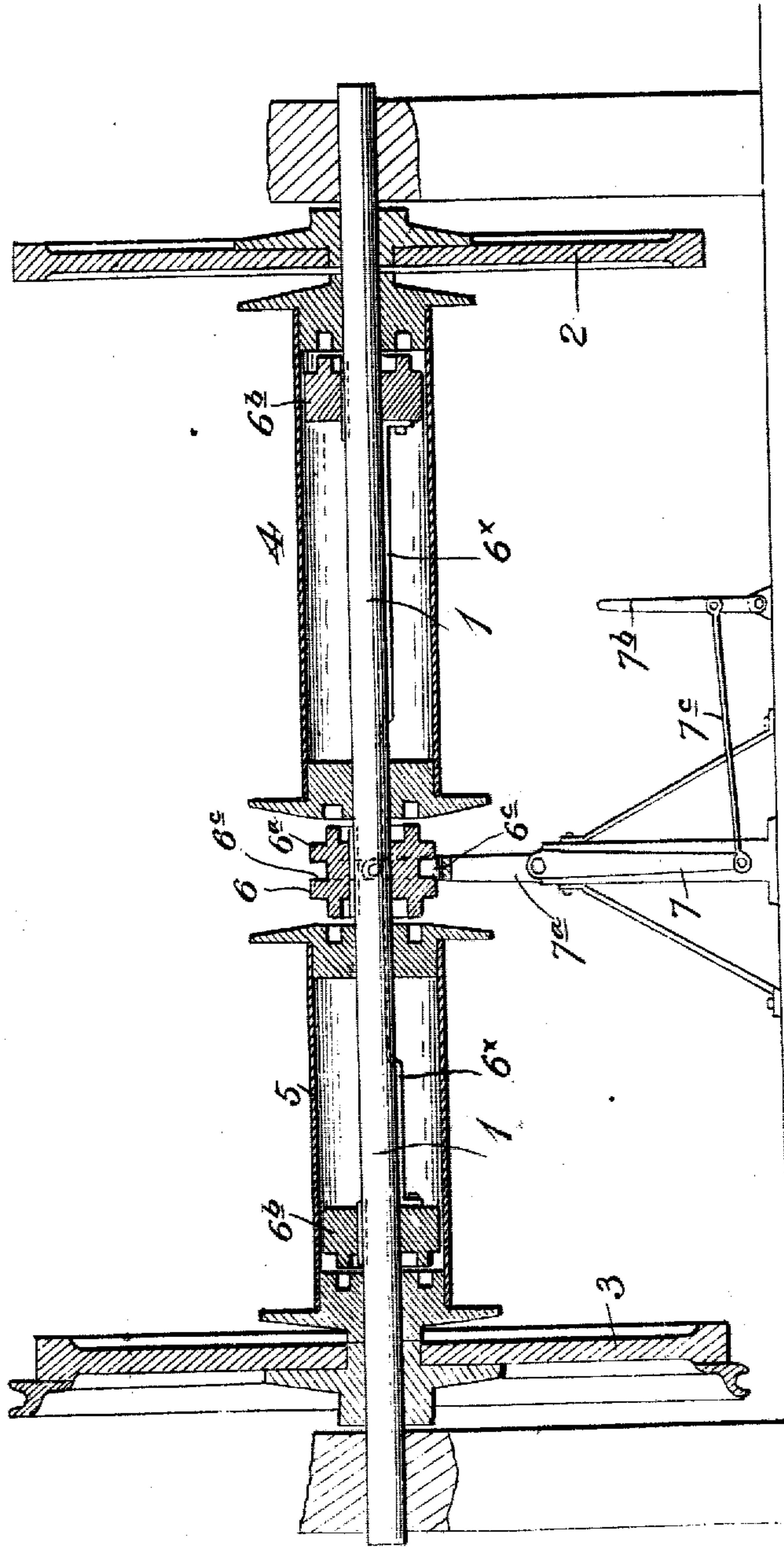


Fig. 1.

Inventor

John P. Jacobs,

Witnesses:
H. T. McKeen,
J. W. Foster

By *Louis Ruggen* Attorney

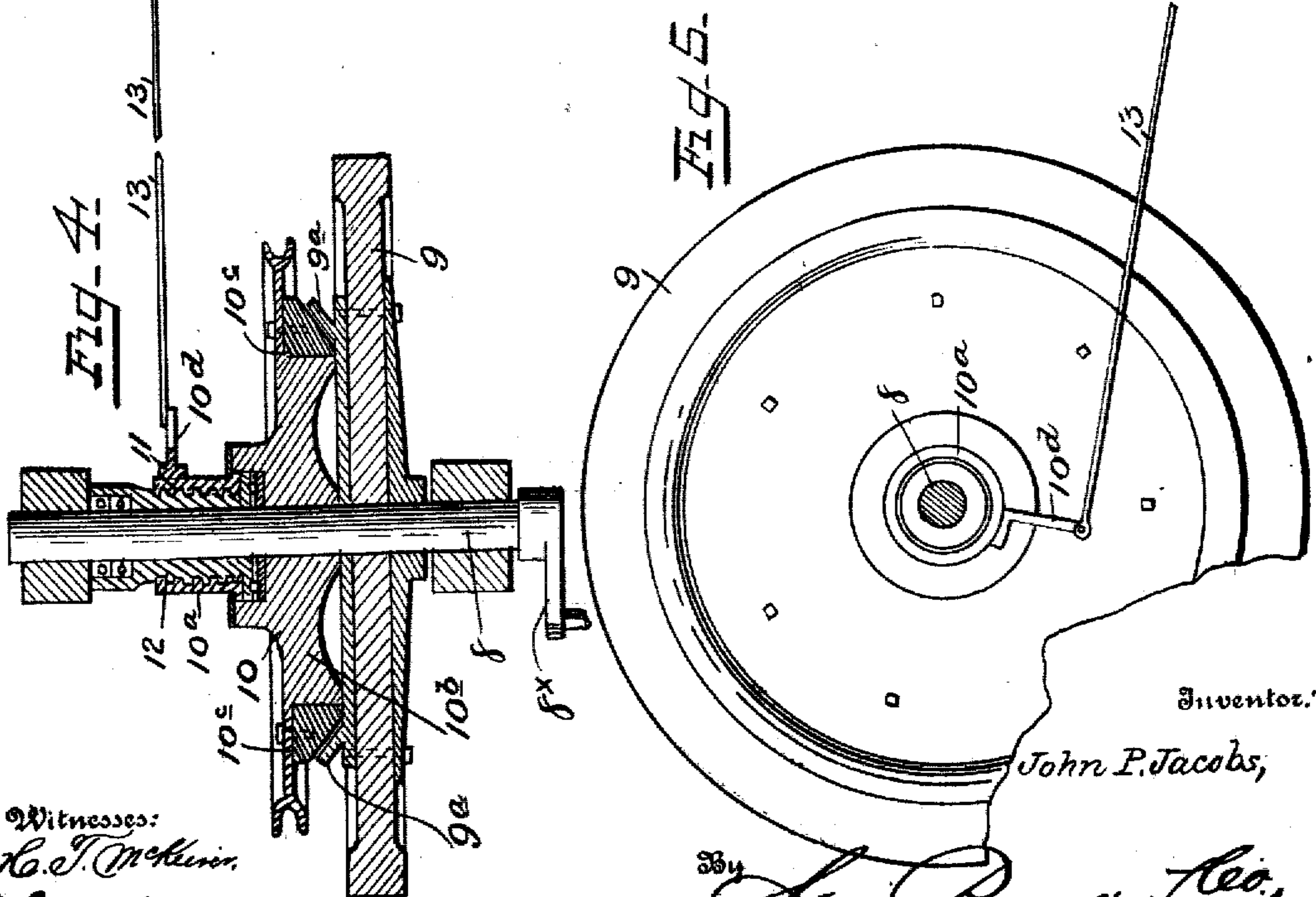
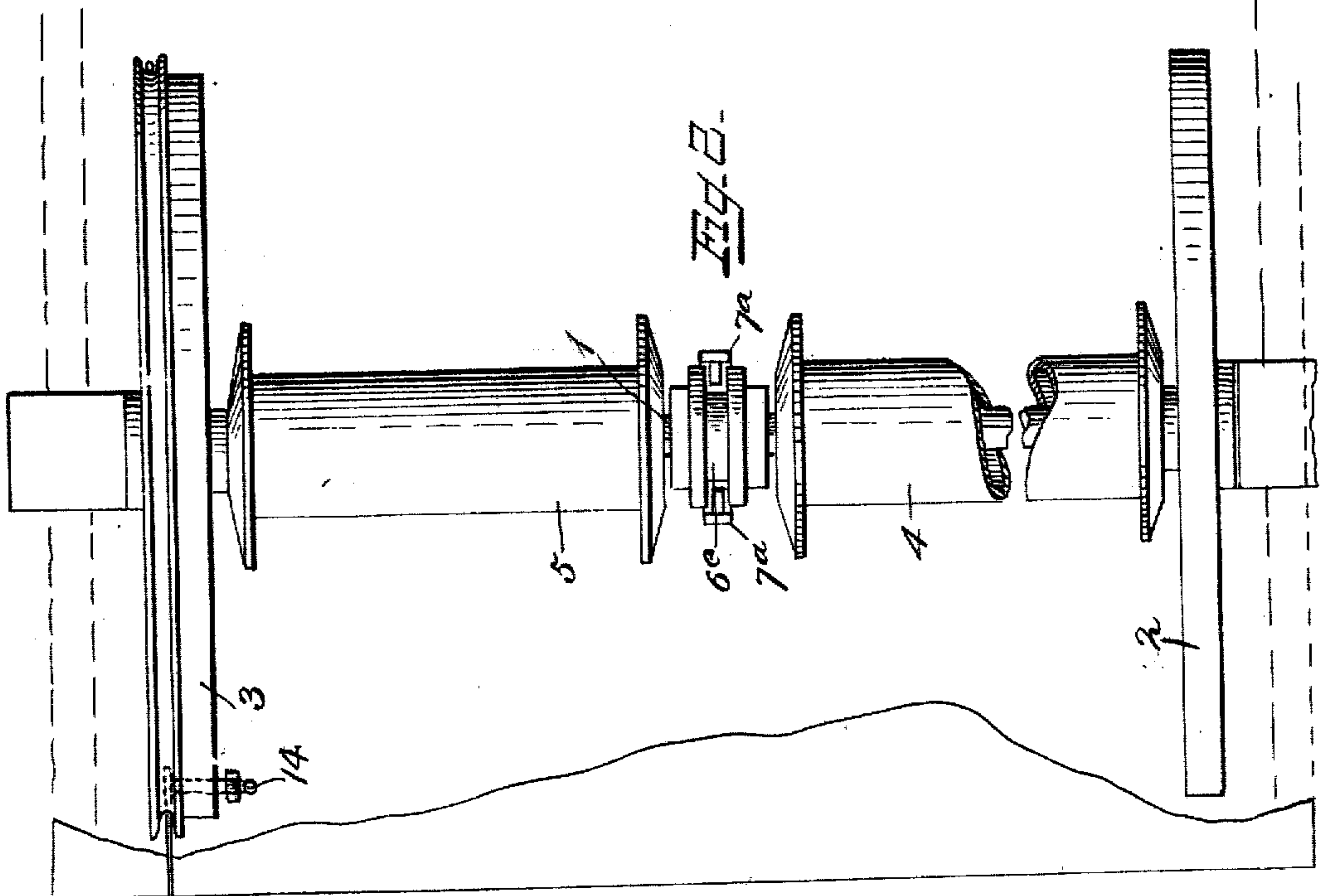
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Witnesses:
H. T. McKenier.
J. J. W. W. W.

Inventor:

John P. Jacobs,

384 *And Payer Reo.*
Attorneys

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4 SHEETS—SHEET 3.

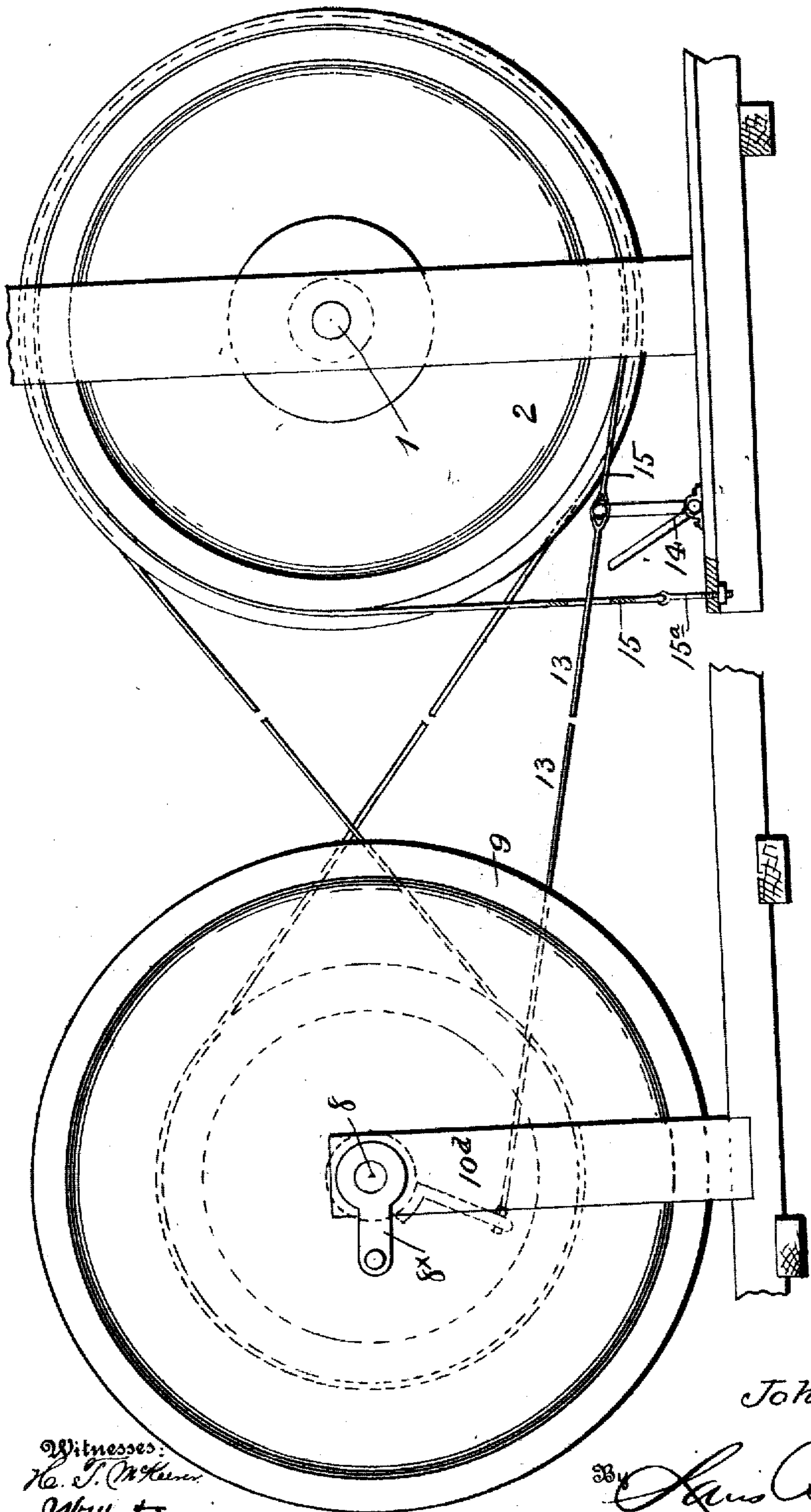


Fig. 7.

Fig. 6.

Inventor:

John P. Jacobs,

By *Sam Rogers & Co.*
Attorneys.

Witnesses:
W. J. McKinnon
J. M. Minter

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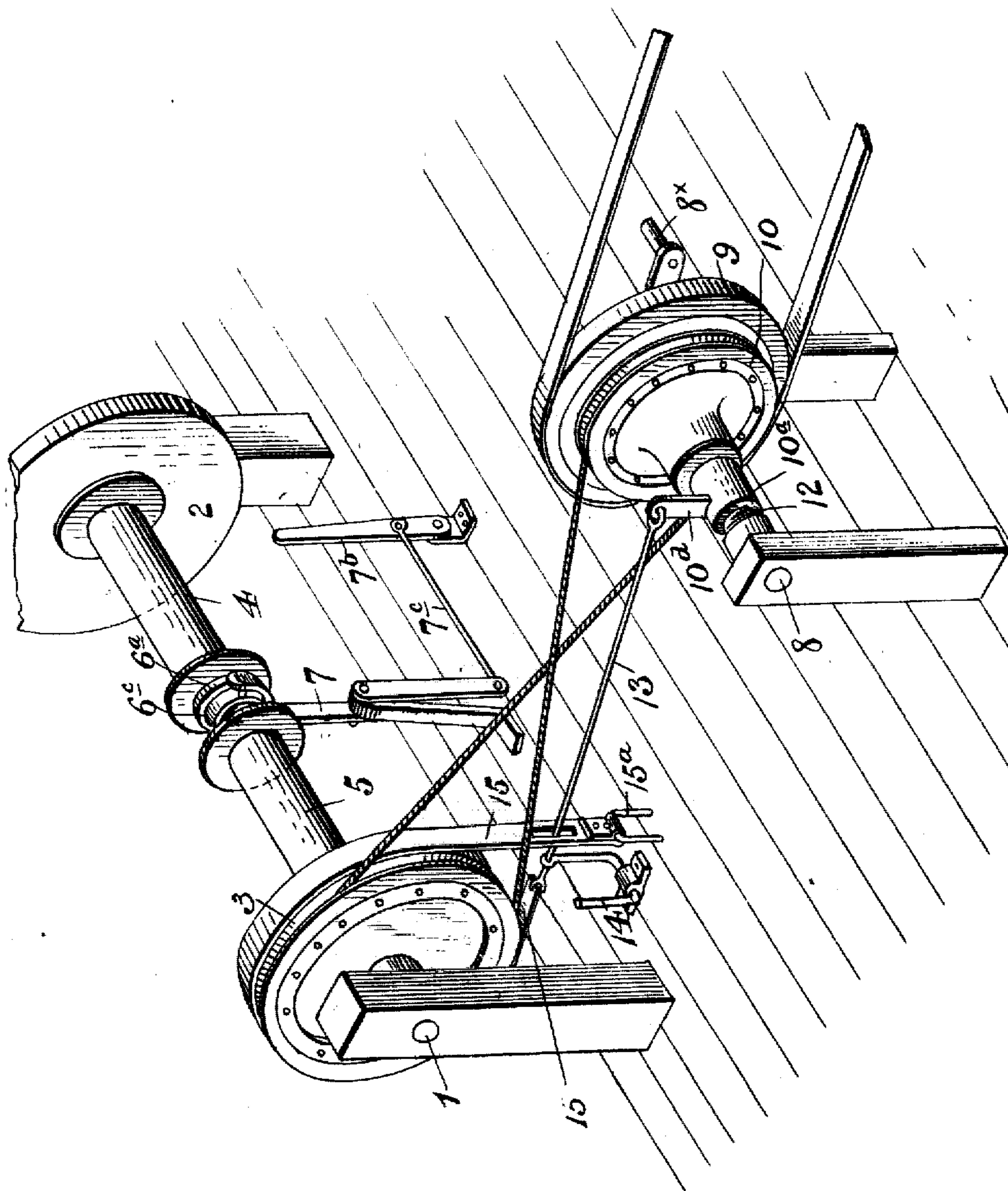


Fig. 7.

Witnesses:

W. H. Ourand
J. H. Hester

Inventor:

John P. Jacobs.

35
L. P. Ruggie & Co.

Attorneys.

UNITED STATES PATENT OFFICE.

JOHN P. JACOBS, OF COALINGA, CALIFORNIA.

DRILLING-MACHINE.

No. 813,211.

Specification of Letters Patent.

Patented Feb. 20, 1903.

Application filed August 22, 1905. Serial No. 275,253.

To all whom it may concern:

Be it known that I, JOHN P. JACOBS, a citizen of the United States, residing at Coalinga, in the county of Fresno and State of California, have invented new and useful Improvements in Drilling-Machines, of which the following is a specification.

My invention relates to improvements in drilling-machines, more especially for drilling or "sinking" wells.

Objects of the invention are to provide effective and readily-actuated means for the manipulating of the drill-working line, as well as the casing suspending or lowering line, also for the ready-shipping into action of the "bull-wheel-actuated" drum and the casing-line-actuated drum and the controlling of the action thereof when brought into requisition.

Said invention consists of certain structural features, also of the combination and arrangement of parts, substantially as herein-after fully disclosed and particularly noted.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is a vertical longitudinal section taken through the left-hand portion of Fig. 7. Fig. 2 is a broken plan view of the same portion of said figure. Fig. 3 is a broken rear end elevation of Fig. 7. Fig. 4 is a horizontal section produced through the right-hand portion of Fig. 7. Fig. 5 is a vertical transverse section taken through the same portion of Fig. 7. Fig. 6 is a like section through the same portion of said figure, taken from a directly opposite view-point, and Fig. 7 is a general view of the machine.

In the carrying out of my invention I suitably mount all of the operative parts of the machine upon suitable framework, preferably as shown.

The shaft 1 has fixed upon it near its ends two wheels or pulleys 2 and 3, one usually termed the "bull-wheel." Said shaft has also arranged thereon two loose drums 4 and 5, one having attached thereto the drilling-tool line and for use with the bull-wheel 2 and the other drum having attached thereto the casing-line and for use with the wheel 3, as presently indicated. Also upon said shaft is arranged so as to slide and also revolve therewith a clutch 6, comprising a central double-faced member 6^a and end or distant single-faced members 6^b, coupled with the latter so as to move therewith, as shown in Fig. 1, said members being effective to engage or clutch the heads of either of the drums 4 or

5. Said clutch is adapted to be actuated by a shipper 7, comprising a forked upright centrally-fulcrumed lever 7^a, the terminals of whose branches are let into or engage a central annular groove 6^c of the clutch member 6^a, and a hand-actuated lever 7^b, having a rod or link connection 7^c with the lower end of lever 7^a, these several parts being suitably supported in position, preferably as shown.

Arranged parallel with the shaft 1 is a second shaft 8, having fixed thereto a crank 8^a, and a band pulley or wheel 9, equipped with a lateral frictional clutch member 9^a, having an outward-flared face. Carried by a nut or sleeve 10^a and having the shaft 8 passing through it is a disk or pulley 10, having a lateral enlargement 10^b next to the wheel 9, equipped with a beveled frictional clutch member 10^c, opposed to and designed to engage the clutch member 9^a of said band-wheel, the purpose of which will be stated later. The nut 10^a, having ball-bearing connection with the disk or pulley 10, has traveling connection, as at 11, with a screw 12, also having ball-bearing connection for reducing friction with the shaft 8, as disclosed by Fig. 4. Said nut has extending suitably therefrom a fixed arm 10^d, to which is connected a rod 13, the latter also being connected to one arm of a manually-actuated lever 14, suitably fulcrumed in position. To the same arm of the lever 14 is connected one end of a brake-strap 15, encompassing the bull-wheel 2, the opposite end of said brake-strap being suitably secured in place, preferably by a practically U-shaped keeper or staple 15^a, with said brake-strap looped around the yoke portion of said keeper or staple, while the nut-equipped arms of the latter are passed through the derrick-floor and secured thereunder, as seen in Fig. 5.

It will be noted that the required drilling-tool having been attached to the drill or tool-line and the latter passed over what may be termed a "crown-pulley" at the top of the derrick, by running the frictional clutch 10^b of the pulley 10 into contact with the band-wheel 9 by suitably actuating the lever 14 motion will be communicated to said pulley, which in turn will transmit motion to the bull-wheel 2 by the rope-belt encompassing said pulley and bull-wheel. Simultaneously with this movement of the lever 14 the pressure of the brake-strap 15 upon said bull-wheel will be relaxed, when after the suitable winding of the drill-line upon its drum 4 or

properly elevate the tool or drill in alinement with the point where the drilling operation is to be conducted the line is unwound by reversing the action of the drum to bring the tool or drill into effective use. After the drilling operation has proceeded to that stage when it becomes necessary to sink or introduce a casing-section in position in the excavation or well the clutch 7 is actuated, so as to couple the drum 5 with the shaft 1. As before done, the lever 14 is moved to bring into requisition the casing-line of the drum 5 by accordingly slipping the frictional clutch 10^b of the pulley 10 into engagement with the band-wheel 9, simultaneously with which the pressure of the brake-strap 15 is relaxed, allowing the drum 5 to be actuated, so as to cause its line, to which said casing-section has been attached, to properly dispose or elevate the latter to the top of the derrick for lowering the same into the well or excavation. For this latter purpose the lever 14 is now actuated, so as to effect the unshipping of the frictional clutch 10^b and again applying the brake-strap 15 to the wheel 2, when by suitably manipulating the casing-line the casing may be lowered in place.

I claim—

1. A machine of the character described, comprising two loose drums, a common shaft bearing said drums, a rotary part fixed to said shaft, a clutch contrivance arranged upon said shaft, intermediately of said drums, a driving-pulley and its shaft, a frictional clutch arranged upon said driving-pulley shaft, means effective for transmitting motion from said driving-pulley to said frictional clutch, a brake-strap applicable to said rotary part and means for its actuation, a nut, a screw-threaded coupling equipped

with said nut and effective for actuating said frictional clutch, and means forming connection between said nut and said brake-strap-actuating means.

2. A machine of the character described, comprising a drill-line drum, a shaft bearing said drum, a clutch contrivance for effecting connection between said drum and shaft, a band or driving wheel a frictional clutch adapted to have contact with said wheel, a shaft loosely equipped with said frictional clutch and bearing said band or driving wheel, means effecting connection between said driving-wheel and a rotary part fixed to the drum-shaft, a screw-threaded coupling equipped with a nut and effective for action between said frictional clutch and the shaft bearing said clutch, a brake-band engaging said rotary part, and a lever-and-rod connection between said nut and said brake-strap.

3. A machine of the character described, comprising a drum-equipped shaft having a fixed wheel, a brake-strap encompassing said wheel, a band-wheel, a second shaft equipped with said band-wheel, a frictional clutch loosely arranged upon the latter shaft, and fixed to a disk or pulley, a screw-threaded coupling for said frictional clutch equipped with a nut, means of connection between said pulley and said brake-strap-encompassed wheel, an arm-and-rod connection between said nut and a lever for actuating said brake-strap.

In testimony whereof I affix my signature in presence of two subscribing witnesses

JOHN P. JACOBS

Witnesses:

Mrs. J. P. JACOBS,
M. R. VAN WORMER.