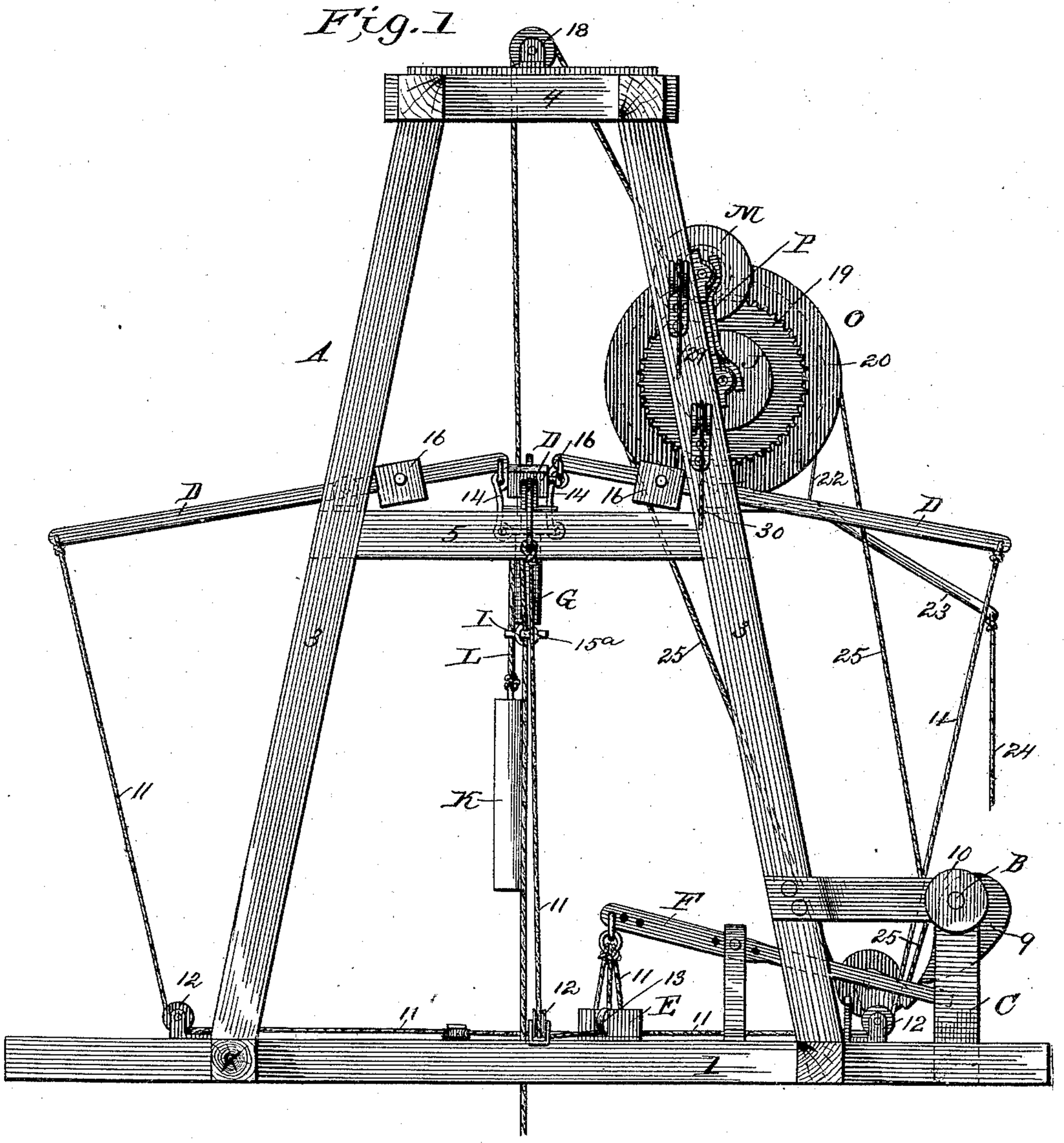
(No Model.) 3 Sheets—Sheet 1.

T. STANLEY.

DRILLING MACHINE.

No. 445,865. Patented Feb. 3, 1891.

Fig. 1



WITNESSES:
Fred G. Dieterich
P. B. Turpin.

INVENTOR:
Thomas Stanley.
BY Munn & Co
ATTORNEYS

(No Model.) 3 Sheets—Sheet 2.

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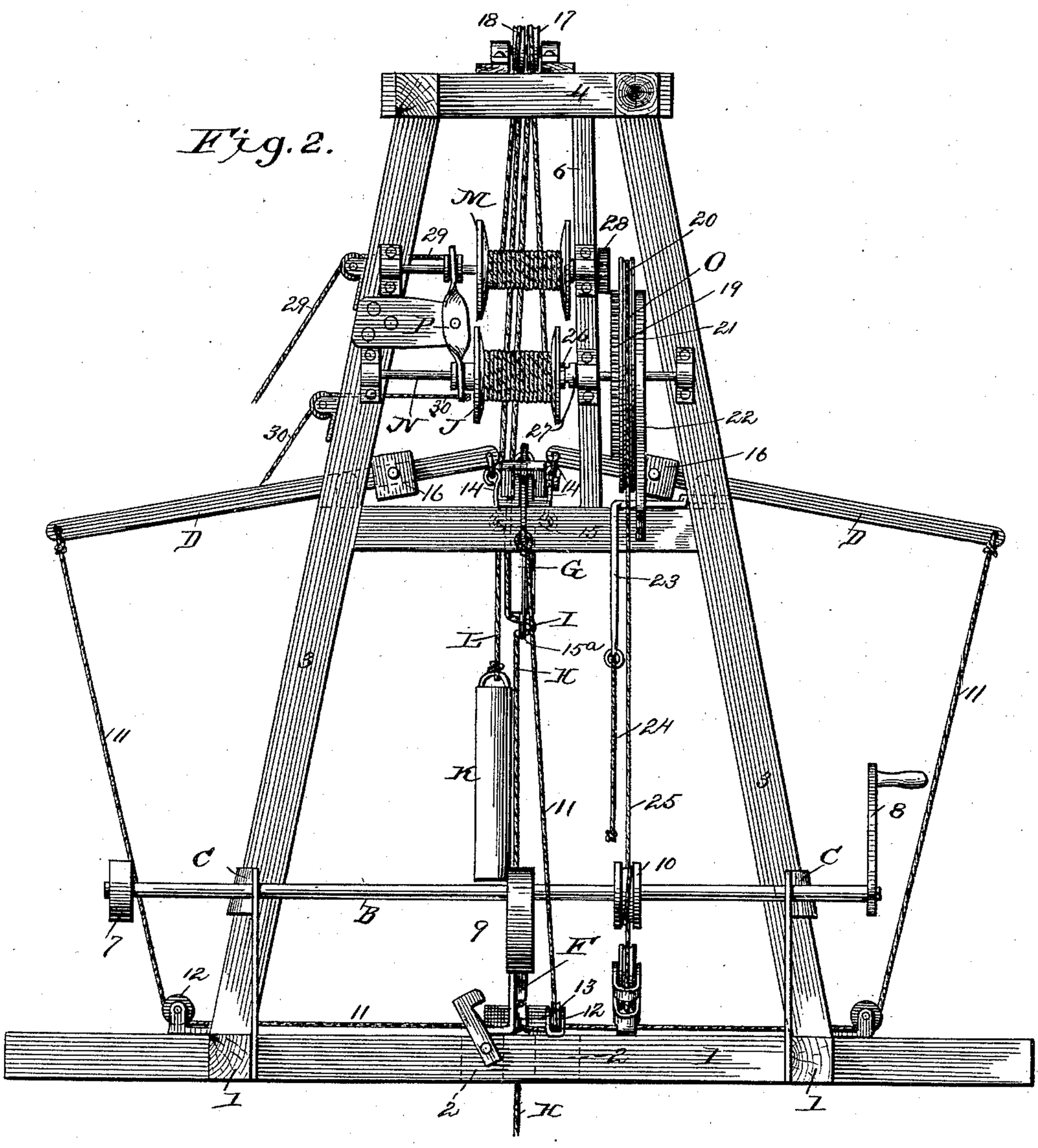
Fig. 2.



WITNESSES:
Fred G. Dieterich
P. B. Turpin.

INVENTOR:
Thomas Stanley.
BY Munn & Co
ATTORNEYS

(No Model.) 3 Sheets—Sheet 3.

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Fig. 3.

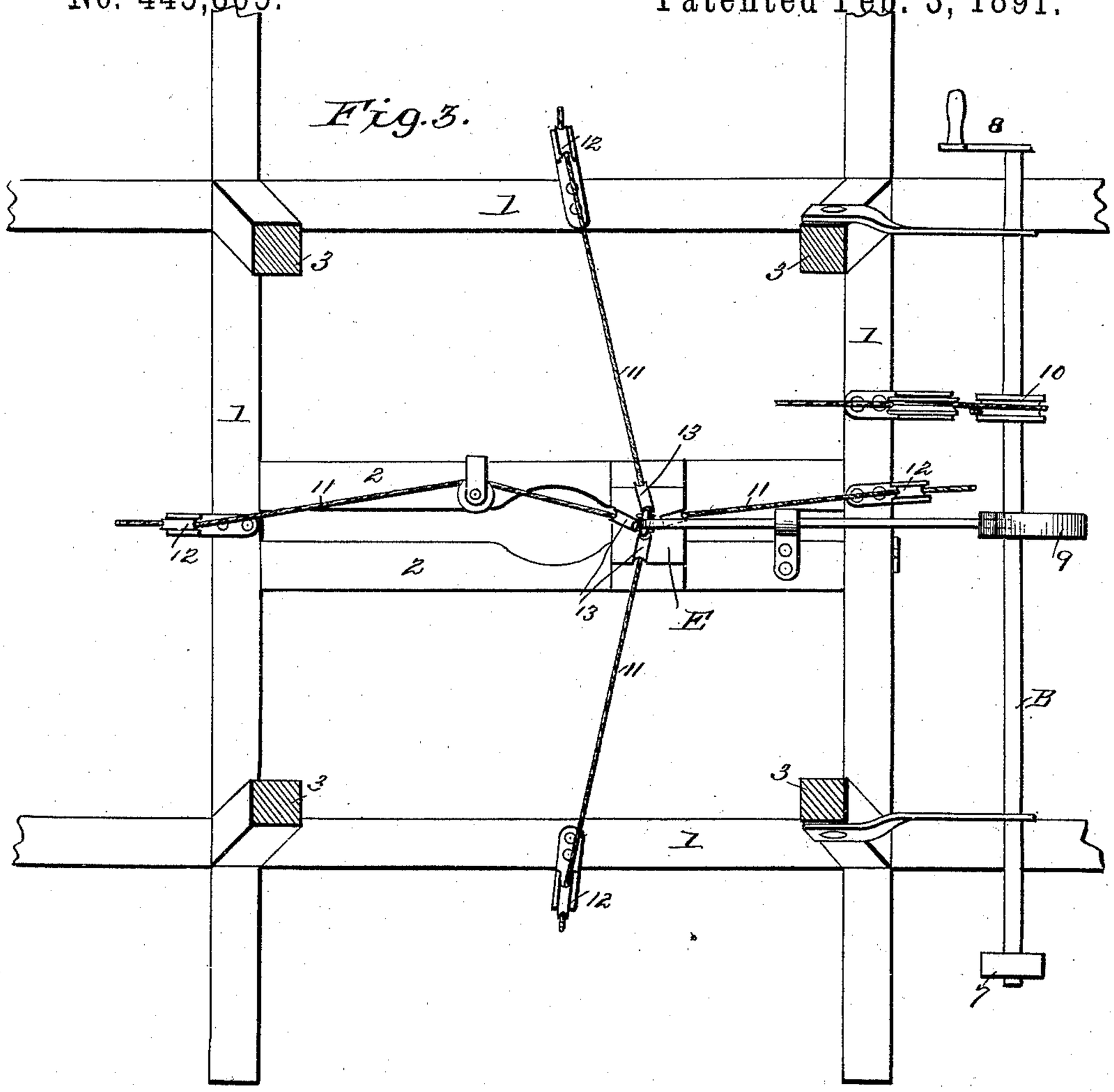


Fig. 4.

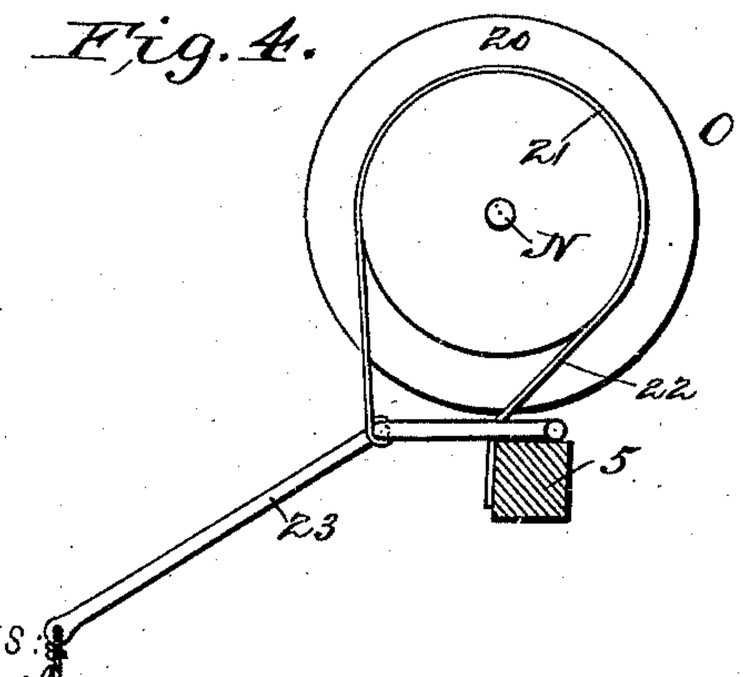
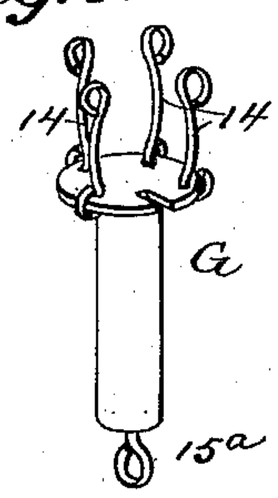


Fig. 5.



WITNESSES:
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P. B. Turpin.

INVENTOR:
Thomas Stanley.
BY Munn & Co
ATTORNEYS

UNITED STATES PATENT OFFICE.

THOMAS STANLEY, OF PUEBLO, COLORADO, ASSIGNOR TO THE STANLEY DRILL POWER COMPANY, OF SAME PLACE.

DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 445,865, dated February 3, 1891.

Application filed October 22, 1890. Serial No. 368,983. (No model.)

To all whom it may concern:

Be it known that I, THOMAS STANLEY, a citizen of the United States, residing at Pueblo, in the county of Pueblo and State of Colorado, have invented certain new and useful Improvements in Drilling-Machines, of which the following is a full, clear, and exact description.

This invention is an improvement in drilling-machines intended especially for use in drilling wells, but which may also be used for digging post or other holes; and 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, Figures 1 and 2 are side elevations of my improved drilling-machine. Fig. 3 is a horizontal section of the machine, and Figs. 4 and 5 are detail views.

The derrick or support A is formed with the outer base-bars 1, inner or cross base-bars 2, uprights 3, top frame 4, cross-bars 5, connecting the uprights 3 about midway the height of said uprights, and the intermediate upright 6, extended between the top frame and one of the cross-bars 5.

The shaft B is journaled in suitable bearing-frames C, and is provided at one end with a pulley 7 and at its opposite end with a crank 8. This crank 8 may serve as a hand-crank by which to turn the shaft B, or the said shaft may be driven by an engine by means of a belt applied to the pulley 7. When the shaft is driven by an engine, as described, the crank 8 may be connected with a bellows for use with the fire employed in shaping the drilling-tools, if desired, or for other purposes, as may be desirable or necessary. The shaft B also has a wiper-cam 9 and a pulley 10 for use in the manner hereinafter described. On the cross-bars 5 I pivot levers D, preferably four in number and arranged to converge toward their inner ends, the outer ends or arms of the said levers projecting outward from the bars 5, as shown. Cords 11 connect with the outer ends of the levers D, extend thence down under guide-pulleys 12, thence under guide-pulleys 13, arranged close together in a block E, and thence up and connect with the inner end of a lever F, which is pivoted to the derrick-frame and has its outer end arranged to be engaged and depressed by the cam 9 as the shaft B is turned. This depressing of the outer end of the lever F operates through the connections described to elevate the inner ends of levers D. The said inner ends of the levers D are connected by means of links 14 with a connecting-hanger G, having at its upper end a flange 15, with which the links 14 connect, so that the movements of the levers D operate to reciprocate the connecting-hanger G vertically. At its lower end the hanger G has a ring or opening 15^a, through which the drill-rope H is looped and held by a pin I, so that the upward movement of the connection G will lift the drill-rope and the attached drilling devices or tools, which will drop of their gravity when released.

It is preferred to provide weights 16 on the inner ends of arms D, so that the levers D will drop at their inner ends without impeding the dropping of the drill-tools. The drill-rope H extends up over a pulley 17 and thence down and connects with the drill-rope reel J.

The sand-pump K has its rope L carried up over a pulley 18 and thence down and secured to the sand-reel M, which is arranged by preference above the drill-rope reel.

I sleeve or journal the reel J on the shaft N of the drive-gear wheel O, which wheel is fixed to its shaft and is formed with a gear-ring 19, a band-pulley 20, and a pulley-bearing 21 for the strap-brake 22, which may be operated by means of the lever 23 and cord 24. The drive-gear is driven by the belt-cord 25 from the pulley 10 of shaft B. The drill-rope reel is movable longitudinally on the shaft of the drive-gear and has a clutch-section 26, which is set into and out of engagement with the clutch-section 27, fixed to such shaft, so that the drill-rope reel may be set into connection with or freed from the operating drive-gear wheel. The sand-reel shaft is also movable longitudinally and has a pinion 28, which is movable into and out of gear with the gear-ring 19 of the drive-gear wheel O.

To enable the movement of one or the other

of the reels into connection with the drive-gear wheel, I provide the lever P, pivoted between its ends and connected at its opposite end to the sand-reel and drill-rope reel, so that as one is moved into connection with the drive-gear the other will be moved out of such connection.

Cords 29 and 30 connect with the opposite ends of the lever P and extend over guide-pulleys and into convenient reach from the ground, enabling the operator standing on the ground to adjust either reel into connection with the drive-gear wheel.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus substantially as described, the combination, with the drill devices, the operating mechanism, and the plurality of levers arranged approximately opposite each other and to converge toward their inner ends, of connections between the inner ends of said levers and the drilling devices, the ropes extended from the outer ends of the said levers and the operating mechanism, and independent guides for the said ropes, whereby they are all properly directed to a common operating mechanism, all substantially as and for the purposes set forth.

2. In an apparatus substantially as described, the combination of the framing, the operating mechanism, the drill-rope, the levers arranged to converge toward their inner ends, the connecting-hanger G, supported on the inner ends of said levers and provided with a ring or opening through which the drill-rope is looped and held, the drill devices connected with the said rope below such hanger, and the ropes connecting the outer ends of the said levers with the operating mechanism, all substantially as and for the purposes set forth.

3. In an apparatus substantially as described, the combination of the derrick or support, the drill device, the series of levers having their inner ends arranged to converge and connected at such inner ends with the drill devices, the lever F, the ropes extended between said lever and the outer ends of the converging levers, and guides for said ropes, all substantially as and for the purposes set forth.

4. In an apparatus substantially as described, the combination of the drive-gear wheel, the sand-pump reel having its shaft provided with a pinion movable into and out of mesh with the said gear-wheel, the drill-rope reel, the clutch mechanism by which the drill-rope reel may be keyed to the drive-gear wheel, and a connection between said pinion and clutch mechanism whereby the movement of one will positively effect the movement of the other, all substantially as set forth.

5. The combination, in an apparatus substantially as described, of the drive-gear wheel, the sand-reel having its shaft provided with a pinion movable into and out of mesh with the drive-gear wheel, the drive-rope reel, the clutch having a section fixed with respect to the drive-gear wheel and its other section fixed to the drill-rope reel, and the lever pivoted between its ends and connected at one end with the sand-reel shaft and at its other end with the drill-rope reel, all arranged to operate substantially as described, and for the purposes set forth.

6. In an apparatus substantially as described, the combination of the derrick or support, the drill-rope, the reel and guides for such drill-rope, the plurality of approximately oppositely-arranged levers converging toward their inner ends, a connection-piece suspended on the inner ends of said levers, and devices for securing the drill-rope to the said connection-piece, the drill-rope being extended beyond such connection-piece and supporting the drill devices, all substantially as and for the purposes set forth.

THOMAS STANLEY.

Witnesses:
A. ROYAL,
JNO. A. DENNIN.