

No. 748,517.

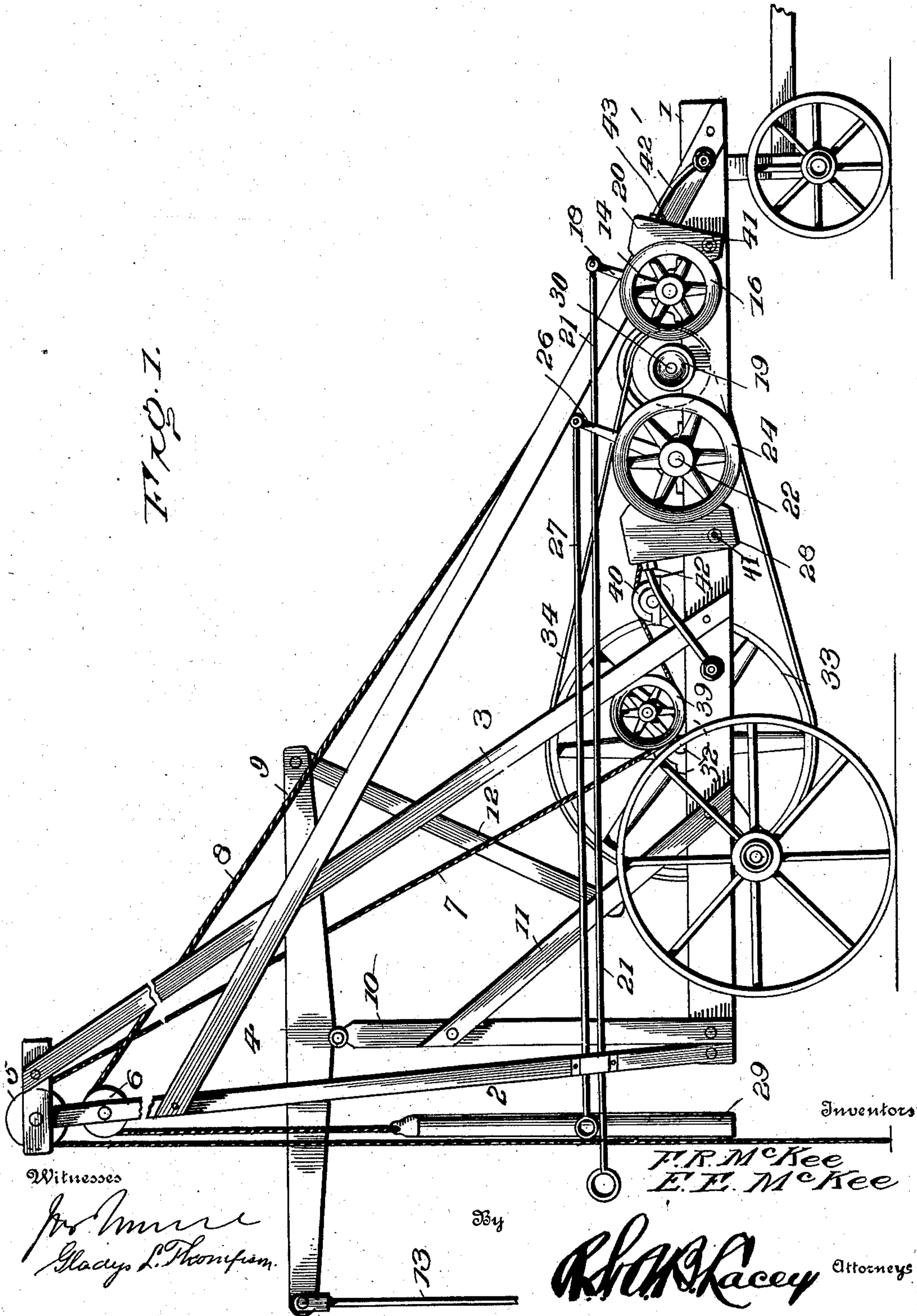
PATENTED DEC. 29, 1903.

F. R. & E. E. McKEE.
WELL DRILLING MACHINE.

APPLICATION FILED APR. 10, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



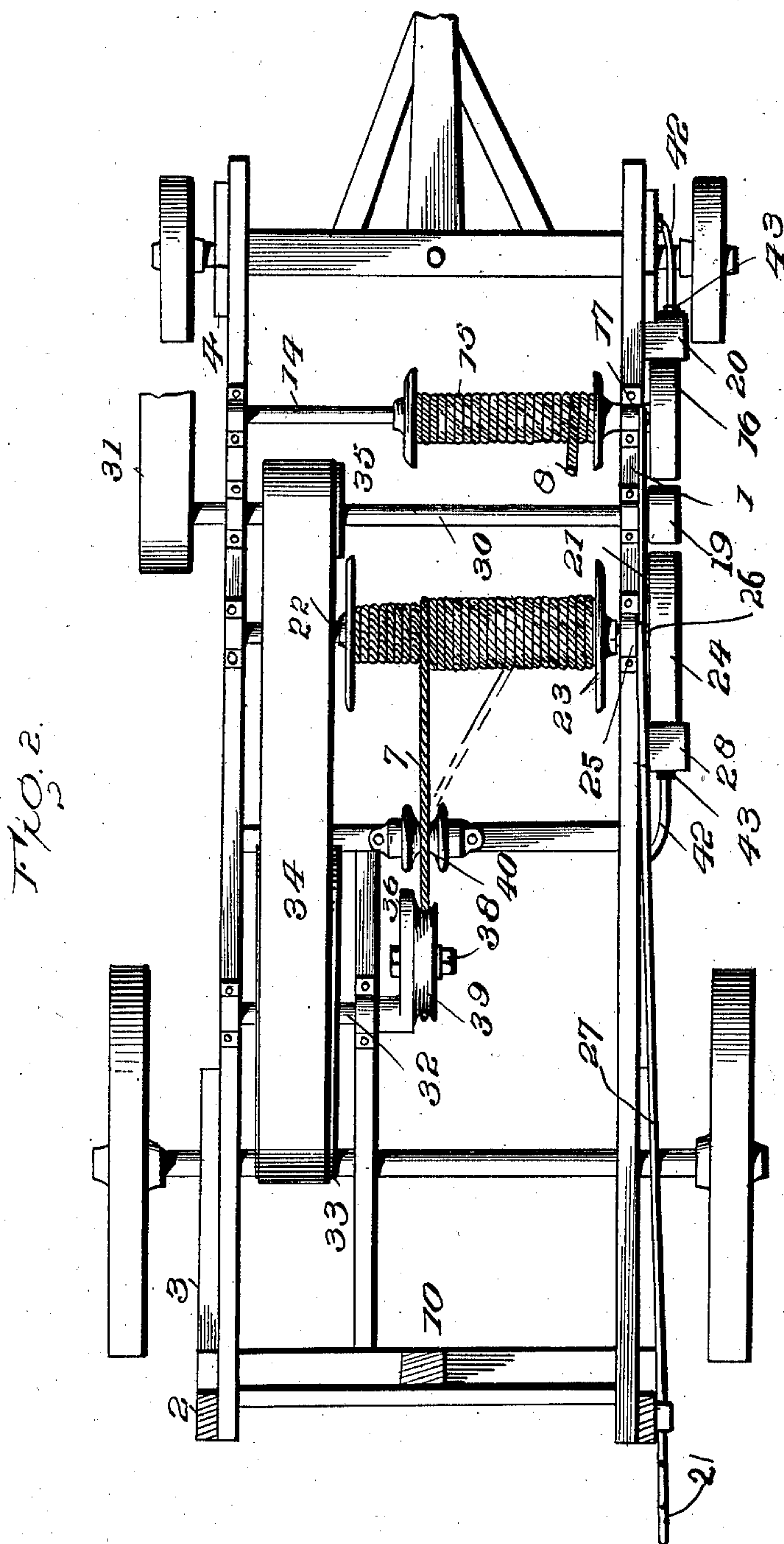
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4 SHEETS—SHEET 2.



Inventors

F. R. McKee
E. E. McKee

Witnesses

J. M. M. M.
Gladys L. Thompson

By

A. B. R. R.

Attorneys

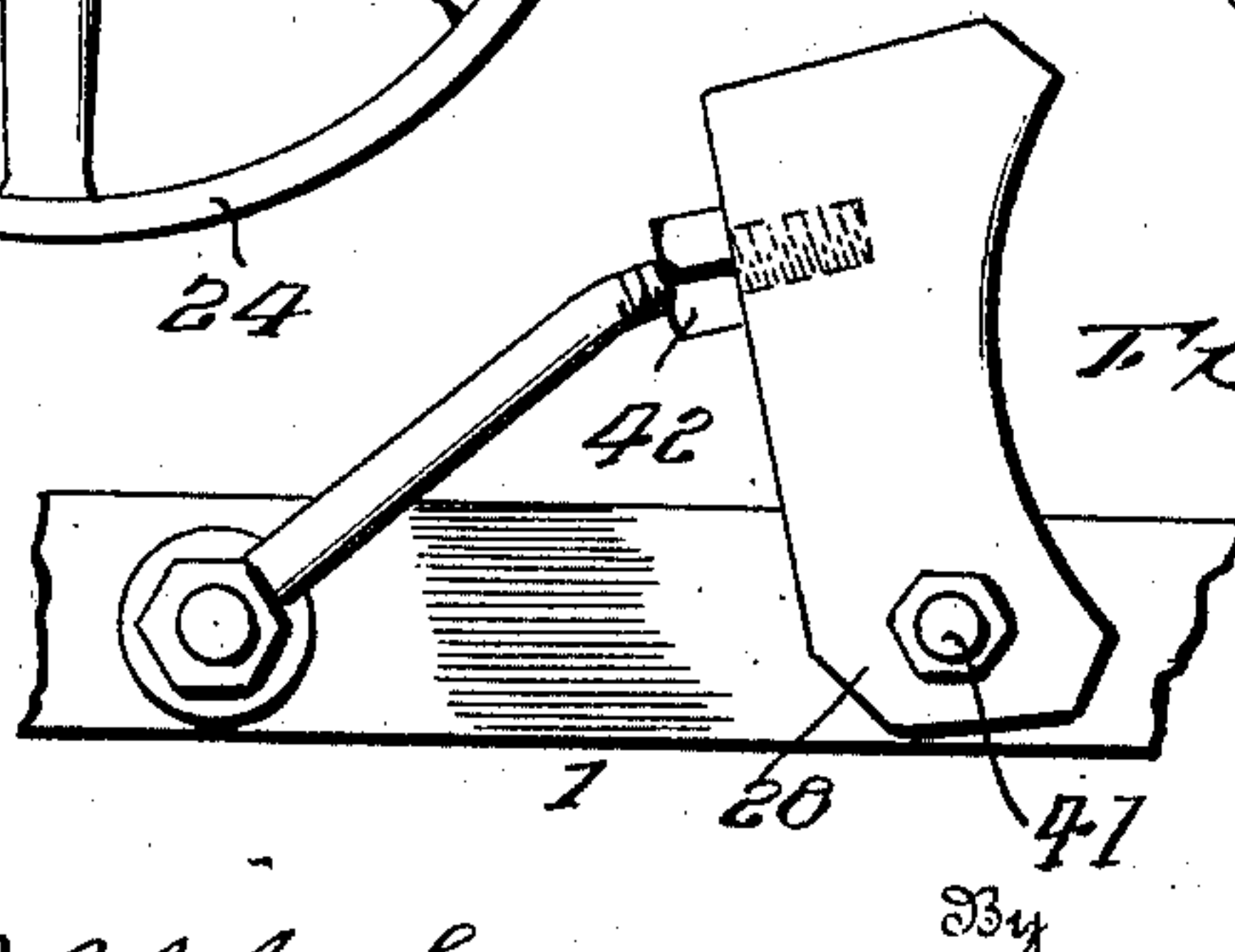
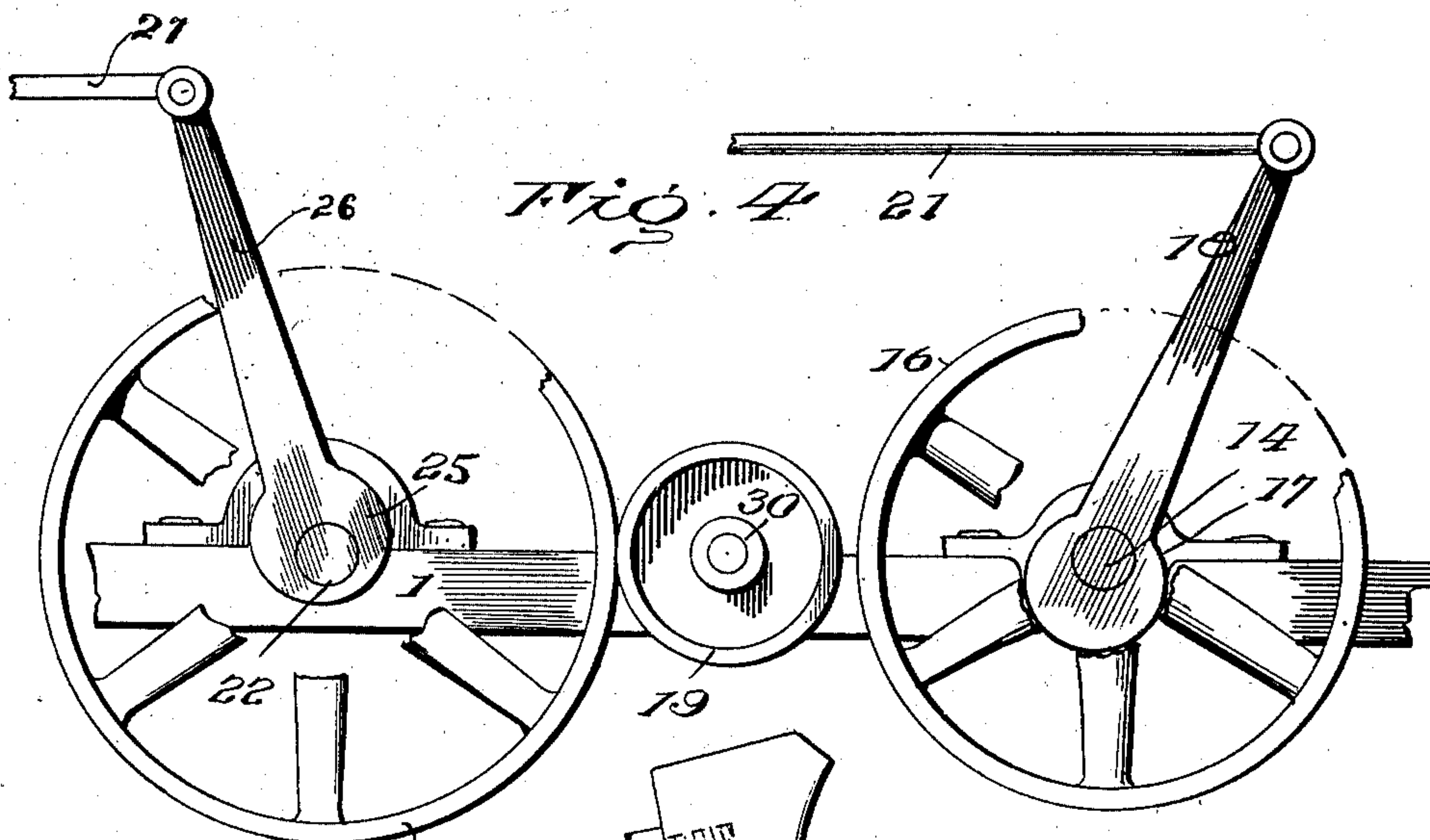
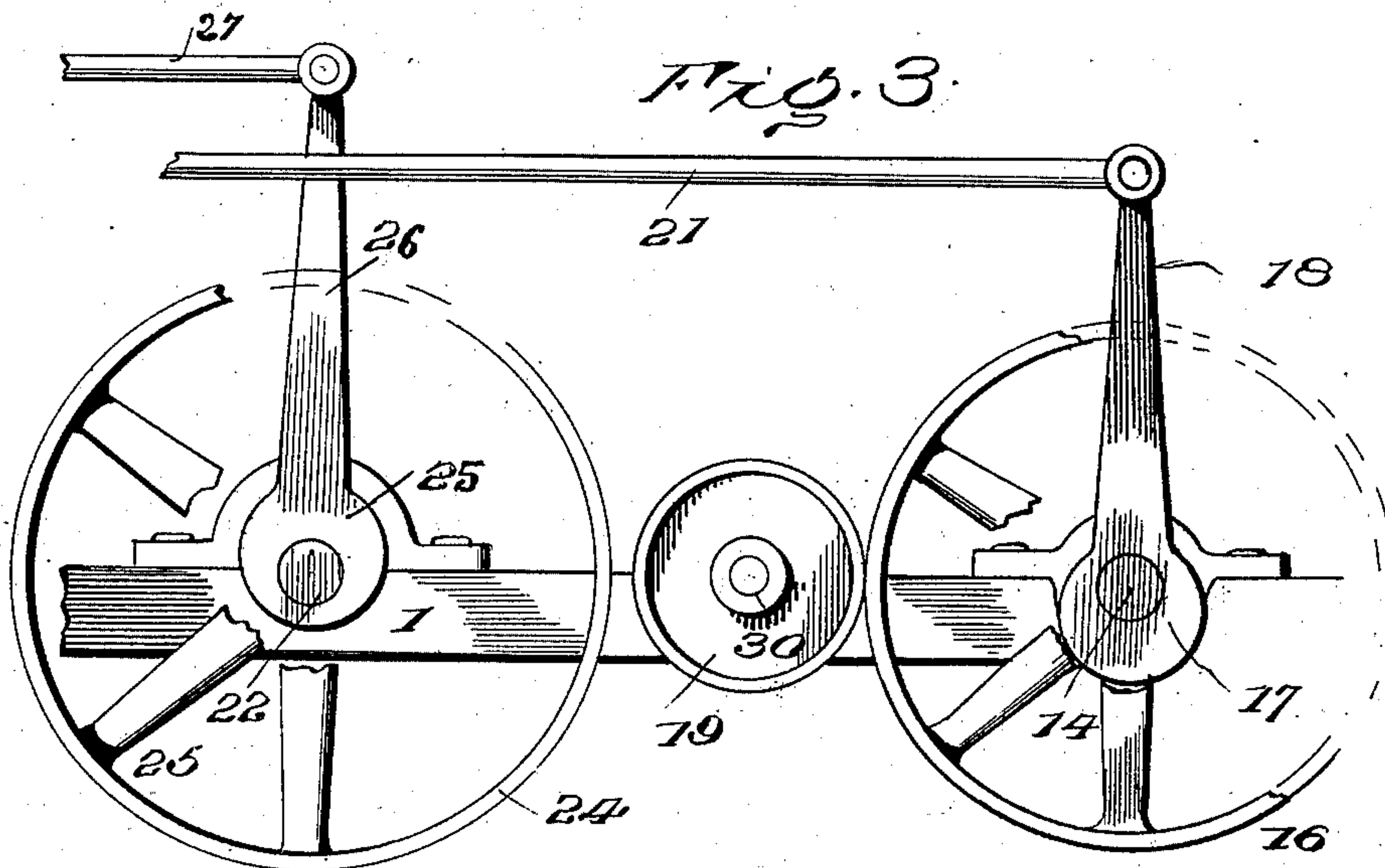
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4 SHEETS—SHEET 3.



Witnesses

J. M. M. M.
Gladys L. Thompson.

Inventors

F. R. McKee
E. E. McKee

A. H. Racy

Attorney

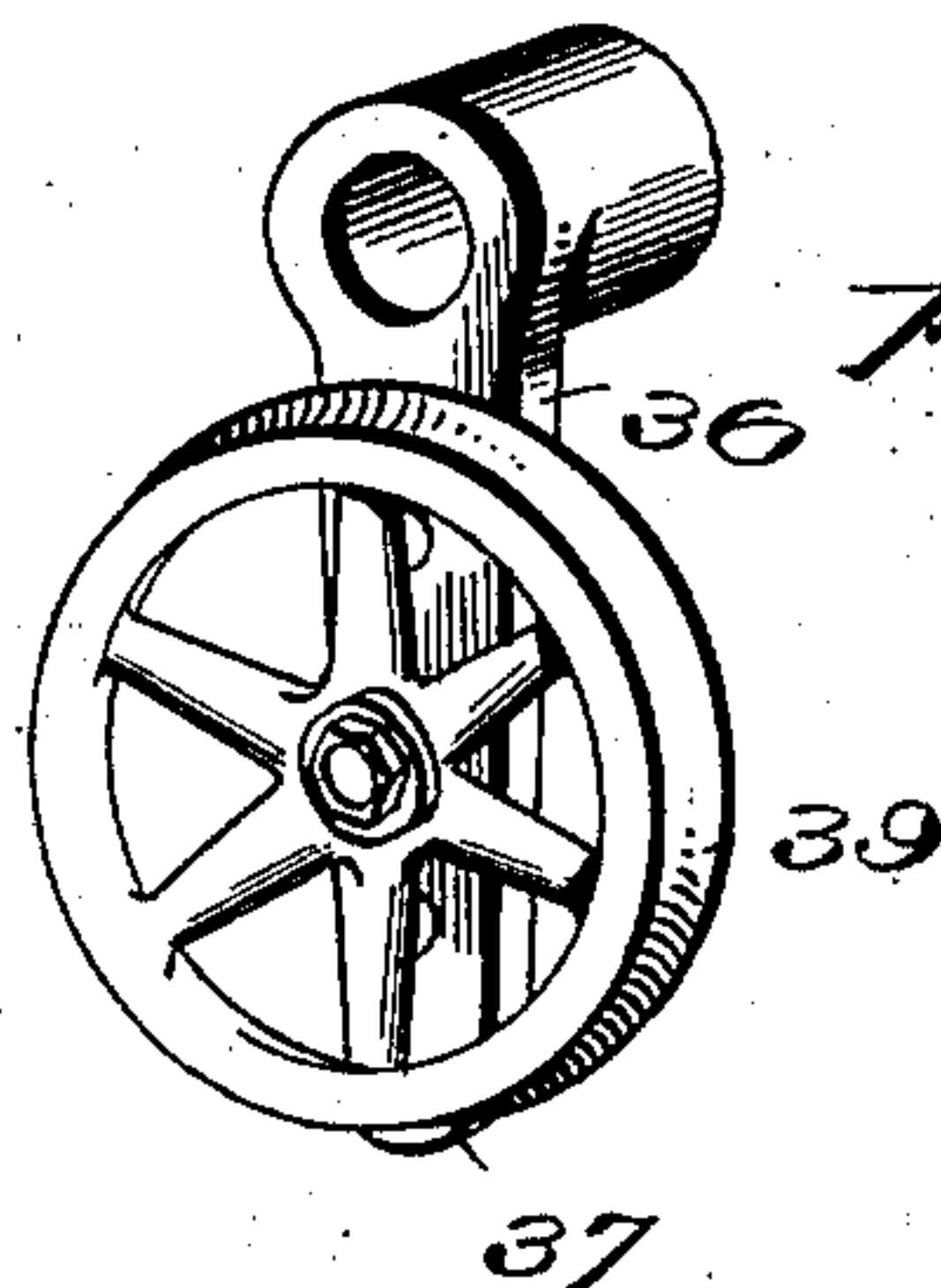
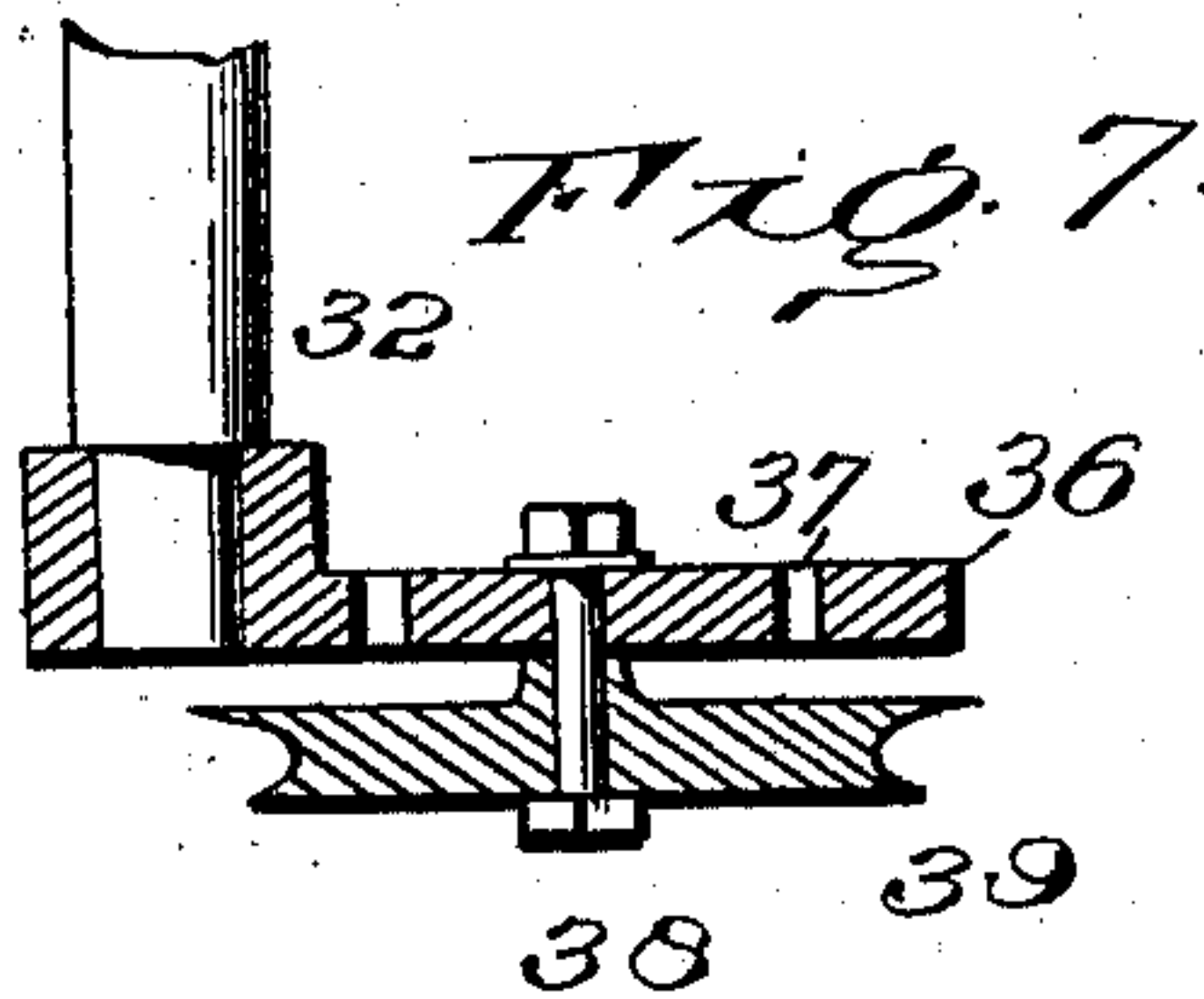
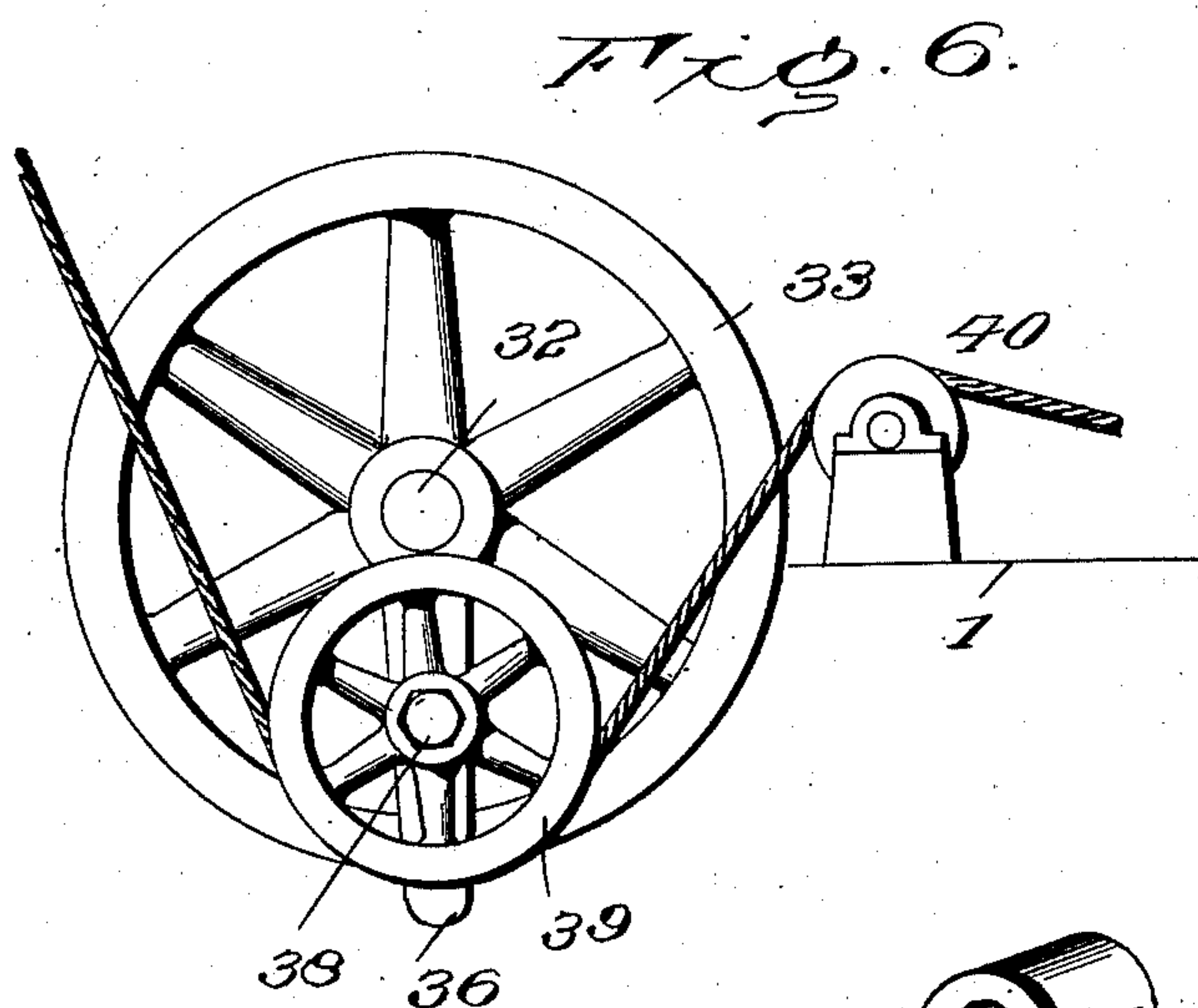
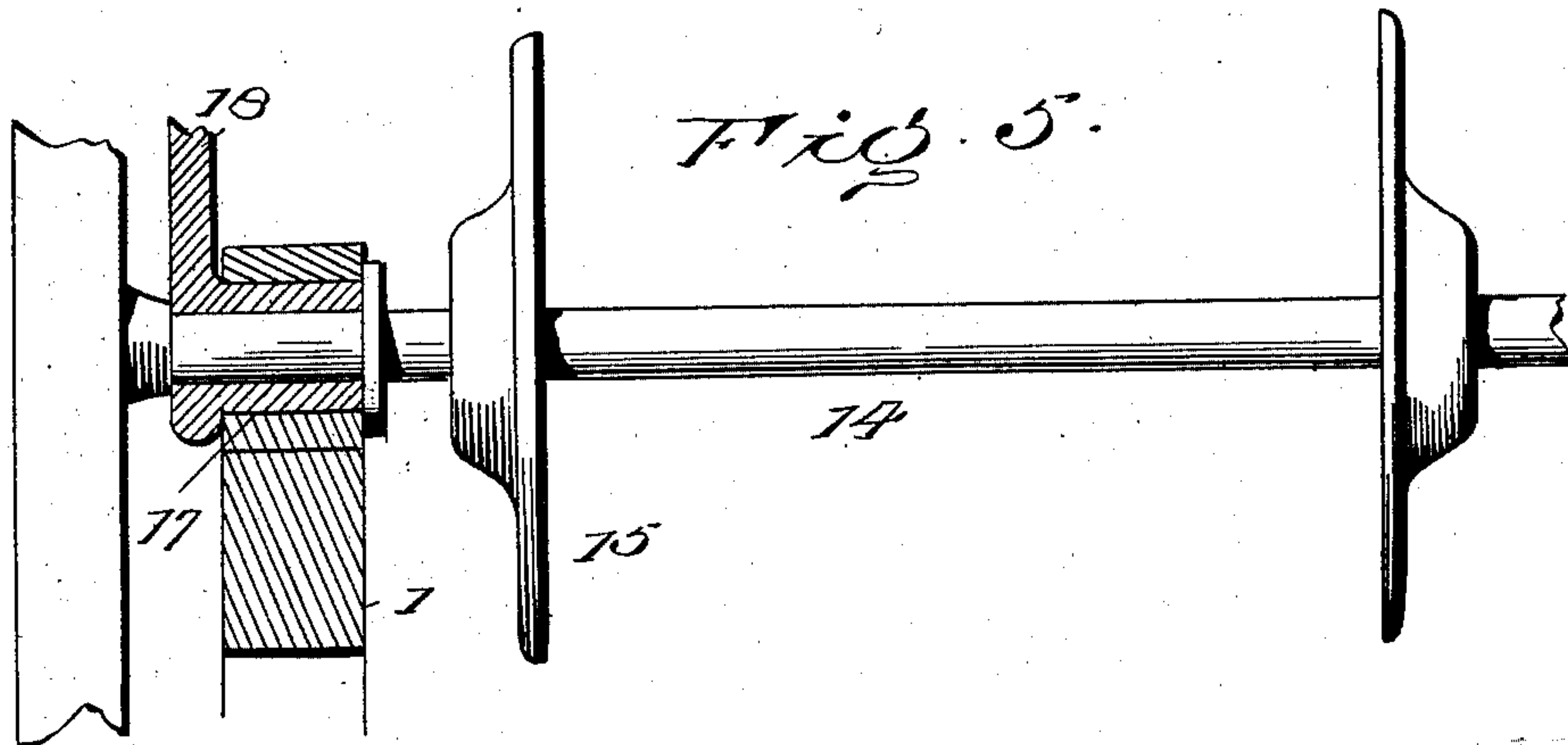
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4 SHEETS—SHEET 4.



Witnesses

Wm. L. Thompson
Gladys L. Thompson

By

R. H. Racy

Inventors

F. R. McKee
E. E. McKee

Attorneys

UNITED STATES PATENT OFFICE.

FRANK R. MCKEE AND EMMA E. MCKEE, OF COSHOCTON, OHIO.

WELL-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 748,517, dated December 29, 1903.

Application filed April 10, 1903. Serial No. 152,065. (No model.)

To all whom it may concern:

Be it known that we, FRANK R. MCKEE and EMMA E. MCKEE, citizens of the United States, residing at Coshocton, in the county of Coshocton and State of Ohio, have invented certain new and useful Improvements in Well-Drilling Machines, of which the following is a specification.

This invention provides a machine for sinking deep wells by the use of cable, drills, and spudding mechanism, the object being to facilitate handling and have the machine at all times under control.

The mechanism admits of the drill-rope at the beginning being jogged and at the latter stages of the operation being attached to the walking-beam, so as to be reciprocated thereby. Clutches are dispensed with and brake-shoes arranged to hold the drums for the drill and bailing cables when it is required to prevent the rope paying off therefrom.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine for drilling deep wells constructed in accordance with and embodying the vital features of the invention. Fig. 2 is a top plan view of the machine, the derrick and walking-beam being omitted. Fig. 3 is a side view showing the drums for the operating-cables and the mountings therefor on a larger scale. Fig. 4 is a view similar to Fig. 3, showing the bearings shifted. Fig. 5 is a front view of one of the drums, showing the eccentric bearing therefor. Fig. 6 is a detail view in elevation of the crank-wheel for imparting a jogging movement to the drill-cable. Figs. 7 and 8 are detail views of the crank-arm and jogging-wheel applied thereto. Fig. 9 is a detail view of a brake-shoe and the means for adjusting same to compensate for wear.

Corresponding and like parts are referred to in the following description and indicated

in all the views of the drawings by the same reference characters.

The operating mechanism is shown mounted upon a truck, so as to render the machine readily portable, the position of the machine being adapted to be fixed in any manner. The bed 1 of the truck or machine may be of any construction, according to the design of the machine and the special arrangement of the parts. A derrick 2 is fitted to the rear end of the frame and is strengthened by braces 3 and 4. This derrick may be of any height, according to the depth of well to be drilled, and is provided at its upper end with sheave-pulleys 5 and 6, over which cables 7 and 8 pass. The derrick is adapted to be raised and lowered preferably by means of the mechanism mounted upon the frame. The walking-beam 9 is fulcrumed intermediate of its ends to samson-post 10, rising from the rear end of the machine and stayed by braces 11. The inner end of walking-beam 9 has pitman 12 pivoted thereto, and the outer end is provided with the usual grip (not shown) for receiving the drill-cable when spudding, connection 13 suspending the grip from the outer end of the walking-beam.

A shaft 14 is located near the front end of the machine and is provided with drum 15 and friction-pulley 16 and is mounted at one end in eccentric bearing 17, having lever 18 projected therefrom, and by means of which the end of shaft 14, carrying pulley 16, may be shifted to throw pulley 16 either into contact with drive-pulley 19 or brake-shoe 20. Lever 18 is adapted to be operated from a convenient point by means of rod 21, said rod being adapted to be secured so as to hold pulley 16 in the desired position. A shaft 22 is journaled parallel to shaft 14 and is provided with drum 23 and friction-pulley 24 and is mounted at one end in eccentric bearing 25, from which lever 26 projects, and is connected to operating-rod 27, extended within convenient reach and adapted to be secured so as to hold pulley 24 in the desired position. Brake-shoe 28 is located in the rear of pulley 24, and the latter is adapted to be thrown into contact with either pulley 19 or brake-shoe 28, according as drum 23 is to be positively driven or held fixed. Cable 8 is adapted to wind upon drum 15 and carries

sand-bucket 29 for bailing the well. Cable 7 is adapted to wind upon drum 23 and is adapted to have the drilling-tools connected thereto. The drill-cable is either jogged or
 5 has a vertical reciprocating movement imparted thereto, as may be desired. Drive-shaft 30 is located intermediate of shafts 14 and 22 and is provided at one end with drive-pulley 19 and at its opposite end with band-
 10 pulley 31, to which motion is imparted when the machine is in operation from any source of power, said shaft 30 being continuously driven.

Shaft 32 is located near the rear end of the
 15 machine and is provided with band-pulley 33 and is connected by drive-belt 34 with band-pulley 35 of shaft 30. Crank-arm 36 is secured to shaft 32 and is provided with a series of openings 37 to receive wrist-pin 38 in
 20 any selected position, whereby the stroke of the drilling-tool may be regulated according to the distance of wrist-pin 38 from the axis of shaft 32. The wrist-pin 38 may receive the lower end of pitman 12 when walking-
 25 beam 9 is to be operated or may be provided with wheel 39 for imparting a jogging movement to the drill-cable when the tool is to be operated by a jogging motion of the cable. The jogging-wheel 39 is grooved in its pe-
 30 riphery, so as to receive drill-cable 7 and prevent displacement thereof. A direction-pulley 40 is located in longitudinal alinement with jogging-wheel 39, so as to prevent lateral displacement of the drill-cable therefrom
 35 when the machine is in operation.

The engine (not shown) may be of any make, such as commonly used for drilling operations, and may be mounted upon the same frame with the drilling mechanism or be in-
 40 dependent therefrom, so as to be used in other connections, this feature of construction being unimportant. The shaft 30 being continuously driven, motion may be taken therefrom for operating drums 15 and 23 by oper-
 45 ating-rods 21 and 27 to throw pulleys 16 and 24 into contact with drive-pulley 19, thereby winding the cable on the respective drum, so as to lift either the tool or the sand-bucket. The drums are held stationary by throwing
 50 the pulleys into contact with the cooperating

brake-shoes. When the pulleys 16 and 24 occupy a position intermediate of drive-pulley 19 and their brake-shoes, the cables may pay off or unwind therefrom to lower either the drilling-tool or the bailing-bucket. Dur-
 55 ing the first stages of drilling the well it is preferred to operate the drill by jogging the cable, this operation being effected by disconnecting pitman 12 from crank 36 and applying wheel 39 to said crank and passing the
 60 drill-cable 7 beneath said wheel, as indicated in Figs. 1 and 6. When the well has reached a comparatively great depth, the jogging-wheel 39 is removed and pitman 12 connected
 65 to crank 36, the drill-rope being connected to the part 13 at the outer end of walking-beam 9 in any convenient way. The drill-rope is run off from drum 23 as the work progresses by throwing pulley 24 away from brake-
 shoe 28.

The brake-shoes are pivoted at their lower ends to the frame of the machine, as shown at 41, and have adjustable connection at their upper ends to braces 42, whereby provision is had for taking up wear.

Having thus described the invention, what is claimed as new is—

In well-drilling machinery, the combination of a drive-pulley, a drum for receiving the drill-cable, a brake-shoe, a pulley connected
 80 with said drum and adapted to be thrown into contact with either said drive-pulley or the brake-shoe or to an intermediate position, a shaft 32 connected with and receiving motion from the shaft carrying the aforementioned
 85 drive-pulley, a crank attached to the inner end of the shaft 32, a pulley having adjustable connection with the said crank and adapted to operate the drill-cable and the tool attached thereto, and a pulley applied to the
 90 frame in line with the pulley carried by the said crank to hold the drill-cable in line therewith, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK R. MCKEE. [L. S.]

EMMA E. MCKEE. [L. S.]

Witnesses:

WILLIAM WOLFERT,
 MAUDE A. PALMER.