(No Model.) 2 Sheets—Sheet 1.

J. F. MOORE.

WELL DRILLING MACHINE.

No. 384,994. Patented June 26, 1888.

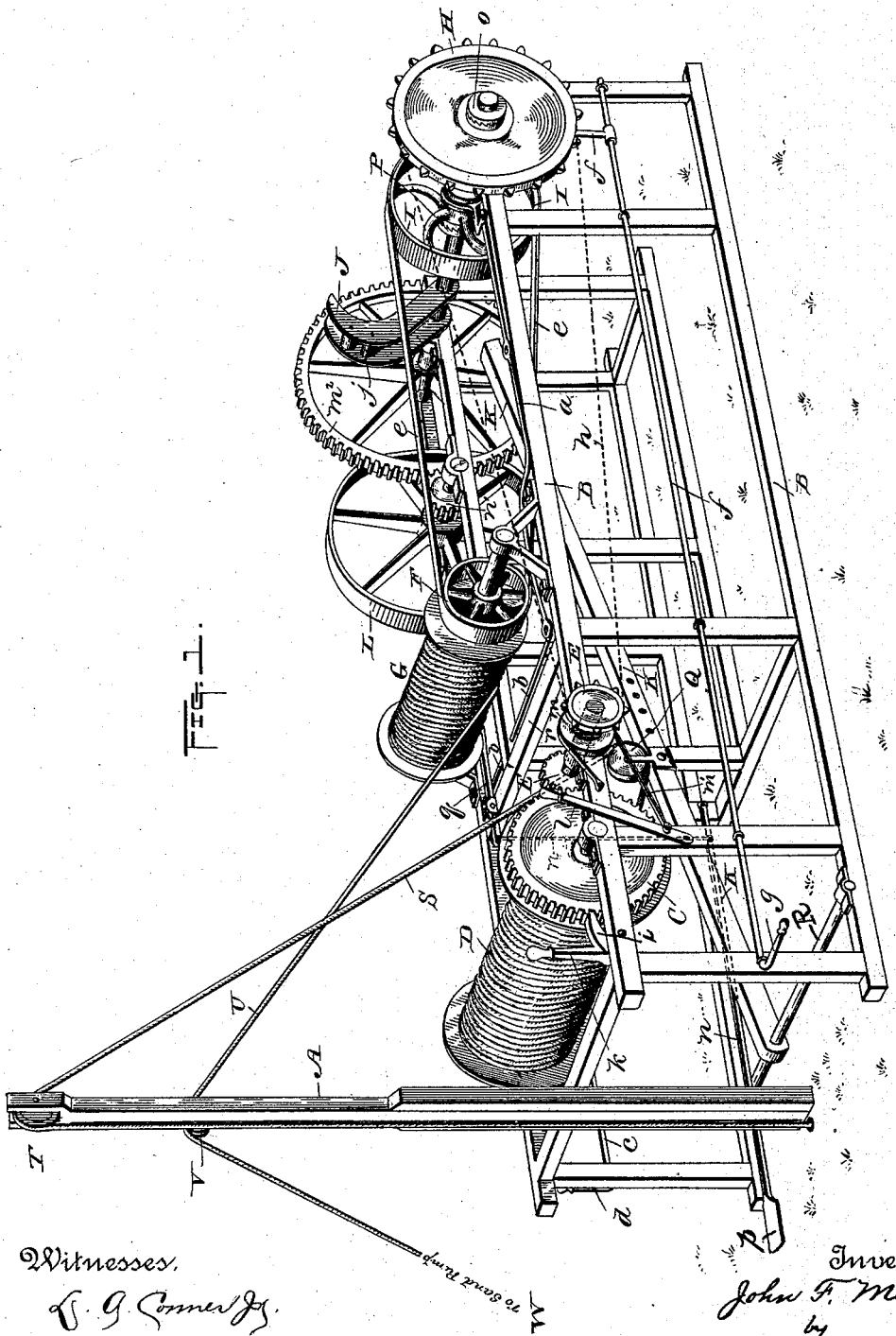

FIG. 1.

Witnesses.
V. G. Conner Jr.
F. B. Howard.

Inventor,
John F. Moore
by
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(No Model.) 2 Sheets—Sheet 2.

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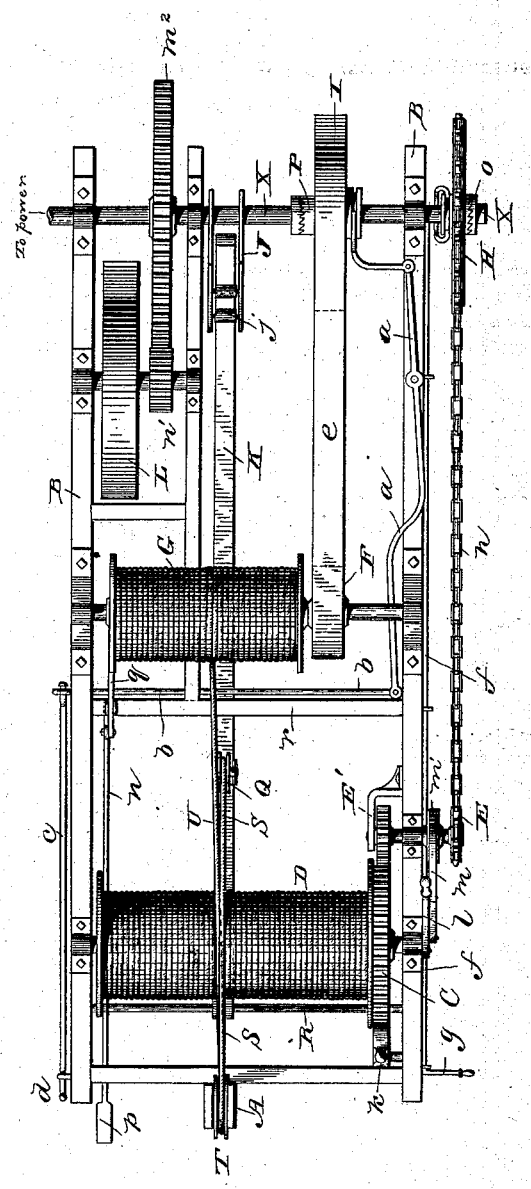

FIG. 2.

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UNITED STATES PATENT OFFICE.

JOHN F. MOORE, OF FORT WORTH, TEXAS, ASSIGNOR TO THE FORT WORTH IRON WORKS COMPANY, OF SAME PLACE.

WELL-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 384,994, dated June 26, 1888.

Application filed September 28, 1887. Serial No. 250,919. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. MOORE, a citizen of the United States, residing at Fort Worth, in the county of Tarrant and State of Texas, have invented a certain new and useful Well-Drilling Machine, of which the following is a specification.

My invention relates to improvements in well-drilling machines in which the various devices for drilling, lowering, and raising the drill and lowering and raising the sand-pump are placed together upon the same frame; and the object of my improvements is to so arrange the levers and mechanism that the several parts of the machine may be operated or controlled by one person in front of it. I attain these objects by means illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the machine, and Fig. 2 is a plan view of the same.

Similar letters refer to similar parts throughout the several views.

The frame B B supports the various shafts and drums of the mechanism, which are journaled in bearings bolted in its upper and lower horizontal beams. To the middle of one end of the frame is bolted the upright A, carrying the pulleys T for the drill-rope S, and the pulley V for the rope U of the sand-pump, indicated by W. The shaft X is caused to revolve by any suitable connection at either end with a motor. On this shaft is gear m^2, meshing in gear n', the latter being on the same shaft with the counterbalance-wheel I. On the middle of shaft X is a cam or arm, J, having anti-friction rollers *j j*. These rollers *j j* are arranged at an angle of about forty-five degrees to the arm or cam J, which arm is bent and forms suitable journal for both rollers. This arrangement and construction renders the movement of the arm on the beam K easy and obviates pounding.

The revolution of shaft X causes the cam J to alternately depress beam K and then allow it to rebound by the effect of the weight of the drill, thereby raising and dropping the drill. The clutch P is keyed solidly to shaft X, and the pulley I is loose on said shaft. Cast solid with pulley I are ratchet-teeth interlocking with clutch-wheel P. The pulley I is made to interlock with P by a compound lever, *a b c*, operated by handle *d* at the front of the machine. When pulley I is locked with clutch P, the belt *e* causes a pulley, F, to revolve, and thereby also its shaft, which also carries the sand-pump reel G. The brake *q* of the sand-pump reel is operated by placing the foot upon treadle *p*, thereby moving levers *n n*.

Exactly similar to P and F is the operation of sprocket-wheel H and clutch O, the former being loose upon shaft X and the latter keyed to it. When the ratchet-teeth formed solid with H are interlocked with clutch O by means of compound lever *f f*, operated by the handle *g*, the revolution of sprocket-wheel H causes the chain belt or sprocket-chain *h* to revolve sprocket-wheel E. This wheel E and spur-gear E′ are solid on the same shaft. The revolution of spur-gear E′ causes gear-wheel C to revolve and also the drill-rope drum D on the same shaft with gear-wheel C. Cast solid with E is a pulley-rim, *m*, enabling the braking of this shaft by a stop-brake, *m′*, operated by handle *l*. The drill-rope drum D is held in position by a pawl, *i*, which may be disengaged by pulling on its handle *k*.

The beam K oscillates on or with the shaft R, journaled in bearings on the lower timbers of the frame. This beam K presses a pulley, Q, in bracket-bearings bolted to it, as shown. The bracket may be moved along and the bolt passed through other holes, as shown in the drawings, to increase or diminish the stroke. The rope S passes from drum D down under pulley Q, up over pulley T, and thence down to the drill. The rope U passes from the sand-pump reel G over pulley V, and thence down to a sand-pump, indicated at W, which is an ordinary slim bucket with a valve at its bottom.

The operation is as follows: Sprocket-wheel H and band-wheel I are ordinarily disconnected. The beam K being held up against the cam J by the weight of the drill, the lever *l* is grasped, holding gear C and drum D rigid. Pawl *i* is pulled out and brake *m′* allowed to slip, dropping the drill a cog or two, as may be desired, whereupon the pawl *i* is reset. When it is desired to raise out the drill, pressure on the handle *g* throws sprocket-wheel H and clutch O into connection, passing through the revolution of the drum D, the pulling in of the rope, and the raising of the drill, the beam K

dropping down the instant it is relieved of the weight of the drill. The sand-pump is then lowered by use of brake *q n n p* applied to reel G. The sand-pump is raised as follows: Pressure on handle *d* causes the interlocking of the clutch P and band-pulley I, and the reel G is thereby caused to revolve by means of belt *e*, and the rope pulled in and pump lifted.

It will be perceived that both clutch-levers, both brakes, and the pawl-lever can be operated by one person stationed at the front of the machine, and that the reel-brake can be operated by foot, and the sprocket-wheel clutch by either hand or foot. Operating-levers have heretofore been extended to the front of drilling-machines, and I do not claim such feature broadly, but only the particular combinations hereinafter pointed out.

I am aware that mechanism for operating a drill and pump have been located on the same frame and provided with suitable clutch-levers and brakes, and I do not claim such combination broadly, but only my particular construction and arrangement herein set forth, and pointed out in the claims, whereby a foot and both hands can be conveniently used for connecting, disconnecting, or braking the different parts of the machine as desired.

Having thus described my invention, what I desire to claim, and secure by Letters Patent, is—

1. A well-drilling machine which comprises the drill-rope mechanism, including the sprocket-wheel H and clutch O, the handle *g* and lever *f*, the brake *m'*, having handle *l*, and pawl *i*, having handle K, and the sand-rope mechanism, including the pulley I and clutch P, the compound lever *a b c*, having handle *d*, the treadle *p* and brake *q*, and intermediate levers, *n n*, the treadle *p* and handles *d g k* being all located at the front, two on the left and two on the right of the machine, and the several parts being constructed, arranged, and supported in a frame, substantially as set forth, whereby a foot and both hands can be conveniently used for effecting the several operations described.

2. A well-drilling machine, which comprises the drill-rope mechanism, including the sprocket-wheel H and clutch O, the handle *g* and lever *f*, the brake *m'*, having handle *l*, and pawl *i*, having handle K, the curved depressing-arm provided with friction-rollers, and the sand-rope mechanism, including the pulley I and clutch P, the compound lever *a b c*, having handle *d*, the treadle *p*, and brake *q*, and intermediate levers, *n n*, the treadle *p* and handles *d g k* being all located at the front, two on the left and two on the right of the machine, and the several parts being constructed, arranged, and supported in a frame, substantially as set forth, whereby a foot and both hands can be conveniently used for effecting the several operations described.

JOHN F. MOORE.

Witnesses:
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