

No. 704,250.

E. A. HARDISON.
WELL RIG.

Patented July 8, 1902.

(Application filed Sept. 5, 1899.)

(No Model.)

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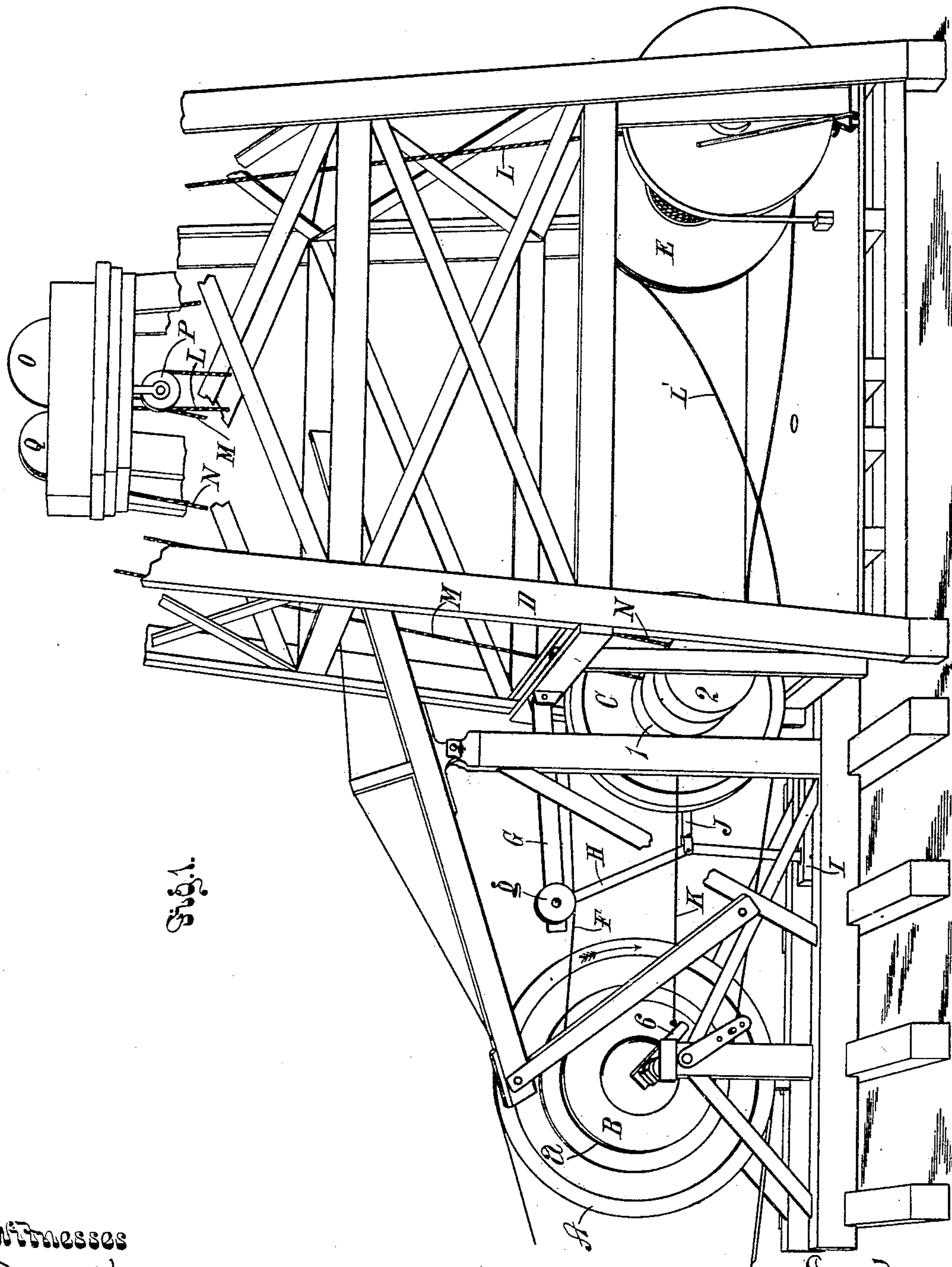


Fig. 1.

Witnesses

Severy Kingman.

J. Townsend.

Edwin A. Hardison
by Townsend Bros
his attys

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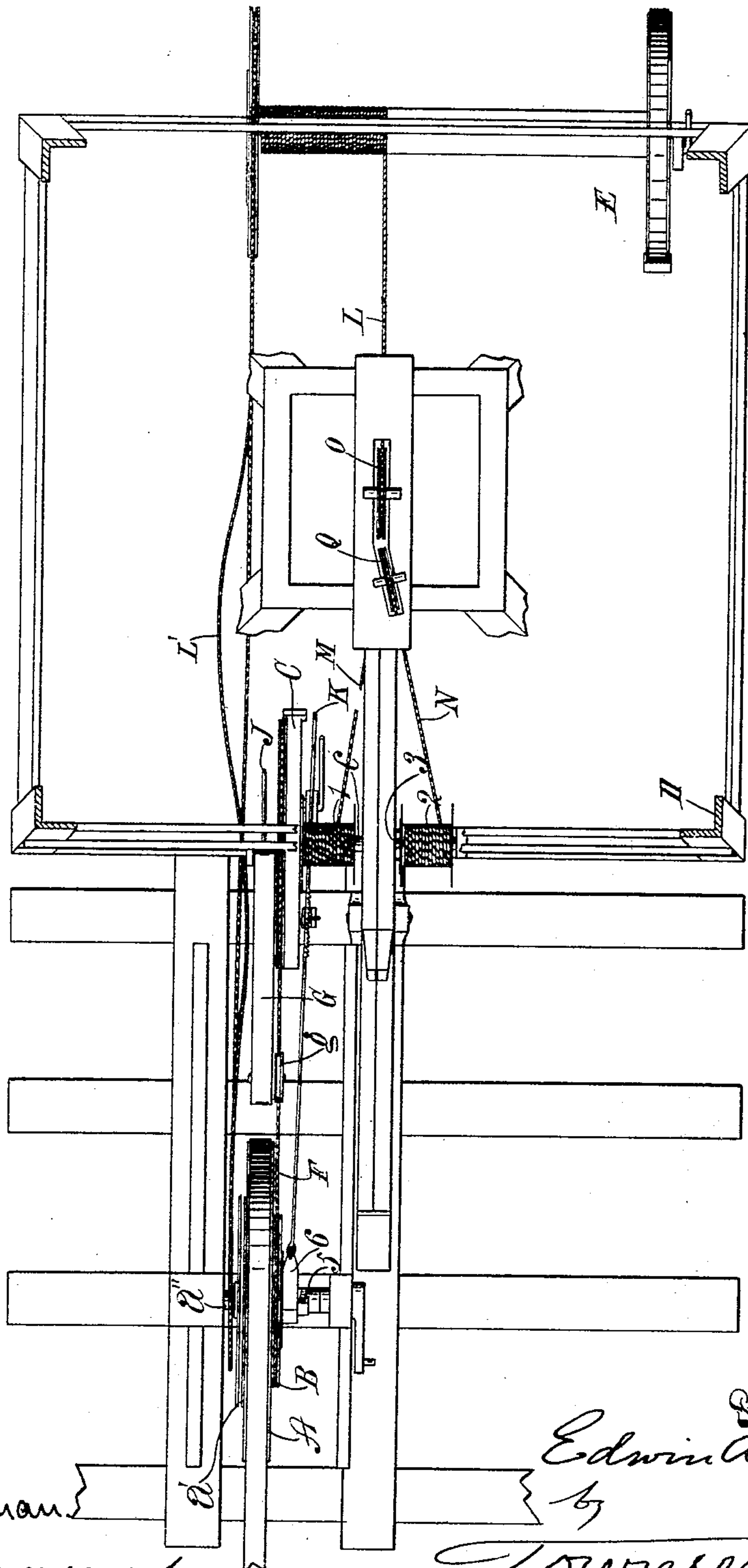
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Fig. 2.



Witnesses

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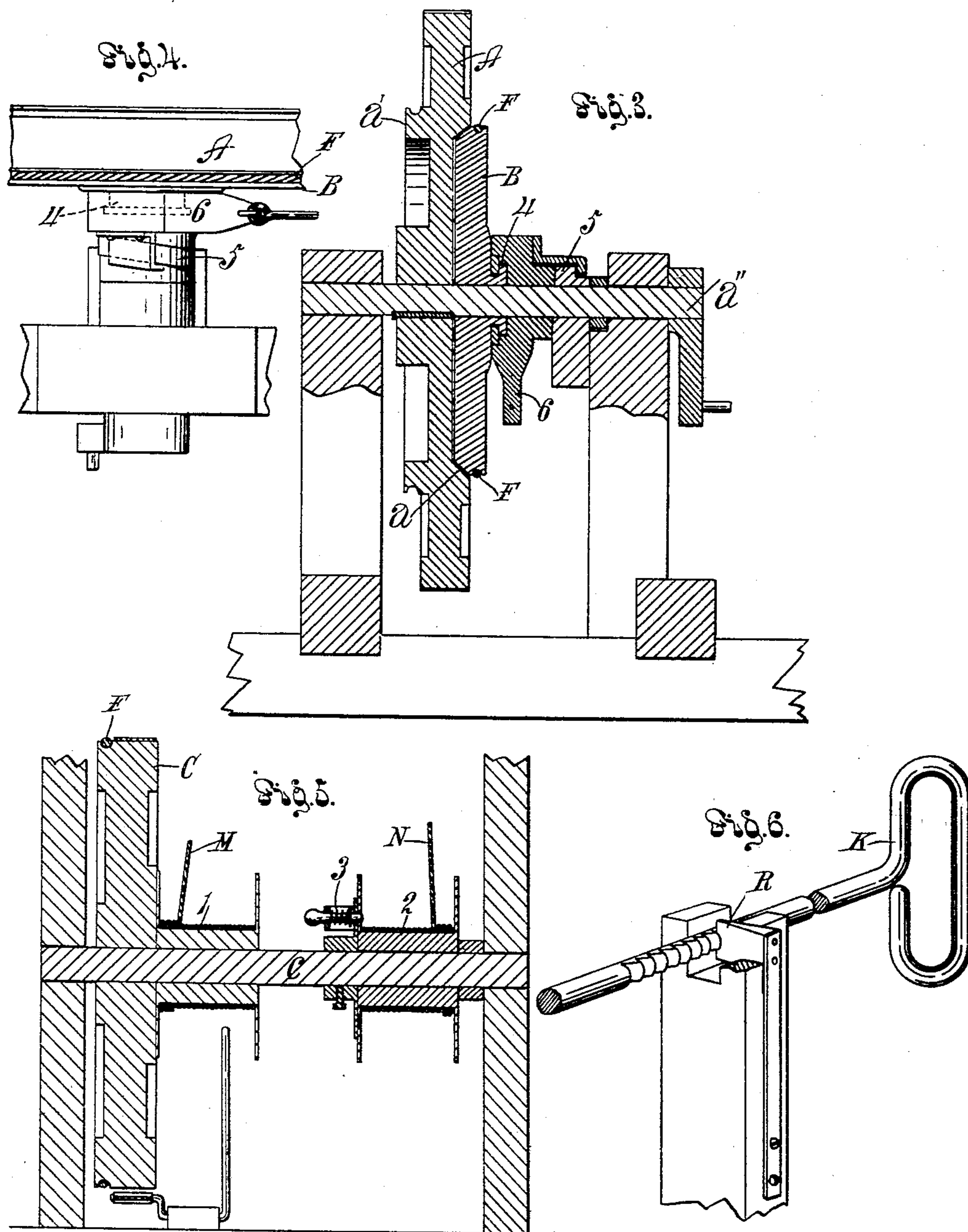
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

EDWIN A. HARDISON, OF SANTA PAULA, CALIFORNIA, ASSIGNOR OF ONE-HALF TO JOSEPH L. OLIVA, OF SANTA PAULA, CALIFORNIA.

WELL-RIG.

SPECIFICATION forming part of Letters Patent No. 704,250, dated July 8, 1902.

Application filed September 5, 1899. Serial No. 729,539. (No model.)

To all whom it may concern:

Be it known that I, EDWIN A. HARDISON, a citizen of the United States, residing at Santa Paula, in the county of Ventura and State of California, have invented a new and useful Improvement in Well-Rigs, of which the following is a specification.

My invention relates to an appliance for handling the well-casing and sand-pump.

The object of my invention is to provide simple and effective means whereby with a single-power source to apply the power for operating the casing-rope and the sand-pump rope independently of the bull-wheel which operates the tool-rope.

The accompanying drawings illustrate my invention.

Figure 1 is a perspective view of a well-rig embodying my invention. The derrick is broken to contract the view. Fig. 2 is a plan view of the same. Fig. 3 is a vertical section through the shaft of the band-wheel and tug-pulley. Fig. 4 is a detail view of the stationary cam. Fig. 5 is a sectional detail of the extra bull-wheel, shaft, and spools. Fig. 6 is a detail of the catch for the cam-lever-operating handle. A portion of the handle is also shown.

A indicates the band-wheel, provided on one side with a beveled friction-seat a and on the other side with the ordinary tug-pulley a' .

B indicates the loose extra tug-pulley, mounted to slide on the axle a'' of the band-wheel and beveled to fit into the friction-seat of the band-wheel. Suitable means are provided for sliding the tug-pulley along the shaft to throw it into and out of the seat in the band-wheel.

C indicates an extra bull-wheel, with shaft c mounted on the side of the derrick D opposite the main bull-wheel E. Said shaft is provided with two spools 1 2, one of which, 1, is fixed to the shaft c and the other of which, 2, is journaled to rotate on the shaft c and is constructed to be coupled with and uncoupled from said shaft.

3 indicates a latch or clutch for fixing the loose spool 2 to the shaft. The tug-pulley B, which is loosely mounted on the shaft or

axle a'' of the band-wheel, is provided with a flanged neck 4.

5 indicates a stationary cam, and 6 indicates a cam-lever caught upon the flanged neck 4 and upon the stationary cam 5 to slide the tug-pulley on the shaft of the band-wheel to bring it into and out of engagement with the friction-seat. When the tug-pulley is brought into the friction-seat, it is caused to rotate with the band-wheel, thus to drive the extra bull-rope F, which extends around the tug-pulley B and the extra bull-wheel C.

It is not desirable to throw the extra bull-rope F off of the bull-wheel and tug-pulley, and it is necessary that means be provided for loosening the bull-rope, so as to take all friction off of the shaft a'' when the extra bull-wheel is not in use. It is also necessary to hold the extra bull-rope taut when in use.

G indicates a pivoted lever extending along the extra bull-rope F and provided with a grooved wheel g above the extra bull-rope to run upon the extra bull-rope.

H indicates a knuckle-joint pivoted at one end to the lever C and extending downward therefrom and pivoted at the other end to a stationary support I.

J indicates a handle pivoted to the knuckle-joint at the joint thereof to operate the same.

K indicates a handle connected with the cam-lever 6 and extending forward in front of the extra bull-wheel shaft to operate the cam-lever from the derrick.

L indicates the main bull-rope.

M indicates the casing-rope to be operated by the spool 1.

N indicates the sand-pump rope to be operated by the detachable spool 2.

O, P, and Q indicate pulleys at the top of the derrick for the main bull-wheel rope, the casing-rope, and the sand-pump rope, respectively.

The arrow in Fig. 1 indicates the direction in which the band-wheel and tug-pulley rotate, this being in a direction opposite to the movement of the tug-lever 6 in throwing the loose extra tug-pulley into its seat, so that when the handle K is released the friction be-

tween the loose tug-pulley B and the cam-lever 6 will operate to return the lever 6 to its vertical position, thus to withdraw the loose tug-pulley from its seat. This construction allows the loose tug-pulley to be thrown out of gear when the load is upon it.

In practical operation when the tools have been withdrawn from the well the main bull-rope L will be thrown off from the main wheel E. The handle K will be pulled to throw the lever 6 to throw the tug-pulley B into the friction-seat *a*. Then the handle J will be pulled forward to operate the knuckle H to draw the pulley *g* down to tighten the tug-rope or extra bull-rope F. The force of gravity helps to keep the knuckle-joint bent and to hold the wheel *g* in place upon the extra bull-rope or tug-rope F and to bend said rope to tighten it. Then the engine will be operated to turn the tug-wheel A, thus rotating the extra bull-wheel and one or both of the spools 1 2, thus to operate the rope for raising and lowering the sand-pump, and, when required, also for operating the rope for raising or lowering the casing. The sand-pump rope N is wound upon the spool 2, which is detachable from the extra bull-wheel shaft, so that it may remain stationary while the spool 1 is being turned to raise or lower the casing. The casing-rope will ordinarily be detached from the spool and will only be fastened to the spool when required to be used in raising or lowering the casing. The handle K, which operates the lever 6, is held by a suitable catch or ratchet, as at R, to hold the tug-pulley B firmly in its friction-seat *a*.

L' indicates the band for the bull-wheel.

When the handle J is pushed forward, the knuckle-joint *h* is straightened, and thereby it lifts the wheel *g* from the extra bull-rope or tug-rope F to loosen the same.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A well-rig, comprising a band-wheel provided on one side with a beveled friction-seat; a loose tug-pulley mounted to slide on the axle of the band-wheel and beveled to fit the friction-seat of the band-wheel; means for sliding the loose tug-pulley into and out of the seat in the band-wheel; an extra bull-wheel and shaft mounted on the side of the derrick opposite the main bull-wheel, said shaft being provided with two spools, one of which is fixed to the shaft and the other of which is journaled to rotate on the shaft; a latch or clutch for fixing the loose spool to the shaft; an extra bull-rope around the loose

tug-pulley and the extra bull-wheel; and means for tightening and loosening the extra bull-rope.

2. In a well-rig, the combination with the band-wheel provided with a friction-seat; of a tug-pulley loosely mounted on the shaft of the band-wheel and provided with a flanged neck; a stationary cam; a cam-lever upon the flanged neck and upon the stationary cam to slide the loose tug-pulley on the shaft of the band-wheel to bring it into and out of engagement with the friction-seat; an extra bull-wheel; an extra bull-rope connecting said loose tug-pulley with the extra bull-wheel, and means for tightening and loosening said extra bull-rope.

3. The combination with the band-wheel of the loose tug-pulley to rotate with the band-wheel; the extra bull-rope around the loose tug-pulley and the extra bull-wheel; a pivoted lever extending along the extra bull-rope and provided with a grooved wheel to run on top of the extra bull-rope, a knuckle-joint pivoted at one end to the lever and at the other end to a stationary support; and a handle pivoted to the joint of the knuckle for operating the knuckle-joint.

4. In a well-rig the combination with the band-wheel; of an extra bull-wheel provided with a fixed spool and a spool which is loose on the shaft and constructed to be coupled with and uncoupled from said shaft; and means for connecting and disconnecting the extra bull-wheel and band-wheel independently of the main bull-wheel.

5. A well-rig comprising a main bull-wheel; a band-wheel; a loose tug-pulley to rotate with the band-wheel; the extra bull-wheel; the extra bull-rope around the loose tug-pulley and the extra bull-wheel; a pivoted lever extending along the extra bull-rope and provided with a grooved wheel above the extra bull-rope to run thereon; a knuckle-joint pivoted at one end to the lever and extending downward therefrom and pivoted at the other end to a stationary support; and a handle pivoted to the joint of the knuckle for operating the knuckle-joint to raise the grooved wheel when the joint is straightened, and vice versa.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, California, this 26th day of August, 1899.

EDWIN A. HARDISON.

Witnesses:

JAMES R. TOWNSEND,
JERRY KINGMAN.