(No Model.)

C. SHARPE & H. H. ARGUE.

APPARATUS FOR OPERATING OIL WELL PUMPS.

No. 563,812. Patented July 14, 1896.

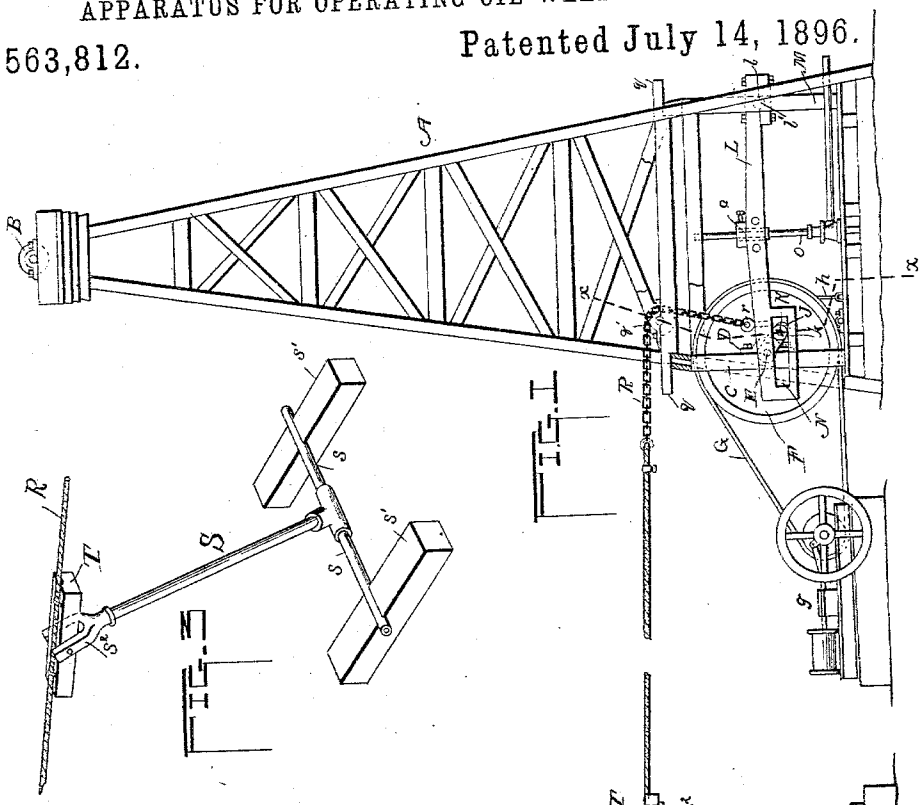


FIG. 1.

FIG. 3.

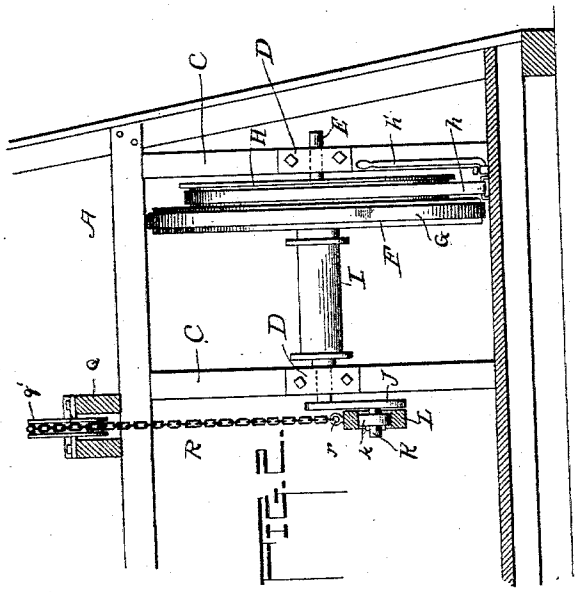
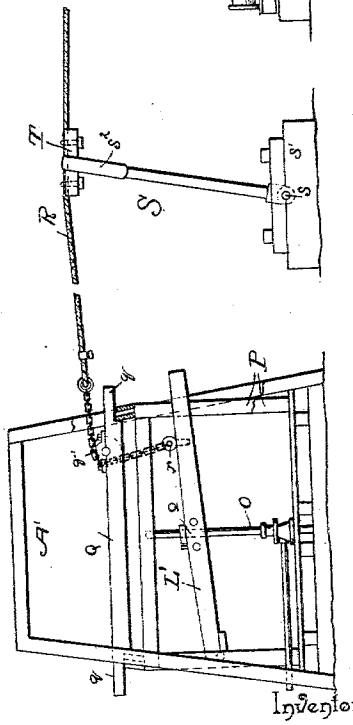


FIG. 2.



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By their Attorneys,
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UNITED STATES PATENT OFFICE.

CHAUNCEY SHARPE AND HENRY H. ARGUE, OF DERRICK CITY, PENNSYLVANIA.

APPARATUS FOR OPERATING OIL-WELL PUMPS.

SPECIFICATION forming part of Letters Patent No. 563,812, dated July 14, 1896.

Application filed October 26, 1893. Serial No. 489,182. (No model.)

To all whom it may concern:

Be it known that we, CHAUNCEY SHARPE and HENRY H. ARGUE, citizens of the United States, residing at Derrick City, in the county of McKean and State of Pennsylvania, have invented a new and useful Apparatus for Operating Oil-Well Pumps, of which the following is a specification.

This invention relates to apparatus for operating oil-wells; and it has for its object to provide a certain improvement in apparatus of this character which are especially adapted for use in connection with oil-wells for the pumping thereof.

With this object in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a well apparatus rigged for pumping purposes in accordance with this invention and showing the manner of simultaneously operating two rigs. Fig. 2 is a sectional view on the line *x x* of Fig. 1. Fig. 3 is a detail in perspective of the swinging rope-support.

Referring to the accompanying drawings, A represents a well-derrick of the ordinary construction, which is adapted to be arranged over the well to be pumped, and said derrick carries at the extreme upper end thereof the usual top pulley B.

At the base of the well-derrick A and at one side thereof are arranged the vertical bearing-posts C, which are suitably secured in position and are of any suitable material and strength, according to the character of the work, and at one side of the vertical bearing-posts C are mounted the bearing-boxes D, in which is journaled the horizontal power or crank shaft E.

The horizontal power or crank shaft E carries at a point near one end thereof the band-wheel F, over which passes the drive-belt G, which is given its motion from a suitable engine or motor *g*, arranged adjacent to the derrick A, and at one side of the band-wheel F and upon the same crank-shaft E is arranged a brake-wheel H, adapted to accommodate the band-brake *h*, controlled by means of a suitable crank-lever *h'*, suitably mounted on the floor of the derrick and providing means whereby the operator can readily brake the crank-shaft E at any desired time, as occasion may demand. The power or crank shaft E also carries at one side of the band-wheel F the ordinary hoisting drum or spool I, and at one end is provided with the crank-arm J, which is intended to give motion to the pumping devices, as will be described. The said crank-arm J is provided near its outer moving extremity with the wrist-pin K, on which is mounted the antifriction-roller *k*, which roller is intended to move in the slotted end of the walking-beam L.

The walking-beam L is made out of a suitable length of timber or other economical material possessing the requisite strength, and is provided at one end with a bearing-box *l*, which is pivotally supported or fulcrumed on the supporting pin or rod *l'*, mounted in the vertical supporting-posts M, arranged at the base and one side of the derrick A, opposite to the location of the vertical bearing-posts C. The end of the walking-beam L, opposite its pivotal end support, is provided with an elongated slot N, which is disposed below the plane of its lower side and accommodates therein the roller wrist-pin of the crank-arm J, so that as the power or crank shaft rotates, an up-and-down movement will be given to the free end of the walking-beam and thereby transmit the necessary motion to the pump sucker-rod O. The pump sucker-rod O is secured to the walking-beam at a point centrally of its ends by an ordinary rod adjuster or clamp *o*, which is of the ordinary construction.

It is to be noted that by reason of connecting the pump-rod O to the walking-beam at a point centrally of its ends the entire weight or strain involved in the pumping of the deep well is placed on both ends of the walking-beam, and therefore on the oppositely-disposed posts C and supports M, thereby properly distributing the strain and providing a rig possessing great strength and great advantages over the ordinary pumping rigs in which the strain is usually placed on one end of the walking-beam.

From the foregoing it is thought that the construction and operation of the rig for pumping purposes will be easily understood, and at this point it is to be observed that the invention particularly contemplates the utilization of the same power for driving or operating two or more rigs at the same time. To secure this result, another derrick A′ is arranged at any convenient distance from the first derrick A, previously described, and mounted in this derrick, in the same manner as the walking-beam L, is a second walking-beam L′, which is connected with the pump sucker-rod O in the same manner as the connection of such rod with the beam L, but the free swinging end of the second walking-beam L′ is unslotted and moves between vertical guide-posts P, and the weight of said beam L′ is sufficient to provide for the down-stroke of the sucker-rod, it being noted that the weight of substantially the entire length of the beam L′ is utilized for this purpose. Arranged within each of the derricks A and A′, at a point above the walking-beams therein, are the transverse derrick-beams Q, having shouldered ends q, adapted to removably rest on diametrically opposite side braces of the derricks, and said derrick-beams support the guide-pulleys q', over which passes the single wire, rope, or chain connecting-cable R, connected at its extremities, as at r, to the top of the walking-beams near their free extremities.

At an intermediate point between the two derricks and the walking-beams, which are connected as just described, is arranged one or more swinging rope-supports S. The rope-support S (illustrated in the drawings) is of a substantial T shape, constructed in an economical manner of jointed pipe-sections, and having the opposite head-arms s thereof journaled on suitable bearing-beams s', while to the upper extremity of the swinging arm thereof is removably attached the bifurcated socket s^2. Pivotally mounted in the bifurcated socket or extremity s^2 of the swinging T-shaped rope-support is the elongated movable cable-block T, to which is fastened the connecting-cable R. The swinging rope-support not only serves to support and accommodate the movement of the single connecting-cable R, but, by reason of the block pivotally supported thereby, assists in easing the cable in either direction as it is moved by the movement of the walking-beam L, which is operated by the power or crank shaft E in the manner previously described.

It will be noted that the elongated cable-block T provides a broad attachment for the flexible cable R at the point where it is supported by the swinging support S, and at the same time, as the support S swings back and forth, said cable-block T maintains a relatively horizontal position or a position in substantial alinement with the cable, thereby relieving the cable from any undue strain and preventing the same from bending or kinking at the point where it is connected with the support S.

The operation and many advantages of the herein-described rig will be readily apparent to those skilled in the art, and it is to be understood that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

In an apparatus of the class described, the combination of separated walking-beams fulcrumed at one end and connected at a point intermediate of their ends to a pump sucker-rod, means for vibrating the free end of one of the beams, a single flexible connecting-cable guided for movement above the plane of both walking-beams and connected at its extremities to the free ends of said beams, a swinging T-shaped cable-support arranged between the walking-beams and provided with a bifurcated socket at its upper end, and an elongated movable cable-block pivotally mounted within the bifurcated socket and secured fast to the cable, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

CHAUNCEY SHARPE.
HENRY H. ARGUE.

Witnesses:
D. H. JACK,
R. GOU.