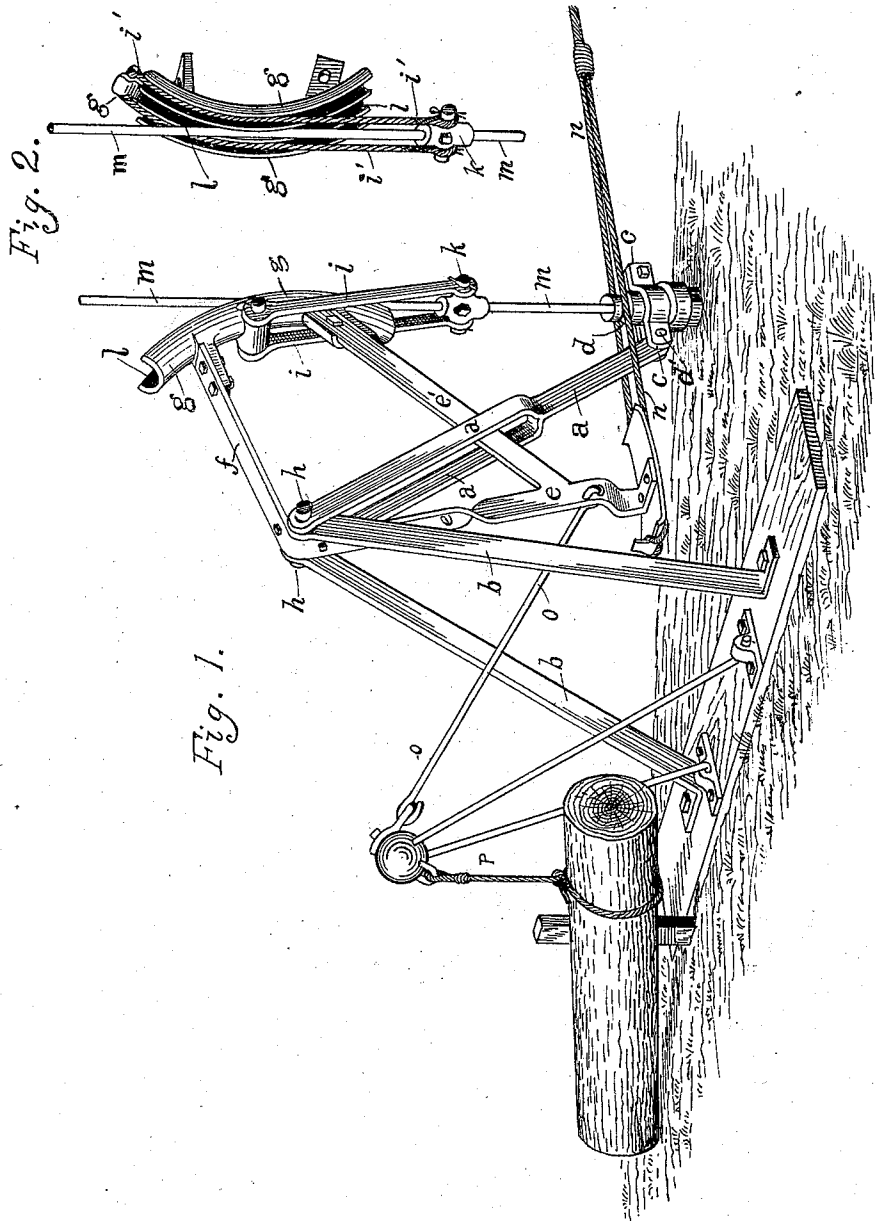


(No Model.)

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PUMPING APPARATUS FOR OIL WELLS.

No. 542,646.

Patented July 16, 1895.



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# UNITED STATES PATENT OFFICE.

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## PUMPING APPARATUS FOR OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 542,646, dated July 16, 1895.

Application filed November 1, 1893. Serial No. 489,689. (No model.)

*To all whom it may concern:*

Be it known that we, SAMUEL M. JONES, of Toledo, and ERNEST W. HAMMOND, of Lima, Ohio, have invented certain new and useful  
5 Improvements in Pumping Apparatus for Oil-Wells, of which the following is a specification.

Our invention relates to means for giving motion to the working-piston of an oil-well pump, and relates more particularly to the  
10 pumping-lever, its construction, form, and arrangement of parts, and the manner of supporting and operating the same.

The object of our invention is to dispense  
15 with the heavy unwieldy walking-beam and "Samson-post" and their heavy expensive foundations heretofore in use, and to substitute therefor a light strong lever and frame, or "pumping-jack," which shall be durable,  
20 easily operated, comparatively inexpensive, and adapted to be supported in part by the tubing of the well itself. We attain these objects by means of the devices hereinafter described, and shown and illustrated in the  
25 accompanying drawings, made part hereof, in which—

Figure 1 is a perspective view of our apparatus, and Fig. 2 a perspective view of an alternative part of the pumping-lever herein-  
30 after referred to.

Like letters of reference indicate like parts throughout both the views.

In the drawings, Fig. 1, a supporting-frame or tripod is shown, of which *a* is the  
35 front leg or brace, and *b b* are the rear legs or braces. The rear legs or braces rest upon and are secured to a timber or other suitable foundation, and the front leg or brace *a* rests upon and is secured to the upwardly-projecting pipes or tubing of the well, (preferably the tubing,) which forms a support sufficiently  
40 solid and rigid to withstand any strain or thrust of the leg or brace *a*. We prefer to attach the foot or brace *a* to the tubing of the well by means of a clamp *c*, which embraces  
45 the upwardly-projecting tube *d* and clasps between its jaws or extremities the foot of the brace *a*, the clamp and brace being secured together by means of a screw-bolt *d'* passing  
50 through the ends of the clamp and the foot of the brace *a*. We do not, however, confine

ourselves to this manner of connecting the frame to the piping or tubing, as other ways of accomplishing the same result will obviously suggest themselves to those skilled in  
55 the art.

At the meeting-point of the three members of the tripod above mentioned is pivoted and suspended a lever, resembling in form an enlarged bell-crank, consisting of a vertical bar  
60 *e*, carrying at its upper end and at nearly a right angle to the bar an arm *f*, and below this arm and in the same vertical plane a brace *e'*, extending upwardly from near the lower  
65 end of bar *e*. Arm *f* and brace *e'* at their outer ends are provided with and connected by a bar *g*, curved outwardly in the plane of arm *f* and brace *e'* to form a segment or arc  
70 of the circle of which the fulcrum-pin *h*, connecting the tripod *a b b* with the lever *e e' f g* is the center. The upper part of leg or brace *a* is bifurcated, as shown in Fig. 1, and  
75 between the two branches of the brace *a* swings the bell-crank lever *e e' f g*. It will be seen that segmental piece *g* is arranged to oscillate in a vertical plane directly over the  
80 well. In other words, the segment *g* may be regarded as the operative part of a wheel and the extended vertical axis of the well as a tangent of the periphery of that wheel.

In the drawings are shown two equivalent methods of connecting the segmental piece *g* with the pump-rod or "polish-rod" *m*. In  
85 Fig. 1 a link *i* is pivotally attached at its upper end to segmental bar *g* and at its lower end is pivotally attached to an "adjuster" or head *k*, in which the pump-rod may be vertically adjusted and clamped. In Fig. 2 a flexible wire rope is substituted for the link *i*, the  
90 rope being looped over a hook *g'* on the periphery of the segmental piece *g* and attached to adjuster *k*. In practice we prefer the method shown in Fig. 2. In both cases the segmental piece *g* is provided with a groove  
95 *l*, which receives the pump-rod *m* as it reciprocates vertically. To the lower end of bar *e* is attached a "pull-rod" or preferably a wire rope *n*, which leads horizontally in the direction of the thrust of the brace *a*. Bar *e* is  
100 also provided near its lower end with a link or rope *o*, to which is attached a counterbalance *p*.

The operation of our device is as follows:

1. Power being applied to rod or rope *n* a pull swings bar *e* toward the well, causing the arm *f*, brace *e'*, and segment *g* to swing upwardly and through their connections to pull vertically on the pump-rod, the groove of the segmental guide-bar *g* holding the pump-rod throughout its stroke constantly in the same vertical line. During the lift on the pump and during the greatest strain the thrust is through brace *a* against the projecting iron pipes of the well, which are found to be admirably well adapted for this purpose. The stress upon the pull rod or rope *n* being released the counterbalance *p* pulls the bell-crank lever *e e' f g*, to its original position, keeping the pull-rope *n* always taut and free from kinks.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a pumping apparatus for oil or other wells, the piping or tubing of the well in combination with a tripod or frame, means for attaching one part of said tripod or frame to said piping or tubing, suitable supports for the remaining parts of said tripod or frame

independent of said piping or tubing, and a pumping lever fulcrumed in said tripod or frame, substantially as and for the purposes specified.

2. The combination with the piping or tubing of an oil or similar well, of a pumping frame provided with an extended supporting base and an intermediate pivotal support for the pumping lever, said frame being connected to the piping or tubing of the well at a point to one side of the pivotal support for the lever and being independently supported on the opposite side of the pivot at a point or points remote from the piping or tubing, substantially as and for the purpose specified.

3. The combination of a pipe or other tubing of an oil or other well with a tripod for supporting the pump lever, means for detachably connecting one leg of the tripod to such tube or pipe, and suitable supports for the remaining legs of said tripod, substantially as and for the purpose specified.

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