J. STENGEL.

Machine for Drilling Oil-Wells.

No. 196,717. Patented Oct. 30, 1877.

Fig. 1.

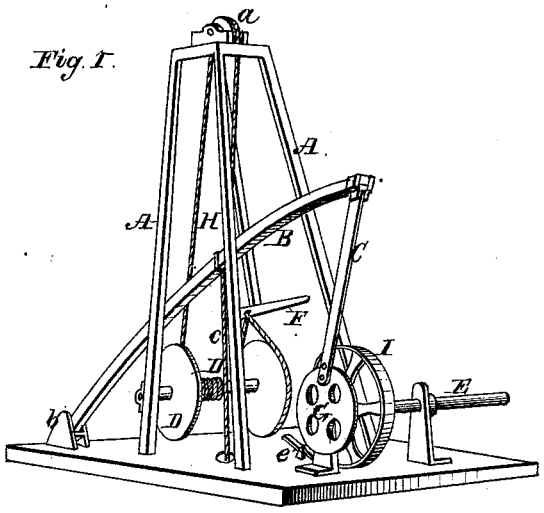
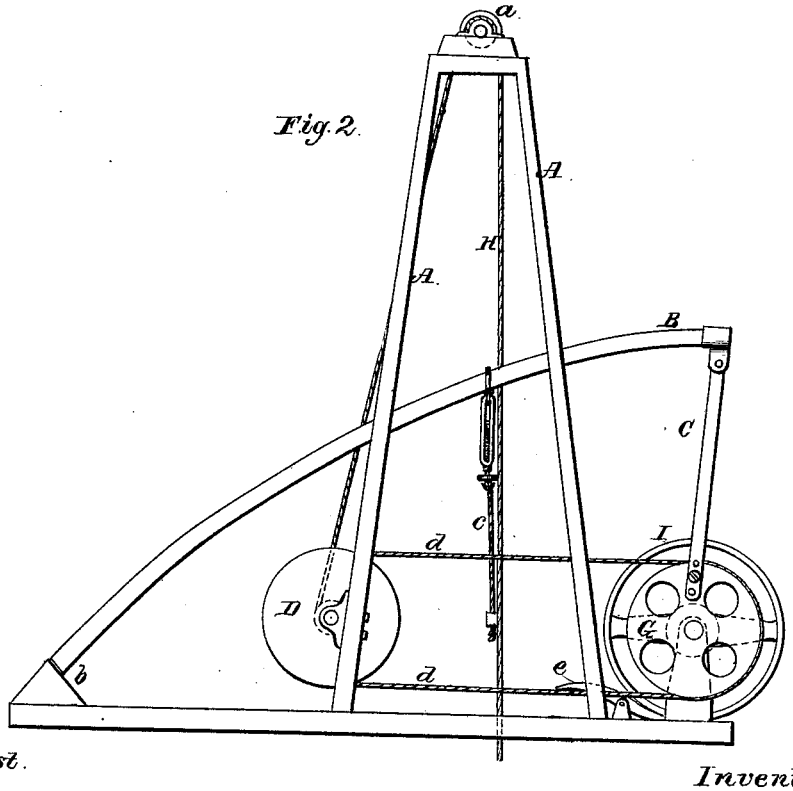


Fig. 2.



Attest.

Edward E Osborn

L H Anderson

Inventor.

Jacob Stengel

By his Atty

C W M Smith.

UNITED STATES PATENT OFFICE.

JACOB STENGEL, OF ANDREWS STATION, CALIFORNIA.

IMPROVEMENT IN MACHINES FOR DRILLING OIL-WELLS.

Specification forming part of Letters Patent No. **196,717**, dated October 30, 1877; application filed August 7, 1877.

To all whom it may concern:

Be it known that I, JACOB STENGEL, of Andrews Station, Los Angeles county, State of California, have invented a new and useful Improvement in Machinery for Drilling Oil-Wells, which invention is fully set forth and described in the following specification and accompanying drawings.

In the said drawings, Figure 1 is a perspective view of my improved apparatus or machinery. Fig. 2 is an enlarged view taken from the longest side of the machine.

The object of my invention is to produce a machine for drilling oil-wells which can be operated successfully, by horse-power or other means, without the use of a walking-beam.

In the machines or apparatus at present in general use the parts are subject to additional work, and much strain is thrown upon the motive power by reason of the irregular action of the walking-beam, to which the drilling-tools are attached. This walking-beam is worked by a pitman from the driving-shaft, and it is required to raise the entire weight of the tools at every upward movement in lifting them. Thus an irregular movement of the driving-shaft is produced every time this great weight is thrown upon it, and the engine or other motive power is subject to great strain.

These defects and objections are overcome by me in employing a spring-bar, which has one end held in a fixed socket, and the free end is connected to the pitman from the driving-shaft, and in combining therewith suitable mechanism and apparatus for properly fastening the tools to the bar, and for operating them, all which will be hereinafter more fully set forth.

A in the accompanying drawings represents the derrick, having one side straight or perpendicular to serve as a guide for the spring-bar. B is the spring-bar, held at one end by a socket or rest, *b*, properly secured to the ground, and connected at the other end to the pitman C. D is the "bull-wheel" and its shaft or drum, around which the "bull-rope" is wound, and E is the driving-shaft. This shaft is driven by means of a belt from an engine, or it is connected with a horse-power. The brake F is provided for controlling the motion of the drum.

The movement of the drum is produced by a belt, *d*, connecting the wheel D with the groove-pulley G on the pitman-shaft. By shipping or unshipping the belt *d*, the drum can be stopped or started. The bull-rope H runs from the drum up over the grooved pulley *a*, and thence down to the tools in the hole being drilled. This rope supports the tools, and holds them at any required height in the hole while at work, and it is connected to or with the spring-bar B by means of the rope *c*, and the temper-screw connection that is now in common use. Thus the tools are raised in the hole and dropped at each movement of the spring-bar. By this arrangement there is no dead-weight of the tools thrown upon the pitman, and the work is more uniform and regular, as the reaction of the spring-bar each time of its movement raises the weight of the tools, and prevents any jerking motion of the pitman and driving-shaft.

This construction enables me to employ a horse-power in the drilling of oil-wells, which has not been heretofore successfully done where the tools were worked by a walking-beam. The machinery is also much simplified by the employment of my apparatus, as the heavy timbers of the walking-beam and its standard and the metal work for joining them together are not required.

A brake-wheel, I, and brake-lever *e* are provided on the driving-shaft for controlling the speed of the machine when it is worked by horse-power.

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

The combination and arrangement of the spring-bar B, held at one end in the fixed socket, the pitman C, connected with the free end of the bar, and receiving motion from the driving-shaft E, and the rope *c*, or other means for connecting the bar with the drilling-tools, constructed substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 7th day of July, 1877.

JACOB STENGEL. [L. S.]

Witnesses:

C. W. M. SMITH,

EDWARD E. OSBORN.