(No Model.)

J. H. HUNTER.

HAND WATER PUMPING MILL.

No. 321,972. Patented July 14, 1885.

FIG. 1.

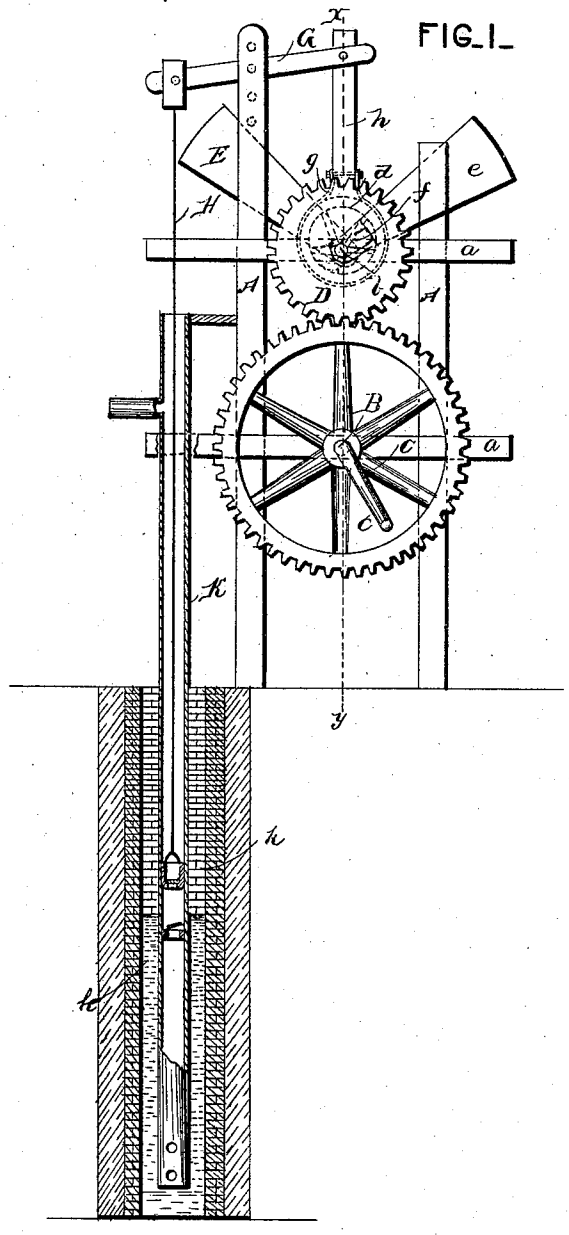


FIG. 2.

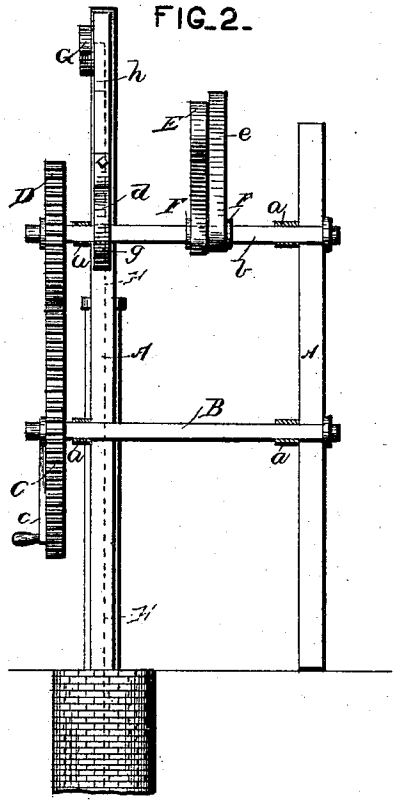
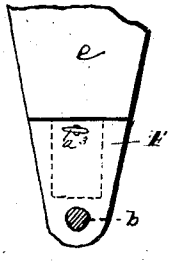


Fig 3.



WITNESSES

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JOSEPH H. HUNTER, OF ADAIR, ILLINOIS.

HAND WATER-PUMPING MILL.

SPECIFICATION forming part of Letters Patent No. 321,972, dated July 14, 1885.

Application filed October 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. HUNTER, of Adair, in the county of McDonough and State of Illinois, have invented certain new and useful Improvements in Hand Water-Pumping Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in pumping-machines, the object of the same being to provide a hand-power attachment for pumps of any ordinary construction, whereby a great amount of water may be raised in a very short space of time and with less exertion than by the use of the common form of lever, a further object being to provide an attachment which shall be inexpensive and durable.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a view of the machine in side elevation attached to a pump shown in section. Fig. 2 is a vertical transverse section through the line *x y* of Fig. 1, and Fig. 3 is an enlarged view showing one manner of adjustably securing the arms to the shaft *b*.

A rectangular-shaped frame-work consisting, essentially, of uprights A and girders *a*, forms a support for two parallel shafts, B and *b*, journaled in suitable bearings on the lower and upper girders *a*, respectively. A drive-wheel, C, is rigidly secured on the shaft B, and an operating-crank, *c*, fits on the end of said shaft, which is conveniently squared to receive it. The wheel C is provided with cogs on its periphery, which register with cogs on the periphery of a smaller wheel, D, rigidly secured on the shaft *b*. The shaft *b* is further provided with an eccentric wheel, *d*, rigidly secured thereon, and with balance-arms E and *e*, secured in sockets *f*, formed in a hub, F, which latter is secured rigidly to the shaft *b*. The arms E and *e* are constructed with heavy outer ends, and one of the arms, *e*, is adjustably secured in the hub F by set-screws a^3, so that it may be lengthened or shortened, thereby increasing or diminishing the centrifugal force of the balance-arms. A lever, G, is pivotally secured to one of the uprights A, and has the piston-rod H attached to one end, and the other end connected with the eccentric-rod *h*. The rod *h* is secured to the eccentric-strap *g*, which embraces the wheel *d*.

K is the pump, in position in a well, *k*. The pump is secured in an upright position and firmly held by the frame A *a*.

The advantages of the above-described method of applying power consist in the steady positive movement and pressure of the operator, instead of the alternate positive and negative motions required in the use of the lever, which requires a stopping and starting at the end of every stroke. Furthermore, as the strength of the operator can be applied to greater advantage when the crank-handle is in certain positions in its circular path than when in other positions, the balance-arms, by their momentum, serve to bridge over those positions of lesser advantage, and cause the pump to work with a uniform stroke. Again, by changing the relative diameter of the wheels C and D the number of strokes may be increased or diminished without disturbing the rate of turning, and the throw of the piston may be regulated by a change of eccentrics.

It is evident that many changes might be made in the construction of the parts above described without departing from the spirit and scope of my invention. For example, the crank-handle might be attached directly to the wheel C near its periphery and the crank *e* done away with, and the shaft *b* might be formed into crank shape, and the lower end of rod *h* loosely secured to the crank in place of the eccentric-wheel; hence I do not wish to limit myself strictly to the construction herein set forth; but,

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

The combination, with a pump and a lever,

one end of which is connected to the pump-rod, of a shaft carrying an eccentric, a rod connecting the lever and eccentric, a rigid arm, and a longitudinally-adjustable arm secured to said shaft, and devices connected with said shaft for turning the same, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOSEPH H. HUNTER.

Witnesses:
A. C. HATFIELD,
LYMAN F. PONTIOUS.