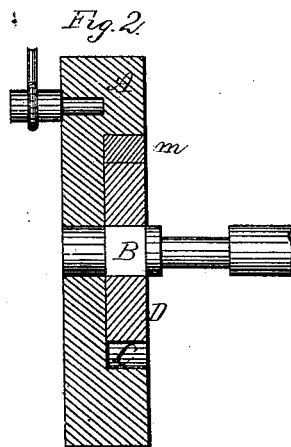
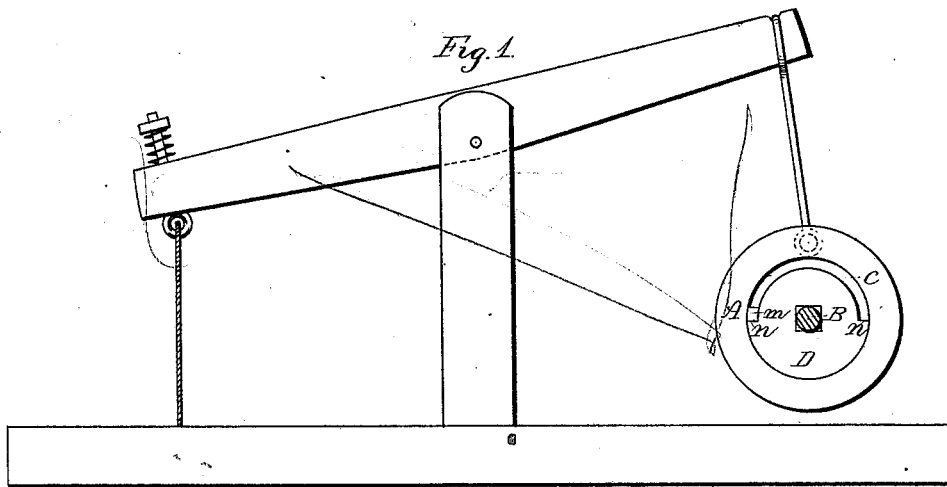


A. M. COMSTOCK.
 Device for Drilling Wells.
 No. 213,626. Patented Mar. 25, 1879.



Witnesses:

J. W. Garner
W. H. Babcock

Inventor:

A. M. Comstock
per

F. A. Lehmann, atty

UNITED STATES PATENT OFFICE.

AUSTIN M. COMSTOCK, OF EMLENTON, PENNSYLVANIA.

IMPROVEMENT IN DEVICES FOR DRILLING WELLS.

Specification forming part of Letters Patent No. **213,626**, dated March 25, 1879; application filed January 9, 1879.

To all whom it may concern:

Be it known that I, AUSTIN M. COMSTOCK, of Emlenton, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Devices for Drilling Wells; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in devices for drilling wells; and it consists in an apparatus by which the tools for drilling, suspended by a rope from one end of a walking-beam, are made to drop with the full force of their weight, by severing the connection temporarily between the elevating-crank and the moving power.

In drilling oil or other deep wells it is customary to suspend the tools for drilling at one end of a walking-beam, to the other end of which a pitman is attached, connected with a crank rigidly secured to a shaft.

By this construction the velocity of the tools in their descent is much retarded, and consequently a great part of its effect lost.

To obviate this I have made the improvements, as hereinafter fully described, reference being had to the accompanying drawings.

Figure 1 is a side elevation of my invention. Fig. 2 is a vertical section of the same.

The crank-wheel A is attached to a pitman from one end of a walking-beam, to the opposite end of which the tools for drilling are suspended. The crank-wheel revolves freely upon the shaft B, and has on its inner disk a concentric recess, C, for the reception of the disk D, which is rigidly attached to the shaft B. Nearly one-half of the circumference of the disk D is of the diameter of the recess; but the remaining part is smaller, so that two shoulders, *n*, are formed.

Within the recess, in the space left vacant, is a block, *m*, against which one of the shoulders bears when the shaft rotates, and turns the crank-wheel until the lower center is passed, when, owing to the weight of the tools suspended from the opposite end of the beam, the motion of the crank-wheel is suddenly ac-

celerated by the severing of the moving power from its connection, the tools drop freely down upon the rock.

To counteract or modify the sudden contact of the shoulders on the revolving disk D with the block *m* after dropping the weight on the end of the beam, any suitable elastic substance may be interposed, whereby the wearing out of the machine is prevented.

At the end of the walking-beam, where the tools are suspended, the rope carrying them may be attached to springs, or any other slightly-yielding connection, to break the effect of the sudden lift given by the accelerated motion of the power when released from the weight of the tools.

When the crank-wheel is to be used for pumping, a bolt is passed through it and through the disk D; or the two are fastened together by any other means.

In describing my invention I do not wish to be understood as confining myself to this exact form or construction of fast or loose wheels, as described. It may be simply two cranks, one fast on the shaft and one loose, with projections or blocks on their inside faces, whereby one may take against the other, causing it to rotate, and after passing the center release itself from the driving power, and allow the tools suddenly to drop.

Having thus described my invention, I claim—

1. In a well-drilling apparatus, the crank-wheel A, having a recess, C, in one of its sides, and provided with a block, *m*, inside of its recess, substantially as shown.

2. The wheel or disk D, having a portion of its circumference reduced in size, so as to form the two shoulders *n*, in combination with a device or mechanism for operating it, substantially as described.

3. In a well-drilling apparatus, the combination of the wheel A, disk D, block *m*, and the shaft B, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 6th day of January, 1879.

AUSTIN M. COMSTOCK.

Witnesses:

T. F. LEHMANN,
F. A. LEHMANN.