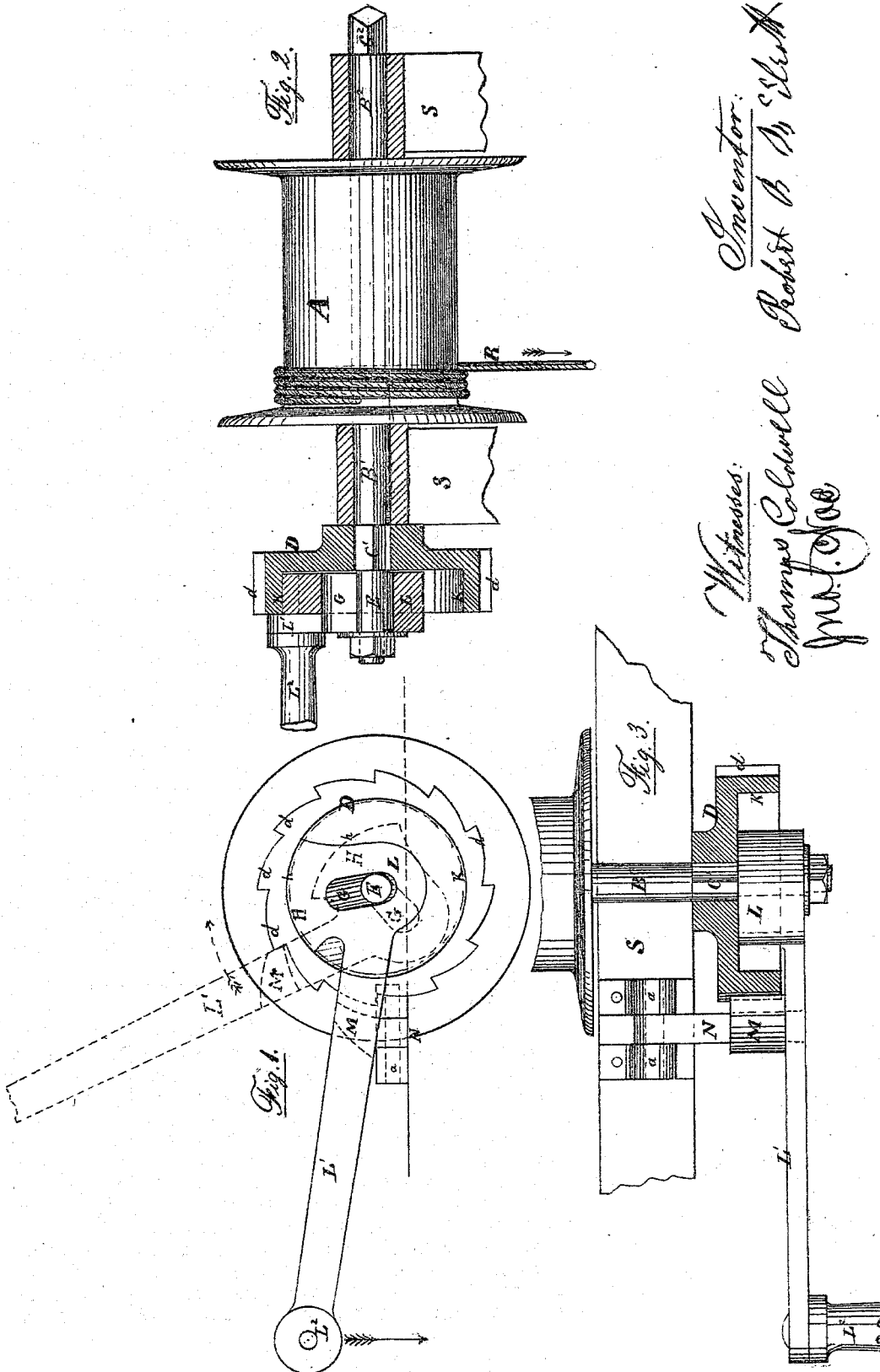


R. B. McELRATH.

Improvement in Combined Cranks, Ratchets, and Brakes.

No. 115,881.

Patented June 13, 1871.



Inventor: Robert B. McElrath
 Witnesses: Chas. Colwell, J. J. Colwell

UNITED STATES PATENT OFFICE.

ROBERT B. McELRATH, OF NEWBURG, NEW YORK.

IMPROVEMENT IN COMBINED CRANKS, RATCHETS, AND BRAKES.

Specification forming part of Letters Patent No. 115,881, dated June 13, 1871.

To all whom it may concern:

Be it known that I, ROBERT B. McELRATH, of Newburg, in the county of Orange and State of New York, have invented a new Combination of a Crank, Ratchet, and Brake for Mechanical Movement; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Figure 1 is a front view of the lever and ratchet-wheel. Fig. 2 represents a side view of the same with the hoisting-drum. Fig. 3 is a plan of the same.

The nature of my invention consists in the construction of a crank on hoisting-machines generally, which, when turned in one direction, is a single-armed lever with a pawl acting on the outside diameter of a wheel with ratchet-teeth, transmitting the power through the wheel and the shaft to the drum by which the weight has to be hoisted, the shaft acting only as a fulcrum for the lever without being fast to the lever, and when turned in the other direction is changed to a double-armed lever, the fulcrum being brought from the drum-shaft to a support outside the wheel, the shaft only serving as a guide for the short arm of the lever, which short arm is so shaped as to act as a powerful brake on the inside rim of the wheel which has the ratchet-teeth on its outside surface. By changing the fulcrum of the lever the pawl on the lever is drawn out of the teeth of the wheel, so that the drum can turn backward without the handle turning with it, and the brake can be put in operation at any moment.

A is the drum on which the rope or chain R is rolled up, say, for instance, to hoist a pail of water from the well. B¹ B² is the drum-shaft, lying in two journals fastened to a suitable frame, S S. D is the ratchet-wheel, fastened to the shaft at C'. *d d* are the ratchet-teeth; K, the inside face of the ratchet wheel, and bored out; L L¹, the lever or crank; L², the handle; M, the pawl, solid with the lever L; and H, a hub of the lever, which is fitted on its face to the inside bore K of the ratchet-wheel D. A slot, G, is cut in the hub, through which runs the outside end of the drum-shaft E B¹ B², and it is formed in such a way that

when the lever L L¹ is turned in the direction as shown in dotted lines, Fig. 1, the one end of the slot G rests on the shaft E and the pawl M takes hold of either one of the teeth *d d* on the outside face of the wheel D. The hub H on the lever, which fits to the inside rim K, recedes from the face K and comes in a position as shown in dotted lines, and the drum is turned around by the wheel D. To the frame S S is fastened a latch, N, on journals *a a*, which project beyond the frame, so that the lever has to lift the latch each time it is passing it; but should the lever be turned the other way the latch N will prevent its being moved any further than to a position shown in full lines in Fig. 1.

If the weight is left acting on the rope R on the drum A the weight will stop in that place as long as the pawl M is left in the ratchet-wheel; but as soon as a power is pulling on the end L², as indicated by the arrow, the pawl M is drawn out the ratchet, and the hub H moved so that the slot G comes in a position as shown in full lines in Fig. 1. This brings the face *h* of the hub H close to the inside rim K of the wheel D, and by pulling stronger on the lever L² the latch M acts as a fulcrum of the lever L, and the face *h* of hub H as a brake on the inside rim K of the wheel D, and regulates the descent of the weight on the rope R, or it stops it entirely, according to the power used on the lever. Turning the lever or crank the other way again, the weight is raised again by the drum revolving the other direction.

Using this apparatus for hoisting water from wells or cisterns, it is often needed with a handle at each end of the drum-shaft, when the well is situated between two adjoining places, to be used on either side. The lever L on the side which is not used will not turn with the drum-shaft; it rests on the latch N, and the shaft E turns loose in the slot G. This avoids all danger of being struck by the crank if a person should be near it and the shaft should be started from the other side; and if, for instance, by winding up the weight, the handle L² should slip out the hand, it will only turn around until it strikes the latch N, where it will stop and allow the drum to revolve further. A pull on the handle L² will put the

brake in operation, and the descent of the weight can be stopped.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The lever L L¹ with slot G, and with pawl M and brake H attached, substantially as described, and for the purpose as set forth.

2. The lever L, in combination with slot G,

pawl M, hub H, ratchet-wheel D, with friction-face K, drum A, shaft B¹ B², and latch N, substantially for the purpose as specified.

ROBERT B. McELRATH.

Witnesses:

THOMAS COLDWELL,
JNO. C. NOE.