I. I. Lancaster,

Pawl and Ratchet.

No. 48,414. Patented June 27, 1865.

Fig. 1.

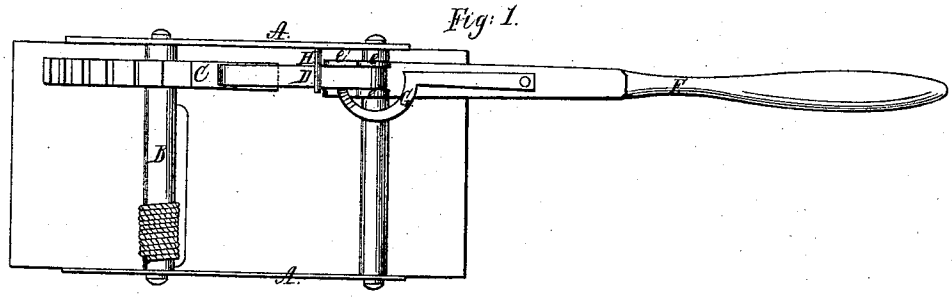


Fig. 2.

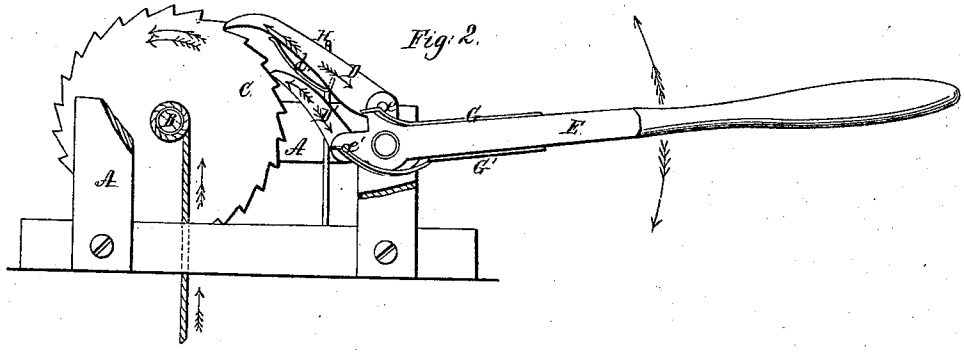
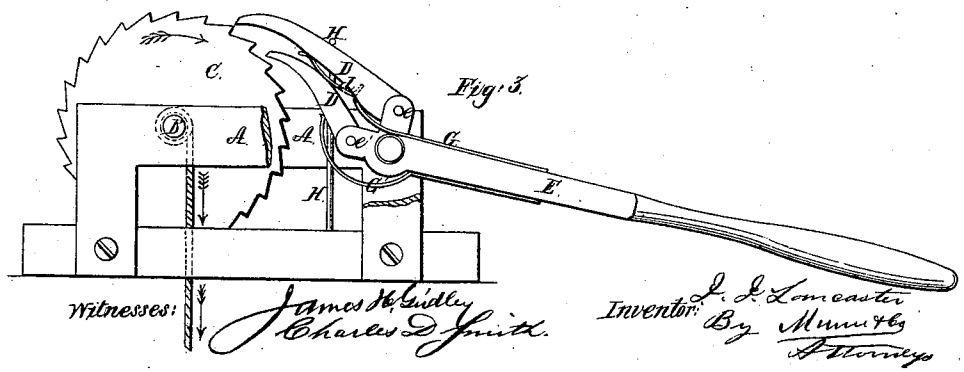


Fig. 3.



Witnesses: James H. Gidley, Charles D. Smith.

Inventor: I. I. Lancaster. By Munn & Co. Attorneys

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

ISAAC I. LANCASTER, OF VANCOUVER, WASHINGTON TERRITORY.

IMPROVEMENT IN HOISTING AND LOWERING APPARATUS.

Specification forming part of Letters Patent No. **48,414**, dated June 27, 1865.

To all whom it may concern:

Be it known that I, ISAAC I. LANCASTER, of Vancouver, in the county of Clark and Territory of Washington, have invented a new and Improved Hoisting and Lowering Apparatus; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of my improved apparatus, showing the parts in position for lowering. Fig. 2 is a side elevation thereof, with the parts in position for hoisting. Fig. 3 is a side elevation of the same in its lowering capacity.

Similar letters of reference indicate corresponding parts in the several figures.

In this machine the hoisting is effected by gravitating-pawls operated by a lever and alternately taking into the teeth of a ratchet-wheel, and to adapt the apparatus for gradually lowering weights springs of peculiar arrangement are brought into requisition, in the manner hereinafter described.

The following description will enable others skilled in the art to which my invention appertains to fully understand and use the same.

In the accompanying drawings, A A represent two stationary frames, in which is journaled a shaft or windlass, B, upon which is wound the rope or chain that sustains the weight to be elevated or lowered.

C is a ratchet-wheel keyed upon the shaft B, and D D′ are pawls, pivoted one above the other to lugs *e e′* on the end of a lever, E, which is designed to be operated by hand or in any other desirable manner. For hoisting purposes, the pawls D D′ operate by gravity, they being arranged to alternately take into the teeth of the ratchet-wheel, and turn the same by the vibrating movement of the lever E in customary manner. The lever E, to which the pawls are attached, is pivoted by means of a shaft, F, having its bearings in the frame A.

Blue and red arrows in Fig. 2 illustrate the relative movements of the various parts when the apparatus is hoisting.

To lower a weight gradually, or to limit the speed at which the wheel C rotates when a weight is being lowered, I employ springs G G′, pivoted respectively to the upper and under sides of the lever E, and also a rod, H, the upper end of which is deflected so as to extend over the pawl D and retain it, with the pawl D′, in working position. The spring G is turned beneath the pawl D, and the spring G′ beneath the pawl D′. In Fig. 3 the pawl D is represented as engaging with one of the teeth of the ratchet-wheel C, at which point in the operation the pawl D′ is thrown out of connection with the teeth of the ratchet-wheel by the spring G′. The pawls in this position, a slight depression of the lever E advances the pawl D′ toward the ratchet-wheel C, and retracts therefrom the other pawl, D, until it becomes disengaged from the ratchet-tooth, when the spring G immediately throws it upward, so as to allow the tooth with which it is engaged to pass under it as the wheel C rotates in the direction indicated by the red arrows in Fig. 3. While the pawl D is being retracted the pawl D′ is depressed by a spring, *d*, on the under side of the former, so that as soon as the pawl D is thrown out of connection with the ratchet-wheel, the latter is checked in it motion by the pawl D′ engaging with a lower tooth. The raising of the lever E throws the pawl D again in connection with the wheel and at the same time retracts the pawl D′, the latter being thrown up by the spring G′ when disengaged.

When the apparatus is used for hoisting, the springs G G′, being pivoted, may be turned aside, as in Fig. 2.

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

The employment, in connection with a ratchet-wheel and windlass, of pawls D D′, springs G G′ *d*, a retainer, H, and lever E, the whole being arranged and operating substantially in the manner and for the purposes set forth.

ISAAC I. LANCASTER.

Witnesses:

J. E. WYCHE,

B. N. SEXTON.