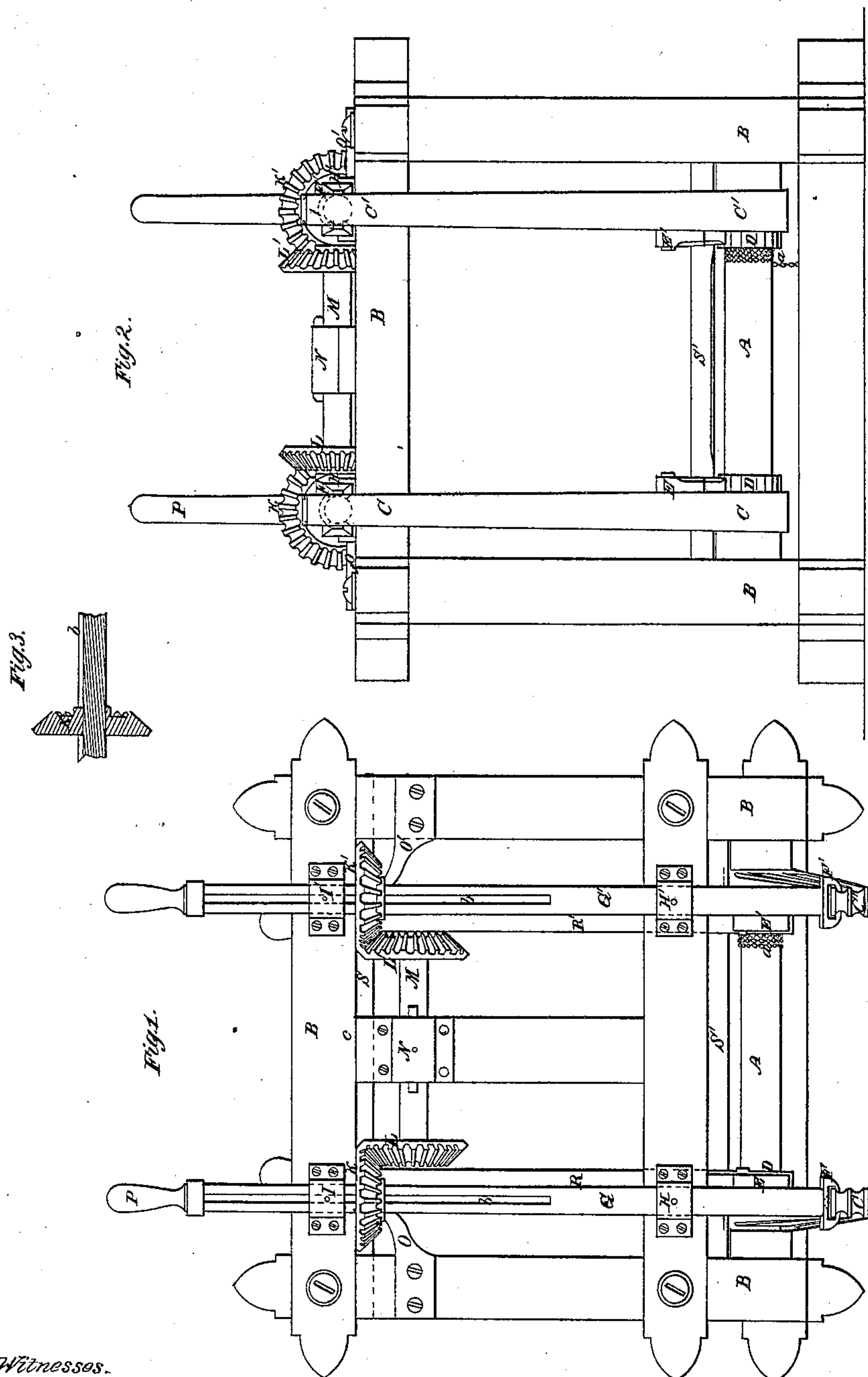


*Phelps & Slack,  
Lifting Jack,*

*Nº 47,036,*

*Patented Mar. 28, 1865.*



*Witnesses.*

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by their attorney

R. H. Eddy

# UNITED STATES PATENT OFFICE.

SAMUEL B. PHELPS AND CHARLES A. SLACK, OF NORWICH, VERMONT.

## IMPROVEMENT IN HOISTING-MACHINES.

Specification forming part of Letters Patent No. 47,036, dated March 28, 1865.

*To all whom it may concern:*

Be it known that we, S. B. PHELPS and C. A. SLACK, of Norwich, in the county of Windsor and State of Vermont, have invented a new and useful Machine for Raising Heavy Bodies; and we do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 denotes a top view, and Fig. 2 a side elevation, of it.

In such drawings, A exhibits a windlass, from which depends a chain, *a*. The journals of this windlass are supported in suitable bearings within an upright frame, B, constructed as represented in the figures.

On the shaft of the windlass are two levers, C C', such shaft being the fulcrum of each of them. Two ratchets, D D', are arranged on and applied to the windlass, each being in close contiguity to one of the levers, and engaging with one of two impelling pawls, E E', which are carried by the said levers.

On each lever a slider, F or F', is arranged, as shown in the drawings, each slider being connected with one of two horizontal screws, G G', which are arranged across the top of the frame B and screw into boxes H H', fastened to such frame. The screw-shafts revolve within and are supported by two other boxes, I I', fixed on such frame. The connection of the slider with its lever and screw is such as not only to cause the screw while being revolved to move the lever on its fulcrum, but to enable the slider to move on and lengthwise of the lever.

In each screw-shaft there is a long groove, *b*, which receives a projection or feather from the hub of a bevel-gear, K or K', which slides freely on the screw-shaft and is placed against or close to one of the girts *c c* of the upper part of the frame. Fig. 3 represents a section of the gear, its shaft, and feather.

The two gears K K' respectively engage with gears L L', fixed on a shaft, M, which is arranged between and at right angles to the two screw-shafts and is supported within a box, N. We would remark that instead of the four bevel-gears, as above described, there may be a single spur-gear arranged on each of the screw-shafts, such spur-gears being made to engage with each other; but on some accounts it is preferable and may be more convenient to employ the four bevel-gears.

Two projections, O O', extend from the frame B and directly in front of and against

the hubs of the bevel-gears K K', such projections, with the frame-girt, as mentioned, being for the purpose of maintaining the bevel-gears in their respective positions while they may be in revolution.

A crank, P, is fixed on one of the screw-shafts, or there may be such a crank attached to each of them.

Each pawl E or E' is provided with a tripper, R or R', which consists of a slider or bar supported by two cross-bars, S S', of the frame, and so arranged as to be capable of being pushed lengthwise against the pawl, so as to force and hold it out of engagement with its ratchet.

By laying hold of either of the cranks and revolving it for a while in one direction, and next turning it for a similar period in an opposite direction, we shall produce, by means of the screws, the levers, pawls, and ratchets, a continuous rotation of the windlass in one direction. As the two levers while in motion always move opposite ways relatively to one another, the pawl of one will be impelling its ratchet while the pawl of the other will be slipping backward on and imparting no motion to its own ratchet.

By means of the pawl-trippers R R' both pawls may be forced out of engagement with their ratchets, so as to enable the windlass and its ratchets to be freely rotated by a weight when suspended from its chain.

The apparatus or machine as described is of much utility and very convenient in raising stone or various other heavy bodies.

We claim as our invention—

1. The combination of the windlass A, the ratchets D D', pawls E E', the levers C C', the sliders F F', the screws G G', the screw-boxes H H', (or their equivalents,) and the gears for connecting the shafts, the whole being arranged and applied to the frame B and its projections O O', and so as to operate together, substantially as specified.

2. The combination of the two pawl-trippers R R', or their mechanical equivalents, with the said windlass, its ratchets, pawls, levers, slides, screws, and the connecting-gears thereof, the whole being arranged in manner and so as to operate substantially as set forth.

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