

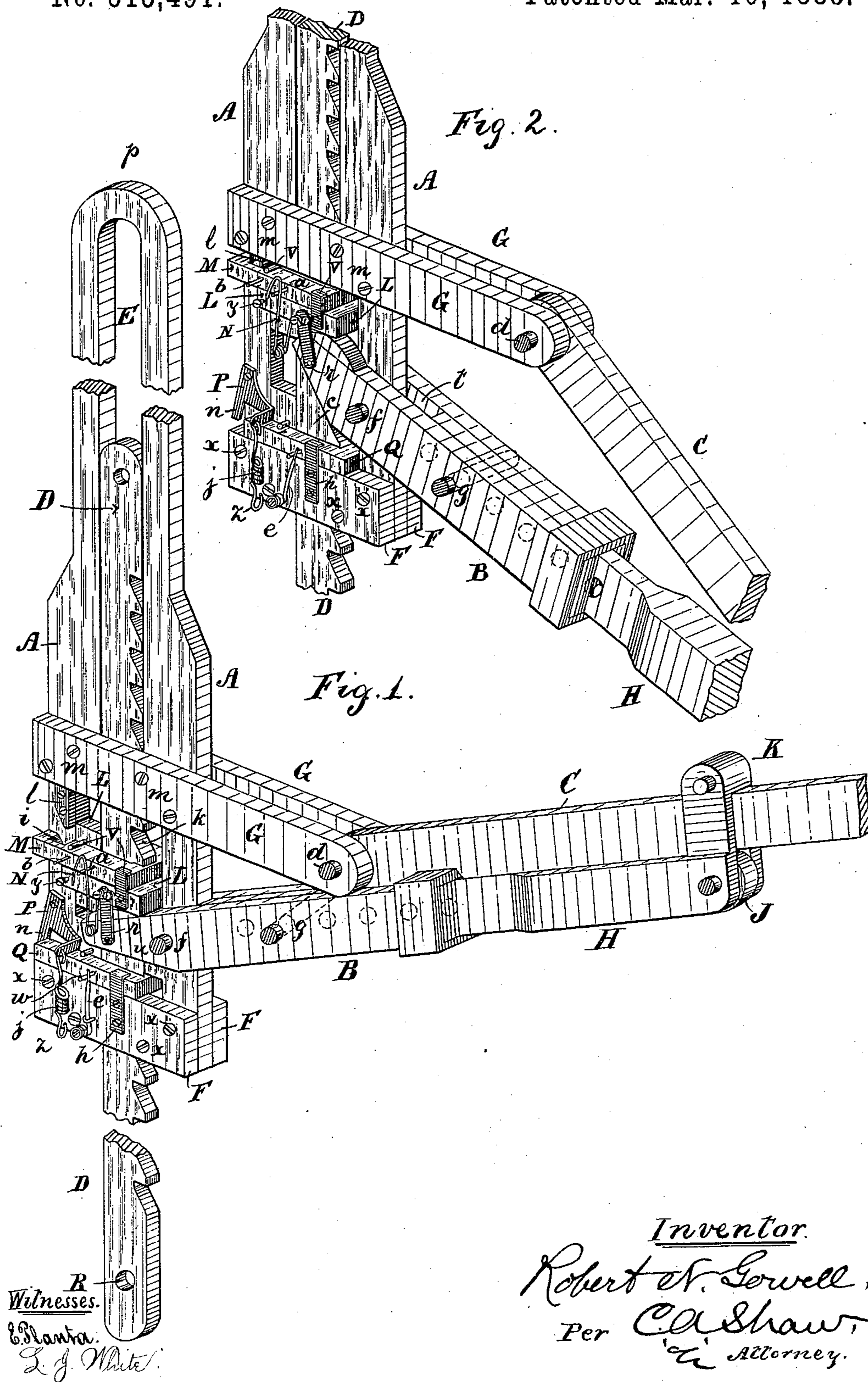
(No Model.)

R. N. GOWELL.

STONE LIFTER.

No. 313,491.

Patented Mar. 10, 1885.



# UNITED STATES PATENT OFFICE.

ROBERT N. GOWELL, OF ASHBURNHAM, MASSACHUSETTS.

## STONE-LIFTER.

SPECIFICATION forming part of Letters Patent No. 313,491, dated March 10, 1885.

Application filed November 13, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT N. GOWELL, of Ashburnham, in the county of Worcester, State of Massachusetts, have invented a certain new and useful Improvement in Stone-Lifters, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an isometrical perspective view representing my improved stone-lifter with the levers elevated, and Fig. 2 a like view representing it with the levers depressed.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates more especially to that class of stone-lifters which are designed to be suspended by means of a tripod or similar support when in use; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a more desirable and effective article of this character is produced than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the body, B the main lever, C the auxiliary lever, and D the bar.

The body is slotted longitudinally, as shown at E, to receive the bar D, and is provided at its lower end, at either side, with a cross-bar, F, firmly attached thereto by means of the screws or bolts *x*, the bar D being fitted to slide vertically in the slot E and between the bars F.

Secured to the body A by the screws or bolts *m* there are two arms, G, arranged horizontally at right angles to said body and in parallelism with each other, the auxiliary lever C being pivoted at *d* in the outer ends of these arms.

The main lever B is pivoted to the body A at *f*, being slotted or mortised, as shown at *t*, to receive the extension-lever H, which is se-

cured in position on the lever B by means of the pin *g*.

The outer end of the extension-lever H is provided with a friction-roller, J, on which the auxiliary lever C rests, and with an upwardly-projecting link or loop, K, through which said last-named lever passes, and in which it works when in use.

The inner end of the main lever B is bifurcated or slotted to receive the bar D, astride of which it extends, and is jointed by a link, *r*, at either side to a slide, L, which works vertically in an enlargement of the slot E of the body A, said slide being provided with a vertical slot, (not shown,) through which the bar D passes.

Mounted on the vertically-working reciprocating slide L there is a pawl-slide, M, fitted to work horizontally in ways *v*, attached to the slide L, and provided with an elongated slot, (not shown,) through which the bar D passes.

Projecting horizontally from the side of the slide M there are two studs, *a b*, and attached to the slide L there is a spring, N, the free end of which is adapted to engage either of said studs, as required.

The slot in the slide M opens outwardly through that one of its ends which is farthest from the lever B, thereby permitting said slide to pass astride of one side or member of the body A, and also astride of an upwardly-projecting portion of the slide L, which is provided with horizontally-projecting pins, forming a part of the ways *v*.

The slide M is also provided, near its bifurcated end, with a cam-shaped mortise or slot, *i*, adapted to receive a cam or inclined bar, *l*, attached to the body A.

Fitted to slide horizontally in ways *h* on the bars F there is a retaining pawl or slide, Q, provided with a slot, (not shown,) through which the bar D passes, said slot opening outwardly through that end of said slide which is farthest from the lever B, and passing astride of one side or member of the body A.

A spring, *e*, is attached to the bar F, said spring pressing against a stud, *w*, on the slide Q, and forcing it toward that side of the body A which is farthest from or opposite the lever B.

A bell-crank lever, P, having one of its arms

*n* arranged to engage the slide *Q*, is pivoted to the body *A*, its other arm being bent outwardly over the slide *Q*, and provided with a coiled spring, *j*, having a hook, *z*, which is adapted to engage a projecting headed stud, *y*, on the slide *L*.

The bar *D* is serrated or provided with teeth on its side or edge nearest the lever *B*, and with a hole, *R*, at its lower end, for receiving a chain, cord, or other suitable appliances for attaching the stone to the lifter, the teeth of the bar being inclined on their upper side, as shown.

In the use of my improvement the body *A* is suspended by its end *p* from the tripod or other suitable support, and the stone secured to the lower end of the bar *D*. The spring *N* being adjusted to press against that side of the stud *a* which is nearest the lever *B* and the spring *e* against the corresponding side of the stud *w*, and the pawl *Q* arranged beneath the tooth *u* of the bar *D*, the outer ends of the levers *B H* are then elevated by the lever *C*, as shown in Fig. 1, depressing the inner end of the lever *B*, drawing down the slide *L* by means of the links *r*, and permitting the spring *N*, acting on the stud *a*, to force the slide *M* beneath the tooth *k* of the bar *D*. It will be understood that before the levers *B H C* are elevated, as described, the slide *M* rests on the upper or inclined side of the tooth *k*, and that as said levers are elevated said slide, being secured to the slide *L* by the ways *v*, will be drawn down over said tooth and forced under it by the spring *N*. The levers are next depressed, as shown in Fig. 2, thereby elevating the inner end of lever *B* and forcing the slides *L M* and bar *D* upwardly, the tooth *k* resting during the upward movement of the bar on the slide *M*, and being carried along with it. As the bar *D* moves upwardly the inclined upper side of the next adjoining tooth, *c*, below the tooth *u* on said bar will be brought against the under side of the pawl *Q* in the slot through which said bar passes, and force said pawl toward that side of the body *A* which is nearest the lever *B*; but when the bar has been elevated sufficiently to bring the tooth *c* above the pawl *Q* the spring *e* will force said pawl under the tooth, as shown in Fig. 2, after which the levers are again elevated to cause the slide *M* to engage another tooth preparatory to repeating the operation. After the stone has been raised to the desired height the lifter is operated to lower it in the following manner: The outer ends of the levers being elevated, and the pawl *Q* under a tooth and supporting the bar *D*, as shown in Fig. 1, the spring *j* is hooked onto the stud *y*, and the spring *N* arranged to press against that side of the stud *b* which is farthest from the lever *B*, the action of the spring against said pin then forcing the slide *M* over toward said lever and out of the path of the next adjoining tooth above before the levers are actuated. The outer ends of the levers are

next depressed, forcing the slide *L* upwardly, and causing the bell-crank lever *P*, through its connection with said slide by means of the spring *j* and hook *z*, to overcome the action of the spring *e* and disengage the slide *Q* from the tooth of the bar *D*, thereby permitting said bar to slide downwardly in the slot *E*. As the slides *L M* move upwardly, and just before the pawl *Q* is disengaged from the bar, the cam-bar *l* is brought into contact with the cam or incline in the mortise *i*, thereby overcoming the action of the spring *N*, and drawing the slide *M* under the next tooth above it on the bar *D* just in season to cause said tooth to engage said slide, and thereby prevent the bar from moving downwardly to a greater distance than the space between two of the teeth. The bar *D* being now supported by the tooth which rests on the slide-pawl *M*, the outer end of the lever is next elevated, whereby the inner end of said lever is depressed and the vertical slide *L* and slide-pawl permitted to descend or drop, thus lowering the bar *D*. As the slide *L* descends, the bell-crank lever *P* ceases to act on the pawl *Q*, owing to the relaxation of the spring *j*, thereby permitting the spring *e* to force said pawl *Q* under the tooth next above said pawl on the bar *D*, which is done just in season to cause said pawl *Q* to engage said tooth as the bar drops or descends. The outer ends of the levers are then depressed again, preparatory to repeating the operation, which is performed in a manner which will be readily obvious without a more explicit description.

When but little power is required, the extension-lever *H* may be removed from the main lever *B*, and the auxiliary lever *C* inserted and used instead of said extension-lever, if desired; but for raising heavy weights the compound levers are preferable, although I do not confine myself to their use.

The lever *H* has its inner end provided with a series of holes for receiving the pin *g*, thereby adapting it to be lengthened or shortened at pleasure. This lever may, however, be omitted, if desired, and the lever *B* elongated sufficiently to compensate therefor.

Having thus explained my invention, what I claim is—

1. In a stone-lifter, the combination of a body, *A*, provided with a vertical slot, a vertically-movable serrated bar within said slot, a slide movable vertically within said slot, a lever pivoted to said body, the inner end of which projects under said slide to lift it, a horizontally-sliding pawl on said slide, and springs for actuating said pawl, substantially as described.

2. In a stone-lifter, the combination of a body, *A*, provided with a vertical slot, a vertically-movable serrated bar within said slot, a slide movable vertically within said slot, a lever pivoted to said body, the inner end of which projects under said slide to lift it, a horizontally-sliding pawl on said slide, springs

for actuating said pawl, a horizontally-sliding pawl supported on said body, and springs for actuating said pawl, substantially as described.

5 3. In a stone-lifter, the combination of a body, A, provided with a vertical slot, a vertically-movable serrated bar within said slot, a slide movable vertically within said slot, a lever pivoted to said body, the inner end of  
10 which projects under said slide to lift it, a horizontally-sliding pawl on said slide, springs for actuating said pawl, a horizontally-sliding pawl supported on said body, a spring for actuating said pawl to cause it to engage said  
15 bar, a bell-crank lever for actuating said pawl to release it from said bar, and a spring-hook adapted to connect said pawl with said vertically-movable slide, substantially as described.

20 4. In a stone-lifter, the combination of a body, A, provided with a vertical slot, a vertically-movable serrated bar within said slot, a slide movable vertically within said slot, a lever pivoted to said body, the inner end of which projects under said slide to lift it, a  
25 horizontally-sliding pawl on said vertically-movable slide, provided with pins *a* and *b*, and a spring adapted for adjustment in connection with either of said pins for moving said sliding pawl in either direction, substantially as de-  
30 scribed.

5. In a stone-lifter, the combination of a body, A, provided with a vertical slot, a vertically-movable serrated bar within said slot,

a slide movable vertically within said slot, a lever pivoted to said body, the inner end of which projects under said slide to lift it, a horizontally-sliding pawl on said vertically-movable slide, provided with an inclined face, a cam-bar on said body adapted to engage said inclined face to move said pawl in one direc- 35  
40 tion, and a spring for moving it in the opposite direction, substantially as described.

6. The improved stone-lifter herein described, the same consisting of the body A, provided with the cam *l*, arms G, and bars F, the  
45 levers B C H, the pawl Q, provided with the stud *w* and spring *e*, the pawl M, provided with the cam-mortise *i*, studs *a b*, the spring N, the lever P, provided with spring J, having the hook *z*, the slide L, provided with the  
50 stud *y* and link *r*, and suitable ways for the slide and pawls, all constructed, combined, and arranged to operate substantially as described.

7. The combination of the body A, provided with a vertical slot, the serrated bar D, 55  
movable in said slot, the vertically-movable slide L within said slot, the pawls for engaging said serrated bar, the mechanism, substantially as herein described, for actuating said  
60 pawls, the arms G, attached to said body, the lever B, pivoted to said body, and the auxiliary lever C, pivoted to said arms.

ROBERT N. GOWELL.

Witnesses:

HARRIS C. HARTWELL,  
CHARLES F. BAKER.