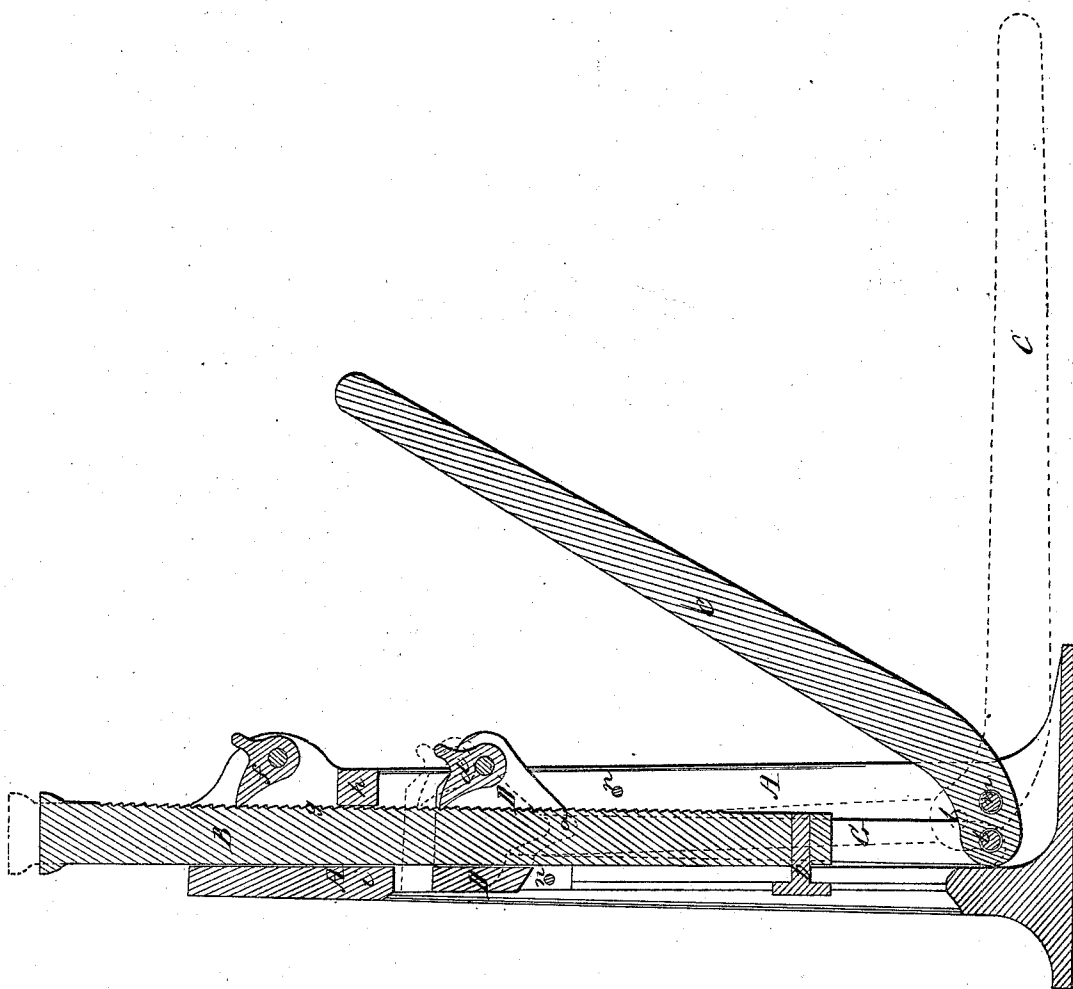


R. W. & D. Davis,
Lifting Jack,
Nº 17,027, Patented Apr. 14, 1857.



UNITED STATES PATENT OFFICE.

ROBERT W. DAVIS AND DANIEL DAVIS, OF YELLOW SPRINGS, OHIO.

LIFTING-JACK.

Specification of Letters Patent No. 17,027, dated April 14, 1857.

To all whom it may concern:

Be it known that we, ROBERT W. DAVIS and DANIEL DAVIS, of Yellow Springs, in the county of Green and State of Ohio, have
5 invented a new and Improved Lever-Jack; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification and
10 representing a central vertical section of our improved lever-jack.

We prepare a suitable standard A, generally made of cast iron; in which the other parts are mounted. In the middle of this
15 standard slides the traveling ratchbar B, which is kept in place by the portions *h*, *i*, &c., of the standard, which surround it, and by a guide *b*, at the bottom, sliding in suitable grooves. On one side of this bar are
20 notches *g*, of any required degree of fineness. Near the top of the standard is a stationary pawl *f*, which serves to retain the ratch-bar at any height to which it is raised, its position being opposite to the solid portion *i*, of
25 the standard, and consequently holding the ratch-bar principally by pressing it against said solid portion of the standard. Below the retaining pawl is situated a grip D, which embraces the ratch-bar and reciprocates, up and down thereon, in the manner
30 presently to be described. The back of the aperture of the grip is plane, and comes in immediate contact with the plane back of the ratch-bar; and in the front part of the
35 grip is situated a pawl *d*, which takes into the notches *g*, of the ratch-bar, substantially as represented. The grip rests upon upright connecting rods, G, there being one on each side of the ratch-bar. The grip, or
40 the connecting rods, may have suitable notches or depressions, to receive corresponding projections on the opposite rods or grip, and thus keep the rods in place, as shown at *a*; and to keep the rods more surely
45 in place, guide pins *n*, *n*, may be used; thus allowing a perfectly free motion of the connecting rods. The lower ends of these connecting rods are pivoted at *l*, to the lever *c*, to which the power is applied, as far from
50 the fulcrum *m*, of the lever as may be desired. The positions of the fulcrum and pivot are such as to keep the connecting rods as nearly in a vertical position as possible, although, when they are of considerable
55 length as represented, the variation from a vertical position can be only slight, so that

the power applied acts always almost precisely in the direction in which the ratch-bar moves. The lever and connecting rods should also be arranged so that when the lever is brought down to its lowest position, the pivot *l*, will be nearly or exactly in a straight line between the fulcrum *m*, and the central bearing point of the connecting rods against the reciprocating grip D, as represented by dotted lines in the drawing.

The action of this lever jack is obvious:—When the lever C, is raised, as shown in the drawing, the reciprocating grip D, slides down on the ratch-bar, and its pawl *d*, takes
70 into a lower notch of the ratch *g*. Then, when the lever is pressed down to the horizontal position, as shown by dotted lines, the reciprocating grip is raised, and consequently lifts the ratch-bar with it. The
75 stationary pawl *f*, then retains the ratch-bar at the height to which it is moved, when the lever is raised again for a new hold. When comparatively light articles are to be raised, the lever may be lifted as far as it will go, and thus will lift the ratch-bar two or more
80 notches, whereby the jack works expeditiously; but when very heavy weights are to be raised, the lever may be lifted (say to an angle of 45 degrees with the horizon,) only sufficiently to raise the ratch-bar a
85 single notch, whereby a slower action but greater power may be produced. To let down the ratch-bar, both the pawls *d*, and *f*, are drawn out of the ratch, and it then descends by its own weight. And if it is desired to let a weight down slowly, when the lever is in a horizontal position, withdraw the stationary pawl; then raise the lever; then allow the stationary pawl to engage
95 with the ratch, and lift the grip pawl; then lower the lever. By repeating this operation, any weight, however heavy, may be let down as gradually as it is raised.

The advantages of the reciprocating grip, arranged and operating as described, are, principally, that it holds the ratch-bar firmly without any side pressure thereof, and consequently produces no side strain on said ratch-bar, the whole clutching power
105 being within itself, leaving said ratch-bar perfectly free in its motions; and that the pawl *d*, situated therein, holds principally by pressing it against the back of the ratch-bar, and not by the strength of the teeth
110 of the ratch. This, also, in connection with the connecting rods, as described, enables

the force to be applied almost precisely in the direction of the ratch-bar's motion, thus securing the full force of the power, and causing little resistance by friction, as well
5 as producing little or no strain on the parts.

We do not claim the ratch-bar, grip, pawls, or connecting rods herein described; but

What we claim as our invention and de-
10 sire to secure by Letters Patent, is—

The application of the power centrally beneath the self-clutching grip, or collar, whereby its action is directed in the line of the axis of the ratchet-bar, for the purpose specified.

R. W. DAVIS.
DANIEL DAVIS.

Witnesses:

A. W. SROUFE,
A. S. DAVIS.