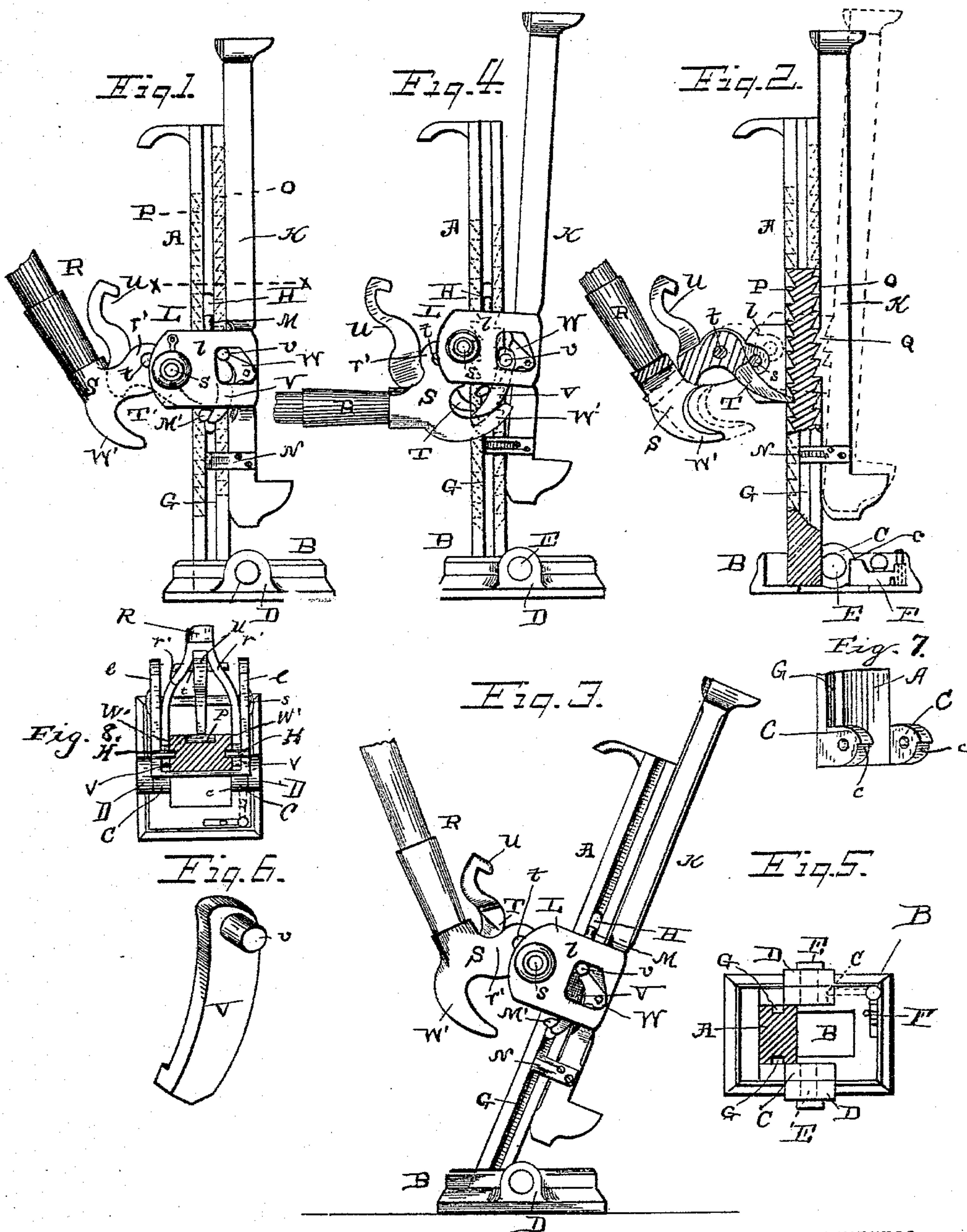


(No Model.)

A. P. AIKEN.
LIFTING JACK.

No. 490,221.

Patented Jan. 17, 1893.



WITNESSES:

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ALBION P. AIKEN, OF PORT PERRY, PENNSYLVANIA.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 490,221, dated January 17, 1893.

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To all whom it may concern:

Be it known that I, ALBION P. AIKEN, a citizen of the United States, residing at Port Perry, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Lifting-Jacks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to lifting jacks, and refers particularly to that class of jacks employed in raising heavy weights, such as cars, machinery, &c.

It is frequently necessary to raise weights which travel in an inclined direction, or on the arc of a circle, and it is my object to provide means whereby the lifting-bar may follow the direction of movement of the object being elevated, and thus secure a straight lift, or a lift which is parallel with the movement of the object.

It is my object, furthermore, to provide means whereby the weight may be lowered slowly, or step by step.

With these objects in view my invention consists, essentially, in a swinging standard which is fulcrumed at its lower end to a stationary base, whereby the lifting-bar is free to follow the direction of movement of the load while the standard is firmly secured to a stationary base; and my invention, consists, furthermore, in adjustable tongues, mounted upon the lifting-bar and adapted, when in their operative positions, to be engaged by fingers upon the hand-lever, whereby the lifting-bar may be disengaged and lowered the distance of one tooth for each movement of the hand-lever; and my invention consists, furthermore, in certain details of construction and arrangement which are fully described hereinafter.

Referring to the drawings, Figure 1 is a side view of a lifting-jack embodying my improvements, Fig. 2 is a similar view, partly in section, and showing in dotted lines the positions of the parts during the operation of raising, Fig. 3 is a similar view, showing the positions of the parts as seen when raising an object in an inclined, or curved, direction,

Fig. 4 is a similar view, showing the tongues arranged in the operative position, and illustrating the manner of lowering the lifting bar, 55 Fig. 5 is a plan view of the base, to show the catch for locking the standard in its vertical position, the standard being indicated in section, Fig. 6 is a detail view of one of the tongues. Fig. 7 is a detail perspective view 60 showing the lugs C, C, and Fig. 8 is a sectional plan view taken on the line $x-x$ Fig. 1.

The standard, A, is fulcrumed at its lower end to the base, B, in such a manner that the lower end of the standard rests (in the vertical position) firmly upon the floor of the base. 65 The standard has integral therewith at its lower end the forwardly projecting lugs C, C, which register with perforated ears, D, D, on the base and receive the pivot-pins, E. Thus, 70 the pivots are in front of the standard and the latter, when vertical, rests firmly on the base, and as the bearings, C, are circular, and rest on the floor of the base it will be evident that the pivot-pins do not bear the strain during the lifting of the weight. One of the bearings, C, is provided with a shoulder, c, and a pivoted catch, F, mounted on the base, is adapted to engage said shoulder c to hold the standard in its vertical position, as shown in 80 Fig. 2. The position of this catch, when engaged with the shoulder on the bearing, is also shown in dotted lines in Fig. 5, and its position when disengaged is shown in full lines. 85

The standard is provided on opposite sides with guide-grooves, G G, in which fit and operate the feathers, H. Only one of the latter is shown, but it will be understood that the other is similar to the one shown and operates in the groove in the opposite side of the standard. 90

The lifting-bar, K, is provided with a yoke, L, the side-arms, l l , of which pass upon opposite sides of the standard and fit between lateral lugs, M M', on the feathers. The lug, M, extends over and engages the upper edge of the arm, and the lug, M', extends under and engages the lower edge of the arm, whereby the yoke (and obviously the lifting-bar carried thereby) is guided vertically by the feathers, operating in the guide-grooves, and is capable of forward and rearward movement between the lugs of the feathers, all of this be- 100

ing clearly illustrated in the drawings, Figs. 2 and 4. The lifting bar is provided at its lower end with clips, N, which also engage the guide-grooves, to hold this part of the lifting bar close to the standard. The standard is provided on its front side with a rack, O, and on its rear side with a rack, P, the rear side of the lifting bar being provided with spurs, Q, to engage the teeth of the rack, O, as shown in Fig. 2.

The hand-lever, R, is provided with an angular head, S, which is fulcrumed, at *s*, to the yoke, the gravity pawl, T, being arranged between the arms, *r' r'*, of the angular head, and mounted upon a pivot, *t*. When the lower end of the pawl is engaged in a tooth of the rack P, and the hand-lever is in the position shown in Fig. 1, it will be seen that the pivot, *t*, is above the plane of the pivot, *s*, and therefore, when the hand-lever is depressed the yoke, and consequently the lifting-bar, will be elevated, and at the same time the lifting bar, will be pushed forward, or away from the standard sufficiently to disengage the spurs, Q, from the rack, O. This operation is shown in Fig. 2. The pawl is provided with hooks, *u u*, which are adapted to be engaged with the upper lugs, M, on the feathers, when it is desired to lower the lifting bar quickly. It will be seen that when the hooks are engaged with the said lugs the lower end of the pawl will be held out of engagement with the rack, and then, by depressing the hand-lever the lifting-bar will be thrown forward sufficiently to disengage its spurs from the rack, O.

The tongues, V, (only one of which is shown in the drawings, the other being similar in construction, and being arranged in the same relative position upon the opposite side of the yoke) are arranged in slots, in the arms of the yoke, and are provided with a stud, *v*, which is adapted to be engaged by a pivoted latch, W, to hold the tongue in its elevated, or inoperative position, as shown in Figs. 1 and 3. The tongues are curved rearwardly toward their lower ends, whereby, when extended, as shown in Fig. 4, the curved fingers, W', on the head of the hand-lever may extend under and engage them. Therefore, when it is desired to lower the lifting-bar, slowly, the pawl is engaged with a lower tooth of the rack, P, as shown in Fig. 4, so that the hand-lever may be swung down to a horizontal position, the fingers, W', engaging the curved tongues. In this position of the parts the pivot, *s*, is above the plane of the pivot, *t*, and consequently, if the hand-lever is elevated the lifting-bar will be thrown forward and downward, its weight being carried by the tongues, V, and the fingers, W'; and the said tongues and fingers will guide the lifting-bar rear-

wardly in time to cause its spurs to engage the next lower series of teeth on the rack, O. In this way the lifting-bar may be lowered slowly and quietly, the pawl being engaged with the next lower tooth each time that the lever is elevated.

Having thus described my invention, I claim:—

1. In a lifting jack, the combination of the base, the standard fulcrumed thereto and capable of free angular movement, said standard having a shoulder *c* near its lower end, and a catch F pivoted to said base and adapted to engage said shoulder to lock the standard in its vertical position, substantially as described.

2. In a lifting jack, the combination with the base having perforated ears D, of a standard having at its bottom forwardly projecting lugs C, C, which rest on the floor of the base, said lugs being curved, and formed with perforations registering with those in the ears D, and a shoulder *c*, pivot pins passing through the perforations in said lugs and ears, and a pivoted catch adapted to engage said shoulder, all substantially as shown and described.

3. In a lifting-jack, the combination with the standard provided with racks, of the lifting-bar having studs to engage one of said racks, the hand-lever, the pawl pivoted to the hand-lever, and the tongues carried by the lifting-bar and adapted to be engaged by fingers on the hand-lever, substantially as specified.

4. In a lifting-jack, the combination with a standard provided with racks, of the lifting-bar provided with a yoke to slide on the standard, and studs to engage one of said racks, the hand-lever having an angular head fulcrumed between the rear ends of the arms of said yoke and carrying a pawl to engage the other rack, and the adjustable tongues, mounted on the yoke, and adapted, when extended, to engage fingers on the head of the hand-lever, substantially as specified.

5. In a lifting-jack, the combination, with the standard, having racks, of the lifting-bar having a guiding yoke, the hand-lever mounted on said yoke and carrying the pawl, the tongues, V, mounted on the yoke and adapted, when extended, to be engaged by fingers on the hand-lever, and the pivoted latches to engage the tongues when not in use, substantially as specified.

In testimony that I claim the foregoing I hereunto affix my signature this 26th day of February, A. D. 1892.

ALBION P. AIKEN. [L. S.]

In presence of—

CHARLES LARGE,
M. E. HARRISON.