(No Model.)

J. S. ORR.

LIFTING JACK.

No. 384,066. Patented June 5, 1888.

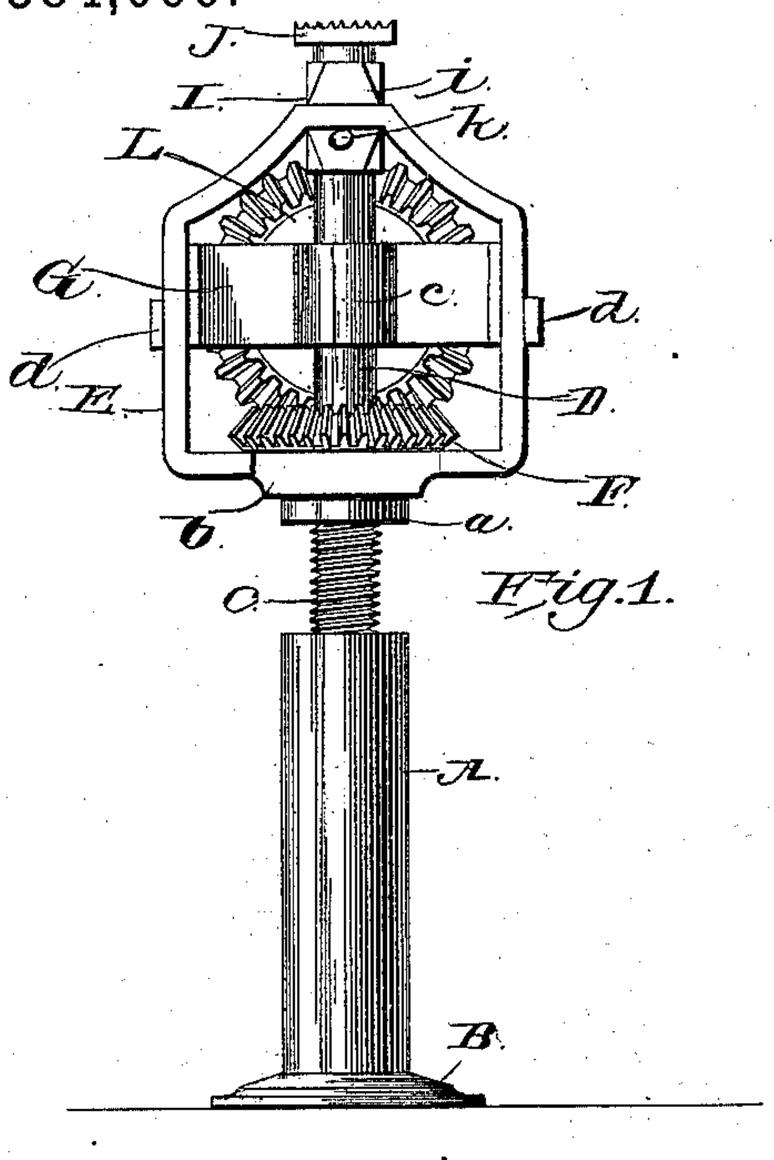

Fig. 1.

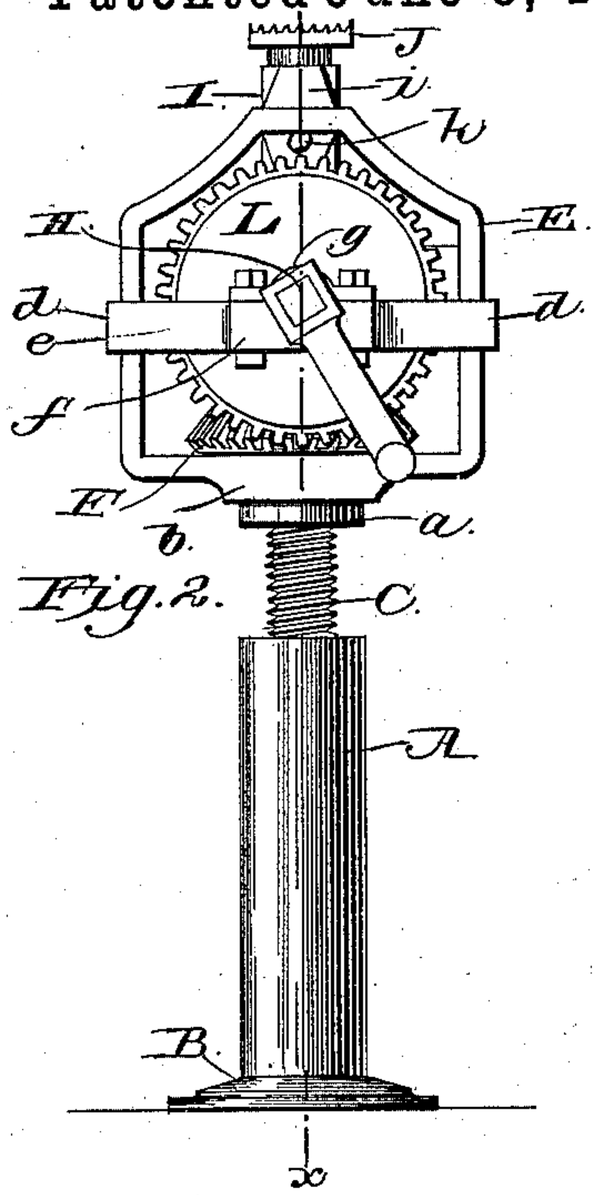

Fig. 2.

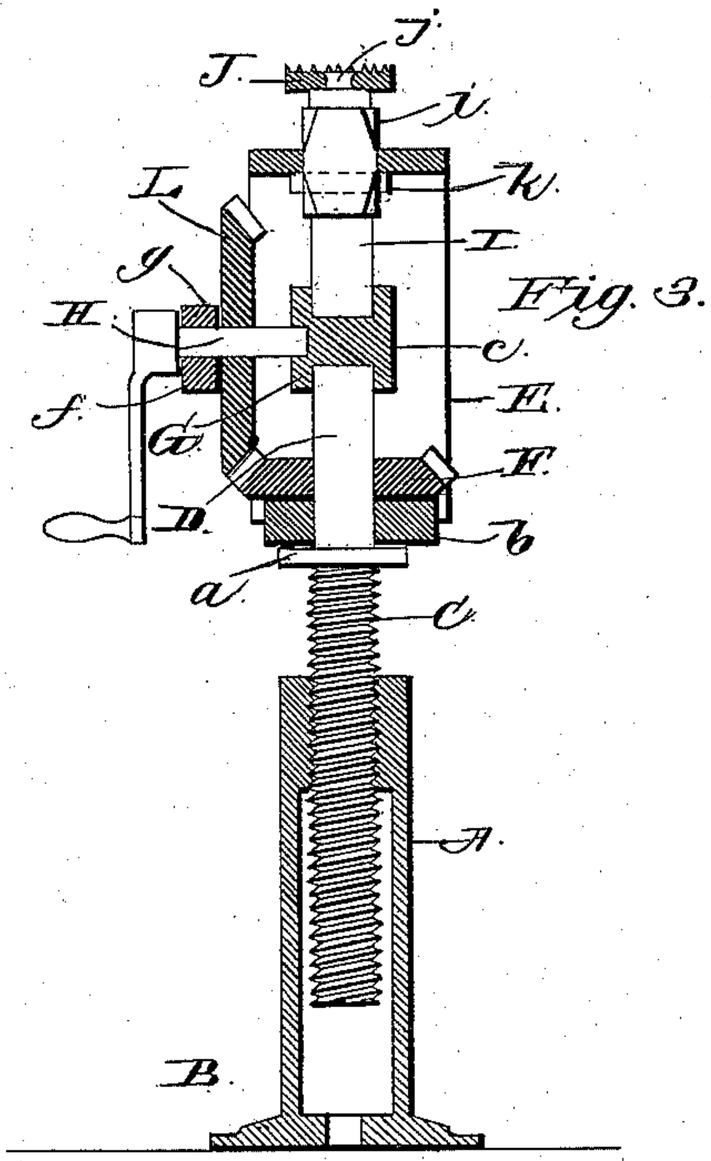

Fig. 3.

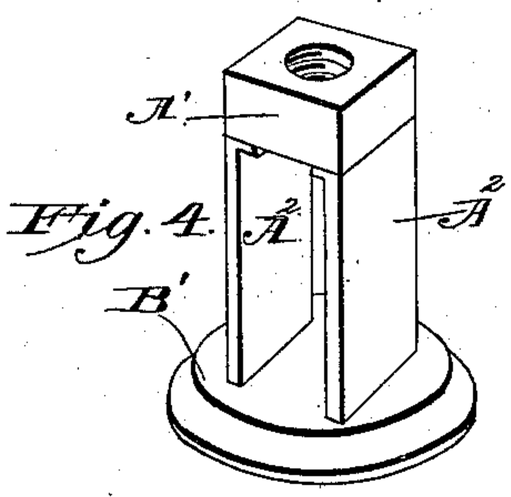

Fig. 4.

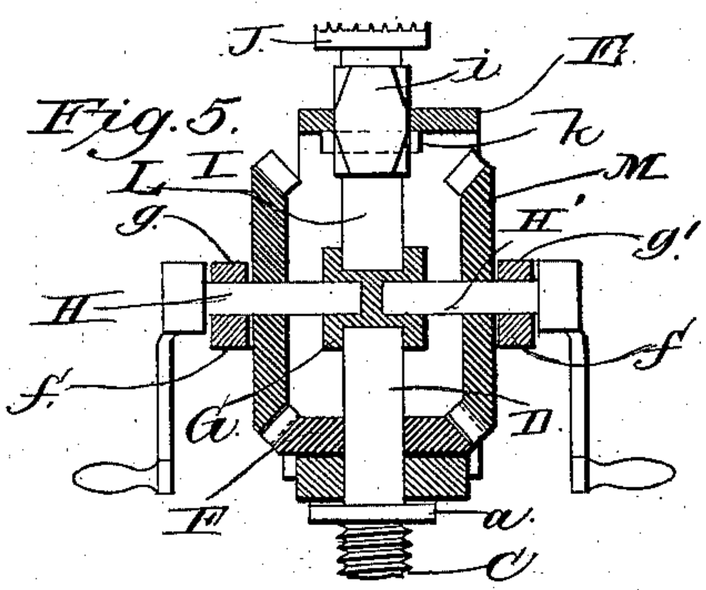

Fig. 5.

Witnesses.
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By his Attorneys.
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UNITED STATES PATENT OFFICE.

JOHN STEPHENS ORR, OF AUGUSTA, KENTUCKY.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 384,066, dated June 5, 1888.

Application filed February 16, 1888. Serial No. 264,202. (No model.)

To all whom it may concern:

Be it known that I, JOHN STEPHENS ORR, a citizen of the United States, residing at Augusta, in the county of Bracken and State of Kentucky, have invented a new and useful Improvement in Lifting-Jacks, of which the following is a specification.

My invention is a lifting-jack; and it consists in the novel combination, hereinafter described and set forth, whereby an efficient, durable, and simple jack is provided that possesses numerous advantages over many forms of jacks now in use.

In the accompanying drawings, forming part of this specification, Figure 1 is an elevation of a jack embodying my improvements. Fig. 2 is a like view looking from the opposite side. Fig. 3 is a vertical sectional elevation on the dotted line *x x*, Fig. 2. Figs. 4 and 5 are detail views of modifications.

A refers to a vertical standard, which is provided at its lower end with a circular base, B, supporting said standard. This said standard A is hollow, and is internally threaded at its upper portion, as shown in Fig. 3, for the reception and engagement of the lower threaded portion, C, of a shaft, D. A collar, *a*, is formed integrally with the said shaft, the latter above said collar being plane-surfaced.

A frame, E, of nearly rectangular form, has its base portion, *b*, centrally perforated for the passage of the shaft D. A horizontal bevel gear-wheel, F, is keyed upon said shaft D immediately above the base portion, *b*, of the frame. A brace, G, is arranged transversely in the frame E, as seen in Figs. 1 and 3, at one side of the central vertical plane of the frame, and said brace is provided integrally at its center with an enlargement, *c*, vertically perforated for the reception of the upper portion of the shaft D, which portion only extends about half-way into the said enlargement, as shown in Fig. 3.

A horizontal metallic strap, *e*, has its end portions, *d*, secured to the end portions of the frame, and said strap is so bent that a portion of the same spans one of the open sides of the frame E. An enlargement, *f*, is centrally formed upon the strap *e*, and is recessed in its upper edge to form the lower part of the outer bearing for a shaft, H, bearing at its inner end in the enlargement *c*, and retained in position by means of an upper bearing-block, *g*, which is bolted upon the enlargement *f*. The outer end of the shaft H, projecting beyond the enlargement, is square ended for the application of an operating-key for rotating the same. A vertical bevel gear-wheel, L, is rigidly secured on the shaft H and meshes with the teeth of the wheel F. This wheel L may be keyed to the shaft H, or it may be secured thereon by forming the shaft angular in cross-section and providing the wheel with an angular opening at its center, through which the shaft may pass, as is obvious.

An upper independent shaft-section, I, has its lower end seated in the enlargement *c* in alignment with the shaft D, and the upper portion, *i*, of said section I is enlarged and substantially squared to occupy a correspondingly shaped opening therefor in the frame E. A short vertical stem, *j*, is formed on said section I, and forms the pivot of a supporting-step, J, serrated upon its upper face to present a proper bearing-surface.

The connection between the frame E and section I is secured by means of a transverse pin, *k*, which passes through the said section immediately below the upper part of said frame.

It will be noticed that the collar *a* and gear-wheel F are so arranged upon the shaft D that the intermediate space is somewhat greater in dimension than the thickness represented by the base of the frame E. The said base is maintained equidistant between the adjacent faces of the collar and bevel-wheel and out of contact with either by means of the pin *k* in the section I, upon which pin the upper part of the frame rests. This arrangement enables the entire frame E, its vertical gear-wheel and upper section, I, and its step to be laterally rotated upon the bearing afforded by the upper end of the shaft D. Such an arrangement not only enables the frame E to be rotated to any position convenient for operating without disturbing the vertical adjustment of the jack, but it brings all the wear and strain upon the pin *k*, thereby relieving the collar and lower gear-wheel, and consequently effecting considerable saving of parts.

Of course it will be understood that the frame

E is rotated upon the upper end of the shaft D, as just stated, only when adjusting the device into a convenient position for operating. When the jack is in use, the operator holds the frame against rotation, and the shaft D revolves in the bearings afforded by the enlargement *c* and its screw-threaded connection with the standard A.

The swivel-step allows the above-mentioned lateral movement without the necessity of removing the step out of contact with the object lifted.

The key being applied to the square end of the shaft H, the latter, with its bevel-wheel, is rotated to revolve the bevel-wheel F, thus rotating the shaft D and causing it by its threaded portion to travel vertically up or down in the standard to elevate or lower the jack. From the foregoing it will be understood that the improvement set forth possesses many advantages over other existing forms of jacks, and can be readily and conveniently operated without being subjected to unusual wear or strain.

By reference to Fig. 4 it will be seen that instead of employing the vertical tubular standard A, the latter may be dispensed with, and, instead, a thick block, A′, of metal, forming a nut, is supported in position between the upper ends of standards A^2, which are mounted upon a base, B′. This block A′ is provided centrally with a vertical perforation, through which the threaded end of the shaft passes. As shown in Fig. 5, the open side of the frame E may be spanned by a horizontal strap, *g*, having a bearing for a shaft, H′, the inner end of which bears in the enlargement *c* of the brace G. The outer end of the shaft H′ is key-ended for the engagement of an operating-crank. A second vertical bevel gear-wheel, M, on said shaft H′ meshes with the teeth of the wheel F. This arrangement permits the application of double power in turning the wheel F and its shaft D, when necessary. These and other slight modifications in the form, proportions, and details of construction can be made without departing from the spirit of my invention.

Having thus described my invention, I claim—

1. The combination of the standard, the threaded shaft therein, the open frame having a central swiveled bearing for the upper end of the shaft, and mechanism carried by the frame to rotate the shaft, as set forth.

2. The combination, in a lifting-jack, of a vertical standard, a threaded shaft therein, a frame rotatable on said shaft and provided with a central bearing for the end of said shaft, and a section, I, having its lower end in the said bearing, substantially as specified.

3. In a lifting-jack, a vertical internally-threaded standard, a threaded shaft therein, a frame rotatable upon said shaft, a strap spanning one side of the frame, a shaft bearing in said strap and carrying a bevel-wheel, said shaft being square-ended for the application of a key, and a bevel-wheel, F, on the threaded shaft, substantially as specified.

4. In a lifting-jack, the standard, the threaded shaft engaging a threaded portion of the standard and provided with the collar *a*, the upper portion of the shaft above the collar being threadless, the frame E, swiveled on the upper threadless portion of the shaft, the swiveled step carried by the frame, and the gearing carried by the frame to engage with the threaded shaft, as set forth.

5. In a lifting-jack, the standard, the threaded shaft D, having its upper portion plane and its lower threaded portion working in a threaded part of the standard, the gear F, secured on the plane portion of the shaft, the frame E, swiveled to the plane portion of the said shaft, the gear-wheel L to actuate the gear F, the brace G, the upper independent shaft-section, I, having its lower end seated in the brace, and the swiveled step carried by the shaft-section I, as set forth.

6. In a lifting-jack, the standard, the vertically-movable shaft D, the frame E, swiveled on the shaft D, the gearing carried by the frame E to work the shaft D, the independent shaft I, arranged within the frame E and supporting the same, and step J, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN STEPHENS ORR.

Witnesses:
JAS. W. MCKIBBEN,
W. V. WELDON.