

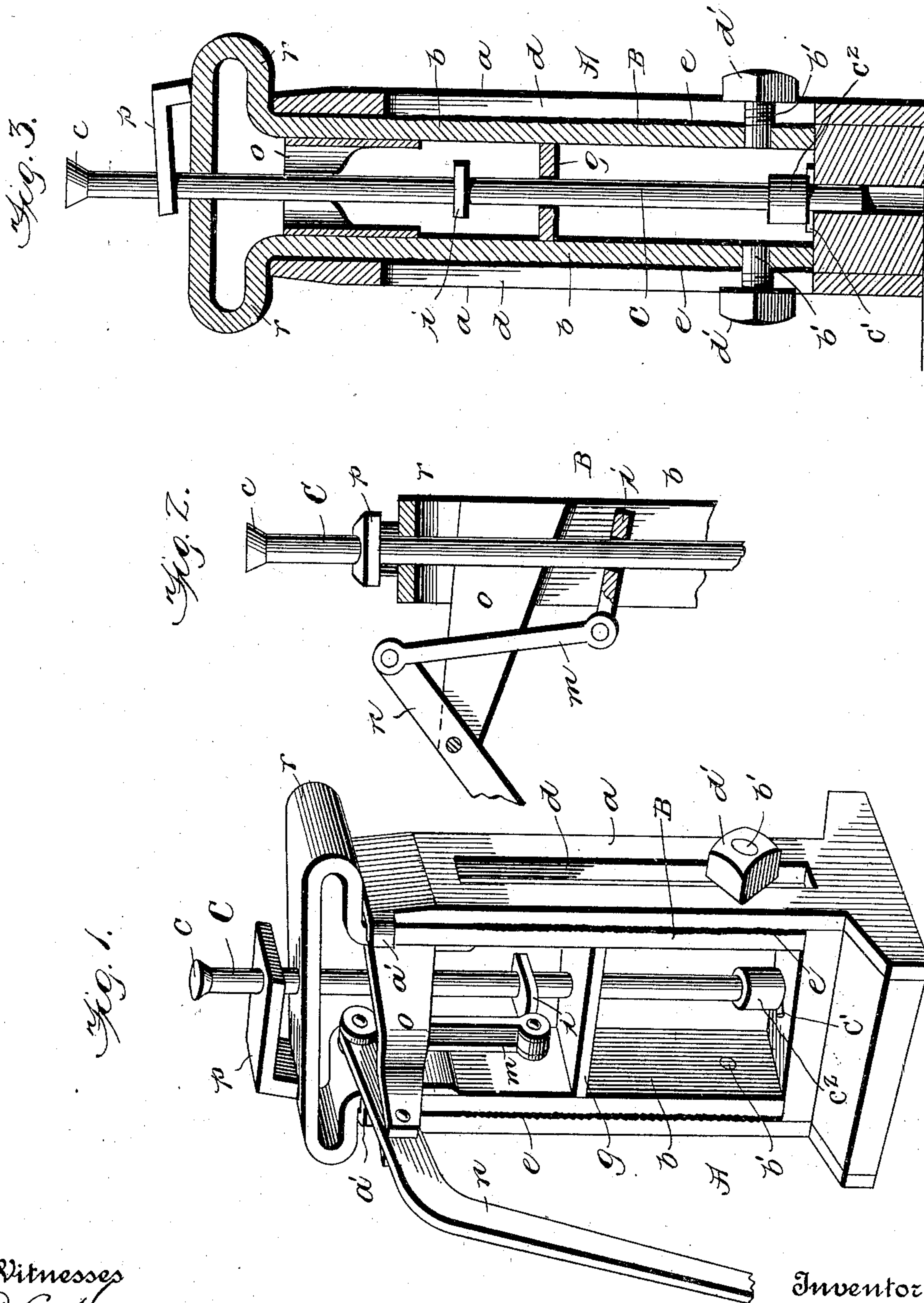
No. 706,880.

Patented Aug. 12, 1902.

J. C. BARLEY.  
LIFTING JACK.

(Application filed Nov. 21, 1901.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 706,880, dated August 12, 1902.

Application filed November 21, 1901. Serial No. 83,127. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH C. BARLEY, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

My invention relates to lifting-jacks of that class in which the load-lifting rod is raised step by step by suitable clutch mechanism; and the object thereof is to provide means to give the jack a large range of adjustment and to provide a simple, compact, and durable device of this character.

To this end the jack includes a lifting-rod, mechanism for raising the same step by step, a main frame, and an auxiliary adjustable frame carrying the lifting-rod and the mechanism for raising the latter.

The invention further includes the details of construction, as will be hereinafter described, and more particularly pointed out in the claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the invention, showing the parts as they appear when the auxiliary frame is in its lowermost position and the lifting-rod raised one step. Fig. 2 is a detail sectional view illustrating a part of the mechanism for raising the rod. Fig. 3 is a transverse vertical sectional view of the completed jack.

As shown in the accompanying drawings, which illustrate one embodiment of my invention, the base-frame of the lifting-jack is shown at A, having the auxiliary frame B adjustably supported therefrom. The latter frame carries the lifting-rod C and the entire mechanism employed for raising the same.

In the present embodiment of the invention the base-frame comprises a solid base portion having slotted vertical standards *a* at each side thereof. The auxiliary frame comprises a top plate and integral legs *b*, corresponding to the standards *a*, which are fitted between and find a bearing against said standards. The upper ends of the standards *a* are provided with laterally-extending ears *a'*, which provide guides for the legs *b* as the auxiliary frame is raised and lowered. To hold the latter frame in adjusted position, studs *b'* ex-

tend outwardly from the legs, near the lower ends thereof, through slots *d*, extending longitudinally of the standards *a*. These studs are threaded at their outer ends to receive binding-nuts *d'*, which maintain the auxiliary frame in position. To relieve these studs from the entire strain placed thereon by the weight of the load to be lifted when the auxiliary frame occupies an elevated position, the opposing faces of the standards *a* and legs *b* are preferably serrated or toothed, as shown at *e*, so that the standards and legs will interlock with one another when the binding-nuts *d'* are tightened up. The auxiliary frame is provided intermediate of the length of the legs *b* with a cross-plate *g*, which serves not only to brace the legs apart, but also as a guide for the lifting-rod and a stop for the lifting-clutch, as will be hereinafter described.

The lifting-rod C is surmounted by a cap *c*, designed to support the load to be raised. The rod is guided in its movement through an opening located centrally of the top plate of the auxiliary frame and through alining openings in the cross-plate *g* and the base-piece of the frame A. This rod is intended to be raised step by step, and to effect this purpose a lifting-clutch *i* is provided, carried by a link *m*, pivoted to the end of an operating-lever *n*. The latter lever is pivoted between the ends of brackets *o*, secured to the auxiliary frame, near the upper end thereof, and extending out laterally therefrom. By oscillating the lever through the clutch referred to the lifting-rod is raised step by step, and it is prevented from falling when the plate *i* is lowered for a new grip by a detent-clutch *p*, which finds a bearing on the upper face of the top plate of the auxiliary frame.

As before premised, the top plate of the auxiliary frame and the legs thereof are integral. This construction is obtained by bending the legs at right angles to the top plate, and this plate is made of a length to overhang the legs, thereby providing end loops *r*. These overhanging portions when the auxiliary frame is in its lowermost position find bearings or supports upon the ends of the standards *a*.

In the operation of the jack, as before premised, the lever *n* is oscillated, which through



the clutches described will lift the rod C step by step. When the outer end of the lever *n* is raised, the link *m* will be depressed and will carry with it the clutch-plate *i*, which will slide upon the rod C. This oscillation of the lever will be arrested when the plate *i* strikes against the cross-plate *g*. The outer end of the lever is then depressed, which through the link *m* will lift the plate *i*, and as the latter grips upon the rod C the latter rod will be raised. When the outer end of the lever *n* is again raised, the clutch-plate *i* releases the rod C to slide down the same for a fresh grip, and at this period the rod C is prevented from falling to its original position by the detent-clutch *p*. This mechanism will lift the rod C a sufficient distance for ordinary purposes; but to obtain a great range of adjustment the auxiliary frame B is used. When the device to be raised is such a distance above the support upon which the base of the frame A must rest that it is beyond the range of the ordinary adjustment of the rod C, the auxiliary frame B can be brought into action. By raising this frame relatively to the base-frame the lifting-rod and the entire mechanism for raising the same can be elevated, and thus the range of adjustment of the jack greatly increased. It will thus be appreciated that the invention herein presented embodies a lifting-jack having a great range of adjustment, which is exceedingly compact in construction and of great strength and durability.

It is desirable to provide means for preventing the lower end of the lifting-rod from passing through the guiding-opening in the brace-plate *g*, and for this purpose in the present embodiment of the invention a pin *c'*, passing through the rod C, is provided. If this pin abutted directly against the under side of the plate *g* when the rod C reached the limit of its upward movement and the detent-clutch *p* dropped into place, the rod C would be bound in its upward position, as said detent would not permit the same to be lowered, and the pin coacting with the plate *g* would not permit the rod to be further raised in order to release the detent *p*. To avoid this binding action, I support above the pin a resilient stop *c''*, which will permit the rod C to have a slight upward movement in excess of the limit of its normal upward movement. The resilient or yielding means shown in the accompanying drawings comprises a tubular sleeve of yielding material supported upon the pin *c'*.

In operation when the upper end of the sleeve strikes against the brace *g* the rod C is arrested in its upward movement. To detach or release the detent *p* in order to permit the rod to drop, the rod must be given a further upward movement, and as the sleeve is of yielding material this extra movement may be secured.

Having thus described the invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a lifting-jack, the combination with a main frame, a lifting-rod and mechanism for lifting the same step by step, an auxiliary frame carrying said rod and raising mechanism, said frame having depending leg members adjustably connected to the main frame, substantially as described.
2. In a lifting-jack, and in combination, a main frame including a base and vertical side standards, a lifting-rod and mechanism for raising the same, and an auxiliary frame carrying said rod and raising mechanism, said auxiliary frame having depending leg members adjustably connected to and guided by said side standards, substantially as described.
3. In a lifting-jack, and in combination, a main frame including a base and slotted side standards, a lifting-rod, and mechanism for raising the same step by step, an auxiliary frame carrying said rod and raising mechanism, said frame having leg members corresponding to and bearing against said standards, guides at the upper ends of the standards for the legs, threaded studs extending from the lower ends of the legs through the slots in said standards, and binding-nuts threaded on said studs, substantially as described.
4. In a lifting-jack, and in combination, a main frame including a base and slotted side standards, a lifting-rod, and mechanism for raising the same step by step, an auxiliary frame carrying said rod and raising mechanism, said frame having leg members corresponding to and bearing against the standards, threaded studs extending from the lower ends of the legs through the slots in said standards, and binding-nuts threaded on said studs, the opposing faces of the legs and standards being serrated to interlock with each other, substantially as described.
5. In a lifting-jack, and in combination, a main frame including a base and vertical standards, a lifting-rod and mechanism for raising the same step by step, and an auxiliary carrying-frame including a top plate and integral depending legs adjustably connected and supported from said standards, a cross-plate extending between said legs, said plate and the top plate having alining openings to guide the lifting-rod, and overhanging portions on the top plate designed to find a bearing or rest upon the ends of the standards when the auxiliary frame is in its retracted position.
6. In a lifting-jack, and in combination, a main frame, an auxiliary frame including a top plate, and depending leg members adjustably secured to and supported from the main frame, a lifting-rod guided in the main frame, brackets secured to and extending laterally from the auxiliary frame, a lever pivoted between said brackets, a clutch-plate



threaded on said rod, a link interposed between the end of said plate and the end of the lever, and a brace-plate extending between the legs of the adjustable frame, said  
5 plate providing a guide for the lifting-rod and a limiting-stop to arrest the downward movement of the clutch-plate and the movement of the lever operating the same, substantially as described.

10 7. In a lifting-jack, the combination with a vertically-movable lifting-rod, lifting mechanism including a lifting and a detent clutch, of a frame including a brace having a guiding-opening therein for the rod, and a yielding  
15 stop on said rod adapted to coact with said brace, substantially as described.

8. In a lifting-jack, the combination with a vertically-movable lifting-rod, lifting mechanism including a lifting and a detent clutch, of a frame including a brace having a guiding-opening therein for the rod, and a yielding  
20 stop on said rod adapted to coact with said brace, said stop comprising a pin secured in said rod and a sleeve of yielding material surrounding the rod and supported on said  
25 pin, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH C. BARLEY.

Witnesses:

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F. W. NEUMAN.