

A. VAN FLEET.
LIFTING JACK.
APPLICATION FILED MAR. 3, 1911.

1,048,768.

Patented Dec. 31, 1912.

Fig. 1.

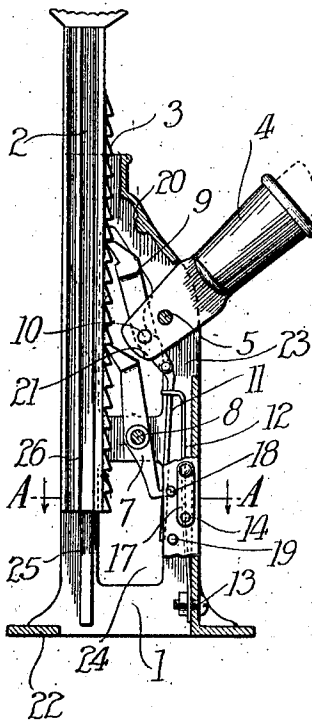


Fig. 2.

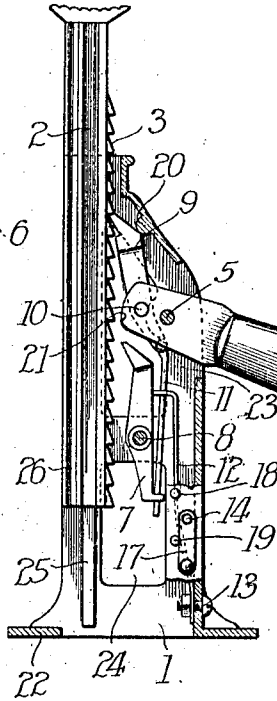


Fig. 3.

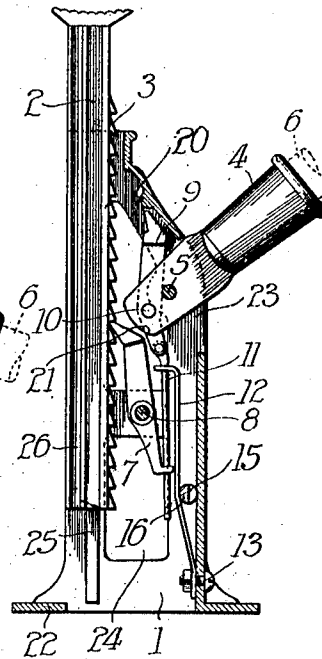
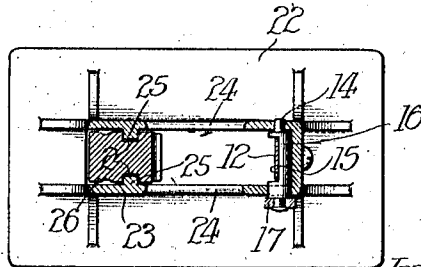


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

ALFRED VAN FLEET, OF JOLIET, ILLINOIS, ASSIGNOR TO WILLIAM E. PRATT, OF CHICAGO, ILLINOIS.

LIFTING-JACK.

1,048,768.

Specification of Letters Patent.

Patented Dec. 31, 1912.

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To all whom it may concern:

Be it known that I, ALFRED VAN FLEET, a citizen of the United States of America, and a resident of Joliet, county of Will, State of Illinois, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

The main object of this invention is to provide an improved and simple form of lifting jack of the pawl and rack type, having improved means for controlling the action of the parts so that the rack may be raised or lowered by similar movements of the operating lever.

An illustrative embodiment of this invention is shown in the accompanying drawings, in which:—

Figure 1 is a side elevation, partly sectional, of a lifting jack constructed according to this invention, and illustrating the relative positions of the rack and pawls when the device is to be operated to raise a load. Fig. 2 is a similar view, illustrating the relative positions of the rack and pawls, when the device is to be operated for lowering the load, the lever being shown in its lowermost position, so as to illustrate the manner in which the upper pawl is urged into engagement with the rack. Fig. 3 is a view similar to that shown in Fig. 2, the lever being shown in its uppermost position, so as to illustrate the manner in which the lower pawl is urged into engagement with the rack. Fig. 4 is a transverse sectional detail of the device taken on the line A—A of Fig. 1.

In the construction shown in the drawings, the lifting jack comprises a standard or frame 1, which is preferably a single casting, in which is slidably mounted a lifting member 2, having on its rear face a rack 3. A lever 4 is fulcrumed at 5 to the standard 1, and is adapted to have secured thereto a handle 6, by means of which the raising and lowering of the member 2 is accomplished.

A holding pawl 7 is pivotally mounted at 8 in the lower part of the standard 1 in position to engage with the rack 3. A second or lifting pawl 9 is pivoted at 10 to the lever 4 and also adapted to engage the rack 3. The pawls 7 and 9 are connected together by a rod or link 11, so that their normal movements, as influenced by the spring 12, will be substantially identical, the rod 11 be-

ing pivotally connected to the lower end of the pawl 9, and having sliding connection with the lower end of the pawl 7.

The spring 12, which is of the usual flat construction, is secured to the standard 1 by a bolt 13 and has its upper end bent at right angles thereto and apertured to receive the rod 11 and permit it to move relatively thereto. This spring is arranged so that it normally exerts a pull on the rod 11 at a point between the pawls and thereby urges both pawls 7 and 9 into engagement with the rack 3. The action of the spring is controlled by a cam shaped member 14 which may be shifted so that the pressure of the spring will be directed to normally urge both pawls into or out of engagement according to the position of the member 14.

The member 14 is a shaft journaled in the frame 1 in such a position that when the recess or low surface 15 is in position to receive the spring 12, the latter may assume its normal position. When the member 14 is rotated on its axis a half revolution, its high surface or shoulder 16 will engage and urge the spring 12 forward, so as to exert a yielding pressure on the rod 11 and effect the retraction of the pawls 7 and 9. The member 14 is operated by a crank 17, secured thereto outside of the frame. Stops 18 and 19 are positioned on the frame 1 to limit the movement of the crank 17, which is held in either limiting position by the pressure of the spring 12 on the cam.

A lug or shoulder 20 is formed on the inner face of the frame 1, near its upper end. When the spring 12 urges the pawls toward a retracted position and the lever 4 is given a downward movement, the tapered upper end of the pawl 9 abuts against the shoulder 20, whereupon the pawl is guided into engagement with the rack 3. The lever 4 extends beyond the pivot of the pawl 9 so as to form a cam surface 21, which engages the tapered upper end of the pawl 7 when the lever handle is given an upward stroke and urges said pawl 7 into engagement with the rack 3. As the spring 12 urges the pawls toward their retracted position, the oscillation of the lever thus causes them to engage the rack alternately.

The standard 1 is preferably a single casting having a base member 22 and an upright member 23. The upright member is

of substantially J-shaped cross section throughout its length, but has openings 24 in the opposite sides. Inwardly disposed ridges 25 are formed on the upright member near the open part thereof, which have interfitting engagement with guide slots 26 formed in the lifting member 2, whereby the latter is retained in position in the upright member. By virtue of this construction, no bolts or rivets are required to hold it together, and being of open construction at the sides and front, the assembling or removal of the operating parts is facilitated.

The operation of the device is as follows:— When the jack is to be used for raising a load, the lever 17 is shifted to its uppermost position, as shown in Fig. 1, whereby the spring 12 normally urges the pawls 7 and 9 into engagement with the rack 3. The oscillation of the lever 4 then causes a step by step advance of the member 2, which is raised by the pawl 9 and held stationary by the pawl 7 when the lever is being operated to secure a new grip by lowering the pawl 9. When it is desired to lower the member 2, the crank 17 is swung to its lower position, as shown in Fig. 2, which causes the shoulder 16 of the cam member 14 to urge the spring 12 forward so as to retract the pawls 7 and 9. As the pawl 9 is now elevated through the downward stroke of the lever 4, it coacts with the shoulder 20 and is urged forwardly against the pull of the spring 12 and into engagement with the rack 3. As the pawl 9 enters into engagement with the rack 3, the latter is lifted slightly and the pawl 7 is released from the rack and retracted by the spring 12, permitting the member 2 to be lowered as the lever swings upward, its inner end, which forms the cam 21, coacts with the pawl 7 and urges it into engagement with the rack 3, whereupon a further lowering of the pawl 9 frees it from the pressure of the load on the rack and allows the spring 12 to retract it. The oscillation of the handle thus causes the member 2 to be lowered in the standard 1.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention, as defined by the following claims.

I claim:—

1. In a lifting jack, the combination of a frame, a rack movable thereon, a pawl pivotally mounted in said frame and adapted for engagement with said rack, a lever fulcrumed on said frame, a pawl pivotally carried by said lever and adapted for engagement with said rack, a rod connected to said pawls, a flat spring secured to said frame and connected to said rod and adapted to normally urge said pawls into engagement with said rack, a member journaled in said frame adjacent to said spring, a shoulder on said member, and means for shifting said member to cause said shoulder to shift said spring for urging said pawls out of engagement with said rack.

2. In a lifting jack, the combination of a frame, a rack movable thereon, a pawl on said frame adapted for engagement with said rack, a lever fulcrumed on said frame, a pawl carried by said lever and adapted for engagement with said rack, a rod connecting said pawls, a flat spring secured to said frame and connected with said rod, a shaft journaled in said frame adjacent to said spring and having a recess adapted to receive said spring to permit said spring to normally urge said pawls into engagement with said rack, and means for turning said shaft and thereby causing it to shift said spring so as to urge said pawls out of engagement with said rack.

3. In a lifting jack, the combination of a frame, a rack movable thereon, a pawl pivotally mounted in said frame and adapted for engagement with said rack, a lever fulcrumed on said frame, a pawl pivotally carried by said lever and adapted for engagement with said rack, a rod pivotally connected to one of said pawls and slidably connected to the other, a flat spring secured to said frame and having sliding connection with said rod between said pawls and adapted to normally urge said pawls into engagement with said rack, a member journaled in said frame adjacent to said spring, a shoulder on said member, and means for shifting said member to cause said shoulder to shift said spring for urging said pawls out of engagement with said rack.

Signed at Joliet this 27th day of February, 1911.

ALFRED VAN FLEET.

Witnesses:

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