

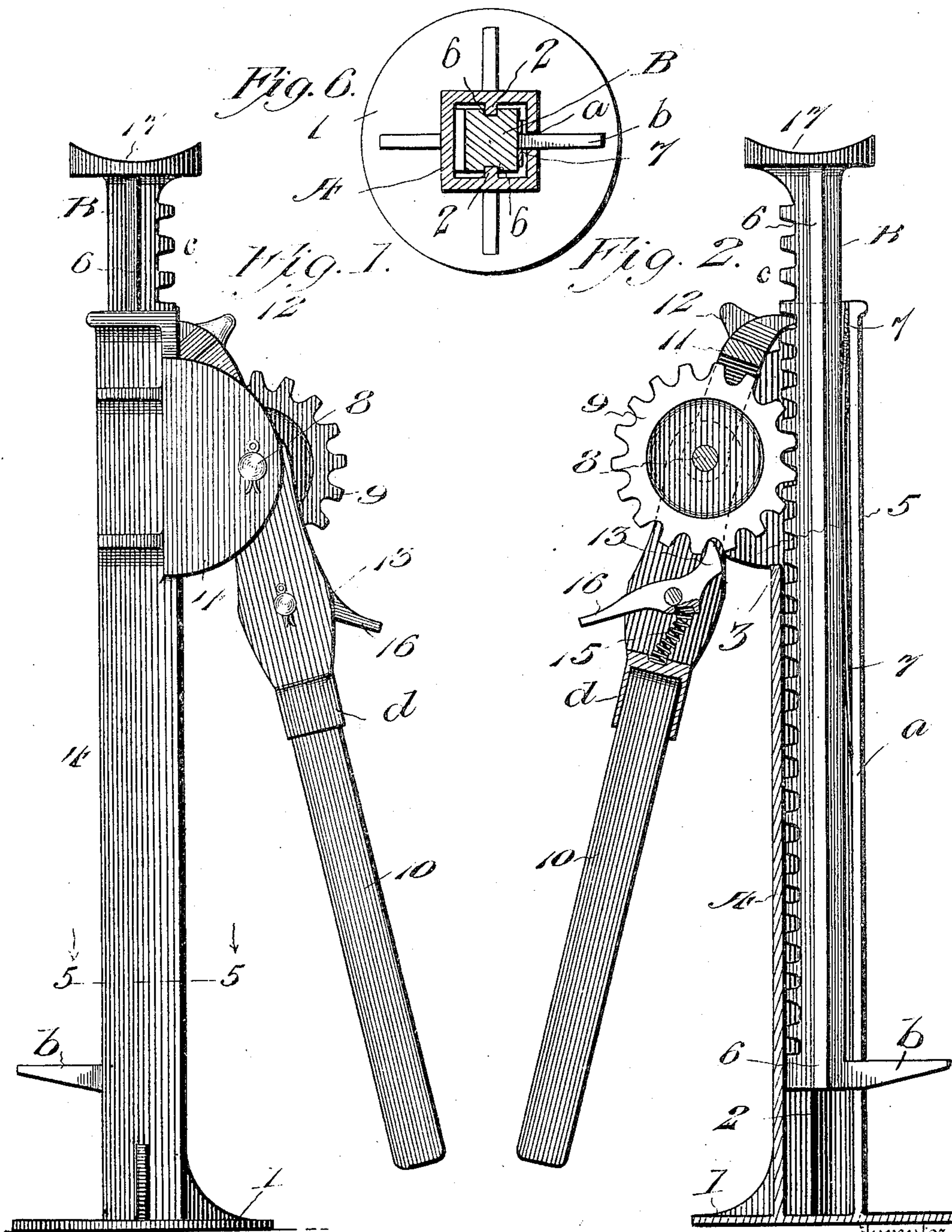
No. 808,535.

PATENTED DEC. 26, 1905.

F. GARDISKY.  
LIFTING JACK.

APPLICATION FILED NOV. 17, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

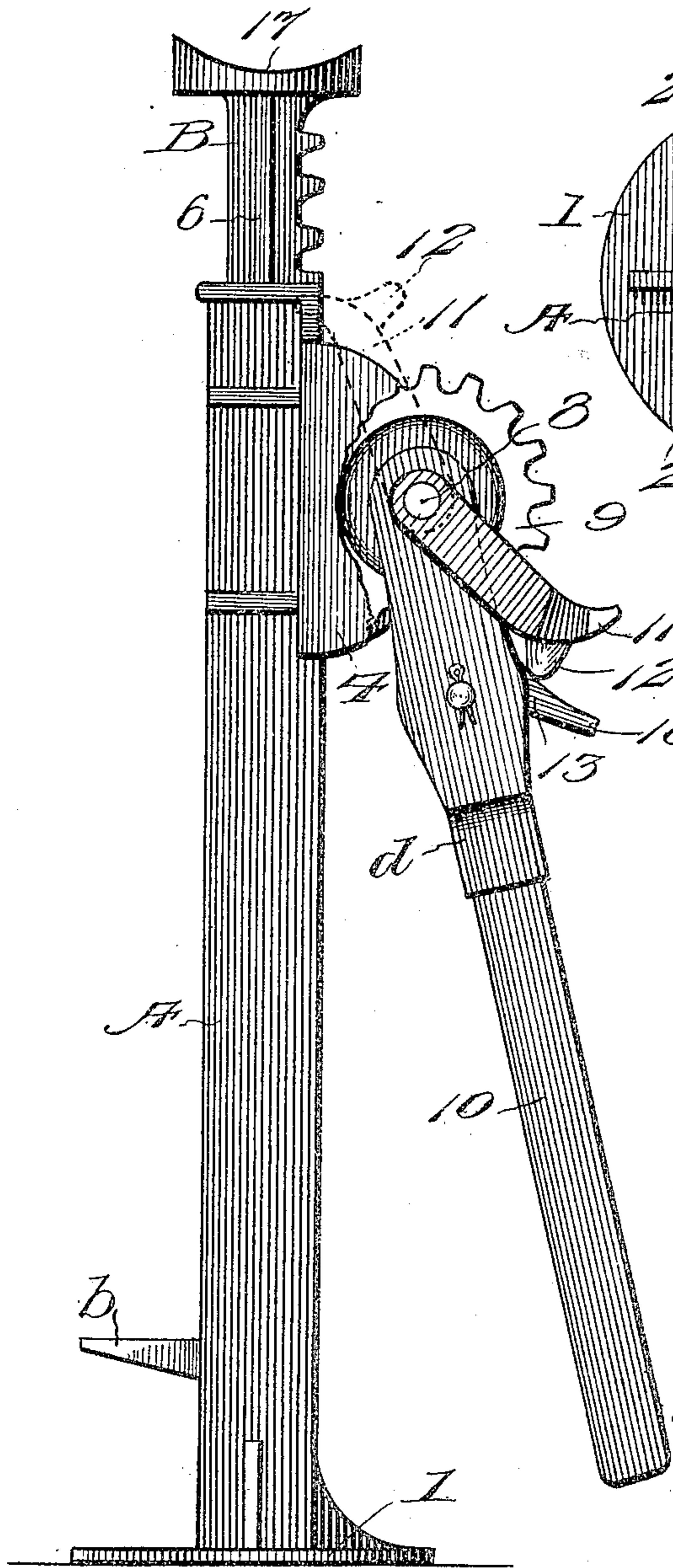


Fig. 5.

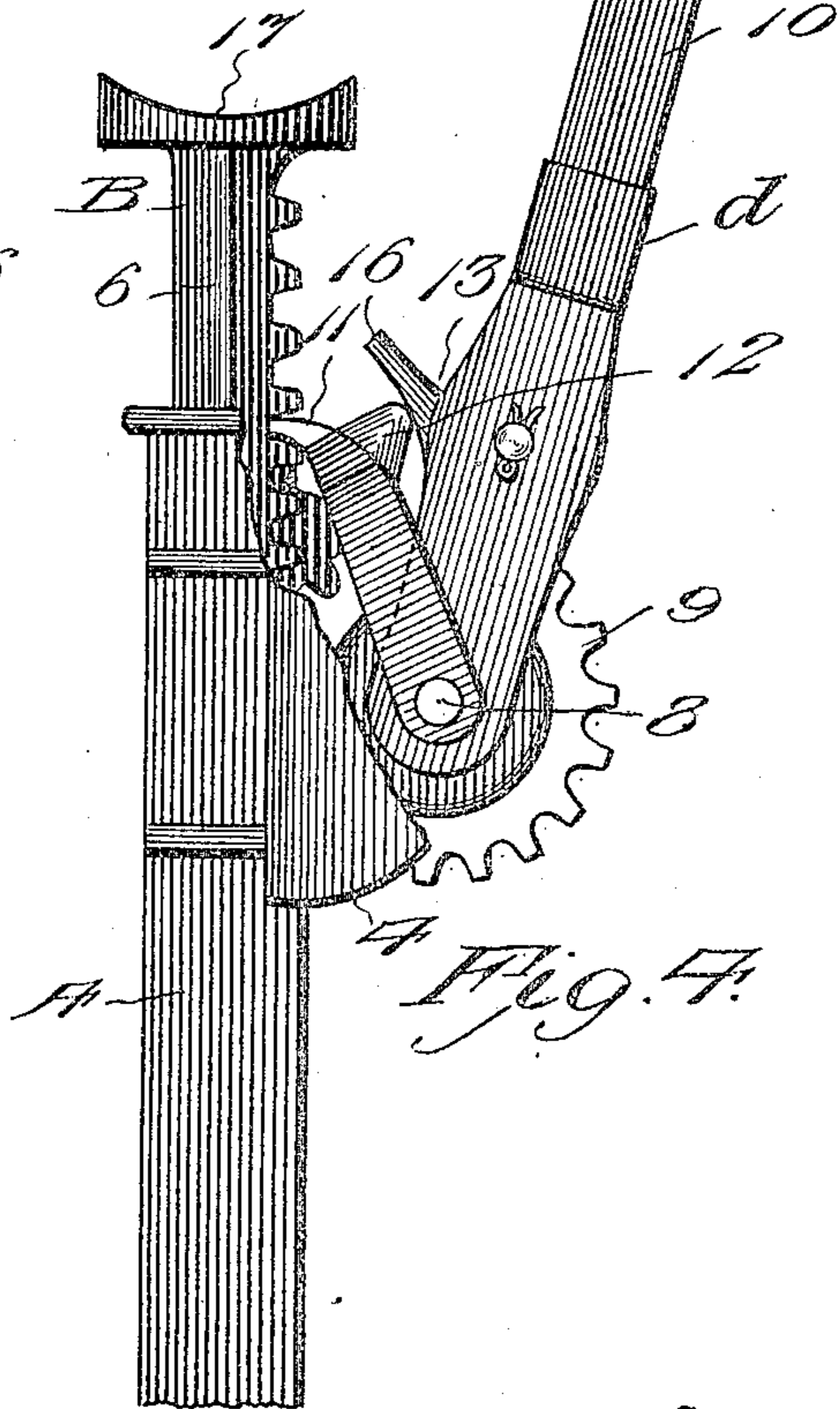
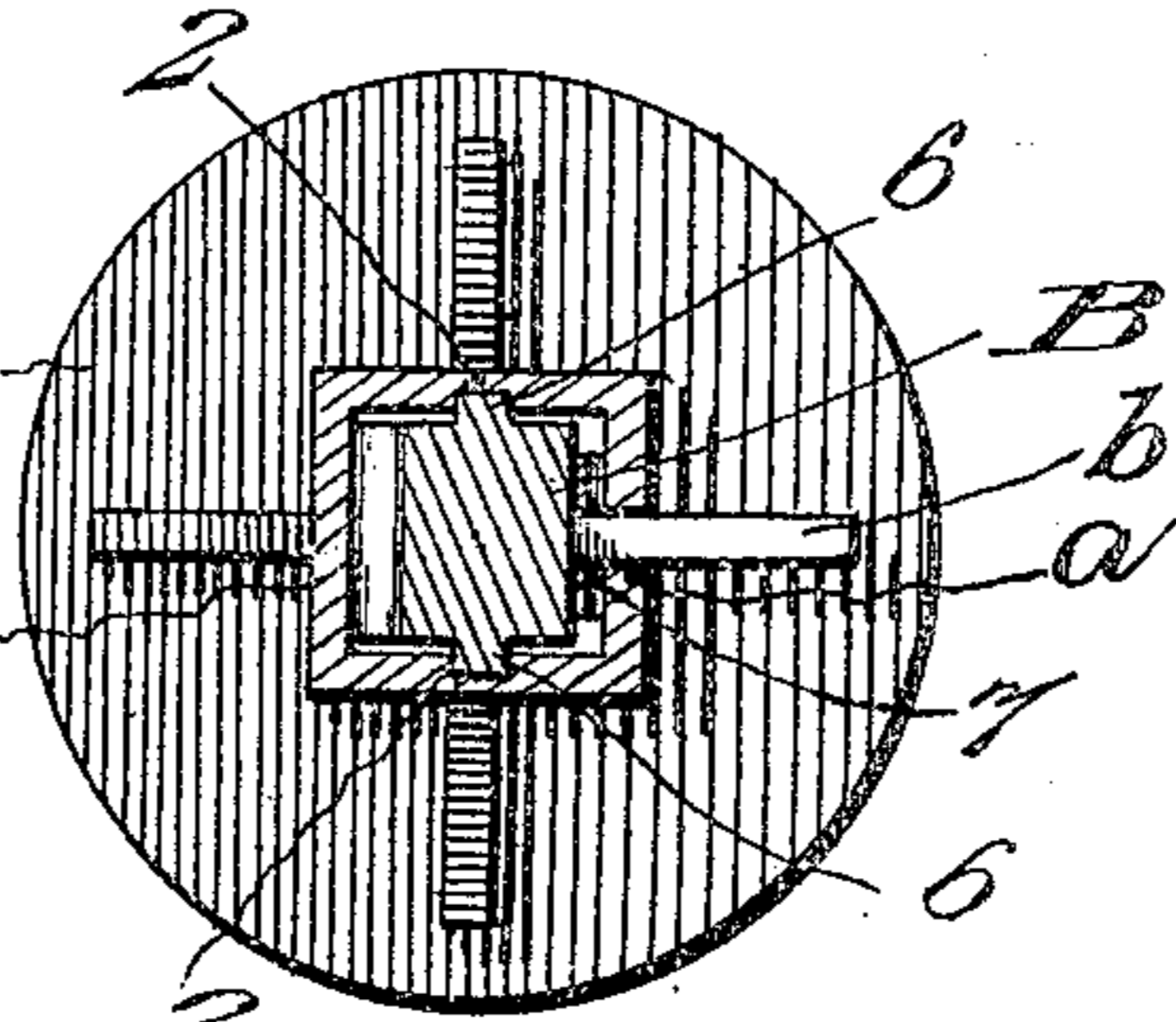


Fig. 4.

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# UNITED STATES PATENT OFFICE.

FREDERICK GARDISKY, OF CHILI, NEW YORK.

## LIFTING-JACK.

No. 808,535.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed November 17, 1904. Serial No. 233,187.

*To all whom it may concern.*

Be it known that I, FREDERICK GARDISKY, a citizen of the United States, residing at Chili, in the county of Monroe and State of New York, have invented new and useful Improvements in Lifting-Jacks, of which the following is a specification.

My invention has relation to improvements in lifting-jacks of that kind and construction using a vertical standard, a vertically-disposed lifting-bar provided with a rack, a lever, a rotatable pinion to engage the rack, and double-acting pawls to engage the pinion and the lifting-bar; and the object is to simplify and improve the existing art by providing a device of the kind named and for the purpose intended which is simple and strong in construction and efficient and expeditious in accomplishing the purpose and which is durable in the uses to which it may be put.

Another object is to so construct and arrange the actuating-pawls that the lifting-pawl will insure the engagement of the holding-pawl with the rack of the lifting-bar.

The improvements, therefore, consist generally in the construction of the parts and their aggroupment in novel and operative combinations, as will be hereinafter fully described, and the asserted novelty then particularly pointed out and distinctly claimed.

I have fully and clearly illustrated the improvements in the annexed drawings, to be taken as a part of this specification, and wherein—

Figure 1 is a side view in elevation, showing the lever at its lowest position, in which position it rests preliminary to action. Fig. 2 is a vertical central section through the standard and one of the forks of the lever removed and the actuating elements in operative engagement, also showing the spring which holds the lifting-pawl in engagement with the pinion which meshes with the rack of the lifting-bar. Fig. 3 is a side elevation with one of the pinion-bearing flanges broken away to show the holding-pawl in the position it assumes when thrown back onto the lifting-pawl. Fig. 4 is a view in elevation with one of the pinion-bearing flanges broken away and showing the holding-pawl as having been thrown into engagement with the rack of the lifting-bar when the lever has been raised into the position shown. Fig. 5 is a transverse section on the line 5 5 of Fig. 1 through the standard, the lifting-bar, and the friction-spring, and the base being

shown in plan. In this figure the interior of the standard is provided with vertical side grooves and the lifting-bar with vertical guide-ribs engaging in the grooves. Fig. 6 is a transverse section through the standard, the lifting-bar, and the friction-spring, showing the base in plan view and illustrating the standard as having vertical guide-ribs engaging in coincident grooves in the lifting-bar.

It will be seen by reference to Figs. 5 and 6 that alternate constructions are illustrated, showing the guide grooves and ribs in opposite relation. Of these I prefer the arrangement shown in Fig. 6.

Referring to the drawings, A designates the standard, consisting of a hollow metal pillar or column having a supporting flat base-piece 1, suitably braced, substantially as seen in the drawings. The standard is made substantially square in cross-section, as seen in Figs. 5 and 6, and is preferably formed in its inner side walls with vertical grooves 2, Fig. 5, which serve as guides for the vertical side ribs made on the lifting-bar, as hereinafter stated more fully. At the upper portion of the standard the front wall is cut away, forming a vertical slot 3, into which the cogs of the actuating-pinion project to engage the rack of the lifting-bar. The standing side walls of the standard at the slotted portion are formed with laterally-extending bearing-flanges 4 5, wherein the actuating-pinion is journaled, substantially as shown. The back wall of the standard is provided with a central vertical slot *a* to receive and guide the foot-lug projecting rearwardly from the lower end of the lifting-bar.

B designates the lifting-bar, which is fitted slidably in the standard and formed with oppositely-alining ribs 6, which slidably engage the grooves 2 in the sides of the standard, as shown in Fig. 6 of the drawings. At the lower end of the lifting-bar is formed or secured a rearwardly-projecting foot or lug *b*, intended for use when an object, weight, or load to be lifted is located adjacent to or on the ground too low to be engaged by the head-piece of the lifting-bar, such as railroad-rails and similar things, and on the front edge the lifting-bar is provided with toothed rack *c*, to be engaged by the actuating-pinion.

Behind the lifting-bar, within the standard, is secured a friction-spring 7, which bears inwardly against the back of the lifting-bar and acts to keep it from sliding forcibly down

when the load is removed from the bar, and thus prevents the liability of damage to the floor of the standard.

In the bearing-flanges, at the outer portion, is fixedly mounted an axle or arbor 8, on which is loosely mounted a pinion 9, positioned so as to be in constant engagement with the rack on the lifting-bar. On the arbor 8 is also pivotally hung the actuating-lever head 10, which is forked at its upper portion above its support, the forks straddling the pinion with their ends mounted on the arbor in a well-known manner. The lower end of the lever-head is formed with a socket *d*, wherein the end of a handle 10 is detachably fitted, so that handles of different lengths may be used to suit the power to greater or less loads.

On the arbor 8 is a gravity-pawl 11, the nose of which engages in the teeth of the rack and holds the lifting-bar from downward movement during the process of raising it in the work it is intended to perform. The lower portion of the pawl is forked and straddles the pinion, with the ends of the fork hung loosely on the arbor. On the upper end portion of the pawl is a projection 12, which may be grasped by the fingers to draw the pawl from engagement with the rack. After releasement the holding-pawl may be swung back and fall downward until the projection lodges on the lifting-pawl, so that in the initial movement of the lever the holding-pawl will be carried up by the lifting-pawl and automatically fall into engagement with the rack, and disengaging and engaging itself as the pinion lifts the lifting-bar.

Between the forked ends of the lever, below the pinion, is pivotally mounted a lifting-pawl 13, the nose of which engages between the teeth of the pinion, as seen in Fig. 2 of the drawings. The pawl 13 would ordinarily engage the pinion by gravity; but since the pawl is carried up to engage the pinion at a point above the arbor, as indicated in Fig. 4 of the drawings, the action of gravity is reversed and the pawl tends to release itself. Hence to insure the engagement of the pawl at this and at all points an expansive spring 15 is positioned between the forks of the lever with one end lodged on the bridge of the fork and the other end disposed in a socket formed in the lower edge of the pawl to the rear of its axial support, as seen in Fig. 2 of the drawings. It will be readily perceived that the action of the spring is to at all times and at any point push the pawl into engagement with the pinion. The lifting-pawl is formed with an extension 16, reaching beyond the outer edge of the lever-fork, which may be used to manipulate the pawl at any time and against which the holding-pawl lodges when thrown back into the position shown in Fig. 3 of the drawings.

On the upper end of the lifting-bar is

formed or secured the usual head-piece 17, on which the load is supported.

The machine or implement is particularly useful and applicable for raising axles of vehicles or for any analogous use where such an implement may be applied, and by placing the rearwardly-extending lug *b* under a load resting in a low position said load may be effectively raised.

The general utilization of the implement is readily apparent from recourse to the details of description specifying the functions of the involved parts and reference to the drawings; but it may be stated that when the parts are assembled as seen in the drawings they will naturally assume the position indicated in Figs. 1 and 2 with the holding-pawl engaged or, as seen in Fig. 3 of the drawings with the holding-pawl swung back. In either position indicated the implement is ready to be applied in general use. Now when the lever is swung upward, as seen in Fig. 4, the lifting-pawl rides over the teeth of the pinion (carrying the holding-pawl with it, if that member has been thrown back) until the lever reaches its upper limit of movement, when the spring 15 drives the nose of the lifting-pawl into engagement with the pinion, and then by moving the lever downward the lifting-pawl is carried with it, turning the pinion with it, which, because of its engagement with the rack of the lifting-bar, raises the lifting-bar. When a new bite is required, the lever, with the lifting-pawl, is again swung upward and the operation repeated, the holding-pawl in the meantime holding the lifting-bar in such position as it may have moved to in the former movement. To lower the load, force is applied to the lever sufficient to permit the disengagement of the holding-pawl, and then the lever is raised under restraint with the lifting-pawl engaged, and thus the pinion carries the lifting-bar down a determined distance. The holding-pawl is then moved into engagement and the lifting-pawl disengaged and the lever turned down, the lifting-pawl engaged, and the operation of lowering repeated.

Having thus described my invention, what I claim is—

1. A lifting-jack comprising a standard having a vertical passage therethrough, the side walls being formed with vertical guides and a vertical slot in its back wall, a lifting-bar slidably disposed in the passage of the standard and formed with guides coacting with those on the standard, and a toothed rack on one edge, and a rearwardly-extending lifting-lug at its lower end projected through the slot in the back wall of the standard, a pinion journaled in the upper portion of the standard in engagement with the rack of the lifting-bar, a forked lever hung on the journal of the pinion and straddling the latter, a holding-pawl mounted on the journal

of the pinion and engaging the rack and  
forked to straddle both the lever and the pin-  
ion, a lifting-pawl pivotally mounted in the  
fork of the lever to engage the pinion and an  
5 expansive spring disposed within the fork of  
the lever having one end lodged on the  
bridge of the fork and the other end bearing  
against the lifting-pawl to the rear of its piv-  
otal support to insure the engagement of the  
10 pawl with the pinion.

2. A lifting-jack comprising a vertical  
standard having a vertical passage there-  
through and side walls having vertical guides  
and a vertical slot in its upper portion and  
15 having bearing-flanges extending from the  
side of the said slot and a vertical slot in its  
back wall, a lifting-bar slidably disposed in  
the passage of the standard, and formed with  
a toothed rack on its front edge, and a rear-  
20 wardly-extending lifting-lug at its lower end  
projected through the slot in the back wall of  
the standard, a fixed bearing-arbor in the

bearing-flanges, a pinion loosely mounted on  
the arbor to engage the rack of the lifting-  
bar, a forked lever straddling the pinion and 25  
hung to the arbor, a gravity-acting holding-  
pawl to engage the rack on the lifting-bar  
and forked at its lower portion to straddle  
the pinion and the forks of the lever and piv-  
otally mounted on the bearing-arbor, a lift- 30  
ing-pawl hung between the forks of the lever  
to engage the pinion, a spring to hold the  
nose of the lifting-pawl in engagement with  
the pinion, and a friction-spring positioned 35  
in the passage of the standard to bear against  
the lifting-bar and the back wall of the stand-  
ard.

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

FRED. GARDISKY.

Witnesses:

MYRON T. BLY,  
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