P. J. HARRAH.

LIFTING JACK.

APPLICATION FILED OCT. 25, 1909.

968,474.

Patented Aug. 23, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

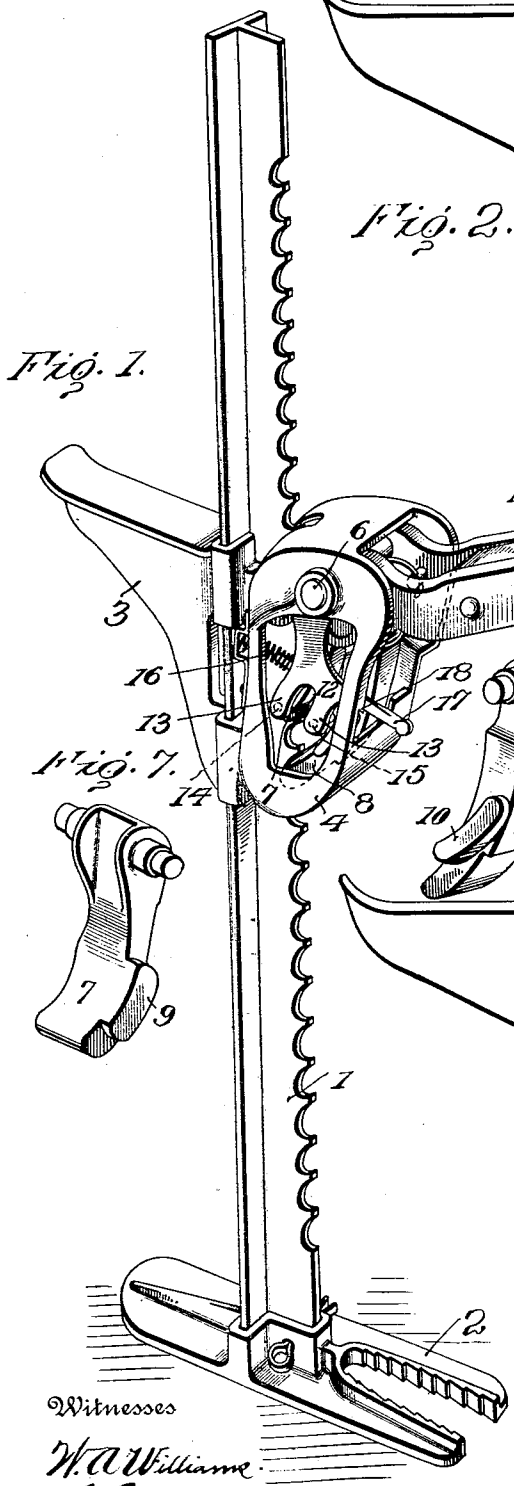


Fig. 2.

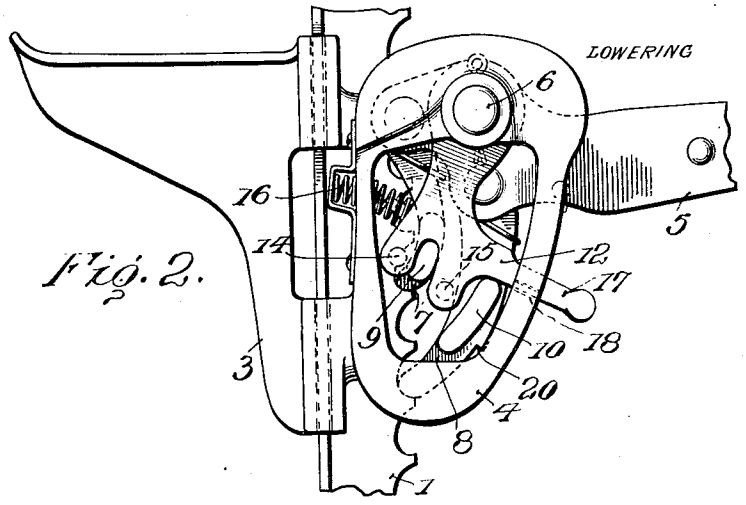


Fig. 8.

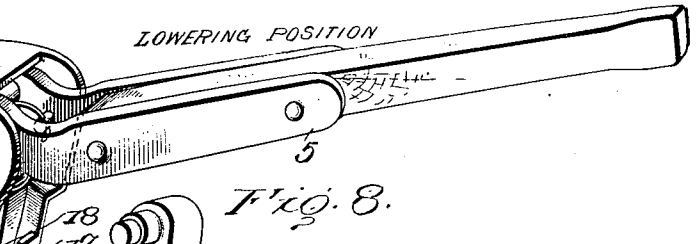
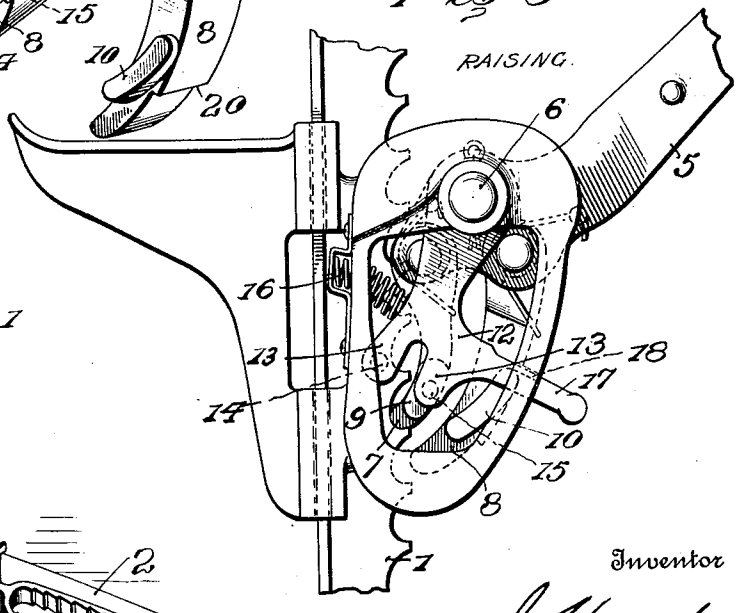


Fig. 3.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

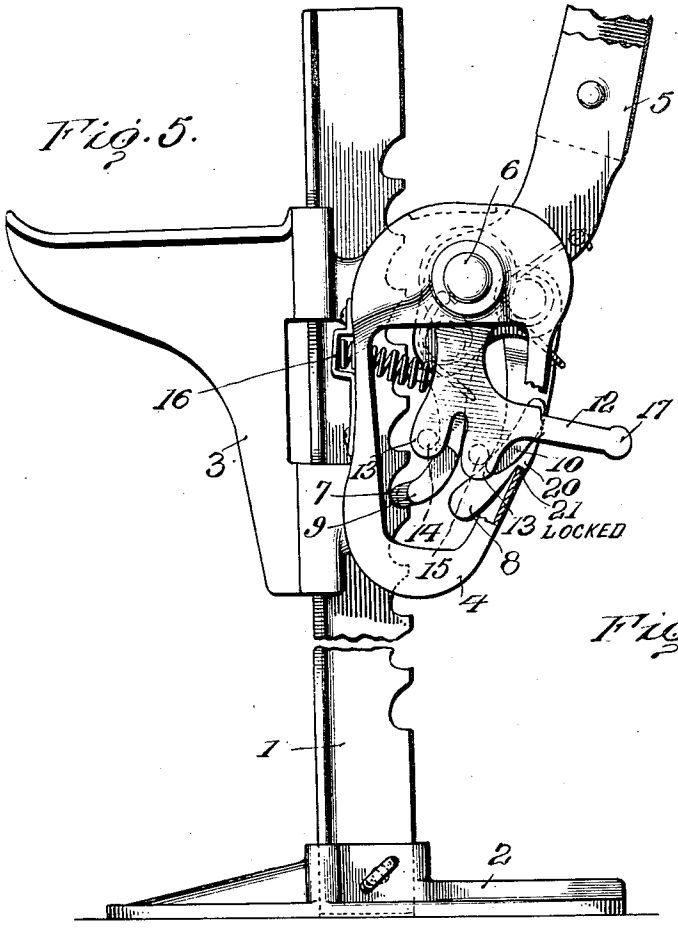
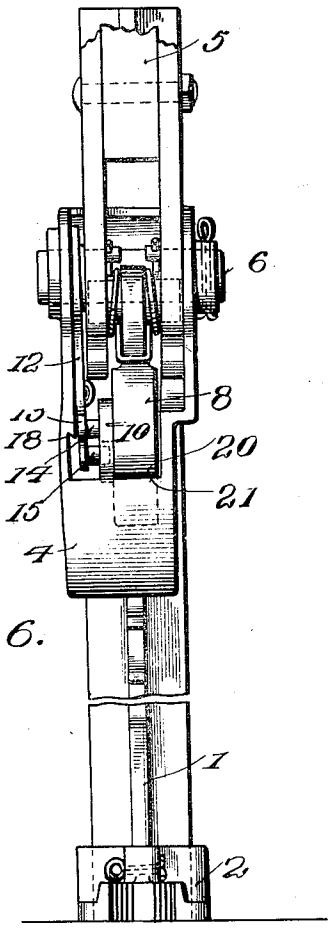


Fig. 6.



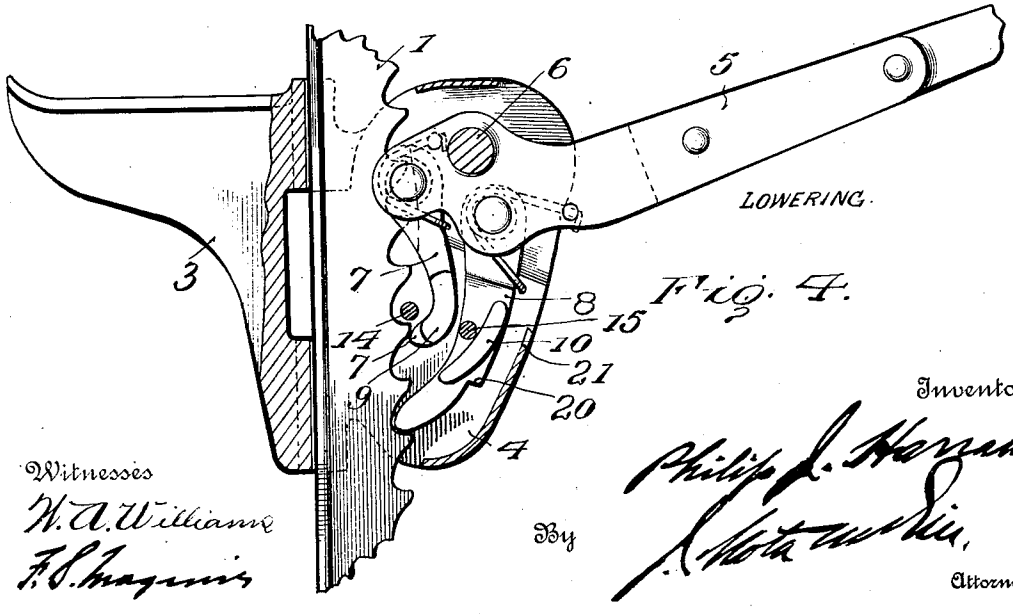


Fig. 4.

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PHILIP J. HARRAH, OF BLOOMFIELD, INDIANA, ASSIGNOR TO AUTOMATIC JACK COMPANY, OF BLOOMFIELD, INDIANA, A CORPORATION OF INDIANA.

LIFTING-JACK.

968,474. Specification of Letters Patent. Patented Aug. 23, 1910.

Application filed October 25, 1909. Serial No. 524,421

To all whom it may concern:

Be it known that I, PHILIP J. HARRAH, of Bloomfield, in the county of Greene and State of Indiana, 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 appertains to make and use the same.

The primary object of this invention is to provide in a lifting jack improved simple and highly efficient means for readily and easily reversing the action of the mechanism and also to lock the parts at any stage of their adjusted positions.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective with the parts in position for lowering. Fig. 2 is an enlarged side view showing the parts in similar position. Fig. 3 is a view similar to Fig. 2 showing the bars in position for raising. Fig. 4 is a side view of the device in its lowering position, parts being omitted and others shown in section. Fig. 5 shows the jack locked. Fig. 6 a view at right angles to Fig. 5. Figs. 7 and 8 are details.

Referring to the drawings, 1 designates an upright rack bar which I have shown as detachably secured to a base 2. This rack bar is preferably of T-shape in cross section, and the rack teeth are formed on the central flange.

3 designates an arm or bracket at one side of the rack-bar while on the other side is a housing 4. The particular formation of the bracket and housing is immaterial. In the present instance I have shown upper and lower oppositely-disposed recessed portions for accommodating the flanges of the vertically-disposed rack-bar so as to allow the arm and housing to be readily and easily moved on the latter, or vice versa.

5 is a lever which is fulcrumed within the housing by a cross pin 6. This lever carries two spring-impelled pawls 7 and 8 which are designed to engage with the teeth of the rack bar and, normally, by rocking the lever on its fulcrum these pawls will effect the raising of the arm and housing by a step by step motion. The inner or upper pawl 7 carries at one side a cam or extension 9, while the outer or lower pawl 8 carries at the same side a cam or extension 10.

12 designates what I term a switch or reversing plate which is shown as being hung from the fulcrum pin 6. This switch plate at its lower end has two spaced apart fingers 13 from which extend lugs 14 and 15. This plate is under the constant tension of a spring 16 and has an arm 17 which, when the plate is not in use, is held by a shoulder 18 on one side of the housing. When the switch plate is thus held the normal operation of the two spring-impelled pawls remains unchanged, and the rocking of the lever will effect the raising of the arm and housing. When, however, it is desired to lower the parts, the operator disengages arm 17 from shoulder 18 and the switch swings outwardly under the impulse of spring 16, as shown in Figs. 1 and 2, and thus the two lugs 14 and 15 are positioned across the faces of the cams 9 and 10, with the result that the pawls will now effect the gradual lowering of the device by a step by step motion. In other words, when the operating lever is turned on its fulcrum to disengage either of the pawls from the rack the switch plate acting under its spring 16 will through one of its lugs hold the pawl from reëngagement with the tooth from which it has just been freed, so that upon further rocking of the lever such pawl will pass into the next lower space of the rack bar. Hence by simply changing the position of the switch plate the step by step motion of the two spring-impelled pawls may be converted from a lifting to a lowering action or vice versa.

For the purpose of locking the device at any position, I form on the rear face of the outer pawl 8 a transverse shoulder 20 which, if the operating lever be raised sufficiently high, will be projected outwardly across a seat 21 formed by cutting away a portion of the housing, the projection of pawl 8 being caused by the tension of spring 16 acting on the switch plate.

The advantages of my invention will be apparent to those skilled in the art. It will be observed that a jack constructed in accordance therewith is very simple and inexpensive, and also that the operating mechanism is wholly inclosed within or carried by the housing and will travel over the rack bar, thus effecting considerable saving in

weight and material. Not only may the movement be converted into a lifting or lowering action but the parts may be readily locked and held at any desired point.

It is manifest that the features of my invention may be embodied in various forms of lifting jacks, and by the mere addition of well-known wire clamps it may be employed as a wire stretcher.

Changes may be made in the details of construction and arrangement of parts without departing from the spirit of my invention.

I claim as my invention:

1. In a lifting jack, in combination, a rack bar, a housing movable on the rack bar, an arm carried by the housing and projecting laterally therefrom, a lever fulcrumed in the housing, two spring impelled pawls carried by the lever for engaging said rack bar for normally moving the housing and arm on the rack bar in one direction, a spring impelled switch carried by the housing for acting on the pawls to cause the housing and arm to move in the opposite direction by the rocking of said lever and means for holding the parts in locked relation, such means being effective by the movement of said lever beyond the limit of its normal range of movement.

2. In a lifting jack, in combination, a rack bar, a housing movable on the rack bar, an arm carried by the housing and projecting laterally therefrom, a lever fulcrumed in the housing, two spring-impelled pawls carried by the lever for engaging said rack bar for normally moving the housing and arm on the rack bar in one direction, said pawls having at or near their free ends lateral extensions, a pivoted switch plate having lugs for engaging said lateral projections for limiting the movements of the pawls, a spring acting on said switch plate, an arm projecting from said switch plate, and a stop on the housing with which said arm is designed to engage to hold said switch plate inactive.

3. The combination with a rack bar, of a housing, a lever fulcrumed in said housing, spring-impelled pawls carried by said lever, a spring-impelled plate for acting on said pawls in opposition to their springs, and means for holding the parts in locked relation, such means being effective by the movement of said lever beyond the limit of its normal range of movement.

4. The combination with a rack bar, of a housing, a lever fulcrumed in said housing, spring-impelled pawls carried by said lever, one of said pawls having a shoulder, a spring-impelled member for acting on said pawls in opposition to their springs, and a seat on the housing with which said shoulder of one of the pawls may engage for holding the parts in locked relation.

5. The combination with a rack bar, of a housing, a lever fulcrumed in said housing, spring-impelled pawls pivoted to said lever on opposite sides of its fulcrum, one of said pawls having a shoulder, a spring-impelled plate for acting on said pawls in opposition to their springs, and means on the housing with which the said shoulder of one of the pawls may be caused to engage for holding the parts in locked position.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

PHILIP J. HARRAH.

Witnesses:
CHAS. E. HENDERSON,
CHAS. E. BENEFIRL.