

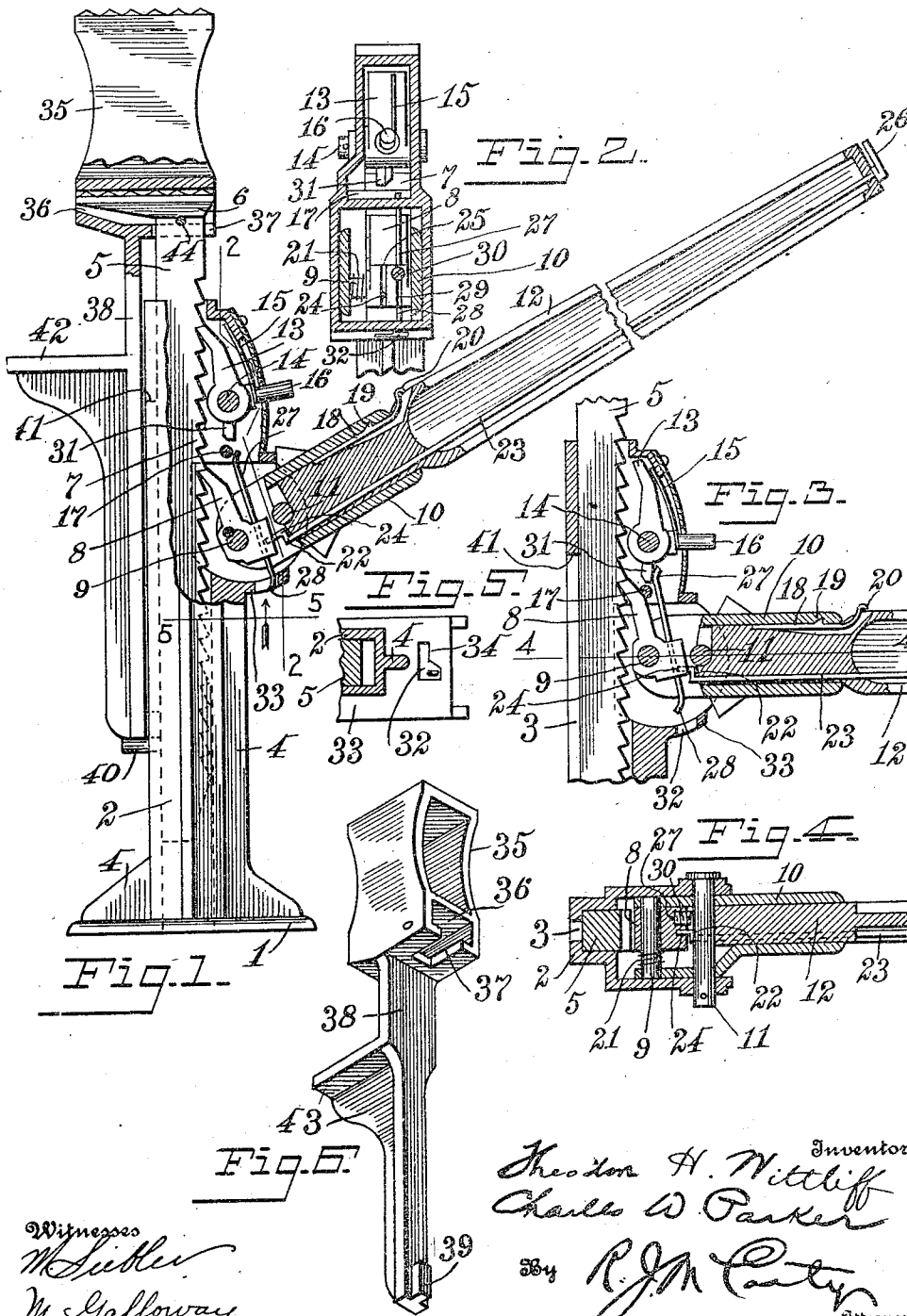
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LIFTING JACK.

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1,179,690.



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# UNITED STATES PATENT OFFICE.

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## LIFTING-JACK.

1,179,690.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that we, THEODORE H. WITTLIFF and CHARLES W. PARKER, citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Lifting-Jacks; and we do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in lifting jacks of the type specially adapted to be used in connection with automobiles.

An object of the invention is to provide in a jack means whereby the actuating mechanism can be easily changed from the condition in which objects are lifted to a condition in which the objects are lowered.

A further object of the invention is to provide a lifting jack which is simple in construction and efficient in operation; and still a further object of the invention is to provide means whereby the effective operative height of the jack may be increased or shortened.

Referring to the accompanying drawings, Figure 1 is a side elevation of the improved jack parts being broken away and shown in section; Fig. 2 is a vertical section on the line 2—2 of Fig. 1; Fig. 3 is a partial view similar to Fig. 1 with the parts shown in a different position; Fig. 4 is a section on the line 4—4 of Fig. 3; Fig. 5 is a section on the line 5—5 of Fig. 1; and Fig. 6 is a perspective view of an attachment whereby the effective operative height of the jack may be increased or shortened.

Throughout the specification and drawings, similar reference characters indicate corresponding parts.

Referring more particularly to the drawings, 1 represents a base from which upwardly extends a hollow square standard 2 having an opening 3 in one side thereof, said standard being provided with suitable strengthening webs 4. Adapted to vertically reciprocate in said standard 2 is a rack bar 5 provided with a head

6 suitably shaped to engage the object to be elevated. The rack bar 5 is provided with teeth 7 adapted to be engaged by an elevating pawl 8 pivoted at 9 to one end of a lever socket 10. The lever socket 10 is pivoted at 11 and is adapted to receive one end of a lever 12. When the outer end of the lever 12 is elevated, the pawl 8 will engage one of the ratchet teeth 7, and when the outer end of said lever is depressed, the rack bar 5 will be elevated thereby. The rack bar 5 is held in the position to which it has been elevated by the pawls 8 by a retaining pawl 13 pivoted at 14 and provided with a spring 15 which presses the pawl 13 against the ratchet teeth 7. The pawl 13 is provided with a finger 16 by means of which said pawl may be manually disengaged from the ratchet teeth 7. The said pawl 8 is adapted to engage a stop pin 17 at the end of its upward movement. The pin 17 is instrumental in forcing the pawl 8 between the teeth of the ratchet bar thereby preventing the ratchet slipping over the teeth. The lever 12 is held within the lever socket 10 by a spring dog 18 received by a recess 19 and adapted to be depressed by a finger portion 20 which is exposed. When the finger portion 20 is depressed, the spring dog 18 releases the lever 12 which may then be removed from the socket 10. The rack bar 5 is intermittently elevated by vertically oscillating the lever 12 and the rack bar 5 is also lowered when under load by oscillating the lever 12 through the agency of the following means: The pawl 8 is laterally movable along its pivot 9 and is normally held in the position shown in Fig. 2 by a spring 21 which surrounds the pivot 9. The spring 21 is also instrumental in holding the pawl 8 in engagement with the rack bar 5, one end of said spring being attached to the lever socket 10. The pawl 8 is shifted laterally on its pivot by means of a crank 22 on the inner end of a shaft or rod 23 journaled in the head of the lever 12. The crank 22 is provided with a projection or pin 24 which rides in a slot 25 in the pawl 8. The outer end of the shaft 23 is provided with a crank handle 26 by means of which said shaft and the inner crank 22 are rocked and thus the pawl 8 is moved from one side to the other. The said pawl 8 is provided with a resilient arm 27 and a resilient arm 28,

formed of one piece of spring wire which rests in a kerf 29, being held therein by a screw 30. The upper arm 27 is adapted to engage a projection 31 of the pawl 13 when the pawl 8 is in an elevated position and the pawl is shifted to the left, as seen in Fig. 2. In Fig. 3, the arm 27 is shown in engagement with the projection 31 and it will be seen that one side of the pawl 13 will be moved out of engagement with the teeth 7. The arm 28 is adapted to enter the enlarged end of an opening 32 when the pawl 8 is in the position shown in Fig. 2. The opening 32 is in the under side of a casing 33 extending from the standard 2. When the pawl 8 is shifted from the position shown in Fig. 2, and said pawl is in a lowered position, the arm 28 engages a cam surface 34 at the small end of the opening 32 which disengages the pawl 8 from the rack teeth 7, see Fig. 5.

The operation of the jack in lowering an object is as follows: The pawl 8 is shifted to the left as seen from Fig. 2 by rocking the crank 26. This operation disengages the pawl 8 from the teeth 7 and permits the outer end of the lever 12 to be depressed. When the outer end of the lever reaches a lowered position, the arm 28 is disengaged from the cam surface 34 which permits the pawl 8 to be placed in contact with the teeth 7 by the spring 21 and at the same time the resilient arm 27 also comes in contact with the projection 31 of the pawl 13. When the outer end of the lever 12 is then depressed slightly, the load on the rack bar 5 will be taken by the pawl 8 and the resilient arm 27 will release the pawl 13 from engagement with the rack bar 5 thereby permitting the rack bar 5 to be lowered by elevating the outer end of the lever 12. Before the outer end of the lever 12 reaches the end of the upward movement, the arm 27 will release the projection 31 thereby permitting the spring 15 to place the pawl 13 in engagement with the rack bar 5. The pawl 13 is, therefore, in a position to support the load on the jack when the pawl 8 reaches its lowered position. When the load on the jack is thrown upon the pawl 13, the arm 28 will have engaged the cam surface 34 thereby disengaging the ratchet 8 from the teeth 7 and allowing the operation to be repeated.

To increase or diminish the effective operative height of the jack, the following attachment is provided. 35 represents a head having an opening 36 adapted to receive the head 6 of the rack bar 5. When the head 6 is within the opening 36, the rack bar 5 lies within a notch 37 on the lower side of the head 35. By this means the effective height of the jack may be increased to an extent equal to the height of the head 35. Downwardly extending from the head 35 is a plate 38 provided with a lug 39 adapted to

ride in the opening 3 of the standard. The lower end of the plate 38 is adapted to rest upon a pin 40 extending from the rack bar 5 and through the opening 3. The pin 40 is instrumental in preventing the removal of the rack bar 5 from the standard 2 by engaging the upper end 41 of the opening 3. The plate 38 is provided with a step 42 which is situated somewhat lower than the head 6. The step 42 is braced by means of a rib 43. The effective operative height of the jack may be lowered to an extent equal to the distance between the head 6 and the step 42. This attachment may be used collectively with the head 35 and step 42 or may be so constructed as to use a step or head singly. The attachment may be held in position by a pin 44 which extends through the head 35 and the rack bar 5, making it instantly attachable and detachable.

Having described our invention, we claim.

1. In a jack, a standard, a rack bar mounted in said standard, a lever pivoted to said standard, an actuating pawl mounted on said lever in operative relation with said rack, a retaining pawl mounted in said standard and in operative relation with said rack, means carried by said actuating pawl adapted to release said retaining pawl from engagement with said rack, means carried by said actuating pawl adapted to release said actuating pawl from engagement with said rack, and a crank carried by said lever and adapted to shift said actuating pawl whereby said retaining pawl is under the control of said actuating pawl.

2. In a jack, a standard, a rack bar mounted in said standard, a lever pivoted to said standard, a shiftable actuating pawl mounted on said lever and in operative relation with said rack, a retaining pawl mounted in said standard and in operative relation with said rack, a projection extending from said retaining pawl, an arm extending from said actuating pawl and adapted to engage said projection when said actuating pawl is in a shiftable position, a second arm extending from said actuating pawl and adapted to engage a portion of the casing to release said actuating pawl from engagement with said rack when said actuating pawl is in a shiftable position, and a crank carried by said lever and adapted to shift said actuating pawl.

3. In a jack, a standard, a rack bar mounted in said standard, a lever pivoted to said standard, a shiftable actuating pawl mounted on said lever and in operative relation with said rack, a retaining pawl mounted in said standard in operative relation with said rack, a projection on said retaining pawl, a resilient arm extending from said actuating pawl and adapted to engage said projection when said actuating pawl is in a shiftable

position, a second resilient arm extending  
from said actuating pawl and adapted to en-  
gage a portion of the casing to release said  
actuating pawl from engagement with said  
5 rack when said actuating pawl is in a shift-  
able position, a crank carried by said lever  
and adapted to shift said actuating pawl, a  
shaft extending throughout the length of  
said lever and upon which said crank is  
10 mounted, and means mounted on the outer

end of said shaft and adapted to rock said  
crank.

In testimony whereof we affix our signa-  
tures, in presence of two witnesses.

THEODORE H. WITTLIFF.  
CHARLES W. PARKER.

Witnesses:

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