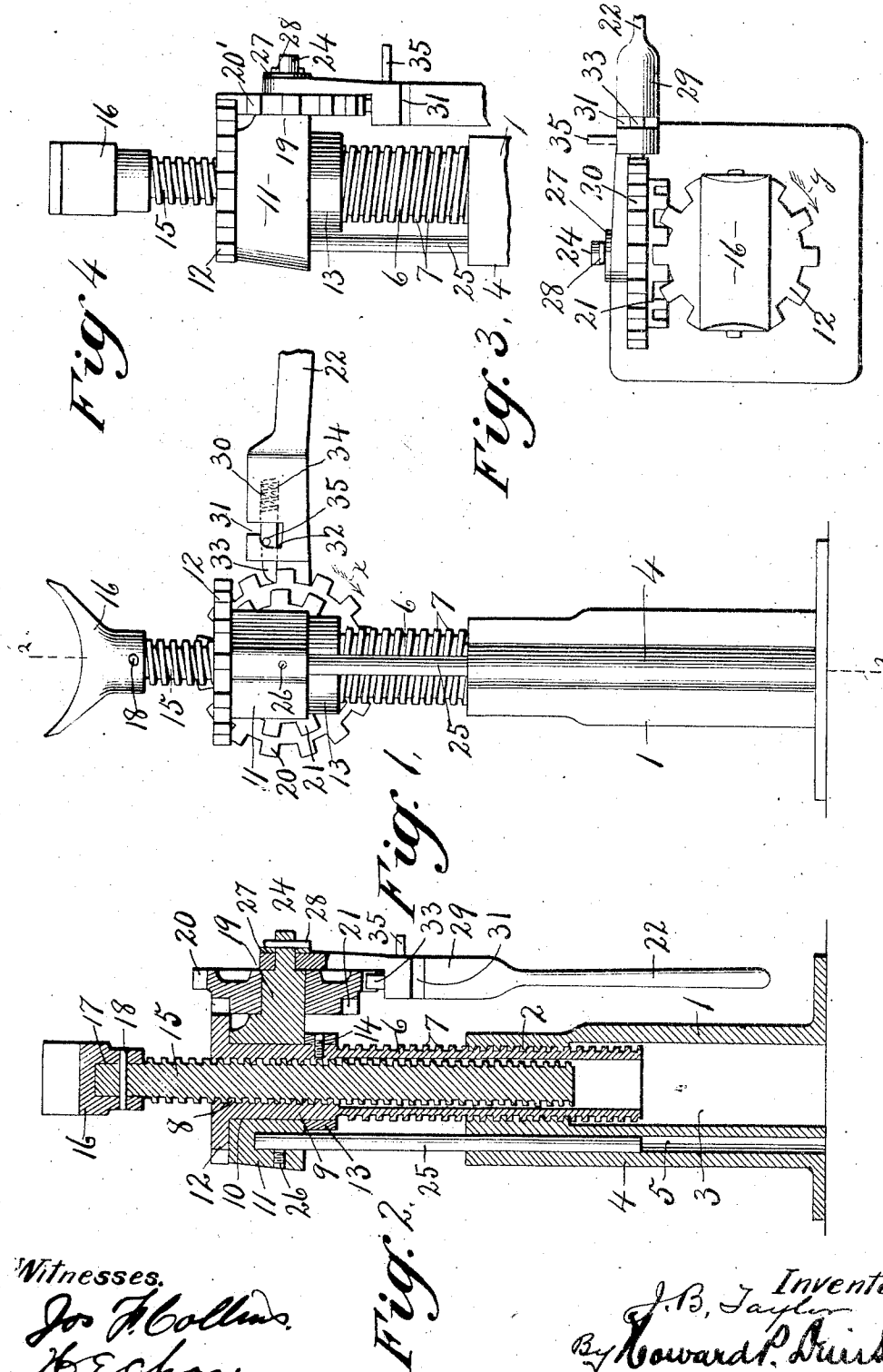


J. B. TAYLOR.
LIFTING JACK.
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986,781.

Patented Mar. 14, 1911.



Witnesses.

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JOTHAM B. TAYLOR, OF AUBURN, NEW YORK.

LIFTING-JACK.

986,781.

Specification of Letters Patent. Patented Mar. 14, 1911.

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To all whom it may concern:

Be it known that I, JOTHAM B. TAYLOR, of Auburn, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Lifting-Jacks, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in lifting jacks of the telescoping screw type adapted more particularly for automobile uses for engaging one or the other of the axles to lift the wheels from the ground in removing or replacing the tires. In this specific use the jack and its operating means is necessarily placed low down and operates in a limited space and I have found that the vertical movement of the operating member is more effective and advantageous owing to the fact that the operator may stand more erect and obtain greater power by direct downward pressure upon the lever in operating the screw.

My object therefore is to operate the jack by means of a vertically movable lever through the medium of a ratchet and pawl action wholly at one side and eccentric to the axis of the telescoping screws, so that the lever may have free vertical play at one side of such screws and its supporting base through an arc of at least 90°.

Other objects and uses relating to specific parts of the mechanism will be brought out in the following description.

In the drawings—Figure 1 is a side elevation of a lifting jack embodying the various features of my invention. Fig. 2 is a central vertical section on line 2-2, Fig. 1. Fig. 3 is a top plan of the same jack, the handle of the lever being broken away. Fig. 4 is a front elevation of the upper portion of a modified form of jack in which the teeth of the ratchet wheel mesh directly with the gear on the tubular screw.

In carrying out the objects stated an upright tubular base —1— is provided with a reduced upper end threaded internally at —2— and of somewhat smaller inner diameter than the remaining lower portion of the internal chamber as —3—, said tubular base being provided with a laterally projecting upright rib —4— having a vertical

opening or guide way —5— for a purpose presently described.

A vertically movable intermediate tube —6— is provided with an external left hand thread —7— extending from its lower end upwardly throughout the greater portion of its length, the upper end of said tube having a smooth cylindrical periphery and an internal right hand threaded portion —8—. The outer diameter of the cylindrical portion, as —9—, of the tube —6— is equal to or slightly greater than that of the external threaded portion —7— to allow the entire tube to be readily inserted into or through a journal bearing —10— of a suitable yoke —11— presently described. The upper end of the cylindrical portion —9— terminates in an integral gear or toothed rack —12— concentric with its axis and forming an annular shoulder or flange resting upon the top face of the yoke —11—, while the lower face of said yoke is engaged by a collar —13— which is secured to the tube —6— by set screw —14—, as best seen in Fig. 2. The object of the flange —12— and collar —13— is to prevent relative endwise movement of the tube —6— and yoke —11—.

Engaged with the internally threaded portion —8— of the tube —6— is an inner upright screw —15— of right hand pitch which is threaded from its lower end upward throughout the greater portion of its length and extends some distance above the upper face of the gear —12—.

An axle rest or head —16— is provided with an internal socket —17— receiving the upper end of the screw —15— said head being held in place by a pin —18— which is passed through the adjacent portions of the head and screw, the upper face of the head being concave to more effectively hold it in engagement with the axle when in use.

The yoke —11— is provided with a laterally projecting journal bearing —19— having a contracted outer end. Journaled upon the enlarged portion of the bearing 19 is a combined ratchet wheel —20— and gear —21—, as shown in Figs. 1, 2 and 3, the ratchet wheel —20— being in this instance of greater diameter than the gear

—21— and located at the outside thereof to allow free action of an operating lever —22—, which is journaled upon a stud —24— which constitutes the contracted 5 outer end of the journal bearing —19—.

A guide rod —25— is secured at its upper end by set screw —26— to the yoke —11— at the same side of the tubular screw —6— as the rib —4— and has its lower end fitted 10 with an easy sliding fit in the guide way or opening, so as to hold the yoke —11— against turning relatively to the base —1— and at the same time allowing it to move vertically as the screws are raised and lowered. 15

The portion of the lever —22— which is journaled upon the stud —24— is flat and held in place by a washer —27— and cotter-key or pin —28— the intermediate portion 20 of the lever in proximity to the periphery of the ratchet —20— is enlarged at —29— and is provided with a lengthwise socket —30— and a transverse slot —31—, the latter having a forwardly extending offset —32—. A sliding pawl —33— is movable 25 in the socket —30— against the action of the spring —34— shown by dotted lines in Fig. 1, said pawl being provided with a laterally projecting pin —35— which plays in the slot —31— and its offset portion —32—. 30 The object of this pin and slot is to permit the pawl to be removed or turned a half turn so as to enable the latter to operate the ratchet wheel by the movement of the lever 35 in either direction.

In Fig. 4 I have shown a ratchet wheel —20'— as having its teeth meshing directly with the gear —12— thereby omitting the extra gear —21— shown in Figs. 1, 2 and 3, 40 otherwise the two devices are identical, the operation being the same in both instances. For example, assuming that it is desired to raise the head —16— to lift a portion of a vehicle, the pawl —33— is turned to the position shown in the drawings with the pin —35— projecting laterally through the off- 45 set slotted portion —32— to the right of the lever, so as to bring the beveled engaging end of the pawl to the top thereby permitting the pawl to ride over the edge of the teeth as the lever is raised without effecting the operation of the ratchet wheel. When the lever is depressed, however, the lower flat face of the pawl engages and operates 50 the ratchet wheel —20— and its corresponding gear —21— in the direction indicated by arrow —x—, in Fig. 1, and imparts rotary motion to the gear —12— and tubular screw —6— in the direction indicated by 55 arrow —y—, Fig. 3, thereby screwing both screws upwardly. It is understood that the screw —15— will be held against turning by reason of its engagement with the axle or other part to be lifted. In lowering the

head and part supported thereon, it is simply necessary to draw the pawl —33— back 65 against the action of the spring —30— to register the pin —35— with the slot —31— and then turn said pawl by means of the pin a half turn whereupon the spring —30— 70 forces the pawl forwardly into engagement with the ratchet wheel and brings the pin —35— into the opposite offset —32— to hold the pawl against turning, it being understood that when the pawl is thus ad- 75 justed the beveled side of its engaging end is inverted thereby allowing a free downward movement of the lever independently of the ratchet wheel and operating said ratchet wheel upon the upward movement of 80 the lever.

What I claim is:

1. In a lifting jack, a tubular base threaded internally and provided with a guide way in one side thereof, a tubular screw threaded 85 externally and internally but in opposite directions the external thread engaging the internal thread of the base, an additional screw engaging the internal thread of the tubular screw and provided at its upper end 90 with a lifting head or rest, a gear on the upper end of the tubular screw, a collar secured to the tubular screw some distance below the gear, a yoke engaging the tubular screw between said gear and collar and provided 95 with a laterally projecting journal bearing having a contracted outer end, a guide rod on the yoke slidably engaging with the guide way on the base to prevent turning of the yoke, a vertically movable 100 lever journaled on the contracted outer end of said bearing, a combined gear and ratchet wheel mounted upon the enlarged end of the bearing, said gear of less diameter than said ratchet and engaging with the gear on 105 the upper end of the tubular screw, and a spring-pressed pawl carried by the lever and adapted to engage the ratchet for intermittently shifting the same whereby motion is imparted to the tubular screw. 110

2. In a lifting jack, an upright base having its upper end threaded internally, a yoke some distance above the base and provided with a journal opening coaxial with the threaded portion of the base, sliding con- 115 nections between the yoke and base to prevent turning of the yoke, a tubular screw having an externally threaded portion engaging the internally threaded portion of the base and having its upper end provided 120 with an internally threaded portion of opposite pitch, said tubular screw having its upper end provided with a gear resting upon the top face of the yoke, a collar secured to the tubular screw and engaging the lower 125 face of the yoke, said yoke being provided with a laterally projecting journal bearing having a contracted outer end, a lever jour-

naled on the contracted outer end of said bearing, a combined gear and ratchet mounted upon said bearing, said gear of less diameter than said ratchet and meshing with the gear carried by the tubular screw, and a spring-pressed pawl carried by the lever and adapted to engage the ratchet for rotating the same when the lever is actuated in

one direction whereby motion will be imparted to the tubular screw.

In witness whereof I have hereunto set my hand on this 18th day of November 1909.

JOTHAM B. TAYLOR.

Witnesses:

H. E. CHASE,

A. L. HUMPHREY.