

No. 622,208.

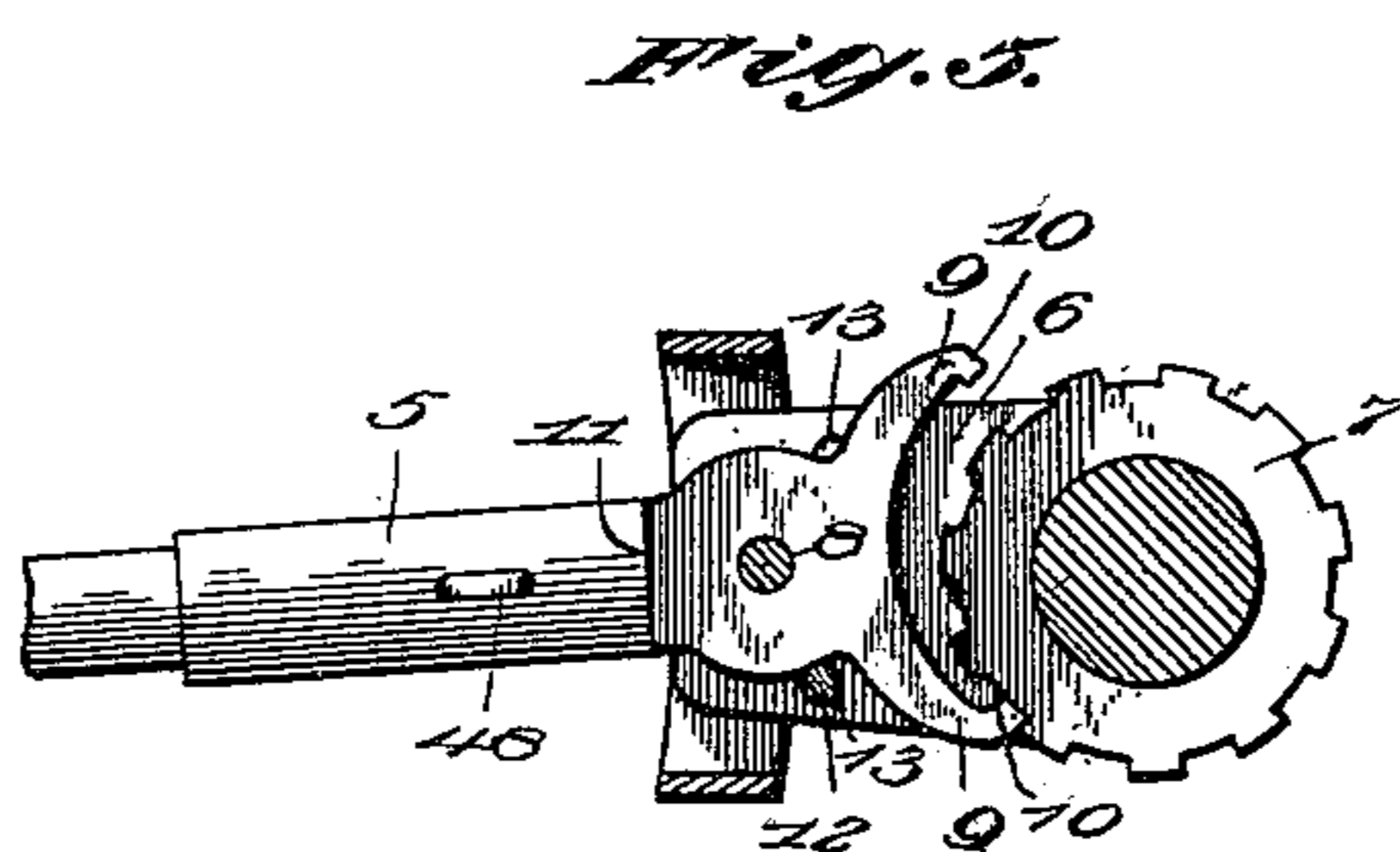
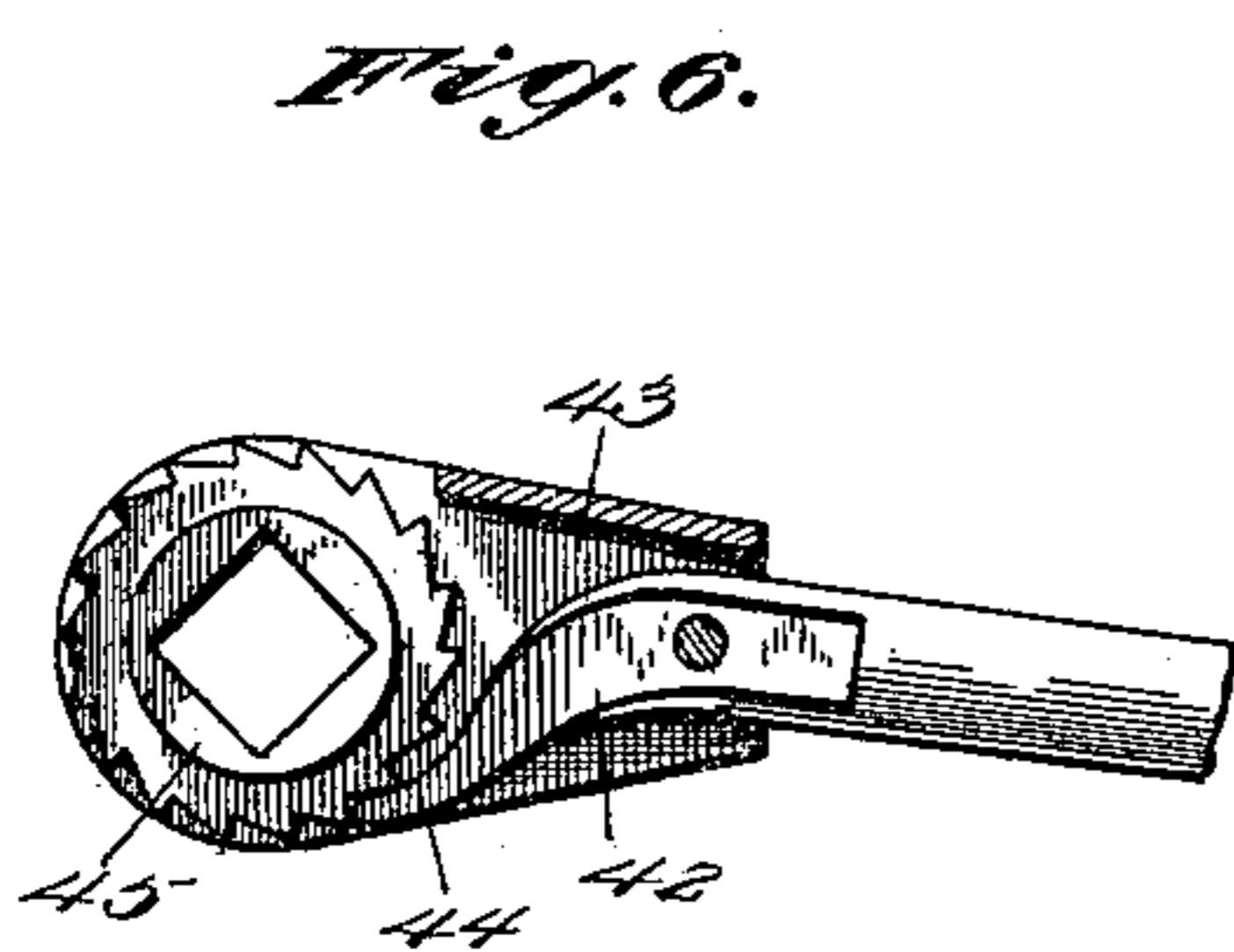
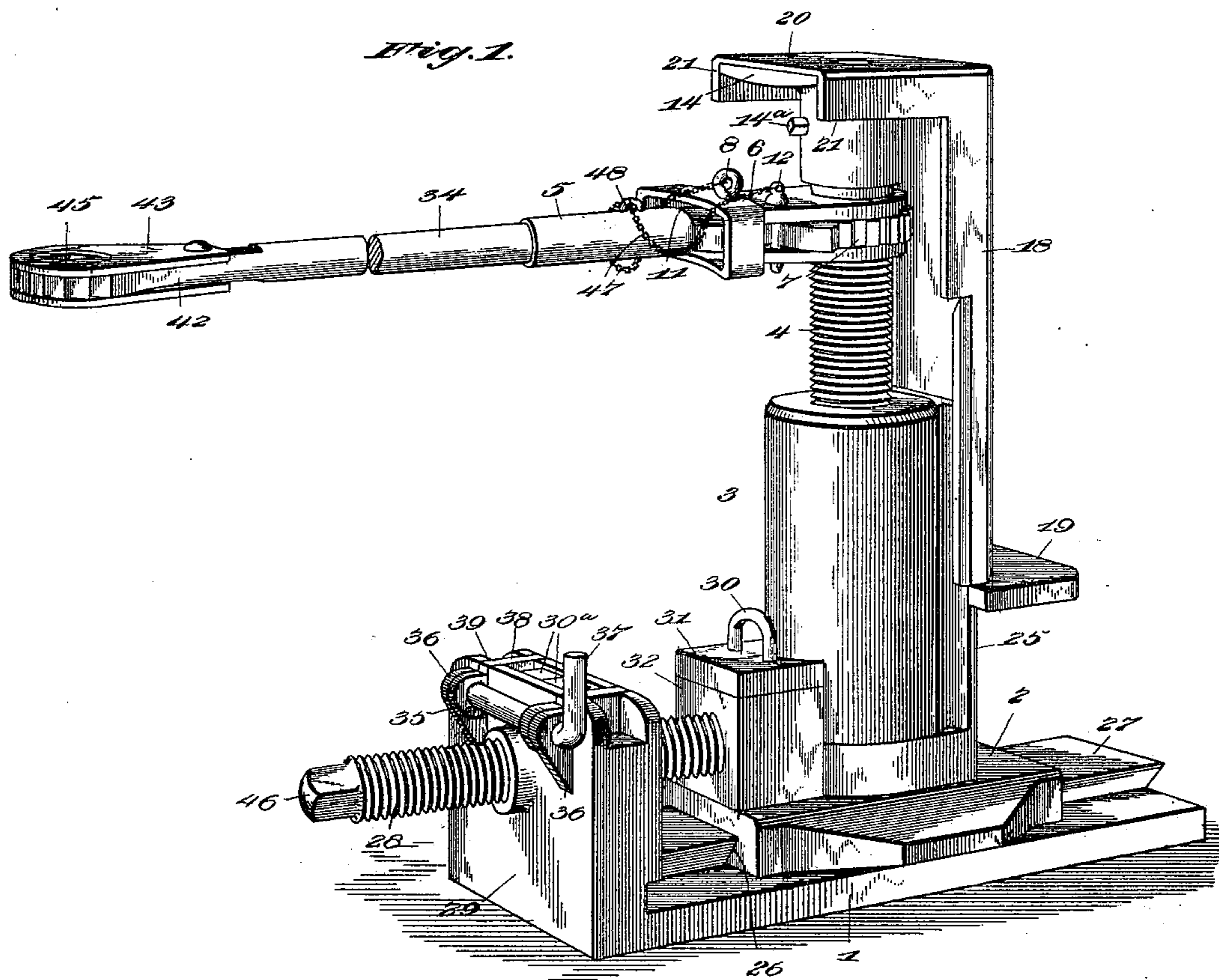
Patented Apr. 4, 1899.

O. P. COX.
LIFTING JACK.

(Application filed Feb. 18, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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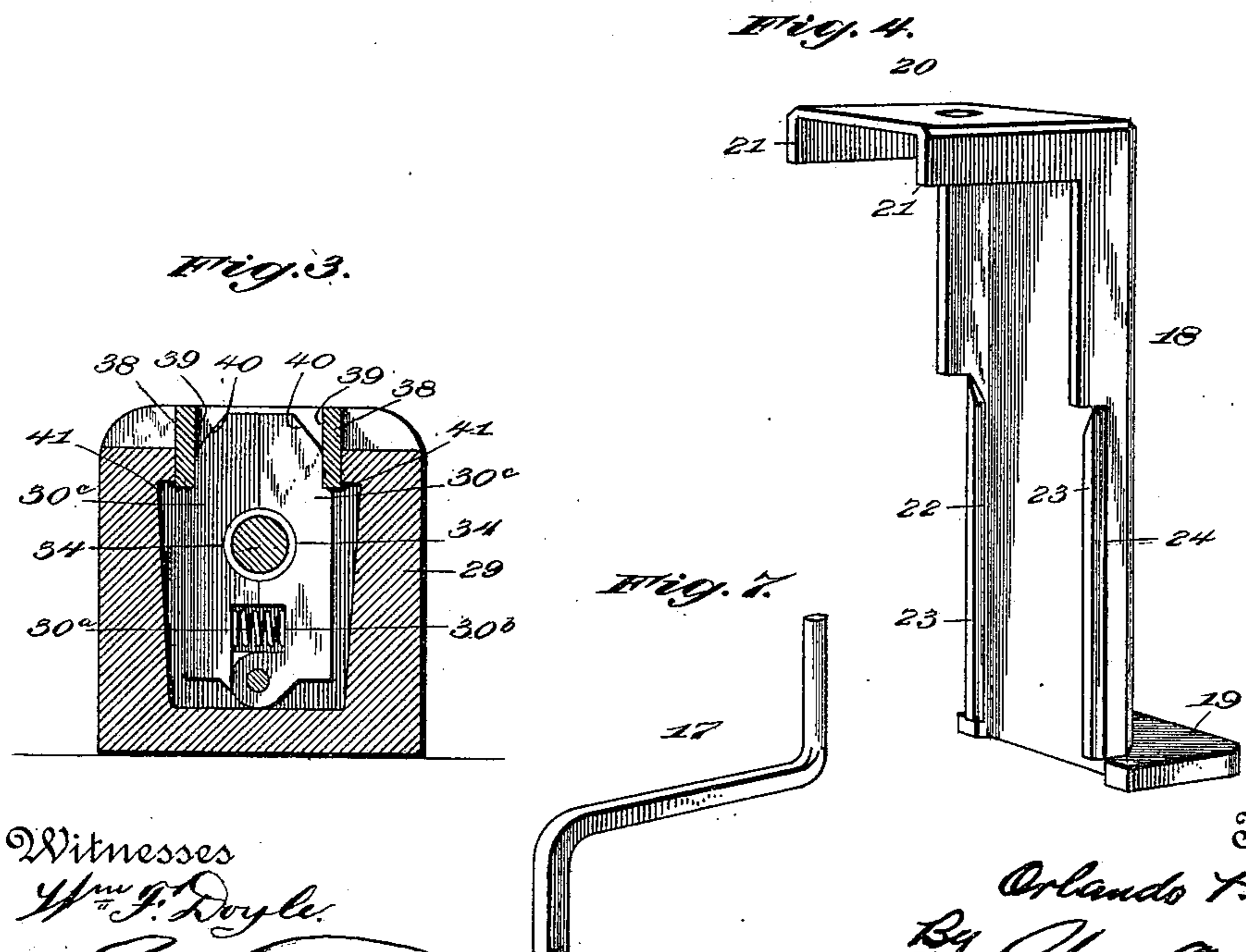
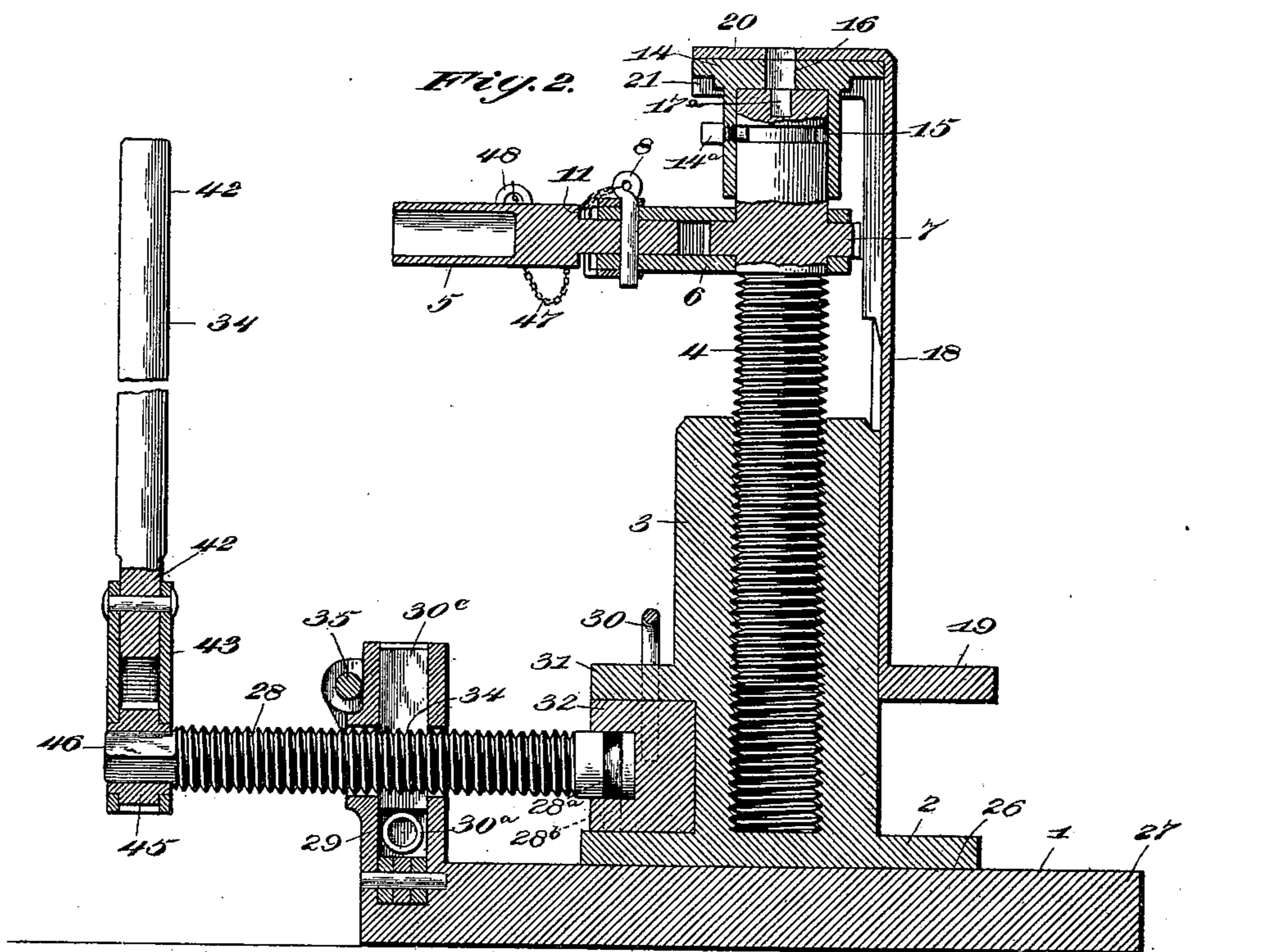
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

ORLANDO P. COX, OF MAYSVILLE, KENTUCKY, ASSIGNOR OF ONE-HALF
TO A. D. COLE, OF SAME PLACE.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 622,208, dated April 4, 1899.

Application filed February 18, 1898. Serial No. 670,862. (No model.)

To all whom it may concern:

Be it known that I, ORLANDO P. COX, a citizen of the United States, residing at Maysville, in the county of Mason and State of Kentucky, have invented certain new and useful Improvements in Lifting-Jacks; and I 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 figures of reference marked thereon, which form a part of this specification.

My invention relates to lifting-jacks, and more particularly to that class known as "screw-jacks," and is capable of use wherever the ordinary jack may be operated.

The object of my invention is to provide a lifting-jack specially designed for use in jacking up car-trucks; and it consists, essentially, in a base-piece, a casing for the lifting-screw mounted to move longitudinally upon the base, a ratchet-lever mounted upon the screw, a lifting-foot removably mounted upon the lifting-screw, and means carried by the base-piece for moving the device longitudinally upon said base. These and other objects and advantages will be hereinafter more fully shown and described, and particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of my invention. Fig. 2 is a vertical longitudinal sectional view thereof. Fig. 3 is a transverse sectional view taken through the rear upright extension of the base. Fig. 4 is a detail perspective view of the removable lifting-foot. Fig. 5 is a top plan view of the ratchet-lever upon the lifting-screw. Fig. 6 is a detail perspective view of the ratchet-lever for moving the device longitudinally upon the base. Fig. 7 is a perspective view of a wrench for quickly adjusting the height of the lifting-screw.

Corresponding parts in the several figures are denoted by like numerals of reference.

Referring to the drawings, 1 designates the stationary base or bed, upon which the mechanism of my improved lifting-jack is mounted, and 2 designates the sliding shoe, carrying the casing 3, threaded interiorly to receive

the lifting-screw 4. This screw 4 is operated by means of a ratchet-lever 5, mounted within a yoke or casing 6, swiveled upon the lifting-screw near its top. The arms of this yoke fit around the unthreaded portion of the screw just above and below a suitable ratchet-wheel 7, thus forming a swiveled connection for said yoke. The ratchet-lever 5 is pivoted within the swiveled yoke by a removable pivot-pin 8, and the ratchet-jaws 9 form an arc of a circle having upon their inner surfaces, at each extremity, clutching-lugs 10. The entire head of the ratchet-lever is flattened, as shown, which forms shoulders 11, providing a stop for the inward movement of the lever. In order that the ratchet may operate in either direction, I provide a pin 12, which when inserted in either of the holes 13 in the yoke 6 and against the jaw 9 upon that side causes that jaw to engage the ratchet-wheel 7, and thus by operating the lever the screw 4 is raised or lowered, as the case may be.

Mounted upon the top of the lifting-screw 4 is a removable head 14, suitably swiveled thereon by means of a set-screw 14^a engaging an annular groove 15 in the lifting-screw. In the center of this head is provided a hole 16, through which a suitable wrench 17 is adapted to be inserted and engage with a wrench-socket 17^a, provided in the upper face of the lifting-screw. By this means the screw 4 may be quickly set to any desired height.

Where the object to be raised is not as high as the jack, especially in the case of railway-cars, I provide a supplemental lifting-arm 18, provided with a lifting-foot 19, extending outwardly from the face of the arm. This lifting-arm is formed of a single piece of metal having a suitable cap-plate 20 fitting over the head 14 and held thereon by the depending flanges 21 engaging upon each side of the lifting-head.

To guide the lifting-arm in its movement up and down, I provide grooves 22 upon the inner face of the arm by turning the flanges inwardly, as at 24. These grooves engage a suitable guiding-track 25, formed upon each side of the casing 3. By this means the arm is guided and kept steady during operation.

In order to furnish a longitudinal adjustment of the lifting-screw proper upon the base-piece, I provide a dovetail mortise 26 in the bottom of the sliding shoe 2, which engages a similarly-shaped rib 27, provided upon the base-piece, which forms a guide for the sliding shoe when moved by means of the horizontal screw 28. This screw is removably secured to the casing 3 at one end, and has the other end passing through an upright extension 29, formed at the rear end of the base-piece. The horizontal screw 28 may be removably secured to the casing 3 in any preferred manner or, as illustrated, by means of a suitable key 30, passing through a lug or step 31, provided upon the rear face of the casing, and into the enlarged head 32 of the screw 28, thus confining said enlarged head between the step 31 and the upper face of the sliding shoe.

In order that the horizontal screw may turn within the head 32, I provide the unthreaded extremity of the same with an annular groove 28^a, engaged by a suitable pin 28^b in the head 32. To quickly remove this screw 28, I provide pivoted clutch members 30^c, incased within the extension 29. These clutch members are each provided with a semicircular notch 34, so threaded that when brought together they form a threaded bore for the reception of the screw 28 and are pivoted at their lower extremities within the extension 29. To hold these clutch members normally apart, I provide a suitable spring 30^a, preferably coiled, as illustrated, mounted within notches 30^b, provided in the meeting edges of the clutch members and situated just above their pivot. By this arrangement it will be readily understood that the clutch members are normally held open or apart, thus allowing the horizontal screw to be readily inserted or withdrawn or slid through them to effect the rapid horizontal adjustment of the casing to bring the lifting devices approximately into proper position for use.

To lock the jaws upon the horizontal screw, I provide a transverse shaft 35, mounted in bearings 36 upon the outer face of the extension 29 and provided at one end with a suitable operating-handle 37. This shaft is provided with two locking-dogs 38, which may be thrown into slots 39, provided in the extension 29 and forced to engage with the inclined head 40 of the pivoted clutch members, which throw the same together, and the dogs seat themselves upon the shoulders 41 upon the sides of the clutch members. As the dogs 38 are held together from lateral movement by the slots 39 in the walls of the extension 29, the threaded clutch members are thus, firmly locked and the horizontal screw may be operated to move the screw-jack proper upon the base-plate.

For operating the screw 28 I provide a ratchet-lever 42, pivoted within a housing 43, having the end within the casing extended upon the arc of a circle to form a dog 44 to

engage the ratchet-teeth of a wrench-head 45, swiveled within the casing. This wrench-head is placed upon the squared projecting end 46 of screw 28 and operated to move the lifting-jack proper in either direction.

To prevent losing the pins 8 and 12, I prefer to connect same by a suitable chain 47 with an eye 48, provided upon the ratchet-lever 5.

Ratchet-lever 5 is preferably formed hollow to receive the end 42 of the lever 34, whereby the ratchet may be operated to greater advantage than by the short leverage afforded by the lever 5.

By my construction and arrangement of parts I have provided a simple and improved form of lifting-jack adaptable for any of the uses to which similar devices may be used, and as various changes may be made in the details of construction and arrangement without departing from the spirit and scope or sacrificing any of the advantages of my invention I do not wish to be understood as limiting myself to the precise construction and relation of parts as herein shown and described.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a lifting-jack, the combination with a base-plate, of a casing having a shoe adapted to slide on the base-plate, and means for adjusting the shoe upon said base-plate consisting of a screw connected to the shoe, and an extension on the base-plate, independent, relatively-movable clutch members having adjacent faces screw-threaded and adapted to engage the threads on the adjusting-screw, a spring coacting with the clutch members and tending to disengage them from the screw, and means adapted to coact with said clutch members to close and hold them in engagement with the screw.

2. A device of the class described, comprising a lifting-jack proper, a base-plate, means for adjusting the lifting-jack upon the base-plate, consisting of a screw removably connected at one end with the lifting-jack, the other end engaging a threaded clutch mechanism mounted within an upright extension of the base, said clutch mechanism comprising pivoted clutch members, a spring to normally hold said members out of engagement with the screw, dogs mounted upon a shaft adapted to engage the opposite edges of the pivoted clutch members and within slots provided in the upper face of the upright extension.

3. A device of the class described, comprising a lifting-jack proper, a base-plate upon which the jack is slidably mounted, means for adjusting the jack upon the base-plate, comprising a horizontal screw carried by the jack, an upright extension of the base-plate, and a threaded clutch mounted upon the extension and receiving the free end of the horizontal screw, said clutch comprising pivoted clutch members, and means for engaging said

clutch members with the horizontal screw, consisting of notches provided just above the pivotal point of said clutch members in which the spring 30^a is mounted, and a transverse shaft mounted in bearings upon the outer face of the extension of the base-plate and provided with locking-dogs adapted to seat themselves upon shoulders formed upon the sides of the clutch members by means of an operating-handle located at one end of the transverse shaft.

4. In a lifting-jack, comprising a base-plate, a lifting-screw, a casing for the lifting-screw which has a step or extension, a shoe adjustably connected with the base-plate and carrying the casing, means for adjusting the shoe comprising a horizontal screw, an enlarged removable head on the horizontal screw, a U-shaped key passing through the step and said head, and a clutch receiving the free end thereof, comprising pivoted clutch members, and means for engaging and disengaging said clutch members.

5. A lifting-jack, comprising a base-plate, a lifting-screw, a casing for the lifting-screw which has a step or extension, a shoe adjustably connected with the base-plate and carrying the casing, means for adjusting the shoe upon the base-plate, comprising a horizontal screw, an enlarged removable head for the horizontal screw, a U-shaped key passing through the step and said head, and a clutch mechanism receiving the free end thereof, comprising pivoted clutch members, means for engaging and disengaging said clutch members, and means for securing the unthreaded extremity of the horizontal screw within the enlarged removable head.

6. A lifting-jack, comprising a base-plate, a lifting-screw, a casing for the lifting-screw which has a step or extension, a shoe adjustably connected with the base-plate and carrying the casing, means for adjusting the shoe upon the base-plate comprising a horizontal screw, an enlarged removable head for the horizontal screw, and a clutch mechanism receiving the free end thereof, comprising pivoted clutch members, and means for engaging and disengaging said clutch members, and means for securing the unthreaded extremity of the horizontal screw within the enlarged removable head, comprising the annular groove 28^a, engaged by the pin 28^b, thereby allowing the horizontal screw to be revolved independently of its enlarged head.

7. A lifting-jack, comprising a lifting-screw, an internally-threaded casing for the lifting-screw, a ratchet-wheel formed integral with the lifting-screw, and upon an unthreaded portion thereof, a yoke swiveled upon the lifting-screw and embracing the ratchet-wheel, a lever pivoted within said yoke, and having a flattened head, ratchet-jaws provided upon their inner faces at each extremity thereof with clutching-lugs, the latter adapted to engage with said ratchet-wheel to operate the

lifting-screw, a pin to adjust said lugs with relation to said ratchet-wheel, a lifting-arm having a cap-plate provided with depending flanges which overhang a removable head at the top of the lifting-screw, said arm having a lifting-foot at its lower extremity and extending outwardly from its face thereof, and supplemental means for turning the lifting-screw to any desired height, comprising a pin or wrench 17, adapted to pass through an opening in the top of said lifting-arm, thence through an opening in said removable head and into a socket 17^a provided in the upper face of the lifting-screw.

8. A device of the class described, comprising a lifting-screw, a casing for the lifting-screw, means for operating the lifting-screw, and a supplemental lifting-arm suspended from the top of the lifting-screw and provided with grooves formed by the inwardly-turned flanges 23, which engage with the track 25, by which means the said lifting-arm is guided in its movement.

9. A device of the class described, comprising a casing having a track, a lifting-screw threaded into the casing, a head journaled to the end of the screw so as to be relatively stationary when the latter turns, and a supplemental lifting-arm having a cap-plate resting on the head and provided with depending flanges which embrace said head, said lifting-arm being engaged with and slidable on the track and having an outwardly-extending portion.

10. A lifting-jack, comprising a base having an extension, a casing having a shoe slidable on the base, an adjusting-screw threaded through the extension and connected to the casing, said screw having a polygonal end, a jack-screw threaded into the casing, a ratchet-lever and ratchet-wheel for operating the jack-screw, said lever having a socket in its shank, and means for turning both the adjusting and jack screws, consisting of a lever, one of whose ends is adapted to fit in the socket, and its other end being provided with a pawl, a casing in which the latter end of the lever is pivoted, and a ratchet-wheel journaled in the casing and adapted to be engaged by the pawl, which has an opening adapted to receive the end of the adjusting-screw.

11. A lifting-jack, comprising a base-plate, a casing slidable thereon, a jack-screw threaded into the casing, an adjusting-screw for shifting the casing, and a clutch positioned on the base, consisting of relatively-movable members having threads adapted to engage those on the adjusting-screw and designed for separation to permit said screw to be freely slid through them.

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

ORLANDO P. COX.

Witnesses:

A. E. COLE,
W. S. FRANK.