No. 849,788. PATENTED APR. 9, 1907.

J. HUMPHREYS.

JACK.

APPLICATION FILED JULY 23, 1906.

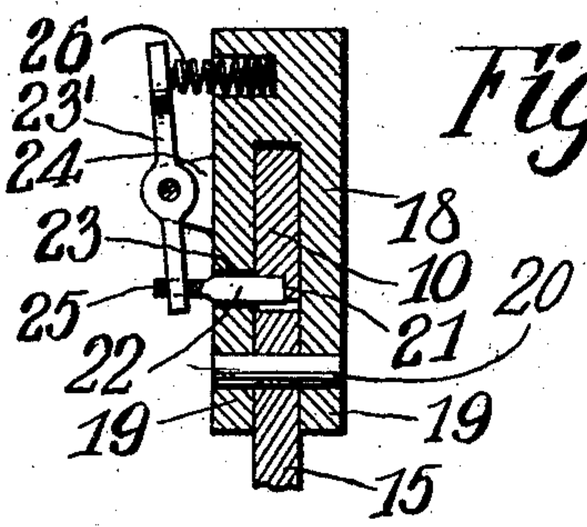

Fig. 3.

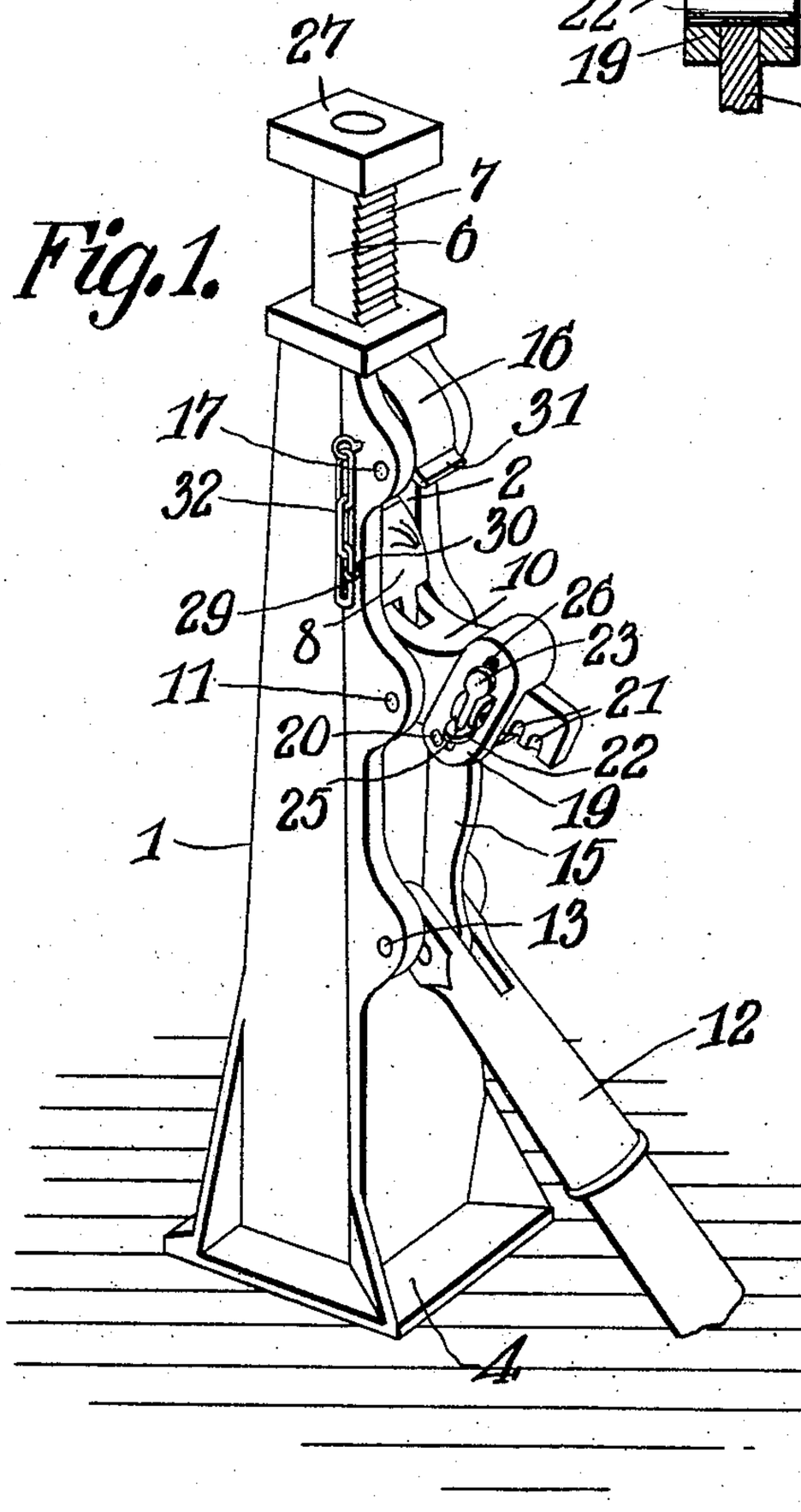

Fig. 1.

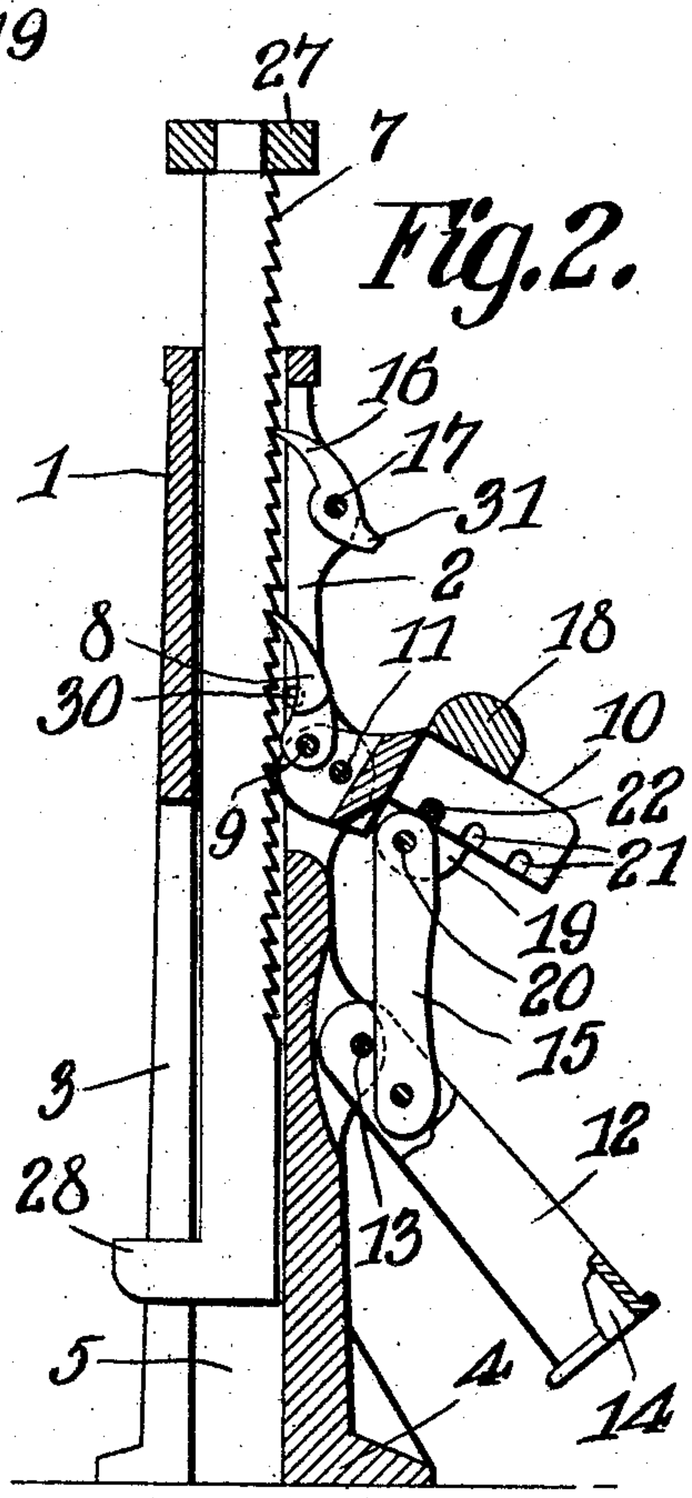

Fig. 2.

WITNESSES:

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JACK.

No. 849,788. Specification of Letters Patent. Patented April 9, 1907.

Application filed July 23, 1906. Serial No. 327,395.

To all whom it may concern:

Be it known that I, JOHN HUMPHREYS, a citizen of the United States, residing at Henderson, in the county of Henderson and State of Kentucky, have invented a new and useful Jack, of which the following is a specification.

This invention relates to a jack designed for lifting trucks, tracks, and the like and for extracting bolts and spikes in a simple and convenient manner.

The invention has for one of its objects to improve and simplify the construction and operation of this class of devices and at the same time increase the range of power.

A further object of the invention is the provision of a novel arrangement between the lifting-bar and actuating-lever whereby different adjustments may be made for varying the lifting power of the jack.

With these objects in view and others, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one of the embodiments of the invention, Figure 1 is a perspective view of the jack. Fig. 2 is a longitudinal section thereof. Fig. 3 is a detail sectional view of the adjustable device arranged between the operating-lever and lifting-pawl for varying the effective leverage.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawings, 1 designates the frame of the jack, which is a pedestal-shaped casting hollow from end to end and open at its front side along the upper half thereof at 2 and open on its rear side at the lower portion, as indicated at 3. The frame is enlarged at the bottom to form a base 4 to give stability thereto. Arranged in the hollow or bore 5 of the frame is a vertically-movable lifting-bar 6, the bar and bore being preferably of corresponding angular cross-section, so as to prevent relative turning. The front side of the lifting-bar 6 is provided with a plurality of teeth or serrations 7, with which a lifting-pawl 8 is adapted to engage. The upper end of the pawl extends through the opening 2, and the lower end is pivoted at 9 to a lever 10, fulcrumed at 11 on the frame 1. At a suitable distance below the lever 10 is a socketed lever 12, fulcrumed at 13, the socket 14 of said lever serving to receive an operating-handle. The levers 10 and 12 are connected by the link 15, which link, with the lever 10, constitutes a toggle-joint between the pawl and the operating-lever 12. By this arrangement the up-and-down movement of the operating-lever 12 causes the lifting-pawl to raise the bar 6 step by step, a detent 16, pivoted on the upper end of the frame at 17, coöperating with the teeth on the lifting-bar, so as to prevent the lifting-bar from moving downwardly.

In order to vary the range of lifting movement of the pawl, and hence vary the power of the jack, the link 15 is adjustably connected with the lever 10, so that the point of connection may be moved nearer to or farther from the fulcrum 11. For this purpose a coupling member or block 18 is slidably mounted on the forward end of the lever 10 and a suitable locking device provided for holding the said member in any desired position on the lever. The member 18 is preferably bifurcated, and the bifurcations 19 thereof straddle the lever, and the link 15 is secured at its upper end between the bifurcations by a pivot-pin 20. The lever 10 is provided adjacent its lower edge with a plurality of notches 21, with which the bolt 22 is adapted to engage. The bolt 22 extends through an opening 23 in one of the bifurcations 19, and its inner end is arranged to engage in any one of the notches of the lever. The bolt is held in its locking position by a spring-pressed latch or detent 23′, fulcrumed between lugs 24 on one side of the member 18. One end of the detent loosely engages in the eye 25 of the bolt, and between the opposite end and the adjacent side of the member 18 is a helical compression-spring 26, that operates to hold the bolt in locking position. When it is desired to change the leverage of the toggle-joint between the operating-lever and pawl, the upper end of the detent or latch is depressed, so as to withdraw the bolt, and then the sliding member 18 is adjusted along the lever 10 to the desired point. Then by releasing the latch or detent the bolt will lock the parts together.

The upper end of the lifting-bar is provided with a swiveled head 27, which is adapted to be placed under an object desired to be lifted when the device is to be used as a

lifting-jack. The lower end of the lifting-bar is formed with a rearwardly-extending claw 28, that is adapted to engage the head of a spike, bolt, or other fastener when the device is to be used as an extractor. The head 27 engages with the top of the frame 1 and limits the downward movement of the lifting-bar, while the claw 28 is adapted to engage with the top of the opening 3, through which opening the claw extends to limit the upward movement of the lifting-bar. In order to hold the pawl out of operative relation with the teeth on the lifting-bar, a pin 29 is provided that is adapted to be inserted in an opening 30 in the frame 1 and hold the pawl slightly away from the said teeth. When the pawl is so disengaged, the lifting-bar can be lowered by pressing downwardly on the projection 31 of the detent 16, so as to remove the latter from engagement with the teeth. When this is done, the lifting-bar will fall by reason of its own weight. The pin 29 is preferably permanently attached to the frame 1, as by means of a chain 32 or equivalent means.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that various changes may be made when desired as are within the scope of the invention.

While I have shown a supporting-frame that is complete in itself, I desire to have it understood that the jack may be used in connection with a tripod in the manner illustrated in my prior patent, No. 577,959, of March 2, 1897.

What is claimed is—

1. In a device of the class described, the combination of a frame, a lifting-bar guided thereby, a pawl for elevating the bar, an operating-lever, and a toggle connection between the pawl and lever capable of adjustment for varying the leverage.

2. In a device of the class described, the combination of a frame, a lifting-bar mounted therein, a pawl for elevating the bar, an operating-lever mounted on the frame, a lever on which the pawl is pivoted, an adjustable connection between the last-mentioned lever and operating-lever, and means coöperating with the pawl for elevating the said bar.

3. In a device of the class described, the combination of a frame, a lifting-bar mounted therein, a pawl for elevating the bar, a notched lever connected with the pawl, a slidable member on the lever, means on said member for interlocking with the notches of the lever, an operating-lever fulcrumed on the frame, and a connection between the operating-lever and said member.

4. In a device of the class described, the combination of a frame, a lifting-bar mounted therein, a pawl for elevating the bar, a notched lever connected with the pawl, a slidable member on the lever, a spring-pressed bolt on the sliding member for adjustably holding the latter on the lever, an operating-lever fulcrumed on the frame, and a link connecting the operating-lever with the said member.

5. In a device of the class described, the combination of a frame, a lifting-bar mounted therein, a pawl for elevating the bar, a notched lever connected with the pawl, a bifurcated member straddling one end of the lever, a bolt extending through one of the bifurcations of the member to engage with the notches, a spring-actuated latch mounted on one side of the member and engaging the bolt, an operating-lever fulcrumed on the frame, and a link pivoted at one end between the bifurcations of the member and at the other end to the operating-lever.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN HUMPHREYS.

Witnesses:
W. A. WILSON,
L. W. POWELL.