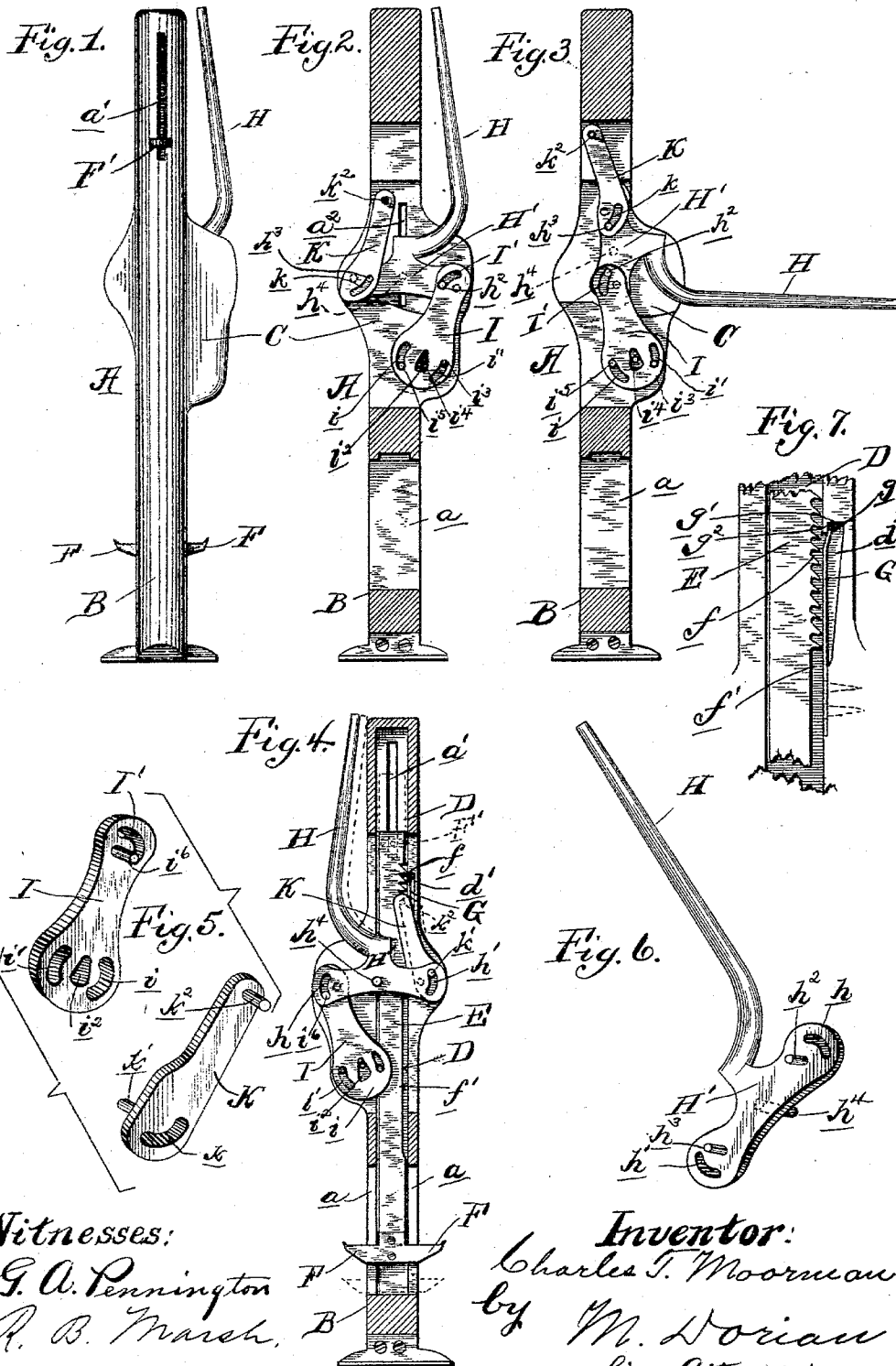


(No Model.)

C. T. MOORMAN.
LIFTING JACK.

No. 569,585.

Patented Oct. 13, 1896.



Witnesses:

G. A. Pennington

R. B. Marsh.

Inventor:

Charles T. Moorman
by M. Dorian
his Attorney.

UNITED STATES PATENT OFFICE.

CHARLES T. MOORMAN, OF PACKWOOD, IOWA.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 569,585, dated October 13, 1896.

Application filed August 28, 1895. Serial No. 560,778. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. MOORMAN, a citizen of the United States, residing at Packwood, in the county of Jefferson and State of Iowa, 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.

This invention relates to an improvement in lifting-jacks; and it consists in the construction and arrangement of parts hereinafter described, and definitely pointed out in the claims.

The aim and purpose of the invention are the provision of improved means for actuating the jack and adjusting the lifting-arms to engage the axle before the lifting or elevating is effected. These objects are attained by the construction illustrated in the accompanying drawings, wherein like letters of reference designate corresponding parts in the several views, and in which—

Figure 1 is an elevation of the jack. Fig. 2 is a vertical section. Fig. 3 is a similar view, showing the parts in a different position. Fig. 4 is a rear elevation of the levers shown in connection with the front section of the frame. Figs. 5 and 6 are detail views of the levers referred to as the "link," "T-head," and "pawl;" and Fig. 7 is a fragmentary view of the lifting-bar E, the rack f, and spring G.

In the drawings, A designates the frame, having the base B and enlarged section C. The frame has a central vertical channel D, in which the lifting-bar E is loosely mounted. This bar carries on its lower end the oppositely-extending lifting-arms F, projecting through suitable elongated slots a, formed in the frame. At its upper end the bar is formed with a rack f, having inclined teeth, the inclination being on their upper edges only. Below the rack the bar is cut away, as at f'.

F' designates a hand-knob secured to the bar at its upper end and extending through an elongated opening a' in the frame.

The side wall of the channel D is cut away, as at d', and a flat spring G is secured to the wall and extends over the cut-away portion

thereof. Its upper end is formed with a lip g, which moves in a groove g' and normally rests against the flange g².

The actuating mechanism comprises a handle or lever H, which carries at its inner end a T-head H', formed with curved elongated slots h h' in its opposite ends. Adjacent to the inner walls of the slots are the lateral pins h² h³, and centrally of the head on the opposite side is a lateral pin h⁴, which projects into the vertical slot a², formed in the enlarged section of the frame.

I designates the fulcrum-link, which is formed with the oppositely-curved slots i i' in its lower end and the intermediate conical-shaped slot i². In the front section of the frame are secured turn-pins i³ i⁴ i⁵, passing through the slots, the former and latter being substantially in a horizontal line, while the central one is on a plane slightly above the others. By this means a limited rocking movement is allowed the link, and the pivotal center or fulcrum is successively changed from one pin to the other, so that the upper end of the link will move in substantially a straight line instead of in a true arc. The upper end of the link I has a curved slot I' therein, and from its rear face extends a pin i⁶, which engages in the slot h of the handle, and the pin h² engages in slot I'.

K designates the pawl member, which has a curved slot k in its lower end and a lateral pin k' slightly above the slot. The pin enters the slot h' of the lever, while the pin h³ of the lever enters the slot k. The upper end of the pawl has a pin k², which constitutes the tooth and works in the cut-out portion of the lifting-bar and when the parts are actuated engages the rack-teeth.

In operation the lifting-bar is drawn up through the medium of the hand-knob, and as the lifting-arms engage the axle the tooth of the pawl member engages the rack and retains the bar in its elevated position. The handle is then forced down, which raises the T-head from a horizontal to a perpendicular position, elevating the pawl, which in turn elevates the lifting-bar. The downward movement of the handle is continued until the T-head is slightly inclined in an opposite direction, or beyond the pivotal center, and

the parts locked from downward movement. As the handle is lowered the fulcrum-link moves so as to shift its fulcrum from the pin i^3 to pin i^5 directly below the central pin h^4 , which allows a vertical movement only, and by the various curved slots and the interchanging pins the pivotal action or movement of each member is shifted from one center to another, thereby diminishing the extent of movement while maintaining substantially the leverage and vertical movement of the parts. When the axle is to be lowered, it is only necessary to throw the parts off from the dead-center or lock and by its own weight the same will fall, the pressure on the handle preventing too sudden movement.

To permit the lifting-bar to descend or pass the pawl, the handle is raised to its limit, as shown by dotted lines in Fig. 4, and by the limited pivotal movement of the pawl caused by the pins and slots h the pawl is forced against the spring, out of engagement with the teeth of the rack.

By the special arrangement of the various levers it will be seen that a short movement of the handle will effect a relative extended movement of the pawl member, and by the curved slots and pins, arranged as described and shown, the movements of the parts are in substance or practically vertical as the fulcrums are changing during the movement, that is, shifted laterally. The leverage is by this means not diminished to any extent, but the effect of a long leverage is obtained through the instrumentality of the short levers, (link, T, and pawl.) The effect, primarily, is a relative greater upward movement of the lifting-bar with a short movement of the handle.

Having thus described the invention, what

is claimed as new, and desired to be secured by Letters Patent, is—

1. In a lifting-jack, the combination with a frame, of a lifting-bar slidingly secured in the frame, a handle having a T-head rigid therewith, a fulcrum-link pivotally connected to the head, and a pawl connection between the bar and the T-head, substantially as described.

2. In a lifting-jack the combination with a frame, of a lifting-bar slidingly supported therein, a handle having oppositely-extending projections at its inner end, a fulcrum-link, shifting connections between the link and frame and between the link and a handle projection, a pawl having a shifting pivotal connection with the other handle projection, a rack on the lifting-bar, and a spring for normally forcing the pawl into engagement with the rack, substantially as described.

3. In a lifting-jack, the combination with a frame, of a vertically-movable lifting-bar, a lever mechanism for raising the bar comprising a fulcrum-link having a shifting connection with the frame, a hand-lever having a shifting connection with the upper end of the link, and a vertically-movable pin passing through the frame, a pawl having a shifting connection with the handle-lever, and a spring for normally forcing the pawl into connection with the lifting-bar, and a projection on the lifting-bar for raising the same independent of the lever mechanism, substantially as described.

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

CHARLES T. MOORMAN.

Witnesses:

SILVANUS KOERNER,
J. S. LOUGHARY.