

(No Model.)

D. B. SCOTT.

HOISTING JACK.

No. 359,405.

Patented Mar. 15, 1887.

Fig. 1.

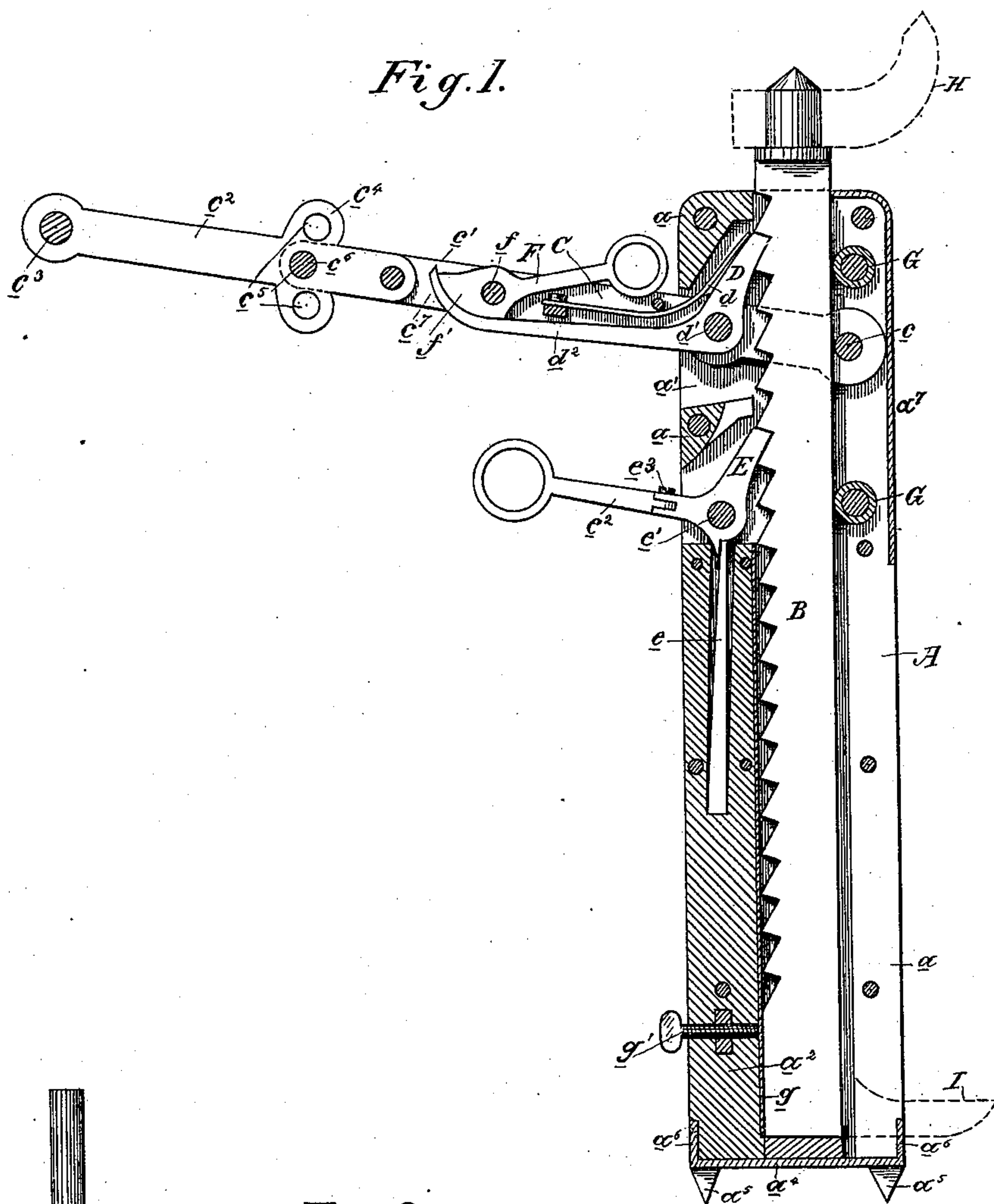
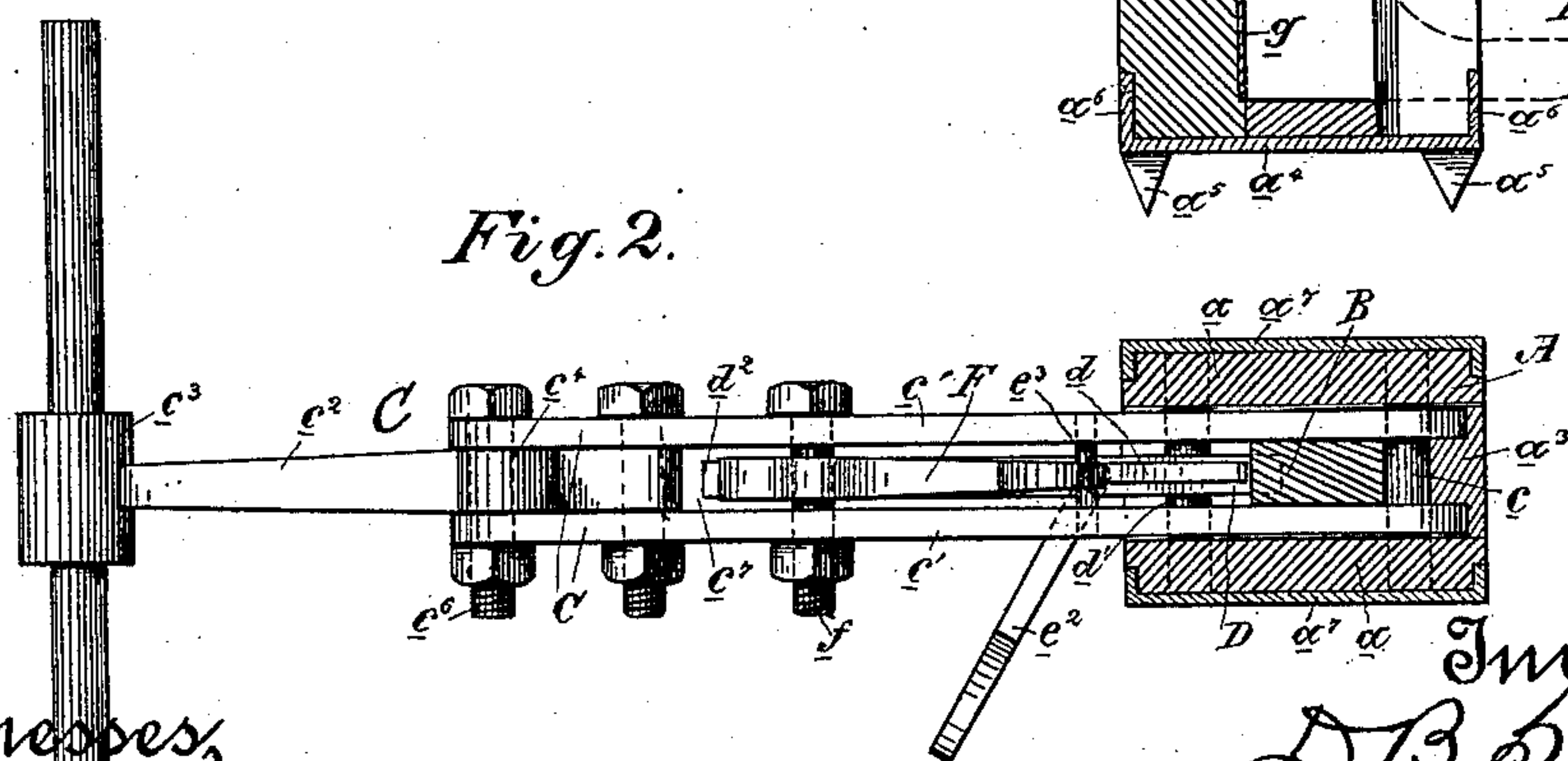


Fig. 2.



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UNITED STATES PATENT OFFICE.

DAVID B. SCOTT, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF
TO JOSEPH H. GILLENWATERS, OF SAME PLACE.

HOISTING-JACK.

SPECIFICATION forming part of Letters Patent No. 359,405, dated March 15, 1887.

Application filed December 9, 1886. Serial No. 221,155. (No model.)

To all whom it may concern:

Be it known that I, DAVID B. SCOTT, of the city and county of San Francisco, State of California, have invented an Improvement in Hoisting-Jacks; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of hoisting or lifting jacks in which a ratchet-faced lifting-bar mounted and guided in a suitable stock is operated by means of a lever and pawls engaging the ratchet-face of said bar; and my invention consists in the novel arrangement and construction of parts by which the bar is both raised and lowered and by which the pawls are thrown into and out of engagement, and details of construction, all of which I shall hereinafter fully describe.

The object of my invention is to provide a hoisting-jack of simple construction, but with great power and easy of operation.

Referring to the accompanying drawings, Figure 1 is a vertical section through the stock of the jack, the remaining parts being in elevation. Fig. 2 is a top view of my hoisting-jack, the arm e^2 of the retaining-pawl being turned to one side.

A is the slotted stock of the jack.

B is the ratchet-faced lifting-bar mounted therein and adapted to be longitudinally moved.

C is the operating-lever, pivoted on a bolt, c , at a point back of the lifting-bar.

D is the actuating-pawl, secured to the lever C at a point in front of the lifting-bar and having a spring, d , by which it is normally held to its engagement with the ratchet-face of the bar.

E is the retaining-pawl, secured in the stock and having a spring, e , by which it is held to its engagement with the ratchet-face of the lifting-bar.

The operation of the jack, as far as described, is obvious. Upon the upstroke of the lever C the actuating-pawl D, secured thereto, engages the ratchet-face of the lifting-bar and raises it, while the retaining-pawl E slips over one tooth and engages with the next one below, thereby holding the bar in the position to which it has been raised while the lever moves on its downstroke, thus carrying the

actuating-pawl down to engage with the tooth next below. The peculiarity of this construction lies in the character of the lever force employed—namely, in locating the weight at a point between the fulcrum of the lever and the power which operates it. The actuating-pawl D is pivoted to the lever C by a pin or bolt, d' , and it has an arm, d^2 , projecting outwardly into the slot c' , formed between the arms c' of the lever. Pivoted between the lever-arms at a point, f , is a short lever, F, having a finger-ring at one end, and its head f' bearing against the arm d^2 of the actuating-pawl. Now, it will be seen that by moving this lever on its pivotal center the arm d^2 of the actuating-pawl may be depressed, thereby throwing said pawl from its engagement with the ratchet-face of the lifting-bar. The retaining-pawl E is also pivoted by a bolt or pin, e' , passing through the walls of the stock A, and said pawl has an outwardly-extending arm, e^2 , directly beneath the arm d^2 of the actuating-pawl. The effect of this construction is that when the lever C is depressed and the short lever F is operated, the arm d^2 of the actuating-pawl may be forced down by the lever F into contact with the arm e^2 of the retaining-pawl, so that said last-named pawl is thrown from its engagement, as well as the actuating-pawl, as I have heretofore described.

It will thus be seen that by operating the lever F both pawls may be thrown simultaneously from their engagements with the ratchet-face of the lifting-bar, thereby completely relieving said bar and allowing it to come down with a run when necessary.

In order to provide for lowering the lifting-bar gradually, one tooth at a time, I make the arm e^2 of the retaining-pawl jointed by a hinge, e^3 , so that said arm may be turned out of the way in the following operation. Supposing the lifting-bar to be at a certain height, and that it is desirable to lower it gradually, I first move the lever C up to the extreme limit of its stroke, thereby, through the actuating-pawl D, raising the bar a notch farther. By holding the lever in this position tightly the bar is held by the actuating-pawl. With the other hand I then, by means of a pressure downward on the arm e^2 of the retaining-pawl, relieve it from all engagement with the ratchet-

face of the bar. I then begin to lower the lever gradually, thus allowing the bar to descend, and when the limit of its movement is reached I release the retaining-pawl, so that it moves to its engagement and holds the bar. I then, by means of the lever F pressing upon the arm d^2 of the actuating-pawl, throw said pawl from its engagement with the bar, whereby the lever C may be raised again, without interfering with the bar, to its upper limit, when I again release the actuating-pawl and allow it to come to its engagement, thereby holding the bar again, as before, so that I can once more release the holding-pawl below. In this way the bar is gradually lowered one tooth at a time, each pawl alternately acting as a retaining-pawl. The object of hinging the arm e^2 of the retaining-pawl is that it may be turned to one side out of the way of the arm d^2 of the actuating-pawl when depressed by the operation of the lever F.

It will be remembered from my previous description that when the lever F presses down the arm d^2 of the actuating-pawl said arm comes in contact with the arm e^2 of the retaining-pawl, thereby throwing both of said pawls from their engagement; but in lowering the bar gradually this relief of both pawls is to be avoided, and therefore the hinged arm e^2 of the retaining-pawl is turned to one side.

The lever C has the following peculiarities of construction: The inner part, c' , consists of two separate and approximately parallel arms, between which and in the slot c^7 formed thereby the actuating-pawl and the lever F are mounted. Between the outer ends of these two arms is fitted the handle part c^2 , said part having on its outer end a cross-head, c^3 , and near its inner end an arc, c^4 , provided with a series of holes, c^5 . A bolt, c^6 , passes through both arms and the intervening arc of the handle part. By setting this bolt in any of the series of holes in said arc the handle part may be secured in line with the inner part, or it may be turned to any angle therewith to suit the convenience of the operator, depending upon the position of the main body of the jack.

The lifting-bar is guided in the slotted stock by means of fixed anti-friction rollers G, mounted in said stock and bearing on the back of the bar, and by means of the steel plate g , secured to the inner surface of an intervening piece, a^2 , in the stock, and said plate may be readily oiled through a hole in said stock controlled by a plug or screw, g' .

The arms c' of the lever C pass into the stock in recesses a' made in the side pieces, a , of the stock, the upper and lower walls of said recesses acting as stops to limit the movement of said lever. The arms of the lever pass on each side of the lifting-bar.

Though the stock A may be made in any suitable manner, I prefer to construct it of two side pieces, a , and the interior pieces, a^2 and a^3 , as shown, firmly riveted and bolted together, thus leaving an intermediate space for

the hoisting or lifting bar to work. The bottom of the stock is furnished with a metallic base-plate, a^4 , calks a^5 , and a band, a^6 .

Extending down from the top a sufficient distance to support and carry the retaining-pawl E, the stock is faced and capped with two metallic jaw-plates, a^7 , the outer surface of the plates when in place being flush with that of the stock, and the different bolts or rivets passing through the plates connect the working parts thereof, so that all are firmly secured together.

The plate g on the inner surface of the piece a^2 prevents wear and friction due to the movement of the lifting-bar.

A logger-head, H, may be fitted to the top of the lifting-bar, and a foot-lift, I, may be secured below, in which latter case the strip a^3 will extend no farther down than the jaw-plates.

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

1. In a hoisting-jack, a stock and a longitudinally-movable ratchet-faced lifting-bar mounted therein, in combination with an operating-lever having its fulcrum in the stock at a point behind the lifting-bar and an actuating-pawl secured to said lever in front of said lifting-bar and engaging its ratchet-face, substantially as herein described.

2. In a hoisting-jack, a stock and a longitudinally-movable ratchet-faced lifting-bar mounted therein, in combination with a lever having its fulcrum in the stock at a point behind the lifting-bar, an actuating-pawl secured to said lever in front of said bar and engaging its ratchet-face, and a retaining-pawl secured to the stock below the lever and engaging the ratchet-face of the lifting-bar, substantially as herein described.

3. In a hoisting-jack, a stock and a longitudinally-movable ratchet-faced lifting-bar mounted therein, in combination with the lever C, fulcrumed in the stock at c , behind the lifting-bar, the actuating-pawl D, pivoted to said lever in front of the lifting-bar and engaging its ratchet-face and the spring d , by which it is held to its engagement, and the actuating-pawl E, pivoted in the stock below and engaging the ratchet-face of the lifting-bar, and the spring e by which it is held to its engagement, substantially as herein described.

4. In a hoisting-jack, a stock and a longitudinally-movable ratchet-faced lifting-bar mounted therein, in combination with the lever C, the spring-controlled actuating-pawl D, pivoted to said lever and engaging the ratchet-face of the lifting-bar, said pawl having an arm, d^2 , and the pivoted lever F, adapted to bear on said arm, by which the pawl is thrown from its engagement, substantially as herein described.

5. In a hoisting-jack, a stock and a longitudinally-movable ratchet-faced lifting-bar mounted therein, in combination with a lever, C, the spring-controlled actuating-pawl D, pivoted to said lever and engaging the lifting-

bar, said pawl having an arm, d^2 , the spring-controlled retaining-pawl pivoted in the stock and engaging the ratchet-face of the lifting-bar and having an arm, e^2 , and the lever F, pivoted in the lever C and adapted to depress the arm d^2 of the actuating-pawl, to bring it in contact with the arm e^2 of the retaining-pawl, whereby said pawls are simultaneously thrown from their engagement, substantially as herein described.

6. In a hoisting-jack, a stock and a vertically-movable ratchet-faced lifting-bar mounted therein, in combination with the lever C, pivoted in the stock, the spring-controlled actuating-pawl D, pivoted to the lever and having an arm, d^2 , the spring-controlled retaining-pawl E, pivoted in the stock and having an arm, e^2 , hinged or jointed, whereby it may be turned to one side, and the lever F, pivoted in the lever C, for depressing the arm d^2 of the actuating-pawl and throwing it from its engagement, substantially as herein described.

7. In a hoisting-jack, a stock and a longitudinally-movable ratchet-faced lifting-bar mounted therein, in combination with the pivoted lever C, consisting of the parallel inner arms, c' , and the handle part c^2 , having an arc, c^4 , with a series of holes, c^5 , and a bolt, c^6 , connecting the handle part with the arms, whereby said handle may be turned at an angle with the arms, substantially as herein described.

8. In a hoisting-jack, a stock and a longitudinally-movable ratchet-faced lifting-bar mounted therein, in combination with the pivoted lever C, consisting of the parallel inner arms, c' , and the handle part c^2 , having an arc,

c^4 , with a series of holes, c^5 , and a bolt, c^6 , connecting the handle part with the arms, whereby said handle may be turned at an angle with the arms, the spring-controlled actuating-pawl D, carried upon the lever, and the spring-controlled retaining-pawl E, carried by the stock, all substantially as herein described.

9. In a hoisting-jack, a stock and a longitudinally-movable ratchet-faced lifting-bar mounted therein, in combination with the lever C, the actuating-pawl D, carried thereby, and the retaining-pawl E in the stock, the anti-friction rollers G in the stock, for guiding the back of the bar, and the plate g , against which the face of the ratchet-bar operates to prevent wear, substantially as herein described.

10. In a hoisting-jack, the slotted stock A, having in the upper portion of its side walls, a , the recesses a' , as described, and the ratchet-faced lifting-bar mounted in said slotted stock and guided therein by the anti-friction rollers behind and the plate in front, in combination with the lever C, pivoted in the stock behind the bar, said lever having parallel arms c' , entering the stock in the recesses of its side walls and passing upon each side of the ratchet-bar, the spring-controlled actuating-pawl carried by the lever, and the spring-controlled retaining-pawl pivoted in the stock, substantially as herein described.

In witness whereof I have hereunto set my hand.

DAVID B. SCOTT.

Witnesses:

S. H. NOURSE,
LINCOLN SONNTAG.