

C. H. SUTTON.
LIFTING JACK.
APPLICATION FILED JAN. 30, 1914.

1,104,328.

Patented July 21, 1914.

2 SHEETS-SHEET 1.

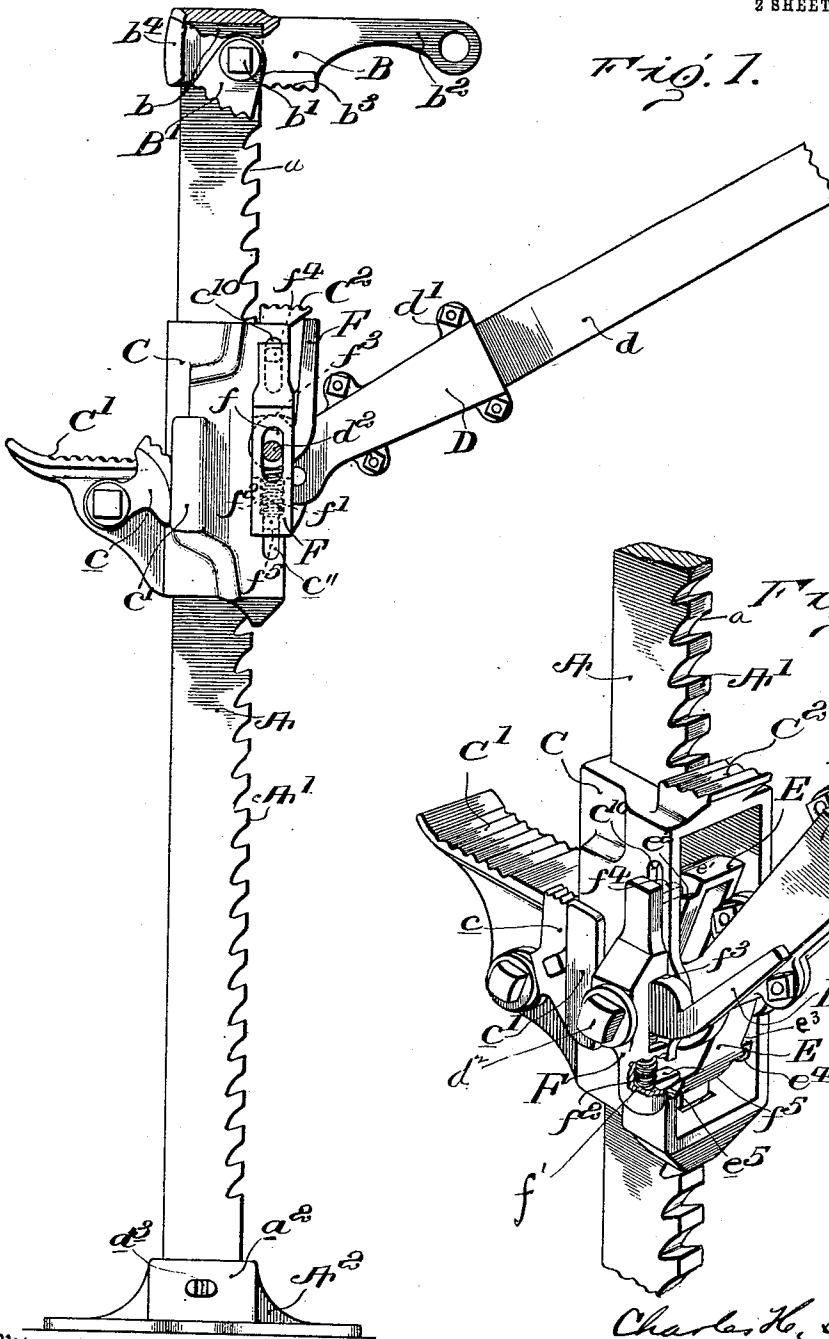


Fig. 1.

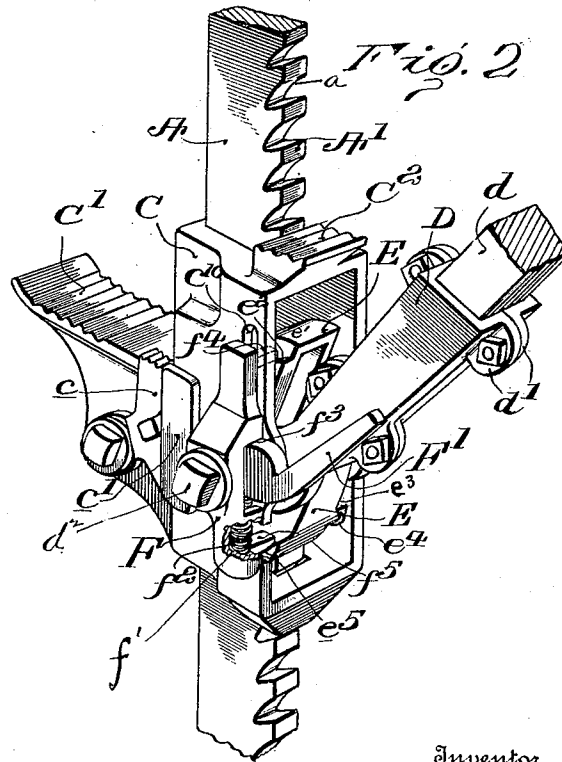


Fig. 2.

Witnesses

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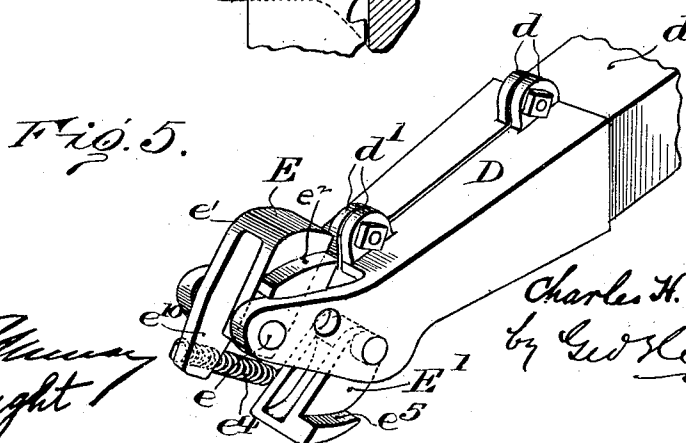
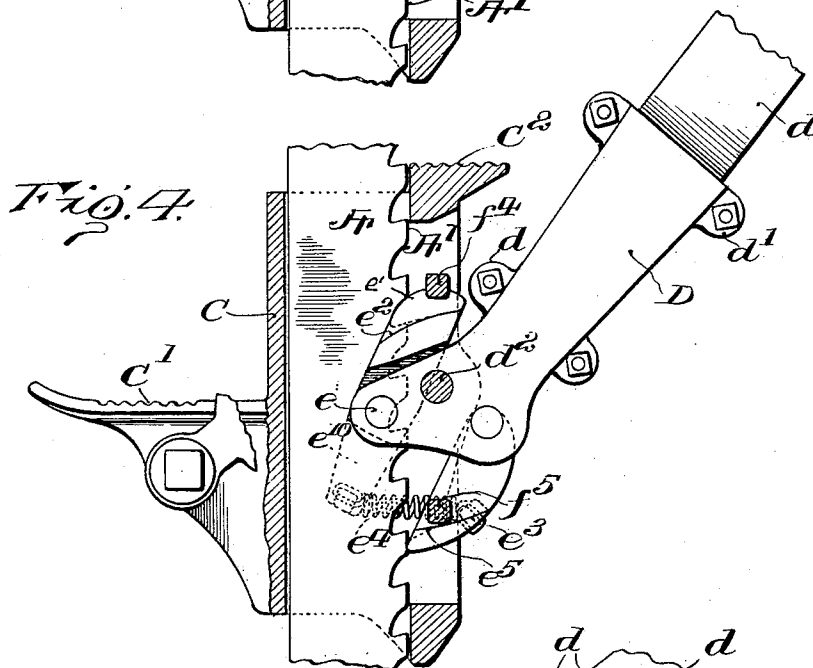
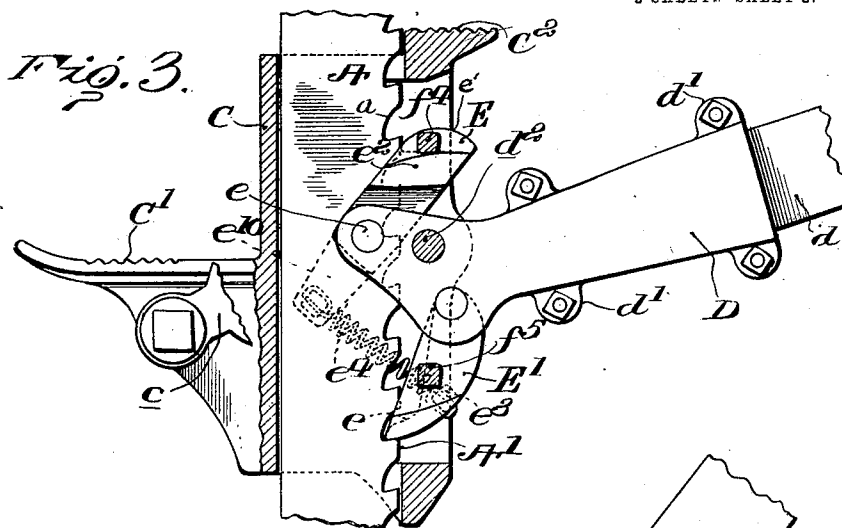
Attorney

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Witnesses

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LIFTING-JACK.

1,104,328.

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To all whom it may concern:

Be it known that I, CHARLES H. SUTTON, a citizen of the United States, residing at Ohio City, in the county of Van Wert and State of Ohio, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

My invention relates to lifting jacks of the rack and double pawl type.

The objects of the invention are to provide a simple, durable and efficient jack of the type referred to in which the fulcrum of the operating handle shall lie very close to the rack to afford the greatest possible leverage in operating the double acting pawls in raising the slide. Also to provide the operating slide with a pawl controlling device which in one position allows of the pawls operating normally; that is, to raise the slide in both movements of the handle or lever, but which will, when in its opposite position serve to alternately release the pawls and permit the step by step descent of the slide toward the base of the standard; also to provide a clamping jaw on the slide and an opposed clamping jaw on the upper end of the standard to permit of objects being clamped or pressed between the two jaws as the slide is forced toward the upper end of the standard; also to provide the slide at one side with a wire clamping device and to provide the standard at its outer end with a second wire clamp arranged to work oppositely to the first named wire clamp. These objects I accomplish by the construction shown in the accompanying drawings, in which:

Figure 1 is a sectional side elevation of the jack. Fig. 2 is a sectional perspective, showing the pawl controller set for the lowering of the slide. Fig. 3 is a vertical section, showing the lower pawl engaging the toothed standard. Fig. 4 is a similar view with the upper pawl engaging the toothed standard. Fig. 5 is a perspective of the handle socket and pawls detached.

A designates the standard provided with a toothed edge A' ; the teeth being connected by the inclined portions a . The standard A is provided with a base A^2 having a socket a^2 in which the lower end of the standard is held removably by a cotter pin a^3 or otherwise. The upper end of the standard is provided with a head B having a recess b , receiving the end of the standard and a bolt b' secures the head to the standard. The head

B has a handle forming extension b^2 and on its lower side next to the toothed edge of the standard is formed with a horizontal clamping or press jaw b^3 . At the other side of the standard the head B is formed with a vertically extending fixed jaw b^4 against which operates the curved edge of a wire clamp B' in the form of a cam pivoted on the bolt b' .

C designates the slide provided with the horizontally extending lifting foot C' projecting from its side next to the untoothed edge of standard A. The slide C snugly embraces the standard and is open on its side next to the toothed edge A' thereof. From the opposite closed side of the slide C the lifting foot C' projects, while from the opposite side of the upper end of the slide the clamping or press jaw C^2 projects so as to operate in connection with the upper jaw b^3 . To one side of the lifting foot C' is pivoted a cam-like wire clamp c working against a vertically extending fixed jaw c' on the side of slide C; the pivoted clamp c working in a direction opposite to the upper pivoted clamping jaw.

D is the socket of the operating handle or lever d , and will be termed hereinafter the handle or lever. It is formed in two halves bolted together at d' , d' . The handle or lever is forked at its inner end to straddle the standard A at its toothed edge when it is passed through the open side of the slide C. The handle or lever is pivoted on a bolt d^2 which passes through the slide close to the toothed edge of the standard.

A yoke-like pawl E straddles the toothed edge of the standard and is pivoted to the forward end of the lever fork at e . This pawl E is the upper lifting pawl, and its upper edge is rounded at e' so as to be moved backward by the inclined edges of the rack teeth when the lever D is swung downwardly. The pawl E has at one side an arm e^{10} extending downwardly below its pivot and at the opposite side of its upper closed end is formed with a cam flange e^2 for a purpose to be presently described.

The lower pawl E' is pivoted at its upper end between the forks of lever D below the fulcrum d^2 and has a lateral lug e^3 to which and the lower end of arm e^{10} is connected the ends of a contractile spring e^4 . This spring e^4 , therefore, forces the pawls into operative engagement with the toothed edge of standard A; the pawl E' engaging a

tooth when the lever D is forced down and the pawl E engaging a tooth when the lever is raised so that the slide C with its lifting foot is raised in both movements of the lever.

5 The lower pawl E' on its side opposite lug e^3 is formed with a cam flange e^5 similar to the flange e^2 of upper pawl E.

F is the pawl controller having a vertical slot f , through which the fulcrum bolt d^2 passes and holds said controller against the side of the slide C'; the lower portion of the controller F being formed with a chamber f' open at its upper end and containing an expansion spring f^2 , the upper end of which bears on the lower edge of a cam lever F' pivoted on the bolt d^2 and working against the shoulder f^3 formed on the inner side of the pawl controller F above the bolt d^2 . It will be seen, therefore, that the lever F' will, when raised, as in Fig. 1, move the controller F upwardly against the action of the spring f^2 , and that when the lever F' is swung down as in Fig. 2, the spring f^2 will move controller F downwardly.

25 The pawl controller F is provided at its upper end with a lug f^4 which passes through a slot c^{10} in the slide C, and across the upper curved edge of the cam e^2 on upper pawl E, and said controller F is provided at its lower end with a similar lug f^5 passing through a slot c^{11} in slide C and across the upper curved edge of the cam e^5 on the lower pawl E'.

When the cam lever F' is raised as in Fig. 1, its cam portion will raise the controller F so that its two lugs f^4 , f^5 will be above and out of the path of the two cams e^2 , e^5 and so the two pawls E, E' will not be affected by the said lugs f^4 , f^5 and will raise the main slide C on each movement of the handle. When, however, the lever F' is swung down, the spring f^2 , which is far stronger than the spring e^4 , will force the controller F down and bring the two lugs f^4 , f^5 into operative relation to the cams e^2 , e^5 on pawls E, E', with the result that when lever D is raised the lower cam e^5 will engage lug f^5 and force the lower pawl E' out of engagement with the teeth of standard A and the upper pawl E will then snap into the next tooth below the one it previously engaged, and when the lever D is swung down the upper pawl E will be retracted by its cam e^4 engaging the upper lug f^4 and at the same time the controller F will be raised and its lower lug f^5 will also be raised and allow the lower pawl E' to snap into the next tooth below the one it previously engaged. The weight of the slide C, of course, causes it to descend as each pawl is so released and the other pawl snaps into place and prevents sudden falling of the slide to the base. The rocking of lever D will, therefore, cause the step by step lowering or retracting of the slide C whenever the cam

lever F' is swung down to free the controller F and allow its lugs f^4 , f^5 to move into operative relation to the two cam surfaces of the pawls E, E' as above described.

When a single wire is to be stretched or two ends are to be drawn together, the jack is operated in the well known manner of wire stretchers. So also when wire fence fabric is to be stretched it is only necessary to secure a vertical clamp bar to the free edge and connect this clamp bar to the movable member of the jack and the head of the jack standard to a fence post when by working the lever the fabric will be properly stretched.

In lifting fence posts pass a chain around the post and place the lifting foot of the jack under the chain and then work the lever as in lifting wagons. In operating as a press place the element to be pressed between the two clamp or press jaws b^3 , C^2 and rock the lever D as in lifting wagons which will force the said two jaws together.

What I claim is:

1. The combination with the toothed standard, of a slide mounted thereon and having its side next to the teeth open, a lever having a forked inner end passed through the slide opening and straddling the standard, a pivot mounted in the slide close to the toothed edge of the standard and upon which the forked end of the lever rocks, an upper yoke-like pawl pivoted between the inner end of the lever fork above its pivot or fulcrum and at its lower end straddling the toothed edge of the standard said pawl having an extension below its pivot, a lower pawl pivoted to the lever fork below its fulcrum or pivot, and a contractile spring connecting said lower pawl with the said extension of the upper pawl to draw the opposite free ends of the pawls into engagement with the standard teeth.

2. The combination with a standard having a toothed edge, a slide mounted on the standard, a lever pivoted in the slide, and upper and lower oppositely projecting spring pressed pawls mounted on the lever and having cam surfaces at one side near their opposite ends, of a spring pressed pawl controller mounted on the outer side of the slide and having lugs or fingers extending through slots therein into the path of the upper sides of both of said cam surfaces to alternately release the pawls when the lever is rocked to lower or retract the slide, and means for moving the controller to render it inoperative with respect to the pawls.

3. The combination with a toothed standard, a slide thereon, a lever pivoted at its inner end in the slide, upper and lower oppositely projecting spring pressed pawls pivoted to the lever and engaging the said toothed standard, a vertically sliding spring pressed controller having a slot through

which the pivot of the lever passes, and provided with upper and lower lugs extending inwardly over the upper sides of portions of the pawls to alternately release them
 5 when the lever is rocked to lower the slide, and means for raising the controller to throw its lugs out of the path of the pawls.

4. The combination with a toothed standard, a slide thereon, a lever pivoted in the
 10 slide, and upper and lower oppositely projecting spring pressed pawls pivoted to the lever and engaging the standard teeth, and having cam surfaces at the same side of
 15 their opposite ends, of a spring pressed controller mounted to slide vertically on the slide and formed with a chamber and two
 20 lugs projecting laterally through the slide into the path of the upper sides of the cam surfaces on said two pawls to alternately retract them when the lever is rocked to lower
 25 or retract the slide, a spring in said chamber pressing the controller downwardly, a cam lever engaging a portion of the controller to raise it against the action of its spring and
 30 throw the lugs out of the path of the pawls to permit them to act normally when the lever is to raise the slide.

5. The combination with a toothed standard, a slide thereon, a lever pivoted in the
 30 slide, and upper and lower pawls pivoted on the inner end of the lever and engaging the toothed standard, of a slotted controller

mounted at the outer side of the slide on the lever pivot and having a chamber therebelow, a spring mounted in the chamber with
 35 its upper end exposed, lugs extending inwardly from the controller over parts of the two pawls to alternately release them when the lever is rocked to lower the slide, and a
 40 cam lever also mounted on the lever pivot and engaging the controller to raise it and throw its lugs out of operative relation with the pawls; the upper end of the said spring bearing on said cam lever.

6. The combination with a toothed standard, of a slide thereon, a lever having a
 45 forked inner end pivoted in the slide close to the toothed edge of the standard and straddling said standard, an upper yoke-like
 50 pawl pivoted at its lower ends in the fork of the lever above its pivot and straddling the said standard; one leg of the said pawl extending down below its pivot, and a lower
 55 pawl pivoted at its upper end in the end of the lever fork below the lever pivot, and a spring connecting the lower end of the latter pawl with lower end of the extension of the upper pawl.

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

CHARLES H. SUTTON.

Witnesses:

J. M. RICHARD,
 D. W. PENNELL.