

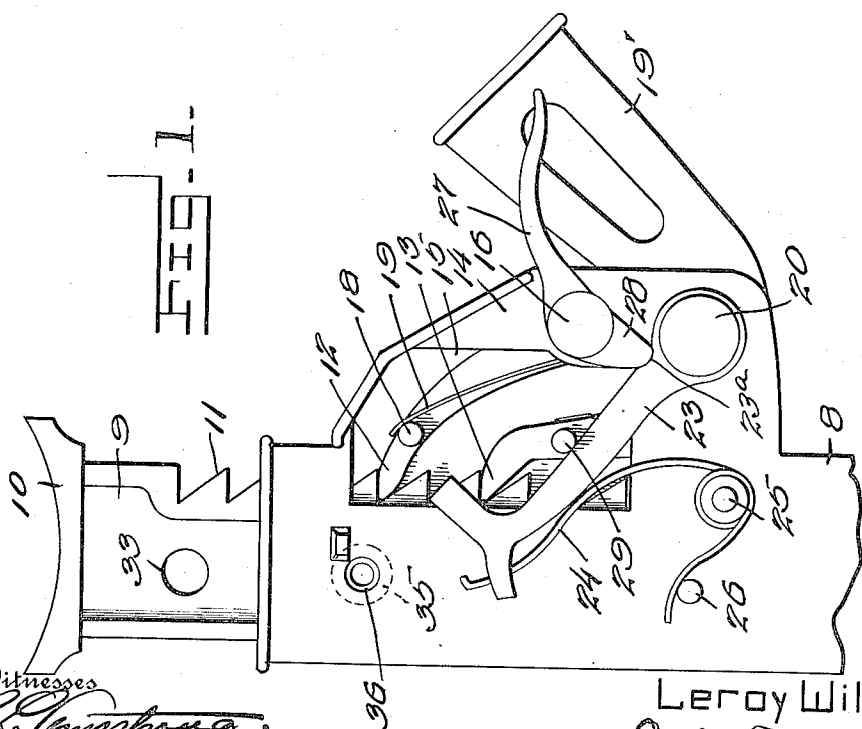
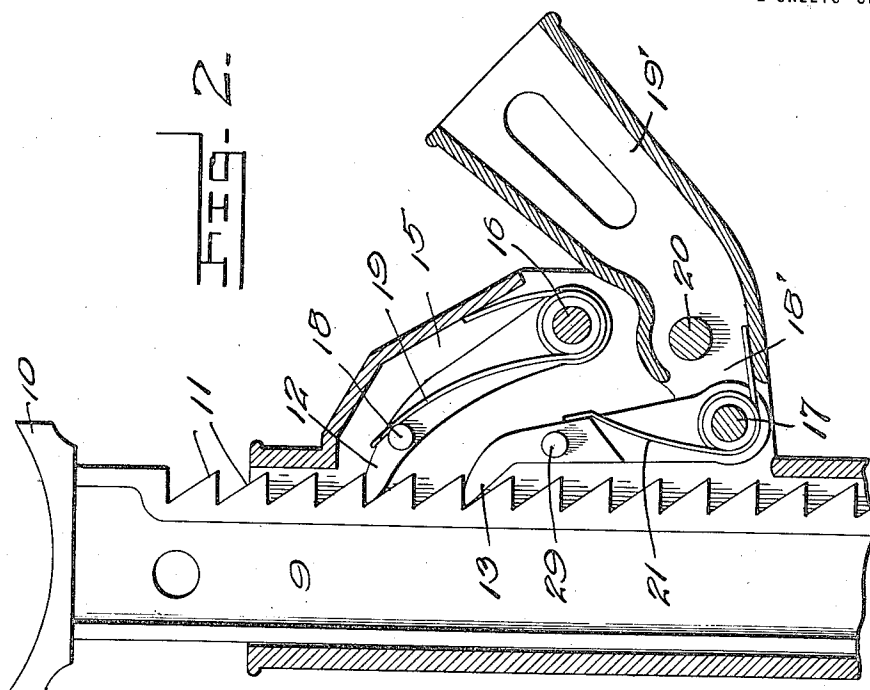
JACK.

APPLICATION FILED JAN. 6, 1913.

1,153,589.

Patented Sept. 14, 1915.

2 SHEETS—SHEET 1.



Inventor

Leroy Willour.

C. R. Parker

Attorney

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Witnesses

P. T. Cushing

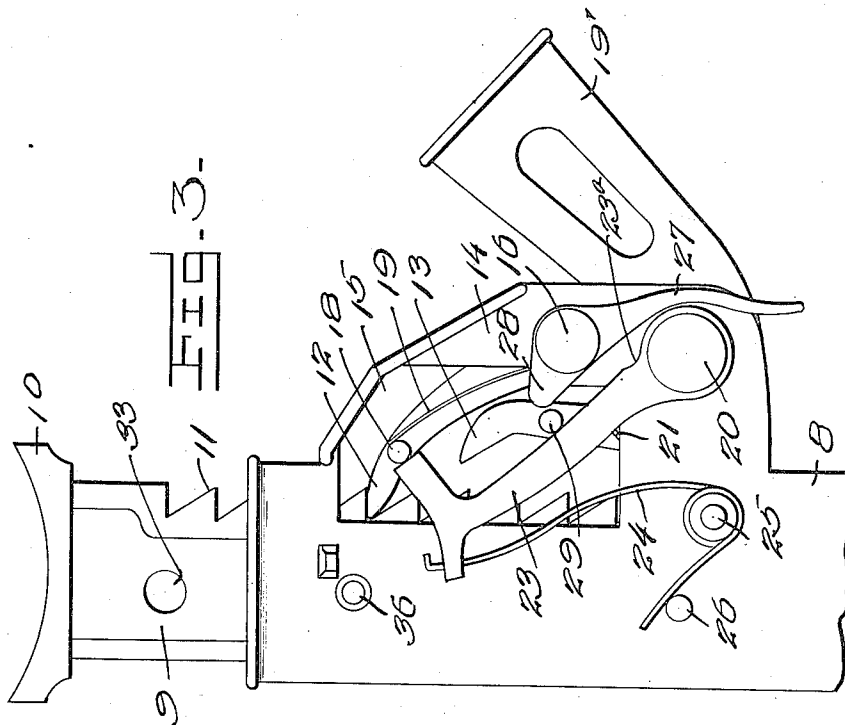
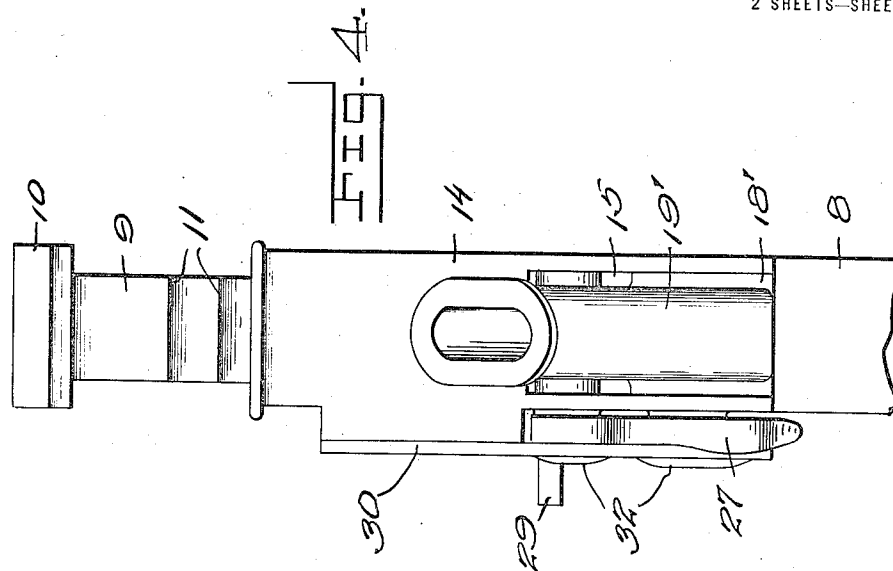
R. M. Ashburn

LE ROY WILLOUR.
JACK.
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2 SHEETS—SHEET 2.



Inventor
Leroy Willour.

Witnesses
A. A. Armstrong
R. H. Willour

334

C. L. Parker.
Attorney

UNITED STATES PATENT OFFICE.

LE ROY WILLOUR, OF ASHLAND, OHIO, ASSIGNOR TO THE ASHLAND MANUFACTURING COMPANY, OF ASHLAND, OHIO, A CORPORATION OF OHIO.

JACK.

1,153,589.

Specification of Letters Patent.

Patented Sept. 14, 1915.

Application filed January 6, 1913. Serial No. 740,508.

To all whom it may concern:

Be it known that I, LE ROY WILLOUR, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Jacks, of which the following is a specification.

My invention relates to lifting jacks and has particular reference to a device of this character having a lift element which is raised and lowered by means of pawl and ratchet mechanism.

An important object of this invention is to provide a jack of the above mentioned character having novel means to instantaneously drop the rack bar or lift element either when the same is supporting the load or when there is no load upon it.

A further object of my invention is to provide a novel arrangement of the different operating elements of the jack, for producing a compact structure which is economical in space.

A further object of the invention is to provide a jack of the above mentioned character, having novel means whereby the lift element may be automatically instantaneously dropped as soon as the load is taken off of the lift element and the operating lever moved in one direction.

A further object of my invention is to provide jacks of the above mentioned character which are simple in construction, cheap to manufacture, strong and durable.

Other objects and advantages of this invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is an enlarged side view of the upper portion of the jack, the protecting plate or shield being removed, and the operating elements shown as raising the lift element, Fig. 2 is a central vertical sectional view taken through the upper portion of the jack, some of the elements being shown in elevation for the purpose of illustration, Fig. 3 is a view similar to Fig. 2 but showing the operating elements as lowering the lift element, Fig. 4 is an edge view of the upper portion of the jack taken at a right angle to Fig. 4.

In the drawings wherein for the purpose of illustration, I have shown a preferred

embodiment of my invention, the numeral 8 designates an upstanding hollow standard secured to a base (not shown) and receiving therein a vertically movable lift element or bar 9. At its upper end this lift element 9 is provided with a head 10, as shown. The lift element or bar 9 is provided upon one longitudinal edge thereof with ratchet teeth 11, to be engaged by holding and operating pawls 12 and 13, as shown.

The numeral 14 designates a housing which is cast upon the upper end of the standard 8, as shown, and has a recess or chamber 15, for receiving the pawls 12 and 13. The pawl 12 is pivotally mounted upon a transverse pin 16, provided at one end with an enlarged head, and passes through the side walls of the housing 14, as shown. The operating pawl 13 is pivotally mounted upon a pin 17, to be referred to. The holding pawl 12 is provided near its upper end with a laterally extending trunnion or pin 18, which is engaged by a spring 19, which serves to urge the holding pawl 12 into engagement with the ratchet teeth 11. The lower end of the operating pawl 13 is reduced and is inserted within the forked end 18' of a socket-lever 19'. The pin 17 passes through the reduced end of the pawl 13 and pivotally connects the same with the inner end of the socket-lever 19', it being understood that the pin 17 has no connection with the side walls of the housing 14. The socket-lever 19' is disposed within the housing 14 and is supported by a transverse pin 20, disposed outwardly and to one side of the pin 17, the pin 20 serving as a pivot point upon which the socket-lever 19' turns and passing through the side walls of the housing 14. The pin 20 is provided upon one end with an enlarged head, which is disposed near the head 16, as shown. The operating pawl 13 is urged into engagement with the ratchet teeth 11 by means of a spring 21, one end of which engages the upper portion of the operating pawl and the other end, the inner end of the socket-lever 19'. The socket-lever 19' receives one end of an operating lever 22, the same being held therein by any suitable means.

The numeral 23 designates a gun hammer-shaped, shifting element, provided with an enlarged apertured lower end, for receiving the pin 20. The upper end of the shifting element 23 is provided with an opening for

receiving the upper end of a spring 24, which is wound about a trunnion 25 formed upon the standard 8, as shown. The opposite end of the spring 24 engages a trunnion 26 formed upon the standard 8. Attention is called to the fact that the spring 24 is stiffer than either of the springs 19 and 21, so that it is capable of overcoming either of them alone but is not sufficiently stiff to overcome both springs when they act together.

The numeral 27 designates a pivoted controlling finger or element, provided at its inner end with an enlarged head 28, which is apertured to receive the pin 16. The free end or nose of this head 28 is adapted to be moved into and out of engagement with the lower portion of the shifting element 23, and to fit within a recess 23^a as more clearly shown in Figs. 2 and 4. The operating pawl 13 carries upon its upper portion a laterally extending pin or trunnion 29, which is engaged by the shifting element 23 when the finger 27 is moved to bring the head 28 out of engagement with the shifting element. When the shifting element 23 is held in its inoperative position, as shown in Fig. 2, the pawls 12 and 13 upon being operated, will elevate the lift element 9. When the shifting element 23 is released, so that its spring 24 may swing the same to the right, as shown in Fig. 4, upon the swinging of the operating lever, the pawls 12 and 13 will lower the lift element 9. The shifting element 23, being released, the spring 24 will swing the same forwardly into engagement with the extension or trunnion 29, whereby, when the socket lever 19' is swung to its uppermost position, the weight of the rack-bar 9 being held by the pawl 12, the pawl 13 will be swung away from the teeth 11, and the shifting element 23 will move to the right until it comes into contact with the trunnion 18. Upon the downward movement of the socket lever 19', the pawl 13 is moved upwardly into engagement with the tooth below and adjacent the free end of the pawl 12. This upward movement of the pawl 13 raises the stop 29 off of the member 23, leaving the member 23 free to act upon the stop 18 of the pawl 12. The upper end or head of the shifting element 23 now being in engagement with the extension 18, upon the movement of the socket lever 19' to its lowermost position, the pawl 13 will slightly elevate the rack-bar 9, to take the load of the rack-bar off of the pawl 12. The pawl 12 will now be moved by the spring actuated element 23 to release the bar 9, and is held away from the same until the socket lever 19' is moved upwardly. Upon the upward movement of the socket lever 19' the extension 29 slidably engages the element 23, to swing the element inwardly, the pawl 13 now holding the weight of the rack-

bar 9, whereby the pawl 12 is brought into engagement with the next upper tooth, to in turn take the load of the rack-bar 9 off of the pawl 13, when the socket lever 19' is again moved to its uppermost position, as above described.

The open side of the chamber 15 is normally closed by a removable plate or shield 30, which is provided with an opening 31 formed through the lower portion thereof to receive the reduced end of the trunnion 25, as shown. The material of the plate 30 adjacent the enlarged heads of the pins 16 and 20 is forced outwardly for forming bulging portions 32, to afford space for these enlarged heads. The lift element or bar 9 is provided near its upper end with an opening 33, for the passage of a bolt 34, it being understood that the opposite wall of the standard 8 is provided with an opening 35 which is in registration with the opening 33 when the lift element is in its lower-most position. The other side wall of the standard 8 is provided with an opening 36, in registration with the opening 35. The lift element 9 being in its lower-most position, the bolt 34 is passed through the openings 33 and 35, the end of the same extending through the opening 36 and its head being disposed upon one side of the lift element 9 and having no connection therewith. The bolt 34 carries a nut 37, which securely holds the plate 30 in place. The pin or trunnion 29 extends beyond the plate 30 for a considerable distance, as shown in Fig. 5, and the same passes through a large opening 38 formed in the plate 30.

The lift element 9 may be instantaneously dropped with or without a load thereon, by manually moving the pin 29 to first bring the operating pawl 13 out of engagement with the ratchet teeth 11, and subsequently bring the upper end of this operating pawl into engagement with the holding pawl 12 to in turn move this holding pawl out of engagement with the ratchet teeth 11, at which time the lift element 9 will drop.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that certain changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having fully described my invention, I claim:—

1. In a jack of the character described, a standard, a lift element slidably engaging the standard and provided with teeth, a holding pawl pivotally connected with the standard and arranged to engage the teeth, an operating pawl disposed near and below the holding pawl and adapted to engage the teeth, a swinging operating lever pivotally

connected with the operating pawl, springs to move the pawls into engagement with the teeth, an approximately T-shaped shifting element pivotally connected with the standard and arranged near one side of the pawls, extensions carried by the pawls and adapted to engage with the transverse and longitudinal portions of the T-shaped shifting element, and arranged wholly upon the outer side thereof, a leaf spring connected with the standard and having one end thereof passing through an aperture in one end of the transverse portion of the T-shaped shifting element, and a pivoted latch adapted to engage with the longitudinal portion of the T-shaped shifting element adjacent the pivot thereof and to fit within a recess formed thereon.

2. In a jack of the character described, a standard provided near its upper end with a housing, a lift bar slidably engaging the standard and provided with teeth arranged adjacent the housing, an upper holding pawl arranged within the housing to engage with the teeth, a lower operating pawl arranged within the housing to engage the

teeth, an operating lever pivotally connected with the housing and with the operating pawl, spring means to move the pawls into engagement with the teeth, a shifting lever pivotally connected with the housing and provided near its upper end with an outwardly projecting extension, a spring to move the shifting lever outwardly, means to hold the shifting lever in the inner inactive position, a pin carried by the upper holding pawl and arranged outwardly of and adapted to contact with the lateral extension of the shifting lever, and a second pin carried by the lower operating pawl and arranged outwardly of and adapted to contact with the shifting lever and projecting outwardly beyond the housing whereby both pawls may be simultaneously moved out of engagement with the teeth to drop the lift bar.

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

LE ROY WILLOUR.

Witnesses:

THOS. H. MOORE,
C. W. CHOPENING.