D. COSTARELLA.

LEVER JACK.

APPLICATION FILED FEB. 28, 1914.

1,121,981. Patented Dec. 22, 1914.

FIG. 1.

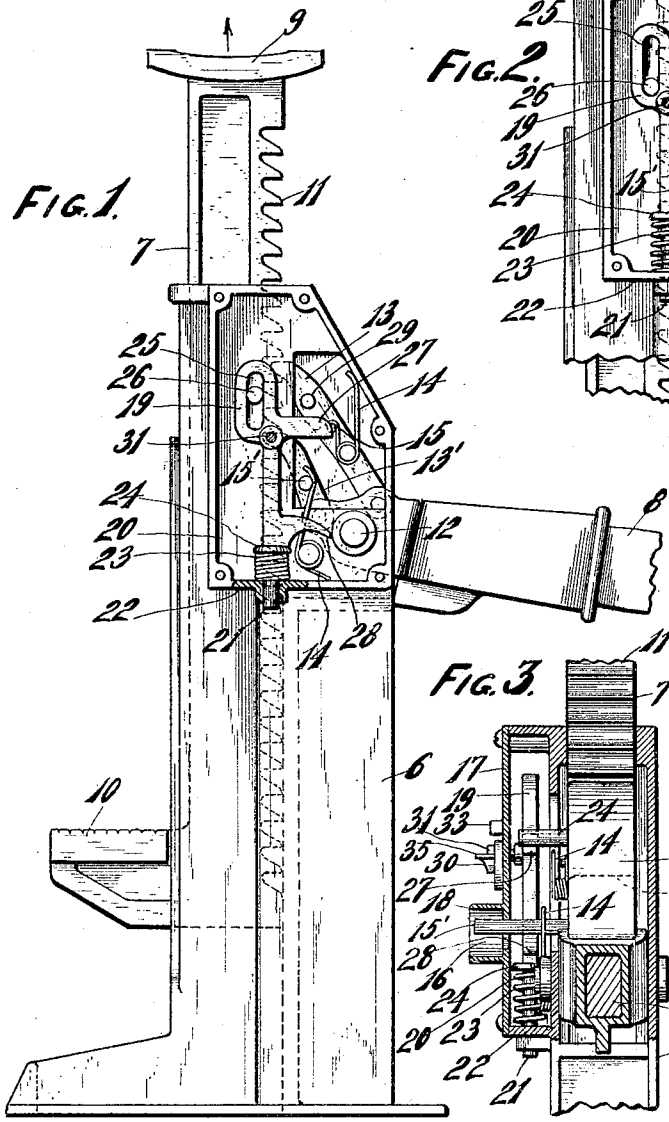


FIG. 2.

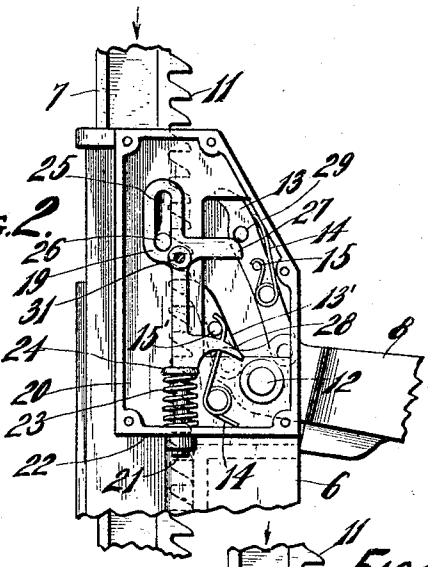
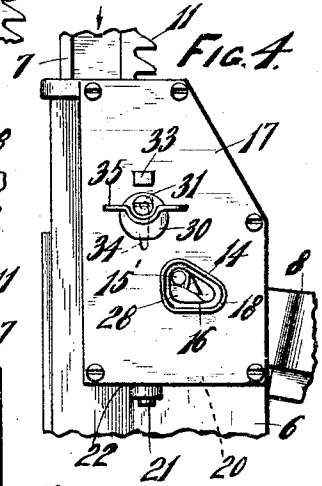


FIG. 3.

FIG. 4.



WITNESSES.

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LEVER-JACK.

1,121,981. Specification of Letters Patent. Patented Dec. 22, 1914.

Application filed February 28, 1914. Serial No. 821,641.

To all whom it may concern:

Be it known that I, DOMENICO COSTARELLA, a subject of the King of Italy, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Lever-Jacks, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to improvements in lever jacks and more particularly to the means for changing the direction of movement of the slidable lift bar of the jack.

It is one of the objects of the present invention to provide a lever jack having a pawl controlling member which may be adjusted to cause the lift bar to be intermittently moved upwardly or downwardly by the operation of the hand lever, or which may be adjusted to permit the lift bar to immediately drop to its lowermost position.

A further object of the invention is to provide a lever jack which is of simple construction, is strong and durable and is well adapted to perform the function desired.

With the above and other objects in view, the invention consists of the improved lever jack and its parts and combinations, as set forth in the claims and all equivalents thereof.

In the accompanying drawing in which the same reference characters indicate the same parts in all of the views: Figure 1 is a side view of the improved lever jack, parts broken away and other parts removed to show interior construction; Fig. 2 is a similar view of a portion of the jack, the pawl controlling member being shown in a different position; Fig. 3 is a side view of a portion of the jack, parts being in section; and Fig. 4 is a detail view of the front portion of the jack.

Referring to the drawing the numeral 6 indicates the frame or casing of the improved lever jack which may be formed of any suitable shape desired to accommodate the operating parts, 7 the lift bar vertically, slidably mounted therein and 8 the hand operated lever for actuating the lift bar.

The lift bar 7 is provided with the usual upper and lower lifting portions 9 and 10, respectively, and also with rack teeth 11 on its rear edge. The inner end of the hand lever 8 is fulcrumed in the frame by the pin 12 and is provided with a pair of pivoted pawls 13 and 13′ which are mounted to alternately engage the rack teeth to raise or lower the lift bar. By pivotally connecting the pawls to the lever on opposite sides of the fulcrum the up and down movement of the lever will change the relative distance apart of the lift bar engaging ends of the pawls and when operated will raise or lower the lift bar, the direction of movement being determined by the adjustment of the controlling member.

Springs 14 engaging projecting pins 15 and 15′ of the pawls and portions of the frame serve to normally hold the pawls yieldingly in engagement with the ratchet teeth.

The pin 15′ of the pawl 13′ extends through a guarded opening 16 of the frame cover 17 to provide for disengaging the pawl 13′ and dropping the lift bar 7 when the bar is only engaged by the said pawl 13′. The guard of the opening 16 is in the form of a flange 18 which surrounds the opening and projects outwardly from the cover approximately the same distance as the pin and serves to prevent the pawl from being accidentally knocked out of engagement with the lift bar. The direction of movement of the lift bar is controlled by means of a pawl tripper 19 which is adjustably mounted in a chamber 20 formed on one side of the frame and of which the cover 17 forms a part. The lower end 21 of the pawl tripper extends through and is guided in the lower wall 22 of the chamber and a coiled spring 23 surrounding the said end 21 and interposed between the lower wall 22 and a shoulder 24 formed on the pawl tripper serves to normally, yieldingly hold the tripper in its upper position. The upper end of the tripper is provided with an elongated slot 25 and a stop pin 26 projecting from the frame and entering the slot serves as an additional guide for the tripper and also as a stop to limit the upward movement of the tripper. The tripper is also provided with horizontally projecting fingers 27 and 28 which are in the path of travel of projecting portions of the pawls when the tripper is in its upper position as shown in Fig. 2. The outer ends of the fingers are beveled off or curved to permit the pawls to ride downwardly and outwardly when in engagement therewith.

When the tripper is in its upper position the downward movement of the outer end of the operating lever causes the pin 29 projecting from the pawl 13 to ride outwardly on the upper edge of the upper finger 27 and disengage said pawl from the teeth of the lift bar while the lower pawl 13′ is in its highest position. The finger 27 will hold the pawl 13 out of engagement with the teeth during the upward movement of the outer end of the lever while the pawl 13′ is traveling downwardly with the rack until the next tooth above the one previously engaged is engaged by the pawl 13. When thus engaged the lower pawl 13′ moving downwardly will then be swung out of engagement with the tooth by engaging the lower finger 28 and the pawl 13 will then engage and support the bar and as the hand lever is again lowered the lift bar will be moved downwardly the distance of one tooth and by pumping the handle up and down the bar will be intermittently lowered to the desired extent. When the trip bar is moved downwardly out of the path of movement of the pawls, the pawls will continuously engage the bar teeth and the bar will be intermittently raised.

The adjustment of the pawl tripper is controlled by means of a cam member or eccentrically mounted disk 30 which has a pivotal connection, in the form of a screw 31, with the pawl tripper 19. The cam member is positioned on the outer face of the cover and the screw 31 extends through an elongated slot 32 in the cover and when it is desired to move the lift bar upwardly the cam member is revolved to engage the lug 33 projecting outwardly from the cover, to move the pawl tripper downwardly and out of the path of travel of the pawl pins. The cam member is provided with a flattened portion 34 to lock the cam in its upper position and is also provided with a thumb flange 35 for convenience in turning the same.

From the foregoing description it will be seen that the lever jack is of very simple construction and can be operated to raise or lower the lift bar and to also quickly drop the bar, when desired.

What I claim as my invention is:

1. A lever jack, comprising a frame, a lift bar provided with rack teeth slidably mounted therein, an operating lever fulcrumed in the frame, a pair of spring pressed pawls carried by the lever and engaging the rack teeth to lower the lift bar when the hand lever is operated, said pawls having pin-like projections extending laterally therefrom, a chamber formed on one side of the frame, a pawl tripper positioned within the chamber and having its main portion positioned to one side of the pawls and having its lower end portion guided in the lower wall of the chamber, said pawl tripper having a slotted upper portion positioned to one side of the pawls and fingers projecting laterally from one side of the tripper, said fingers positioned to be engaged by the pins of the pawls when the tripper is in its upper position, and a guide pin extending through the slotted portion of the tripper and into the frame.

2. A lever jack, comprising a frame, a lift bar provided with rack teeth slidably mounted therein, an operating lever fulcrumed in the frame, a pair of spring pressed pawls carried by the lever and engaging the rack teeth to lower the lift bar when the hand lever is operated, said pawls having pin-like projections extending laterally therefrom, a chamber formed on one side of the frame, a pawl tripper positioned within the chamber and having its main portion positioned to one side of the pawls and having its lower end portion guided in the lower wall of the chamber, a coiled spring surrounding the lower end portion of the tripper and interposed between the lower chamber wall and a shoulder formed on the lower portion of the pawl tripper, said pawl tripper having a slotted upper portion positioned to one side of the pawls and fingers projecting laterally from one side of the tripper, said fingers positioned to be engaged by the pins of the pawls when the tripper is in its upper position, a guide pin extending through the slotted portion of the tripper and into the frame, a tripping pin projecting outwardly from one of the pawls and through the frame, and a cam member for moving and holding the tripper in its lower position.

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

DOMENICO COSTARELLA.

Witnesses:

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