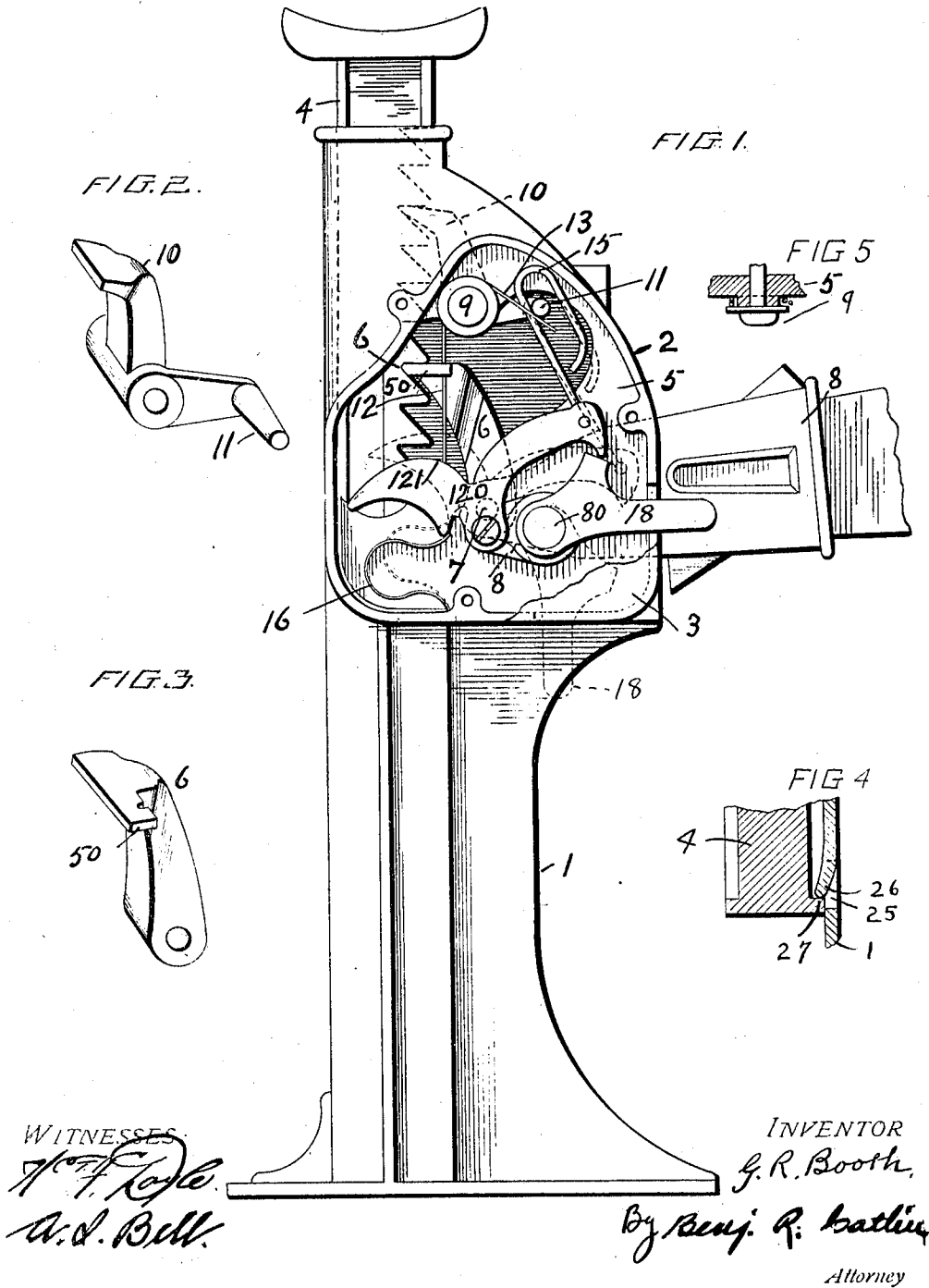


G. R. BOOTH.
LIFTING JACK.
APPLICATION FILED APR. 1, 1911.

1,020,879.

Patented Mar. 19, 1912.



UNITED STATES PATENT OFFICE.

GLEN RUSSELL BOOTH, OF CHANA, ILLINOIS.

LIFTING-JACK.

1,020,879.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed April 1, 1911. Serial No. 618,398.

To all whom it may concern:

Be it known that I, GLEN R. BOOTH, a resident of Chana, in the county of Ogle and State of Illinois, 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 pertains to make and use the same.

This invention relates to lifting jacks adapted for raising the axles of automobiles, or other weights.

The main object of the invention is to provide a simple and efficient construction which in one adjustment raises the load on operation of the handle, and in another adjustment lowers the load on like operation of the handle.

The invention consists in the construction hereinafter described and particularly pointed out in the claims.

In the accompanying drawing which illustrates the invention and forms a part of the specification,—Figure 1 is a side elevation of the jack, a side cover-plate being broken away; Figs. 2 and 3 show a holding pawl, and a lifting pawl; Fig. 4 is a view showing means for stopping the lifting bar at a predetermined elevation; Fig. 5 shows a spring bearing.

Numeral 1 denotes the standard of a jack having a box or box-like enlargement 2, one side of which has a removable cover 3, said box being partly divided vertically by a web or partial partition 5.

Numeral 4 denotes a lifting bar or rack having ratchet teeth along one side to be engaged by a lifting pawl, as usual in this class of devices.

In this jack the lifting pawl 6 is pivoted at 7 to the jack-operating handle 8 which is pivoted at 80, said pivot terminating at the plane of the open side of the box. The head of said pawl has a transversely extending notched lug 50 forming a bearing for a spring.

Pivoted to the standard at 9 is a holding pawl 10 one end of which is adapted to engage and to release the lifting rack teeth, and the other end of which carries a post 11, said holding pawl and post 11 being on different sides of the pivot. Pressing the lifting pawl toward the lifting rack or bar is a spring arm 12, and pressing against the post 11 in the opposite direction is a spring

arm 13. As shown, and as preferred, said two spring arms are formed of one wire, coiled and loosely held at an intermediate point around the hub or collar by a clamping washer or directly by the head on the pivot 9.

A suitably shaped pawl-controlling reversing lever 120 is pivoted on the web in box 2. One arm curves upward and toward the handle-side of the jack, and to it, near its end, is pivotally connected a link 15 having an elongated slot which loosely engages the post 11. In the adjustment shown in full lines in Fig. 1 said link leaves the holding pawl free to be moved into engagement with the lifting bar teeth by the spring 13. The other end of lever 120 is curved upward and backward, extending under the lug 50, but in this adjustment out of the range thereof.

16 is a spring pressing upward on a shoulder of lever 120. Said spring is merely slipped into place, being normally held therein by the removable side plate 3.

Loosely mounted in front of the web on the extended end of the pivot 80, is a swinging dog 18 which when in raising adjustment holds up the adjacent end of the lever 120 and the link 15 so that when the jack handle is moved down a full stroke, the lifting pawl will raise the lifting bar a little more than the length of one tooth, and the holding pawl will be forced under a tooth to hold the lifting bar during reverse movement of the handle and lifting pawl to cause the latter to engage the next lower tooth, and so on repeatedly.

After the lifting bar is raised and is being held by the pawl 10, in order to lower it, the dog 18 is swung to dotted position (Fig. 1) and spring 16 tilts the lever 120, pulling down the link 15 against the post 11, and carrying the opposite end of the lever into the path of the lifting pawl lug. In this condition of parts the rack is held by pawl 10, the jack handle falling freely part way down, and the lifting pawl moves under a tooth. Further downward movement of the handle under pressure raises the lifting rack a little, and spring 16 tilts the lever 120 causing the link 15 to pull on the post 11 and move the holding pawl back from the rack. Then upward movement of the handle lowers the rack, carrying the lug of the lifting pawl against the lever 120. Continued movement tilts said lever 120, which raises the link 15 permitting spring 13 to raise the post 11,

throwing the holding pawl toward the rack. As the handle approaches its upward limit the lifting pawl rides over the curved upper edge 121 of lever 120 and back from the rack, and the latter during said upward movement of the handle descends a full space. Before the end of said movement the link 15 releases the post 11 and its spring throws the holding pawl forward to arrest and hold the rack in the lowered position, and so on repeatedly.

The standard 1 is cast with an opening 25 in one side into which projects an integral lug 26. The lifting bar has at its foot a shelf or lug 27 and a longitudinal groove. After the bar is placed in the standard said lug 26 is bent inward so as to come into the path of the shelf 27 to arrest the rack. The opening 25 being comparatively large a suitable tool can be used therein for reversely bending the lug when it is required to remove the lifting bar for any reason.

The number of parts of the jack operating mechanism is small, and the parts are such that they can be readily put in place and removed. Both the spring 16 and the dog 18 are preferably only secured by the overlying cover plate. The holding pawl, lifting pawl and the handle, are all back of the web 5 (although the two pawls have extensions to the front of the web), and the controlling lever, its spring, and the dog 18, are in front of said web. So also is the spring acting on the pawls.

For strength and for ease of removal, the handle pivot and also the holding pawl pivot, not only pass through the web 5 but also through the back side of the box.

The improvement is not limited to parts of the exact form and arrangement shown as they can be varied within the scope of the invention. Thus, the torsion spring having arms 12 and 13, instead of being clamped directly against the web 5, may be held on a collar or hub cast on the web and through which the pin 9 passes, and which permits the spring to turn to a certain extent on the collar while the pawls are moved to their different positions. The link between the holding pawl and the pivoted pawl-controlling lever may be directly pivoted to the former and connected to the latter by pin and elongated slot, this being a mere reversal of the construction shown and described.

What I claim and desire to secure by Letters Patent is,—

1. In a jack, the combination of a stand-

ard comprising a box, a lifting rack, a lifting pawl, an operating handle on which the lifting pawl is pivoted, a holding pawl pivoted intermediate its ends to said standard, a pawl-controlling lever pivoted to the standard, a yielding connection between said pawl-controlling lever and said holding pawl, said connection with the holding pawl being on the other side of the pivot from the rack-engaging end, and a locking and unlocking dog for said lever also pivoted to said standard.

2. In a jack, the combination of a standard comprising a box, a lifting rack, a lifting pawl, an operating handle to which the lifting pawl is pivoted, a holding pawl pivoted to said standard, a pawl-controlling lever pivoted to the standard, and a locking and unlocking dog for said lever also pivoted to said standard, said dog being supported on an extension of the handle pivot.

3. A jack comprising a standard having a box, a partial partition dividing said box, a lifting rack, a lifting pawl, a holding pawl, and a handle, all mounted behind said partition; a pawl-controlling lever, a spring acting thereon, said lifting pawl having an extension beyond the partition into coöperative relation with the pawl-controlling lever, and said holding pawl being operatively connected at its end remote from said rack to the pawl-controlling lever, and a lever-adjusting dog in front of said partition.

4. In a jack, the combination with a lifting rack, a lifting pawl, and a holding pawl, of a single spring held by the holding pawl pivot at an intermediate point, the tension of said spring being applied by both of said pawls.

5. In a jack, the combination with a lifting rack, a lifting pawl, and a holding pawl centrally pivoted, a post thereon opposite the rack-engaging end, of a pawl-controlling-lever, a link connected to said pawl-controlling-lever and having an elongated opening through which said post projects, whereby in one adjustment of the link the post is free to move in the opening and in another adjustment it is not.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

GLEN RUSSELL BOOTH.

Witnesses:

VIOLET M. BOOTH,
WM. DILDINE.