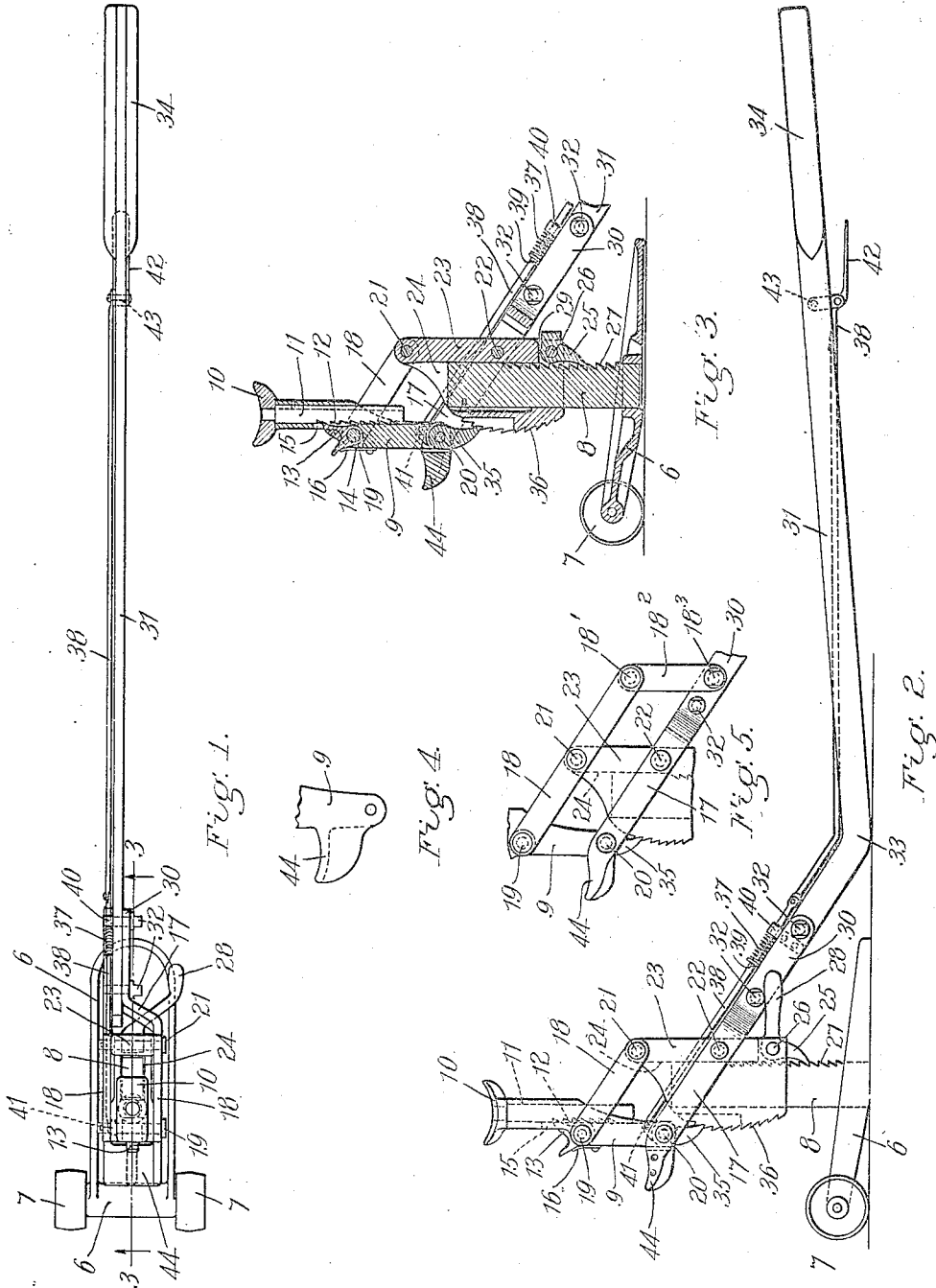


A. J. CROSS.
LIFTING JACK.

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Witnesses.
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UNITED STATES PATENT OFFICE.

ARTHUR J. CROSS, OF BOSTON, MASSACHUSETTS.

LIFTING-JACK.

1,050,107.

Specification of Letters Patent.

Patented Jan. 14, 1913.

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To all whom it may concern:

Be it known that I, ARTHUR J. CROSS, a subject of King George V, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Lifting-Jacks, of which the following is a specification.

This invention relates to improvements in lifting jacks and has for its object to provide a powerful, easily operable device particularly adapted for use in jacking automobiles, wagons and the like, and which is capable of being quickly adjusted to conform to high or low devices to lift the same with equal ease, and with little or no variation in the power required to manipulate the jack in either said high or low positions.

Another object of the invention is to provide a device having means capable of automatically locking the same in its various positions or quickly unlocking the same to permit lowering thereof.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims.

Referring to the drawings: Figure 1 is a plan view of a device embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional elevation taken on line 3, 3 of Fig. 1 with parts broken away to save space in the drawings. Fig. 4 is a detail view of a modified form of rest, the same being connected directly to the lower end of the carrier for said jack. Fig. 5 is a detail view showing a modification in the arrangement of the means for retaining the carrier and standard in parallel relation to each other, and means for moving said carrier relatively to said standard.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 6 is a base provided with wheels 7 rotatably mounted upon the base 6, said wheels and said base constituting a truck upon which is mounted a standard 8 in an upright position, said standard being preferably rectangular in cross section.

A carrier 9 is arranged to be moved upwardly and downwardly relatively to said standard and connected therewith by means hereinafter specifically described. The carrier 9 is provided, at its upper end, with a rest 10 which is of any suitable construction adapted to engage a part of the vehicle or other device to be lifted, and has a stem 11

pivottally connected therewith which is adapted to telescope the carrier 9 for the purpose of varying the position of the rest 10 relatively to said carrier, and to support said rest in its various positions relatively to said carrier, teeth 12 are provided upon the stem 11 and are engaged by a pawl 13, which is pivottally mounted upon the carrier 9 between ears 14. The teeth of said pawl project through a slot 15 and into engagement with said teeth 12, any suitable means being employed to retain said pawl and teeth in engagement one with the other, such for instance, as a spring 16 interposed between the outer ends of said pawl and said carrier.

The carrier 9 is preferably vertically disposed and adapted to be moved upwardly and downwardly and to be retained in its vertical position, which is also substantially parallel with the longitudinal median line of the standard 8 by a plurality of pairs of links 17 and 18 parallelly arranged and pivoted at 19 and 20 to said carrier 9. The opposite ends of said links are pivoted at 21 and 22, preferably upon a slide 23 which is provided with a hole 24 adapted to receive the standard 8 and to permit a relative movement between said slide and said standard longitudinally thereof for the purpose of varying the height of said pivots 21 and 22 relatively to the base 6. To maintain said slide 23 at any predetermined point on said standard a pawl 25 is provided which is pivoted upon the pin 26 in the lower end of said slide and engages teeth 27, which are formed on the adjacent face of the standard 8. A handle or weight 28 extends laterally of said pawl outwardly from said standard for the purpose of releasing said pawl when it is desired to lower the slide, and furthermore constitutes a weight to retain the end of said pawl 25 in its engagement with teeth 27. It will also be seen that said pawl is mounted within a slot 29 which terminates slightly above the upper end of said pawl thereby providing a stop against which the handle 28 will abut when it is desired to raise said slide by means thereof. The lowermost pair of links 17 are preferably arranged upon opposite sides of the slide 23 and are provided with extensions 30, which extend rearwardly from the pivot 22 and upon the opposite side thereof from said links 17. Preferably between said extensions is fastened a handle 31 by suitable means,

such as the screws 32, said handle and said links constituting a bifurcated lifting lever which when rocked upon its pivot 22 upwardly and downwardly is adapted to raise or lower the carrier 9, thus raising or lowering the vehicle or other means beneath which the rest 10 is placed.

With the arrangement of the lifting lever and links as just described, the pivot 22 has to support the entire weight of the vehicle together with the pressure applied to the lifting lever grip 34 during the lifting operation thereof. To more evenly distribute the weight, and consequently the wear upon said jack the upper pair of links 18 may be extended beyond the pivot 21 and pivotally connected at 18¹ to links 18² which are in turn pivoted at 18³ to said lifting lever, as shown in Fig. 5 and when so constructed said upper links constitute levers. Said lever is bent upwardly at 33 sufficiently to allow the outer end 34 which constitutes the grip of the handle 31 to remain slightly above the floor line when the point 33 is in contact therewith at which time the carrier 9 will be elevated. This feature prevents injury to the hand of the operator in case he should move the same too rapidly toward the floor line, and furthermore by bending said lever at said point 33 a knee is formed which engages the surface upon which the base of said jack rests or a block placed beneath said knee as a support therefor and constitutes a fulcrum, whereby when said handle 31 is depressed the slide 23 together with the instrumentalities carried thereby will be elevated or moved upwardly upon the standard 8, also by bending said lever, a much shorter standard is permitted to be used, or in other words a much wider range of movement for the handle 31 will be possible.

For the purpose of locking the carrier 9 or supporting it in its various positions relatively to the standard 8, I have provided a pawl 35 which is mounted upon the pivot 20 at the lower end of said carrier and engages teeth 36, which are preferably arranged upon the slide 23 substantially concentric with the axis of the pivot 22. The pawl 35 is normally held in engagement with the teeth 36 by a spring 37 which encircles the rod 38 engaging the pin 39 thereon at one of its ends and the lug 40 on the lever 31 at its opposite end, said rod pivotally connected to the pawl 35 at 41.

A finger-piece 42 pivoted at 43 adjacent to the grip 34 of said handle is connected with the opposite end of the rod 38 and upon movement of said finger-piece toward said grip, the pawl 35 will be rocked upon its pivot 20 and thereby disengaged from said teeth 36, thus permitting a free upward and downward movement of the carrier 9, while said pawl is held in such a position.

It is often necessary to get a purchase upon a device at a point much lower than would be permissible with the rest 10 at its lowermost position relatively to the carrier 9 and also relatively to the standard 8, and to accomplish this result I have provided a second rest 44 which preferably constitutes a part of the bifurcated lifting levers and at a point adjacent to the lower end of the support 9. This rest is capable of being moved upwardly and downwardly by the movement of the lever 31 and of being locked in its various positions relatively to the slide 23 by the pawl 35 in the same manner in which the carrier 9 is locked.

As has previously been stated the rest 44 is on the bifurcated lifting lever, but in Fig. 4 I have shown a modified form in which said rest is mounted or formed upon the carrier 9 at the lower end thereof.

The general operation of the device hereinbefore specifically described is as follows: The grip 34 is grasped by the operator, who by means of his finger against the finger-piece 42 disengages the pawl 35 from the teeth 36 and permits the carrier 9 to be moved downwardly by the upward movement of the grip end of the lever handle 31, and if the device is beneath the vehicle to be jacked and the rest 10 is at the right position to engage said vehicle, the grip end of the handle 31 is moved downwardly about the pivot 22 which causes the opposite end of the lifting lever to rise thereby moving said rest upwardly. The finger-piece 42 is released and the pawl 35 moves into engagement with the teeth 36 thereby supporting said carrier and rest in the position desired. If it should so happen that the member of the device to be jacked is too low to permit the rest 10 to be placed therebeneath, the slide 23 carrying said rest may be moved downwardly by the rocking of the pawl 25 upon its pivot 26 to disengage the same from the teeth 27, or if this does not bring said rest low enough, the rest 44 may be brought into use which may be adjusted upwardly or downwardly by moving the slide 23 upwardly and downwardly upon the standard 8, and furthermore by the rocking of the lifting lever upon its pivot 22. Should the device to be jacked be too high for the rest 10, said rest and its stem 11 may be moved upwardly relatively to the carrier 9 until the lowermost tooth of said stem has engaged the pawl 13 with the additional adjustment hereinbefore stated of the movement of the slide 23 relatively to the standard.

Having thus described my invention what I claim and desire by Letters Patent to secure is:

1. A lifting jack, embodying in its construction, a base, a standard mounted thereon, a carrier having a rest at its upper end

and one adjacent to its lower end, means to move said carrier upwardly and downwardly relatively to said standard, comprising a plurality of pairs of levers parallelly and pivotally arranged upon said standard and pivotally connected at one side of the pivots thereof by said carrier, and at the opposite side with links disposed substantially parallel with the longitudinal median line of said carrier, a handle fast to one pair of said levers, and means adapted to support said carrier on said standard in its various positions relatively thereto.

2. A lifting jack embodying in its construction, a base, a standard mounted thereon provided with a plurality of teeth upon one of its faces, a slide movable vertically on said standard having a plurality of teeth upon one face thereof, a lever pivoted on

said slide having a tooth formed thereon adapted to engage the teeth on said standard, a lifting lever pivoted upon said slide, a carrier pivotally connected to said lever, a plurality of rests carried by said lever, a pawl mounted upon the pivot connecting said lifting lever with said carrier, and means on said lifting lever adapted to actuate said pawl to move the same into and out of engagement with the teeth on said slide.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ARTHUR J. CROSS

Witnesses:

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SYDNEY E. TAFT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."