No. 799,188. PATENTED SEPT. 12, 1905.

J. McB. REID.

LIFTING JACK.

APPLICATION FILED NOV. 16, 1904.

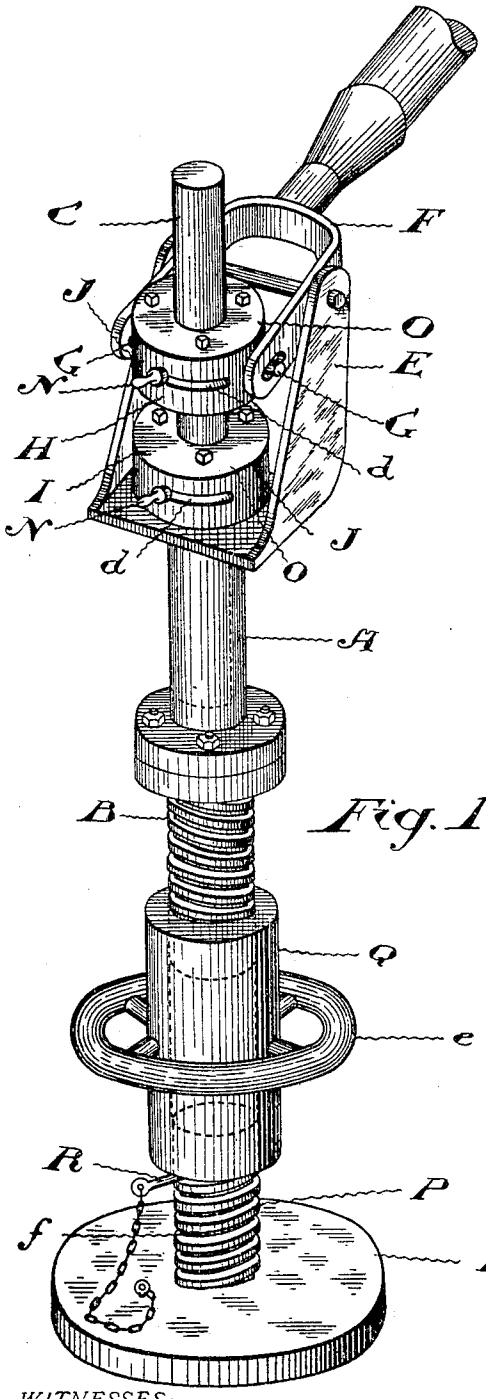



Fig. 1.

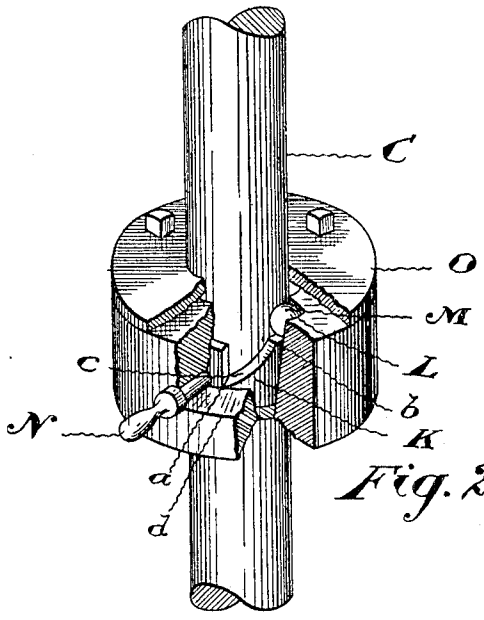



Fig. 2.

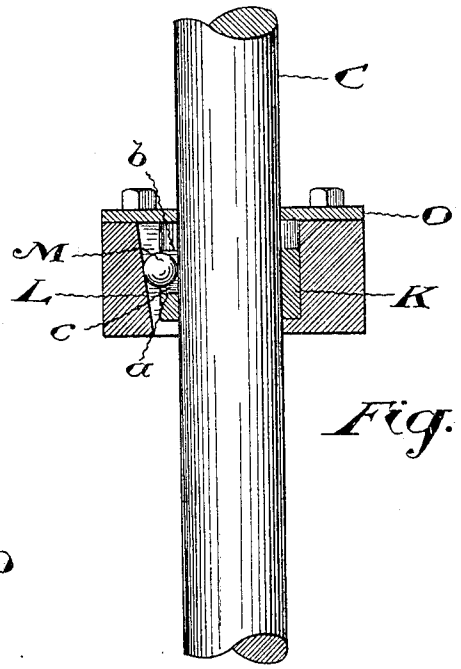



Fig. 3.

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# UNITED STATES PATENT OFFICE.

JAMES McB. REID, OF TORONTO, CANADA.

## LIFTING-JACK.

No. 799,188. Specification of Letters Patent. Patented Sept. 12, 1905.

Application filed November 16, 1904. Serial No. 233,033.

*To all whom it may concern:*

Be it known that I, JAMES McB. REID, of the city of Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

The object of my invention is to devise a lifting-jack which will be both strong and simple, which will hold at any desired elevation, and which may be slowly or rapidly released, as may be desired.

With this object in view my invention consists, essentially, of a jack of ordinary design in its main features, but provided with lifting and retaining clutches of special design and a screw-release, as hereinafter more specifically described and then definitely claimed.

Figure 1 is a perspective view of my improved jack. Fig. 2 is a perspective detail of one of the clutches, partly broken away to show the construction. Fig. 3 is a vertical sectional elevation of one of the clutches.

In the drawings like letters of reference indicate corresponding parts in the different figures.

The lifting-jack shown is intended particularly as a carriage-jack for use with automobiles.

A is a standard, to the lower end of which is secured the stem B. Within the standard a lifting-bar C is adapted to slide. The top of the standard has two lugs E, formed on or connected thereto, and on these lugs is pivoted the fork-ended lever F. The forks of this lever engage the pins G, formed on or secured to the sides of the clutch H, the construction of which will be hereinafter described.

I is a holding-clutch which may be either loose or secured in position at the head of the standard A and is preferably of the same construction as the clutch H. Each clutch comprises a casing J, having a central hole formed in its bottom for the passage of the lifting-bar C. Above the bottom the hole is enlarged in diameter to provide a seat for the cam-ring K. A plurality of recesses L are also formed in the casing, opening into the central hole and having their back walls inclined from the bottom outwardly. Within each recess is placed a friction-block M, preferably a steel ball. The cam-ring is provided with a depression *a*, connected with a raised part *b* by an inclined plane *c*. These parts are duplicated for each of the friction-blocks. Connected with one side of the ring is an arm N, extending outwardly through a slot *d*, formed in the side of the casing. The top of the casing is closed by a cap O, detachably secured in position in any suitable manner.

Referring again to Fig. 1, D is a base, and P a stem extending up therefrom. The stems B and P are respectively right and left hand threaded on a very coarse pitch. With these stems engages the similarly-threaded sleeve or nut Q, preferably provided with a hand-wheel *e* or other convenient means for operation. Into the stem P, I bore a number of holes *f*, into which may be inserted a pin R, as shown.

The operation of the device is substantially as follows: The jack is placed beneath the axle or other part to be lifted and the sleeve or nut Q revolved until the head of the lifting-bar C comes in contact with the part to be lifted. The pin R is then inserted into one of the holes *f*. The lever F is now operated to raise the lifting-bar C, the clutches H and I operating in the following manner: The friction-blocks M, lying against the straight sides of the lifting-bar and the inclined sides of the recesses L, jam between the two when an attempt is made to raise the clutch H, so that the clutch will lift the lifting-bar with it. At the same time the clutch is free to move downwardly on the lifting-bar. As the clutch I is of similar construction, the lifting-bar may be raised to any height by raising the lifting-clutch H by means of the lever F, the holding-clutch retaining the bar at exactly the height to which it has been raised. The moving clutch may be repeatedly reciprocated to raise the bar as far as may be necessary. When operating thus, the cam-ring is turned so that the depressions *a* come below the balls. (See Fig. 3.) When it becomes necessary to lower the axle or other part raised to its original position, the pin R is withdrawn. The weight on the jack then causes the sleeve Q to slowly revolve until the jack has been depressed so far that it ceases to support the weight, when it may be withdrawn from beneath the axle. When it is desired to drop the lifting-bar to its original position, the arms N are turned to bring the raised parts *b* of the cams under the balls, when the latter will be lifted out of operative engagement with the lifting-rod, as shown in Fig. 2, and the lifting-bar is then free to fall.

I find my arrangement of the clutches very

effective, simple, and cheap and the jack as a whole very effective as a carriage-jack for automobiles and other vehicles.

Of course I do not wish to limit myself to the use of the balls M, as any equivalent blocks or rollers might be employed. I, however, consider the balls the best for my purpose.

It will be seen that my jack is very effective for the purpose described. It permits of a quick elevation to any desired height, with the finest possible adjustment of this height. The release may be either rapid, through the releasing of the clutches, or gradual, through the rotation of the nut Q.

While I have described my device as being particularly adapted for use as a carriage-jack, it lends itself readily to adaptation for other purposes, such as for railway-track jacks and the like, and I do not limit myself to its use for the specific purpose described.

What I claim as my invention is—

1. A clutch for a lifting-jack comprising a casing having a central aperture for the passage of the lifting-bar of the jack, and provided with a plurality of recesses opening into said aperture, and having their back walls inclined from the bottom outwardly; a friction-block for each recess; and a rotatable cam-ring suitably mounted below said friction-blocks and adapted when moved in a given direction to lift the said friction-blocks, substantially as described.

2. A clutch for a lifting-jack comprising a casing having a central aperture for the passage of the lifting-bar of the jack, and provided with a plurality of recesses opening into said aperture, and having their back walls inclined from the bottom outwardly; a friction-block for each recess; a rotatable cam-ring suitably mounted below said friction-blocks; and an arm extending out from said ring, a slot being cut in the casing to permit the arm to be moved to cause the cam-ring to lift the said friction-blocks, substantially as described.

3. A clutch for a lifting-jack comprising a casing having a central hole for the passage of the lifting-bar of the jack, an enlargement of the hole above the bottom, and a plurality of recesses opening into the central hole and having their back walls inclined from the bottom outwardly; a friction-block for each recess; and a rotatable cam-ring fitted in the enlargement of the central aperture and adapted when moved in a given direction to lift the said friction-blocks, substantially as described.

4. A clutch for a lifting-jack comprising a casing having a central hole for the passage of the lifting-bar of the jack, an enlargement of the hole above the bottom, and a plurality of recesses opening into the central hole and having their back walls inclined from the bottom outwardly; a ball for each recess; and a rotatable cam-ring fitted in the enlargement of the central aperture and adapted when moved in a given direction to lift the said balls, substantially as described.

5. In a lifting-jack the main part of the jack provided with lifting-bar and means for raising and holding the same, in combination with a base; stems connected respectively with the base and with the main part of the jack, and respectively right and left hand threaded on a coarse pitch; and a similarly-threaded nut engaging the said stems, substantially as described.

6. In a lifting-jack the main part of the jack provided with lifting-bar and means for raising and holding the same, in combination with a base; stems connected respectively with the base and with the main part of the jack, and respectively right and left hand threaded on a coarse pitch; a similarly-threaded nut engaging the said stems; and means for holding the nut at will from rotating, substantially as described.

Toronto, November 12, 1904.

JAMES McB. REID.

In presence of—

JOHN G. RIDOUT,

A. M. McRAE.