No. 637,494. Patented Nov. 21, 1899.

D. K. ALLISON.

LIFTING JACK.

(Application filed Sept. 9, 1897. Renewed July. 15, 1899.)

(No Model.)

Fig. 1.

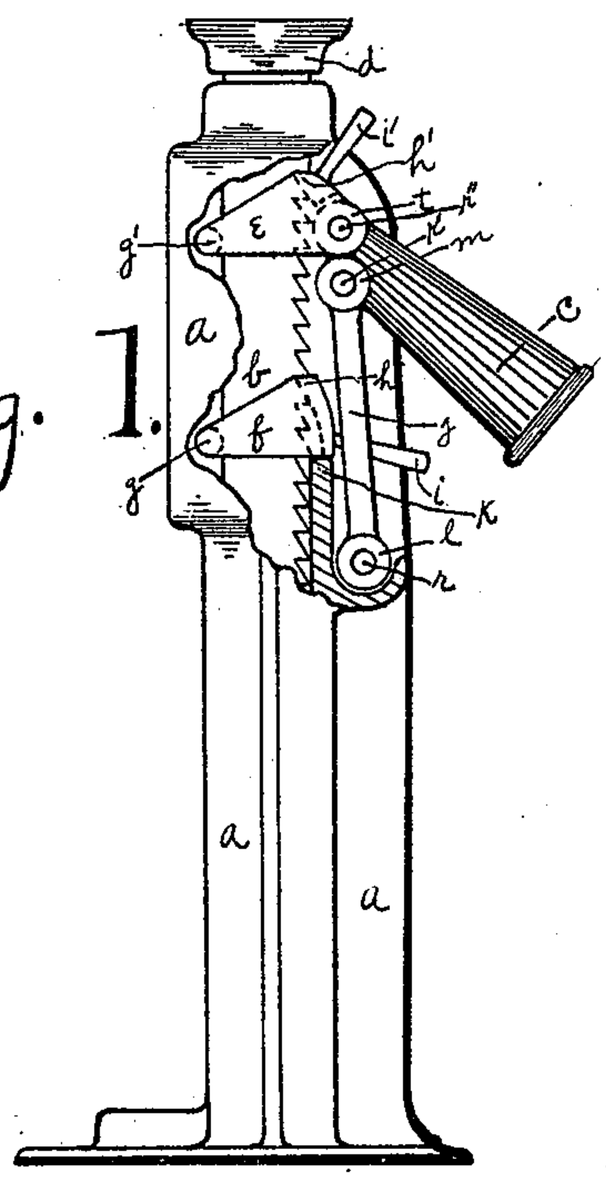


Fig. 2.

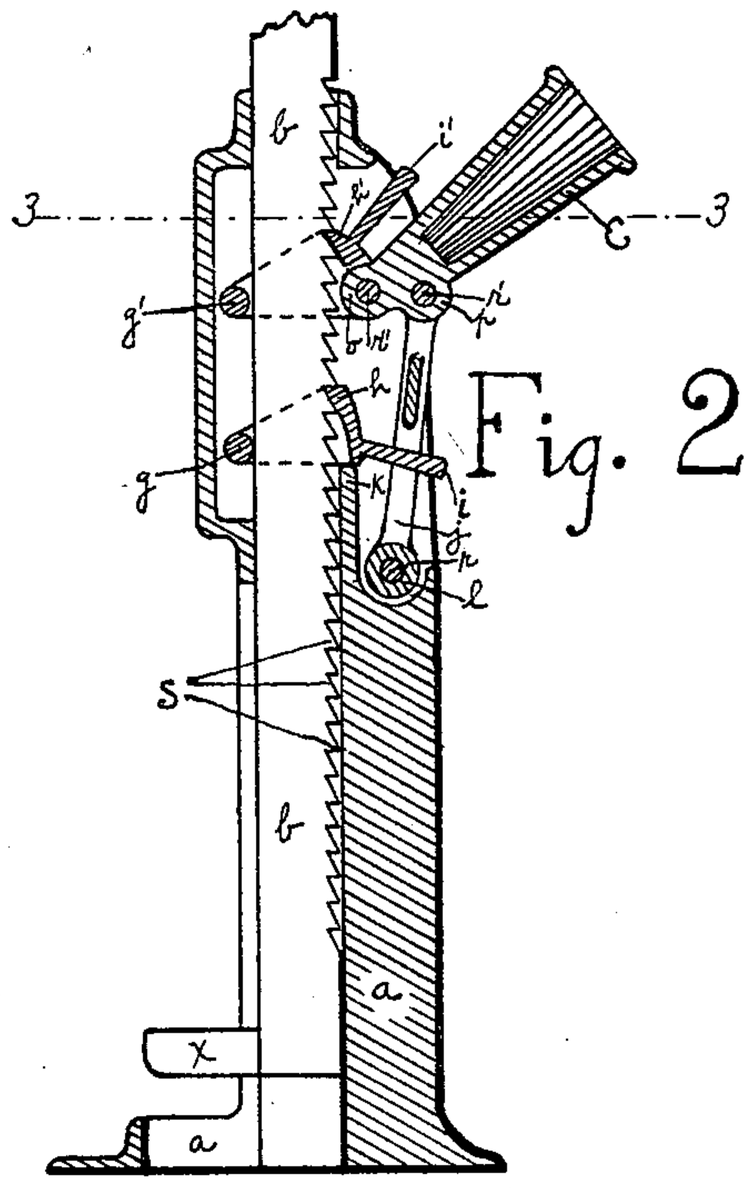


Fig. 3.

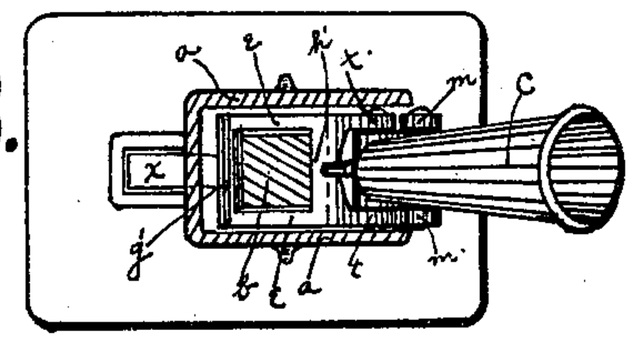


Fig. 5.

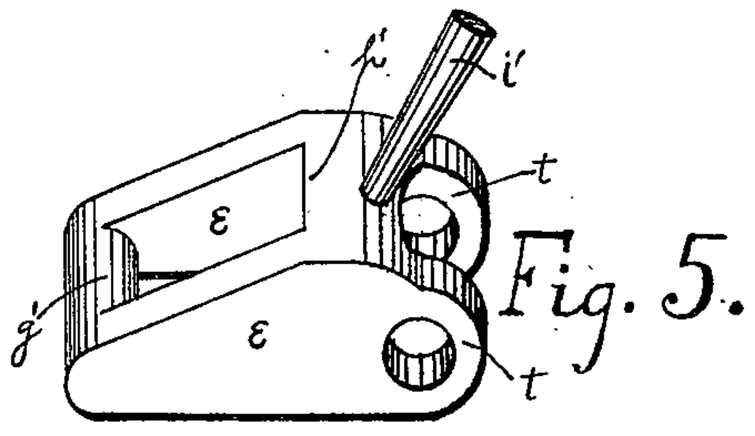


Fig. 4.

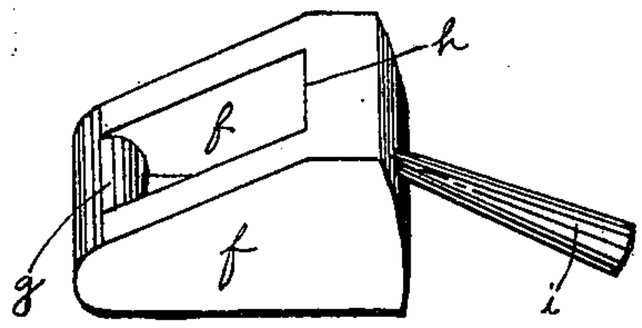
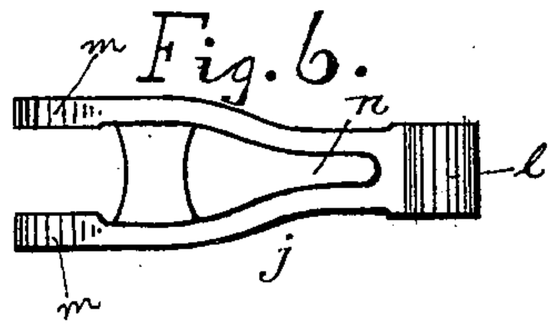


Fig. 6.



WITNESSES:

P. Rochester Jr.

A. J. Diorisio

D. K. Allison.

INVENTOR

BY R. J. McCarty.

his ATTORNEY.

UNITED STATES PATENT OFFICE.

DANIEL K. ALLISON, OF DAYTON, OHIO.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 637,494, dated November 21, 1899.

Application filed September 9, 1897. Renewed July 15, 1899. Serial No. 723,997. (No model.)

To all whom it may concern:

Be it known that I, DANIEL K. ALLISON, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a certain new and useful Improvement in Lifting-Jacks, of which the following is a specification.

The object of my invention is to provide a jack for raising heavy loads of any kind which while being economical in construction will be efficient in service and which will operate in such a manner that the power applied will be used to the best advantage and will securely hold the load in the elevated position after the lifting power has been removed and can be easily tripped, when the various parts will assume their original positions. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my jack, showing part of the casing or standard cut away, the lifting-bar being down as low as possible and the raising-lever depressed. Fig. 2 is a vertical central section of the same, the lifting-bar being shown in elevation, with the lifting-bar partly raised and the raising-lever in an elevated position ready to have the power applied. Fig. 3 is a horizontal section of the standard and lifting-bar, taken on the line 3 3 of Fig. 2, showing also a top view of the lever-socket and upper or lifting clutch-loop. Fig. 4 is an enlarged detail view in perspective of the lower or sustaining clutch-loop. Fig. 5 is an enlarged detail view in perspective of the upper or lifting clutch-loop. Fig. 6 is an enlarged detail front elevation of the connecting-link.

Sliding longitudinally in a suitably-shaped standard *a*, preferably made of malleable iron, is the lifting-bar *b*. This bar is provided with a foot *x* and a head *d* and also with teeth *s*, as shown in Figs. 1 and 2, which are a uniform distance apart and of a suitable shape and formed across one side of the bar. The foot *x* is used in raising a low body, while the head *d* is used in raising any body under which it can be easily placed.

c is a lever-socket for a pole of convenient length. The pole and lever-socket constitute the raising-lever.

On the front end of the lever-socket are formed two hubs *o* and *p*, which are formed, together with the lever-socket, into one casting. Through the holes in these hubs the pins *r'* and *r''* pass. The pin *r'* connects the lever-socket *c* to the connecting-link *j* by also passing through the eyes *m m* of the link. The pin *r''* connects the lever-socket *c* to the upper or lifting clutch-loop by also passing through the eyes *t t*, projecting from the front of said clutch-loop. The connecting-link *j* is joined to the standard *a* by means of the pin *r*.

The link *j* is constructed with an opening *n*, as clearly shown in Fig. 6. This is an essential feature of the construction, as will presently appear.

The pins *r*, *r'*, and *r''* are cylindrical in shape, and thereby allow the parts through which they pass to turn thereon freely.

The upper or lifting clutch-loop is composed of the pawl *h'* and the transverse bar *g'*, which are integral with two preferably triangular plates *e e*. The pawl, transverse bar, and plates are formed into one casting. The said lifting clutch-loop also has projecting outwardly from its front the two eyes *t t*. The small handle *i* also projects outwardly from the front of said lifting clutch-loop in the direction toward the raising-lever. This handle *i'* is used to tip the pawl *h'* of the said clutch-loop out of engagement with the teeth *s* of the lifting-bar. The said handle *i'* projects upwardly on a sufficient angle to prevent its coming in contact with the lever-socket when the latter is elevated. This action of the said clutch-loop is necessary in lowering the lifting-bar. The handle *i* of the clutch-loop *f* projects out through the opening *n* in the link *j* and may be conveniently taken hold of to trip the clutch-loop. The lifting clutch-loop is so shaped that it surrounds the lifting-bar, the pawl *h'* being adapted to engage with the teeth *s* of the bar, and the transverse bar *g'* presses against the opposite side of the said bar when the pawl is in the act of engaging, while the two triangular plates *e e* play loosely, but up close to the lifting-bar on the other two opposite sides and serve merely to connect the pawl *h'* to the transverse bar *g'*. The pawl *h'* engages with the teeth *s* at a higher elevation on the bar than the transverse bar *g'*. This is necessary to enable the pawl *h'* to be easily loosened and freed from the lifting-

bar in the act of lowering the clutch-loop, the transverse bar g' remaining stationary until the pawl h' drops past one tooth, after which the transverse bar will also immediately drop and assume its normal position. This action of the lifting clutch-loop is accomplished every time the pawl is lowered one tooth.

The function of the lifting clutch-loop is to raise the lifting-bar upon which the load is placed, and this is accomplished by depressing the lever to which the said clutch-loop is pivoted.

Beneath the lifting clutch-loop is the lower or sustaining clutch-loop. The function of the sustaining clutch-loop is to hold the lifting-bar in an elevated position at all times when it is not being held or raised by the lifting clutch-loop. This it does while the lifting clutch-loop is descending to take a new grip on the bar. The sustaining clutch-loop is likewise composed of the pawl h and the transverse bar g, which are integral with the two preferably triangular plates $f\,f$. Projecting outwardly from the front of the sustaining clutch-loop is the small handle i, which is used to tip the said clutch-loop backward, so as to free the pawl h of the said clutch-loop out of engagement with the teeth of the lifting-bar. This action is used in lowering the bar. The sustaining clutch-loop is likewise so shaped that it surrounds the lifting-bar, the pawl h being adapted to engage with the teeth of the bar, and the transverse bar g presses against the opposite side of the bar while the said pawl is engaging with the said teeth. The two triangular plates $f\,f$ play loosely, but up close to the lifting-bar on the other two opposite sides and serve in this particular clutch-loop a double purpose. First, they serve to join the pawl h to the transverse bar g, and, second, they serve to keep the clutch-loop from slipping out of its proper position while surrounding the lifting-bar. In the sustaining clutch-loop the pawl h likewise engages with the lifting-bar in a more elevated position than does the transverse bar g. This is likewise necessary to enable the pawl to be easily freed from the teeth of the lifting-bar while the lifting-bar is in the act of raising.

The sustaining clutch-loop is not fastened to any part of the jack, but is held up by its front part merely resting loosely upon the partition-wall k of the standard. This partition is adjacent to the teeth of the lifting-bar and forms part of the wall of the standard.

While the lifting-bar is in the act of raising, the sustaining clutch-loop is tipped backward far enough to allow the pawl h to slip past one tooth, the transverse bar g at the same time being elevated, after which the said clutch-loop will immediately fall back into engagement with the next tooth, and thus assume its normal position. This action is accomplished each time the lifting-bar is raised one tooth.

The bars g and g' of the two clutch-loops serve a twofold purpose. Besides acting as a clutch-loop upon the back of the lifting-bar by pressing against the same, they also act as weights to throw the pawls h and h' into speedy contact with the teeth of the bar.

By the peculiar construction of both the lifting and sustaining clutch-loops the heavier the load is the more forcibly the clutch-loops will bind the bar.

In the sustaining clutch-loop the pawl h, the transverse bar g, and the plates $f\,f$ are inseparably formed into one casting in like manner as the lifting clutch-loop.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

In a lifting-jack, a standard, a lifting-bar, lifting and retaining loops provided with handles, and a lifting-lever, in combination with a link connecting the said lever to the standard at a point below the lower or retaining clutch-loop, the said link having an opening in its body through which the handle on the retaining clutch-loop projects and is thus made accessible to the hand, as is herein shown and described.

DANIEL K. ALLISON.

Witnesses:
A. J. FIORINI,
R. J. MCCARTY.