(No Model.) 2 Sheets—Sheet 1.

A. A. STROM.

CLUTCH FOR LIFTING JACKS.

No. 347,279. Patented Aug. 10, 1886.

Fig. 1.

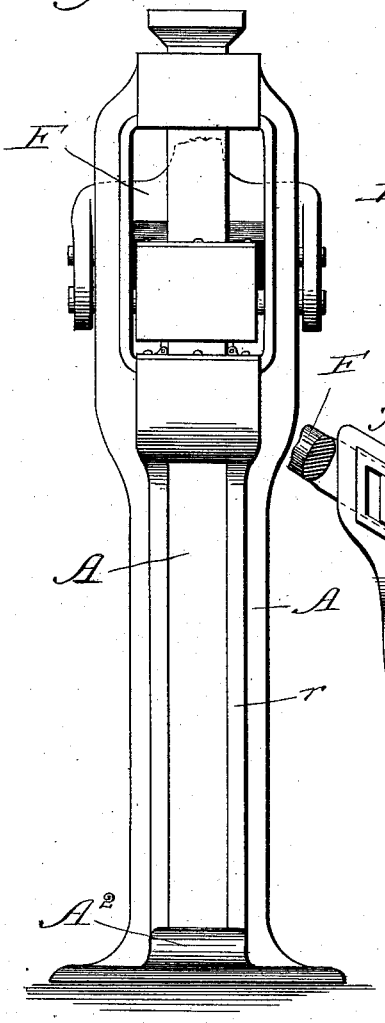


Fig. 2.

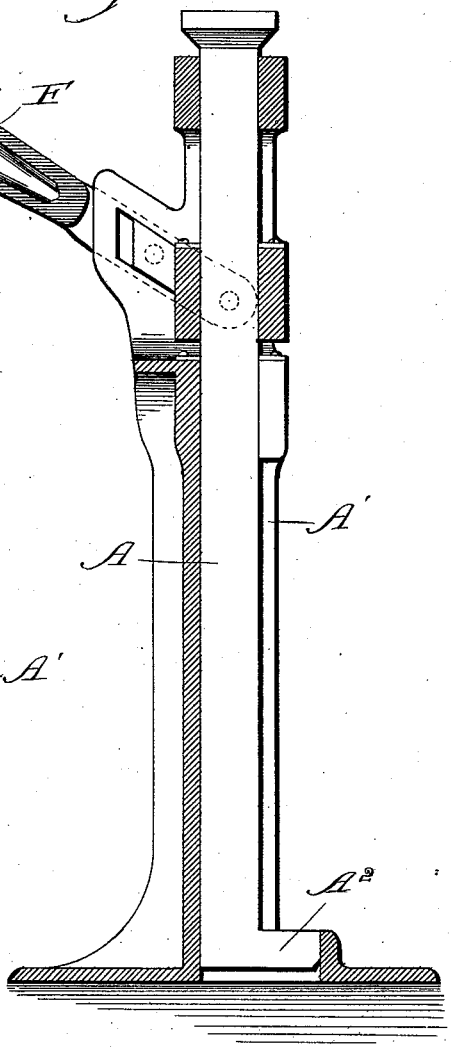
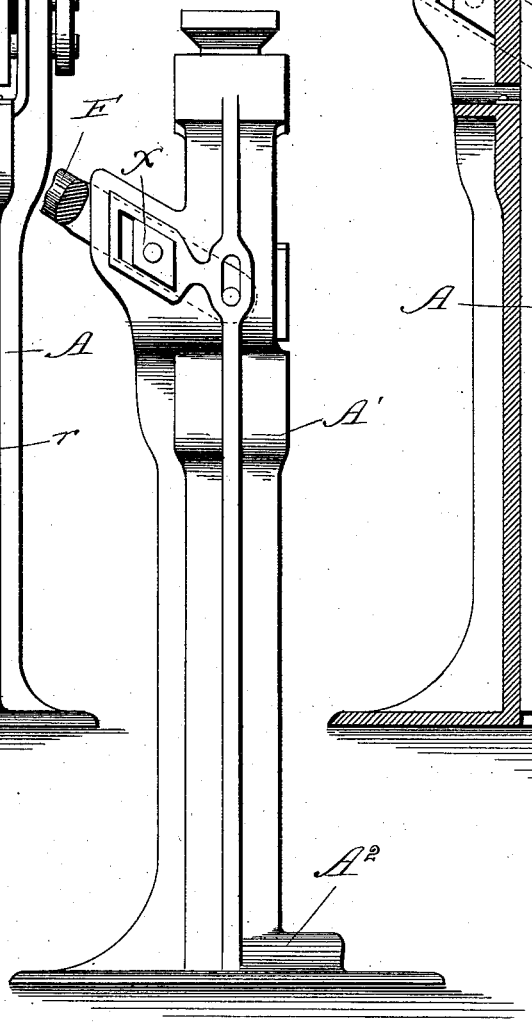


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

A. A. STROM.

CLUTCH FOR LIFTING JACKS.

No. 347,279. Patented Aug. 10, 1886.

Fig. 5.

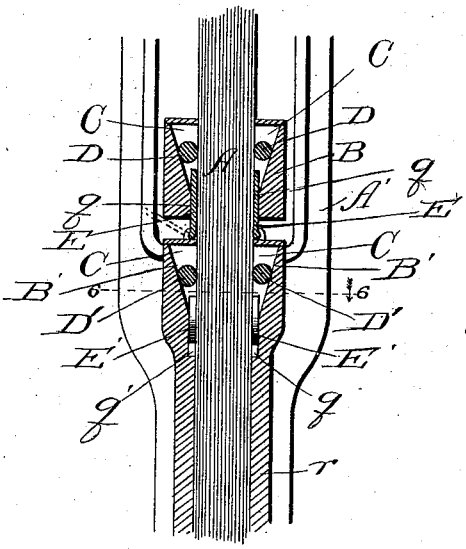


Fig. 4.

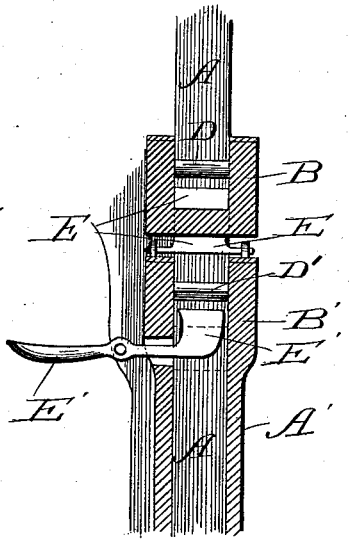
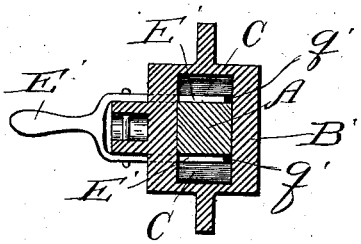


Fig. 6.



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UNITED STATES PATENT OFFICE.

AXEL A. STROM, OF AUSTIN, ILLINOIS.

CLUTCH FOR LIFTING-JACKS.

SPECIFICATION forming part of Letters Patent No. 347,279, dated August 10, 1886.

Original application filed November 3, 1885, Serial No. 181,731. Divided and this application filed December 17, 1885. Serial No. 185,909. (No model.)

To all whom it may concern:

Be it known that I, AXEL A. STROM, a citizen of the United States, residing at Austin, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Friction-Clutches; and I hereby declare the following to be a full, clear, and exact description of the same.

Friction-clutches of the general class to which my invention belongs are employed in various mechanical devices, though the particular connection with which I design to use the clutch portion of my invention is a lifting-bar, such as is used in lifting-jacks, as shown in the present drawings, and shown and described in my application, Serial No. 181,731, filed November 3, 1885, of which the present is a divisional application, and upon which Letters Patent of the United States No. 344,794 were granted me on the 29th day of June, 1886.

My invention consists in the general construction of my improved device, which comprises, broadly, recessed clutch-blocks, one above the other, upon a lifting-bar which passes through them, and having each recess beveled and containing a roller normally in contact with the lifting-bar, one clutch-block being stationary to constitute the retaining-clutch and the other movable to constitute the lifting-clutch.

My invention also consists in means for releasing the bar from contact with each roller, and it further consists in certain details of construction and combinations of parts, all as hereinafter more fully set forth.

The term "each recess" employed in the foregoing recital of invention and in the appended claims is not intended to intimate that there must, necessarily be more than one recess in each clutch-block, though only one is sufficient for all ordinary purposes; but it is intended to be generic in the sense that it will include the use of one or more recesses, each of which contains a roller; and the word "stationary" with reference to the retaining-clutch is not intended to signify absolute rigidity of position, as will hereinafter appear.

Referring to the drawings, Figure 1 is a front elevation of a lifting-jack provided with my improvement; Fig. 2, a vertical central section of the same, presenting a side elevation; Fig. 3, a side elevation of the same with a portion of the operating-lever broken away; Fig. 4, a broken sectional view, in side elevation, of a lifting-jack provided with my improvement, wherein each clutch has single recess, roller, and releasing device; Fig. 5, a broken sectional view showing details of construction of my improvement in its modified form, wherein two each of the recesses, rollers, and releasing devices are provided in each clutch; and Fig. 6, a sectional plan view taken on the line 6 6 of Fig. 4.

A is the lifting-bar, within a hollow standard, A′, cast, preferably in the form shown, with a vertical slot, *r*, in its front side to permit the vertical movement of the foot A^2 of the lifting-bar.

B is a clutch-block surrounding the bar A, and having the recess or chamber C formed in its opening, through which the lifting-bar extends, and slanting toward the latter from its upper side where it is closed, as shown, ending in a vertical recess, *q*.

D is a loose roller within the recess or chamber C and extending transversely across the lifting-bar.

From this much of the description the principle of the operation will be readily understood, for it will be seen that the clutch can easily be moved downward upon the bar A, a suitable lever, F, being used for actuating it, and connected for the purpose at opposite sides of the clutch-block B, and fulcrumed in a shifting bearing, as shown at *x* in Fig. 3, all as fully described in my aforesaid Letters Patent; but that any attempt to move it upward causes the roller to wedge itself between the beveled wall in the recessed clutch-block and the bar, and thus produce a binding which increases with the force exerted. By actuating the clutch, therefore, upon the lifting-bar A upward, movement of the clutch will lift the bar and raise a weight that may be imposed upon it.

To permit the lifting-clutch B to be lowered for a fresh grip upon the bar without permitting the latter and its superimposed weight to fall, another friction-clutch, B′, in construction exactly like the clutch B or differing from the latter in a slight mechanical detail, as shown and hereinafter described, is employed as a retaining-clutch, which must be anchored or in

some way secured to be rendered practically stationary, which is shown in the drawings to be accomplished, as one way, by making the retaining-clutch part of the standard A'. When, therefore, the lifting-clutch B is lowered for a fresh grip, the bar is firmly held from falling by the impingement against it of the roller D in the retaining-clutch B', preferably below the other, though the reverse position of the two clutches might be used if desired, the retaining-clutch of course being stationary, as described, and the lifting-clutch movable. The release of the bar to permit it to fall from a raised position is accomplished by a hinged stop, E, on the cover of the retaining-clutch, which hinge, when raised for the purpose, enters the vertical recess *q* with the downward movement of the lifting-clutch, and by its contact with the roller D thereof stops or releases the latter, and thus overcomes its wedging effect. The normal position, however, of the stop E or releasing mechanism is down in the position shown by the dotted lines, out of coincidence with the vertical recess *q*.

As two clutches have to be used with the lifting-clutch preferably uppermost, the most convenient position for the releasing hinged stop E is upon the cover of the lower or retaining clutch, the roller D' of which may, on the release of the roller D in the lifting-clutch, as described, be released by hand by means of a lever, E', fulcrumed, as shown, and having its short arm within the recess of the retaining clutch-block, into which it enters through a vertical opening, *q'*. The clutches may, if desired, each be provided with two, preferably covered, beveled recesses, C, on opposite sides of the bar, each containing a wedging-roller, D, as clearly shown in Fig. 5, when the releasing device E must be provided in duplicate, and the lever E is bifurcated, as shown, to cause each of its short arms to enter a recess, C, in the retaining-clutch below the roller contained therein.

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

1. The combination, with a lifting-bar, of a movable recessed clutch-block, B, and a stationary recessed clutch-block, B', one above the other, upon the lifting-bar to be clutched, which passes through them, and having each recess beveled and containing a roller, and a lever for actuating the lifting clutch-block, substantially as described.

2. The combination, with a lifting-bar, of a movable recessed clutch-block, B, and a stationary recessed clutch-block, B', one above the other, upon the lifting-bar to be clutched, which passes through them, and having each recess beveled and containing a roller, and means, substantially as described, for releasing the retaining-clutch B' at will, whereby the lifting-bar may be raised intermittingly by operating the lifting clutch-block B through the medium of a suitable lever, and caused to descend by releasing the gripping-roller in the retaining-clutch, substantially as set forth.

3. The combination, with a lifting-bar, of a movable recessed clutch-block, B, and a stationary recessed clutch-block, B', one above the other, on the lifting-bar to be clutched, which passes through them, and having each recess beveled and containing a roller, means, substantially as described, for releasing at will each roller in the retaining clutch-block, and a stop for arresting at will each roller in the lifting clutch-block, whereby the bar may be raised intermittingly by operating the lifting clutch-block through the medium of a suitable lever, and caused to drop directly to its lowest position by lowering the lifting clutch-block and releasing each gripping-roller of the retaining clutch-block, substantially as set forth.

4. The combination, with a lifting-bar, of a movable recessed clutch-block, B, and a stationary recessed clutch-block, B', one above the other, on the lifting-bar to be clutched, which passes through them, and having each recess beveled and containing a roller, and a lever, E', for releasing each roller in the retaining clutch-block B' at will, whereby the lifting-bar may be raised intermittingly by operating the lifting clutch-block through the medium of a suitable lever, and caused to descend by releasing each gripping-roller in the retaining-clutch, substantially as described.

5. The combination, with a lifting-bar, of a movable recessed clutch-block, B, and a stationary recessed clutch-block, B', one above the other, on the lifting-bar to be clutched, which passes through them, and having each recess beveled and containing a roller, a lever, E', for releasing at will each roller in the retaining clutch-block, and stops E, for arresting at will each roller in the lifting clutch-block, whereby the bar may be raised intermittingly by operating the lifting clutch-block through the medium of a suitable lever, and caused to drop directly to its lowest position by lowering the lifting clutch-block and releasing each gripping-roller of the retaining clutch-block, substantially as described.

AXEL A. STROM.

In presence of—
MASON BROSS,
WM. SADLER.