

(No Model.)

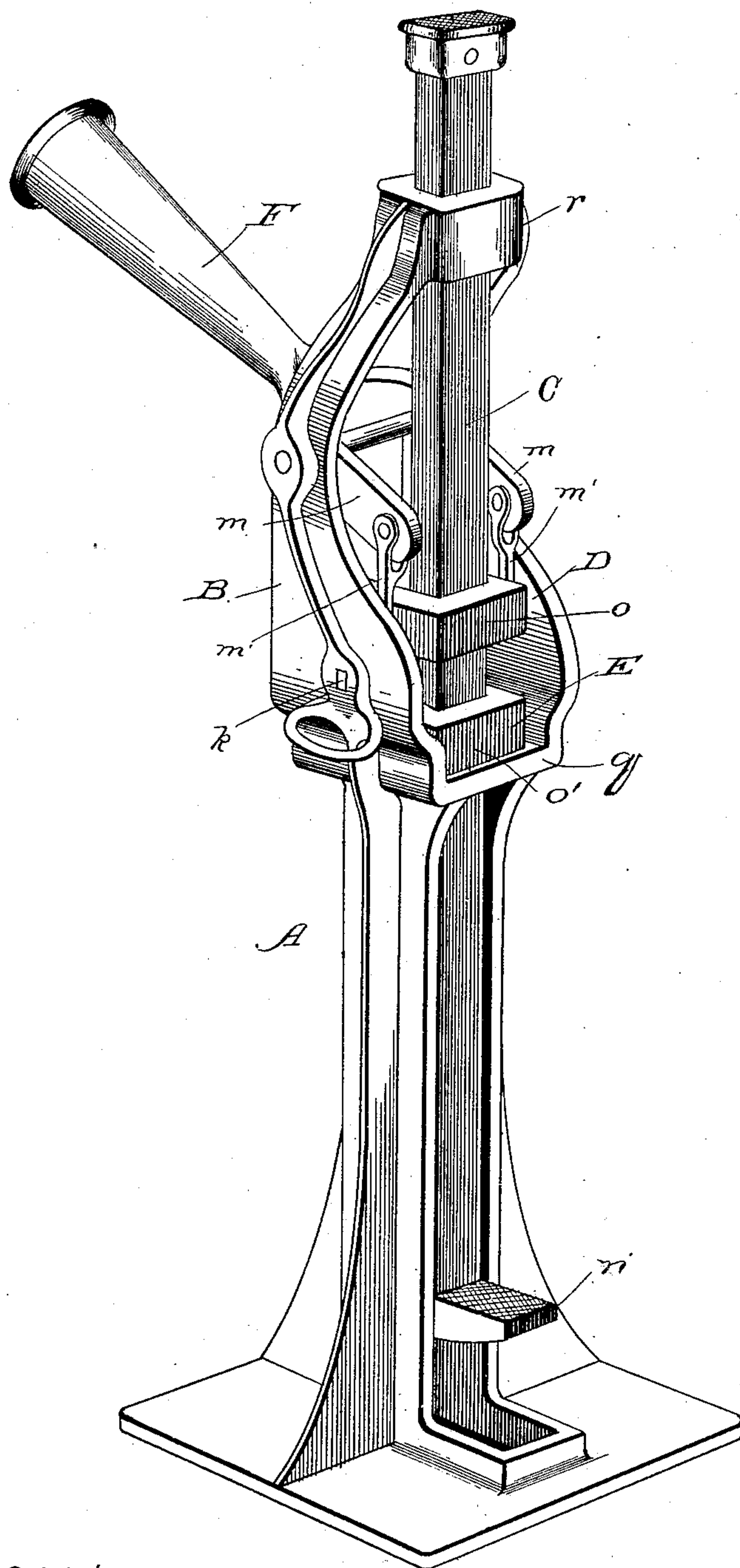
2 Sheets—Sheet 1.

A. A. STROM.

LIFTING JACK.

No. 359,106.

Patented Mar. 8, 1887.



*Fig. 1.*

Witnesses:  
Chas. E. Gaylord,  
J. H. Dyrenforth.

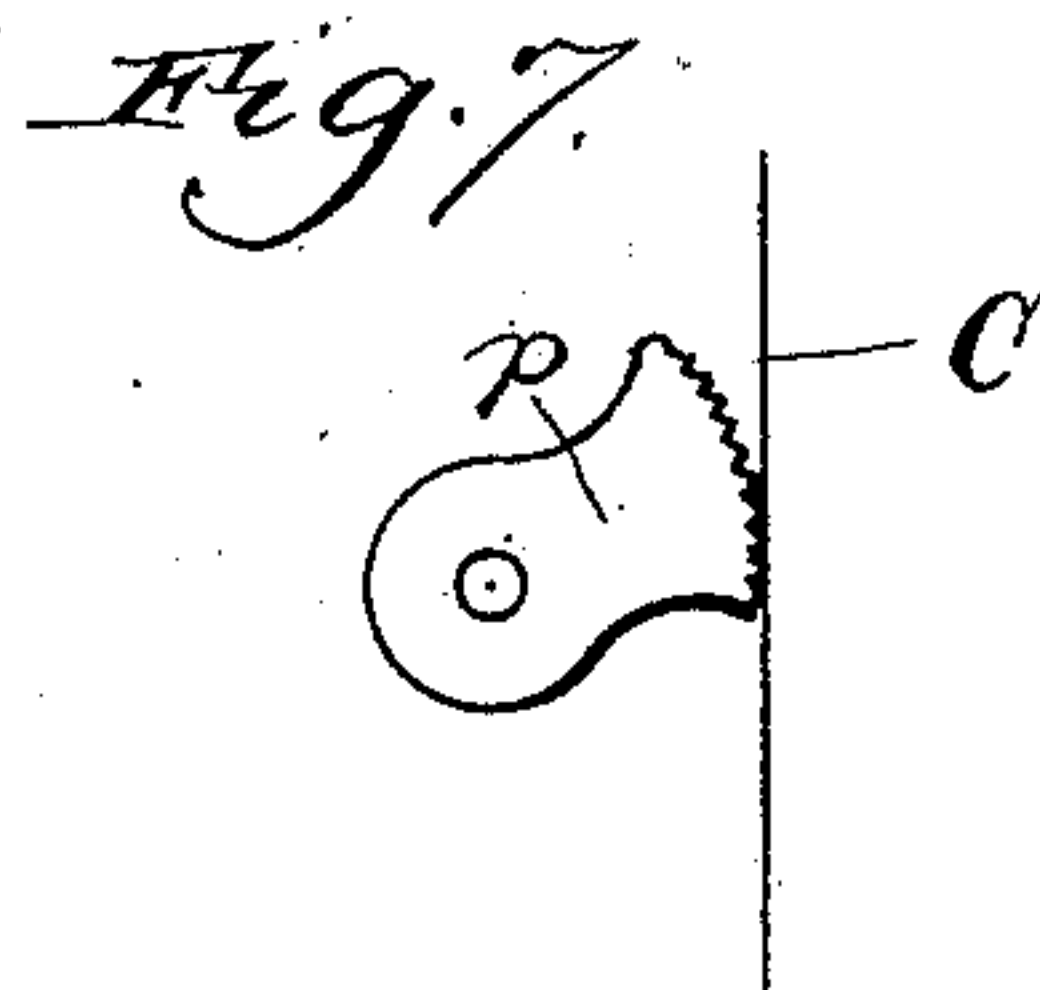
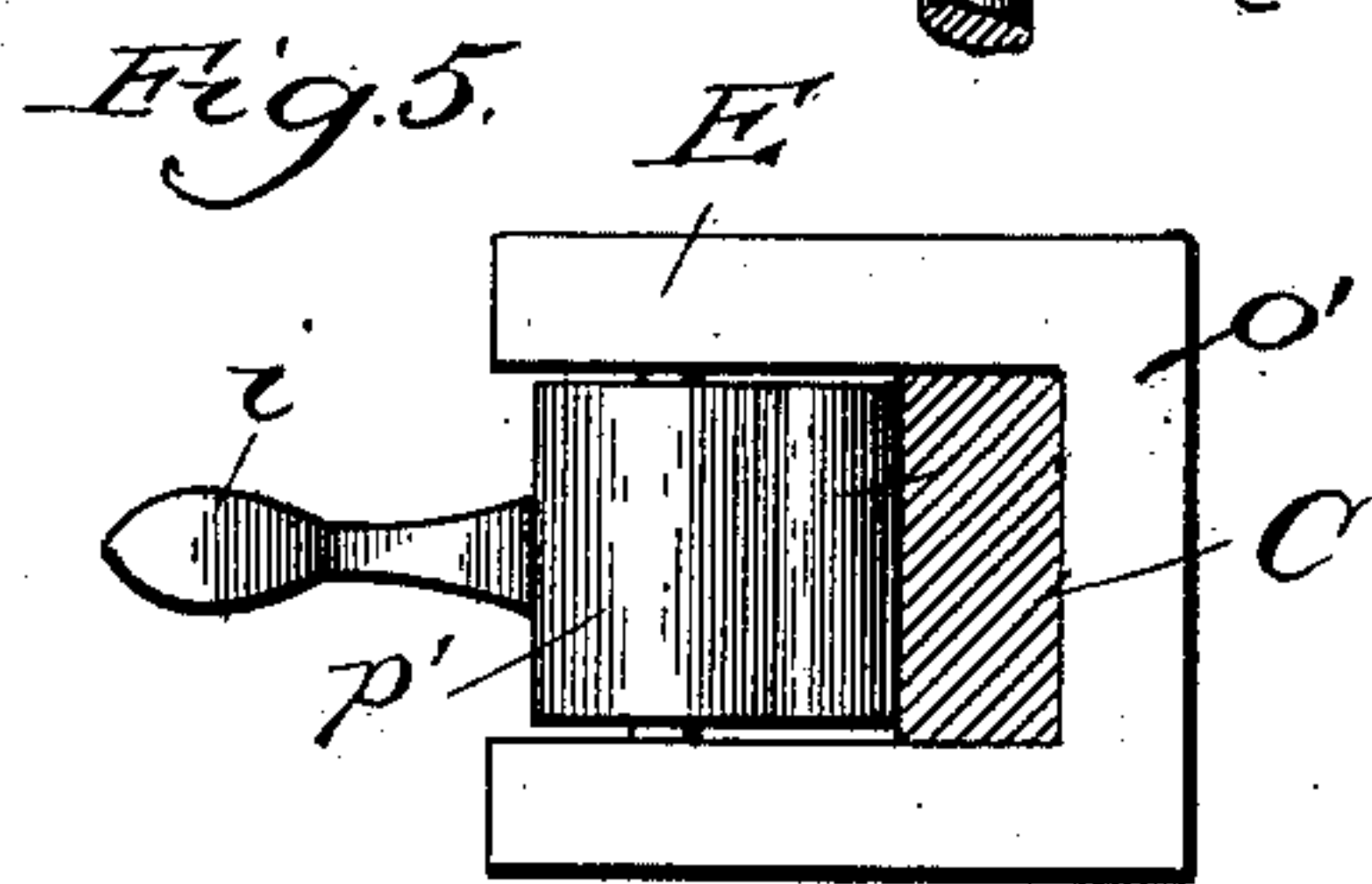
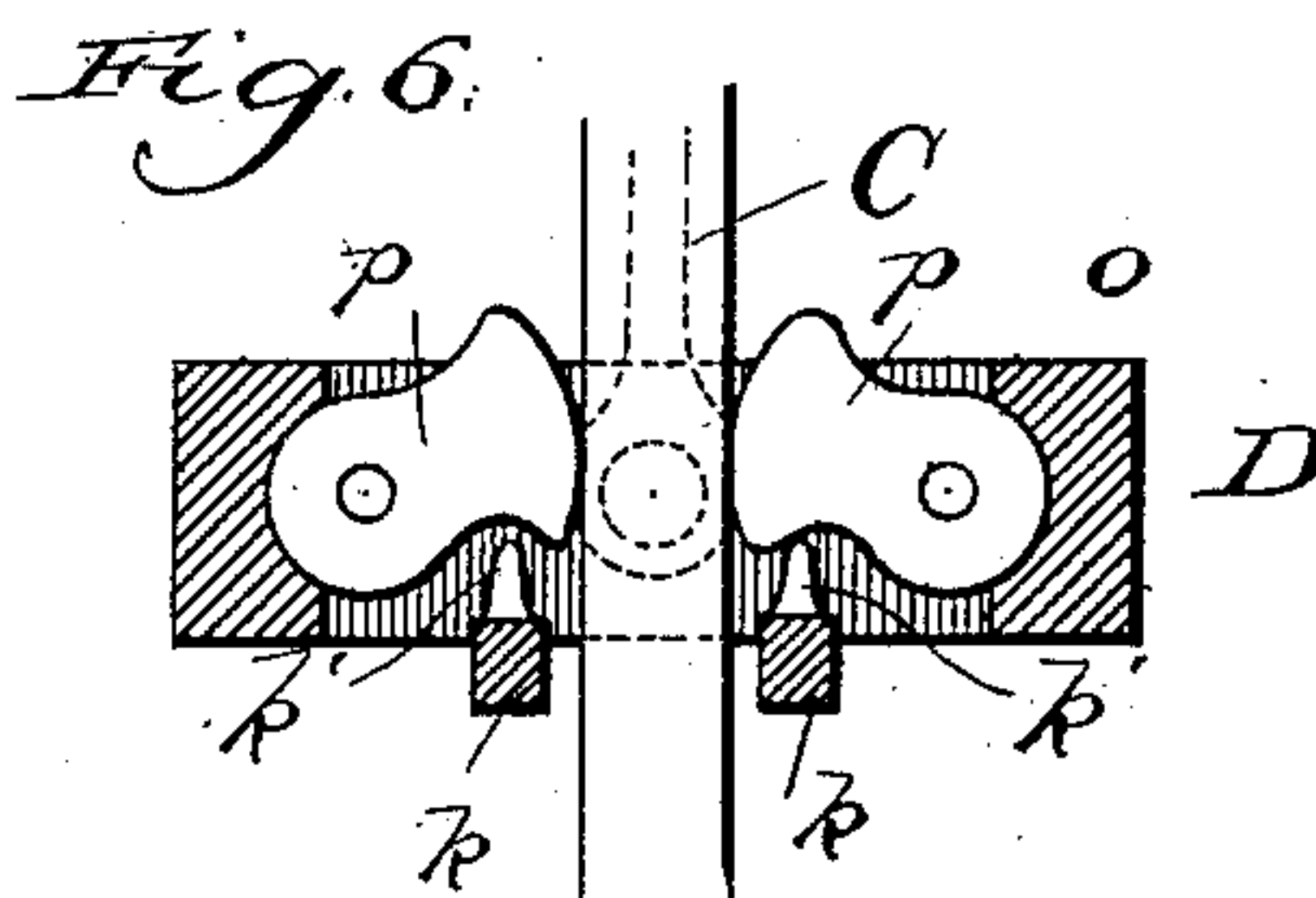
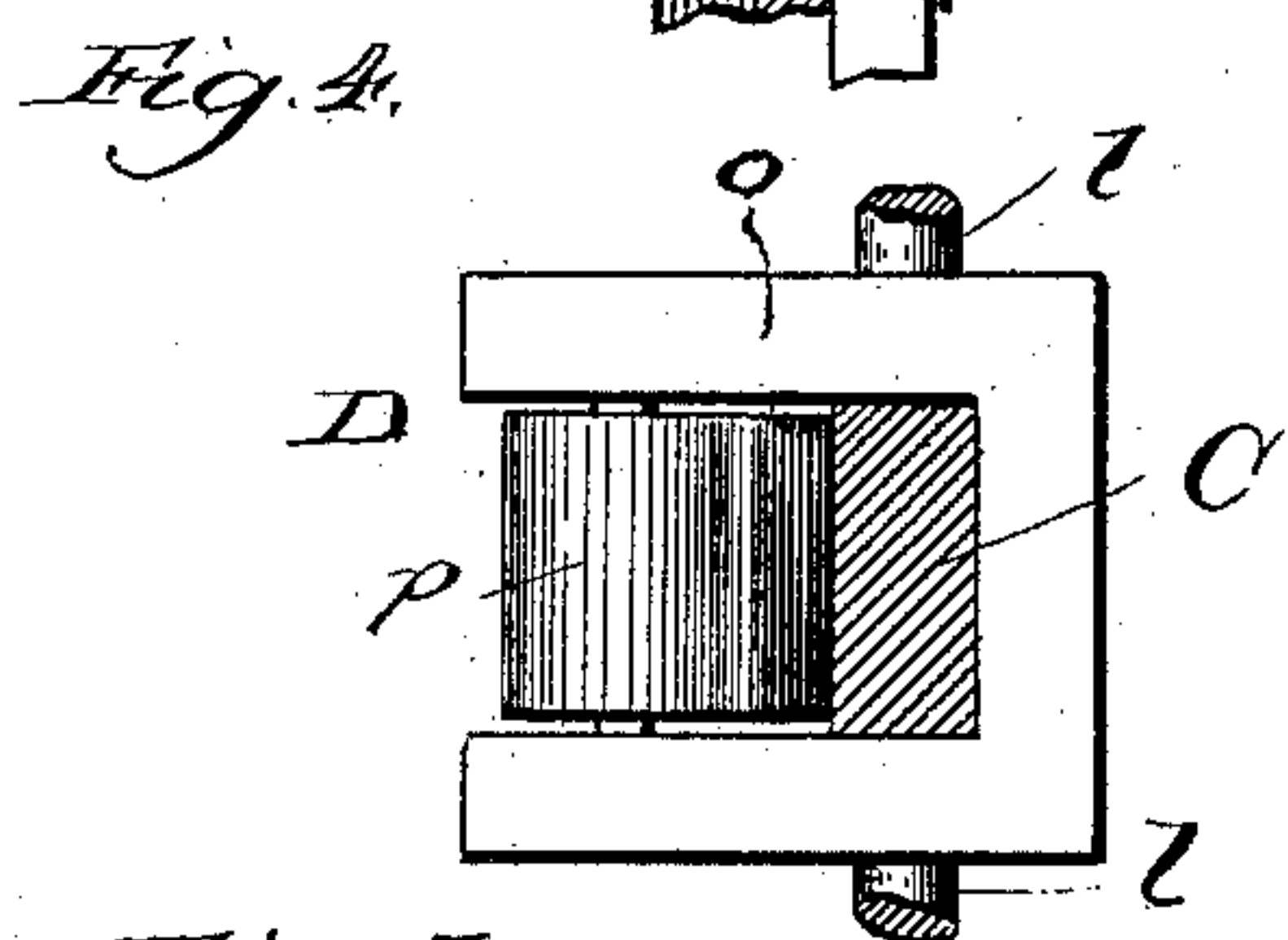
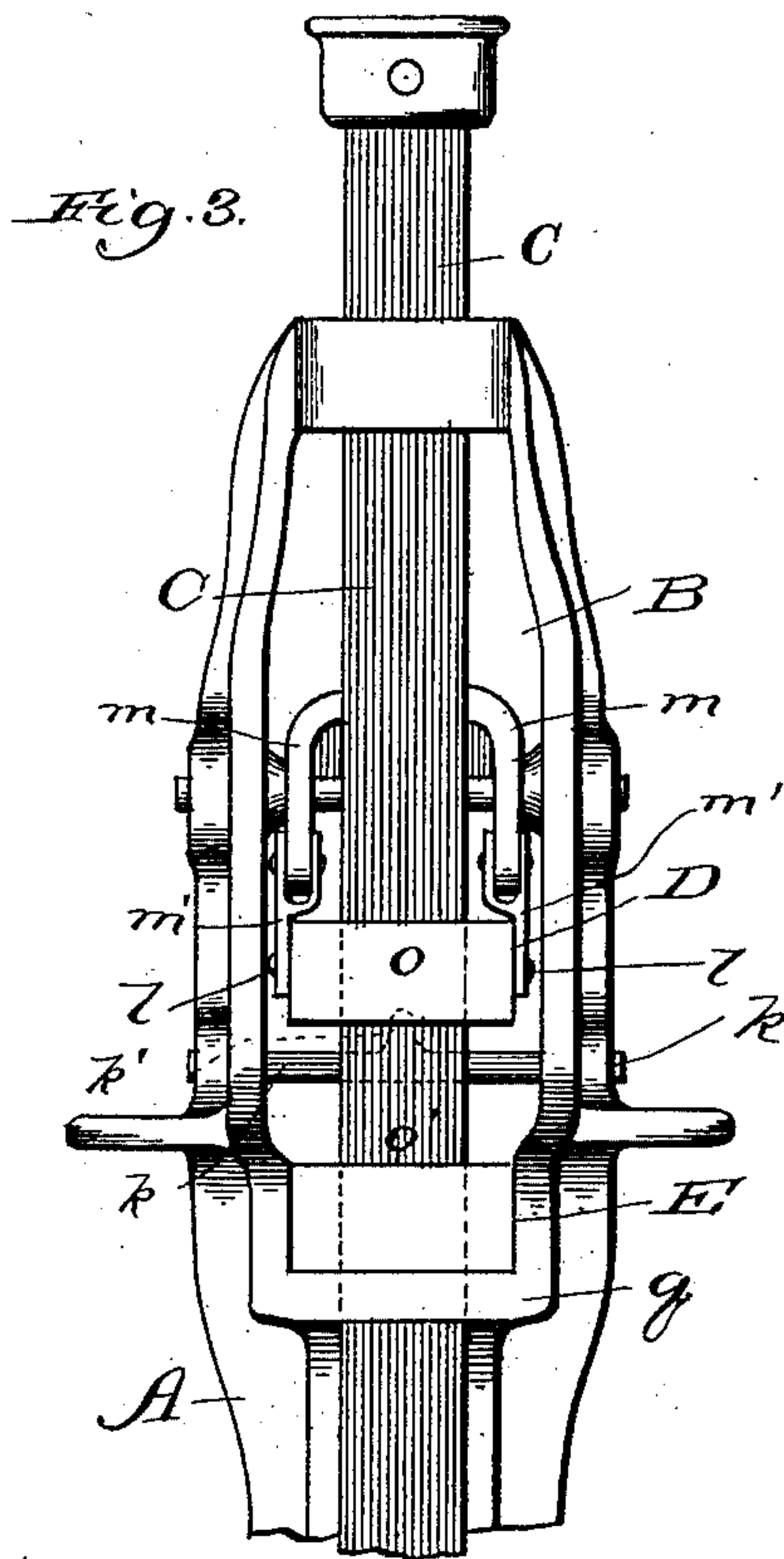
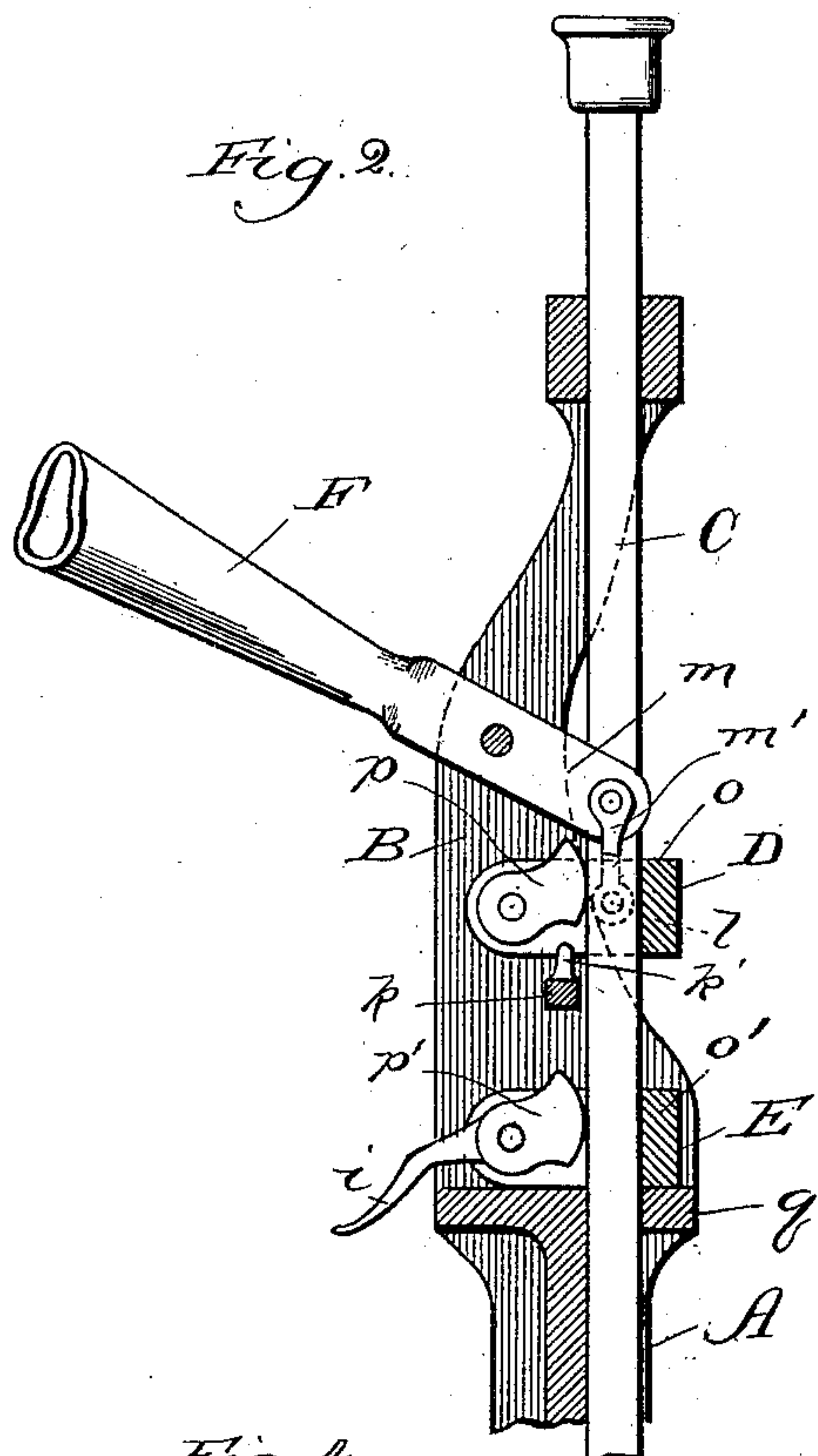
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—By Dyrenforth & Dyrenforth,  
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# UNITED STATES PATENT OFFICE.

AXEL A. STROM, OF AUSTIN, ILLINOIS.

## LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 359,106, dated March 8, 1887.

Application filed December 28, 1886. Serial No. 222,816. (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 a certain new and useful Improvement in Lifting-Jacks; and I hereby declare the following to be a full, clear, and exact description of the same.

My improvement relates especially to the construction of the friction-clutch device, through the medium of which the lifting-bar is operated.

It is my object to provide a friction-clutch of very simple construction and highly effective in its purpose, thereby particularly to afford a lifting-jack which shall answer all the requirements of such articles in a highly-efficient manner, and at the same time involve a construction embodying comparatively few parts, thus reducing the expense of manufacture and the liability of getting out of order.

My invention consists in the construction of the clutch device; and it further consists in the general as well as the particular construction of the lifting-jack involving my improved clutch device as the actuating medium.

In the drawings, Figure 1 is a perspective view of a lifting-jack embodying my improvements; Fig. 2, a broken sectional side elevation of the same; Fig. 3, a broken front elevation of the same; Fig. 4, a broken sectional plan view of the lifting-clutch portion of the jack; Fig. 5, a similar view of the retaining-clutch portion; Fig. 6, a sectional elevation of a modified construction of the clutch device; and Fig. 7, a view of the pivotal block in operative position to clamp the lifting-bar, showing it corrugated on its face as a further modification.

A is the standard portion of the jack, enlarged toward its upper end to afford an inclosure, B, and bearings for operative parts, hereinafter described.

C is the lifting-bar, square in cross-section, as shown, or at least having flat surfaces, or cylindrical, though, if the latter, a suitable projection should be provided to prevent it from turning in its bearings *r* and *q*, the latter also forming a seat in the base of the enlarged portion B for the retaining-clutch, hereinafter described; and if the bar be cylindrical it may be advisable to make the bearing-surfaces of

the clutch-blocks to correspond transversely. The usual foot-piece, *n*, is provided, and for the usual purpose, on the bar C.

D is the lifting-clutch, comprising a block, *p*, the face of which is curved lengthwise, as shown, and pivoted near its base in a collar, *o*, through which the lifting-bar extends in the arc of the circle which the pivotal block would traverse if unobstructed by such lifting-bar. An actuating-lever, F, bifurcated, as shown, is fulcrumed to the standard to extend the arms *m* to opposite sides of the lifting-bar, and the arms *m* are connected by links *m'* to trunnions *l*, extending from opposite sides of the collar *o*.

Downward pressure upon the handle of the actuating-lever F raises the collar *o*, thereby causing the pivotal clutch-block *p* to press against the adjacent surface of the lifting-bar and force it at its opposite side against the adjacent surface of the collar *o*, and thus effect the rise of the lifting-bar, which, if sustained in its raised position, will permit lowering upon it of the collar *o* and block *p* for a fresh grip by raising the handle of the lever F, since the resultant downward pressure upon the collar *o* will turn backward the block *p* and permit it to slide on the bar C. It will thus be seen that while the clutch D cannot be raised without raising with it the lifting-bar, if the latter be sustained in its raised position, the clutch may be lowered upon it for a fresh grip, and by continuous pumping of the actuating-lever the lifting-bar may be raised by intermitting movements to the full extent of its rising capacity.

To retain the bar C in the position to which it is raised by each lifting action of the clutch D, I employ a clutch, E, preferably, though not necessarily, below the clutch, D, as shown, and the exact counterpart of the latter, (except that it has no trunnions, being stationary, and resting on the bearing *q*,) comprising a collar, *o'*, like the collar *o*, except that the former may be integral with the standard, and a block, *p'*, pivoted in the collar, like the block *p* in form and manner of operation. The rise of the bar C in the manner described is not interfered with by the clutch E, since the frictional contact of the bar with the block *p'* swings it backward on its pivotal support, thereby overcoming



ing its clamping effect, while the weight of the bar, when not sustained by the power applied to the actuating-lever F, owing to its frictional contact with the block  $p'$  swings the latter toward it, thereby producing the clamping effect to sustain it, which is increased in proportion to the load imposed upon the bar C to be lifted.

To produce lowering of the lifting-bar from a raised position, I provide a stop in the form of a bar,  $k$ , supported at its ends in the standard transversely to the block  $p$ , and having a lug,  $k'$ , extending upward directly underneath the block near its extremity adjacent to the bar to a point away from it lower than that to which the clutch D is lowered to operate it for each fresh grip, as aforesaid; and I also provide the block  $p'$  of the retaining-clutch with a handle or lever,  $i$ , which extends from its rear or pivotal end through the standard portion of the device.

While the lifting-bar is being raised—when the clamping effect of the clutch E is overcome—the block  $p'$  is swung back from contact with the lifting-bar by pressure (with the foot or hand) upon the lever  $i$ , and by releasing the lever F the weight or load will carry the clutch D, with the lifting-bar, down and bring the block  $p$  into contact with the stop  $k k'$ , which releases the part  $p$ , overcoming its clamping effect, and permits the lifting-bar to fall.

If desired, the clutch device may contain two blocks—one on each of two opposite sides of the lifting-bar—as shown in Fig. 6, when of course a stop,  $k k'$ , may be provided for each; and if two clutch-blocks are employed in the retaining-clutch the lever  $i$  could be bifurcated, like the actuating-lever F, and have its arms extend below the blocks transversely to the same, when a sectional view showing this construction would be the same as that illustrated in Fig. 6. This last-named figure shows the heel ends of the pivoted clutch-blocks as movable within sockets or recesses in the ends of the collar. This construction is desirable, since it relieves the pivots supporting the blocks of strain.

If desired, the faces of the clutch-blocks may be corrugated, as shown in Fig. 7.

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

1. The combination of a bar, C, to be clutched, a collar,  $o$ , surrounding the bar, a block,  $p$ , pivotally supported to extend with its free end normally against and clamp the bar,

and an actuating-lever, F, connected with the collar, substantially as described.

2. In a lifting-jack, the combination, with the standard, of a lifting-bar, C, a lifting-clutch, D, on the bar, comprising a collar,  $o$ , and a block,  $p$ , pivotally supported thereon, and an actuating-lever, F, connected with the collar  $o$ , substantially as described.

3. In a lifting-jack, the combination, with the standard, of a lifting-bar, C, a lifting-clutch, D, on the bar, comprising a collar,  $o$ , and a block,  $p$ , pivotally supported thereon, an actuating-lever, F, connected with the collar  $o$ , and a retaining-clutch for the bar, substantially as described.

4. In a lifting-jack, the combination, with the standard, of a lifting-bar, C, a lifting-clutch, D, on the bar, comprising a collar,  $o$ , and a block,  $p$ , pivotally supported thereon, an actuating-lever, F, connected with the collar  $o$ , stop mechanism, substantially as described, to release the clutch D at will, a retaining-clutch for the bar, and means, substantially as described, for releasing the retaining-clutch at will, substantially as set forth.

5. In a lifting-jack, the combination, with the standard, of a lifting-bar, C, a lifting-clutch, D, on the bar, comprising a collar,  $o$ , and a block,  $p$ , connected with the collar  $o$ , a stop to release the clutch D at will, a retaining-clutch, E, on the bar, comprising a collar,  $o'$ , and a block,  $p'$ , pivotally supported thereon, and means, substantially as described, for releasing the clutch E at will, substantially as described.

6. In a lifting-jack, the combination, with the standard, of a lifting-bar, C, a lifting-clutch, D, on the bar, comprising a recessed collar,  $o$ , and a block,  $p$ , pivotally supported thereon to bear at its pivotal end against the recess in the collar and curved vertically at its free end, an actuating-lever, F, connected with the collar  $o$ , a stop,  $k k'$ , to release the clutch D at will, and a retaining-clutch, E, on the bar, comprising a recessed collar,  $o'$ , and a block,  $p'$ , pivotally supported thereon to bear at its pivotal end against the recess in the collar, and provided with a releasing-lever,  $i$ , and curved vertically at its free end, substantially as described.

AXEL A. STROM.

In presence of—

J. W. DYRENFORTH,  
FRANK L. DOUGLAS.