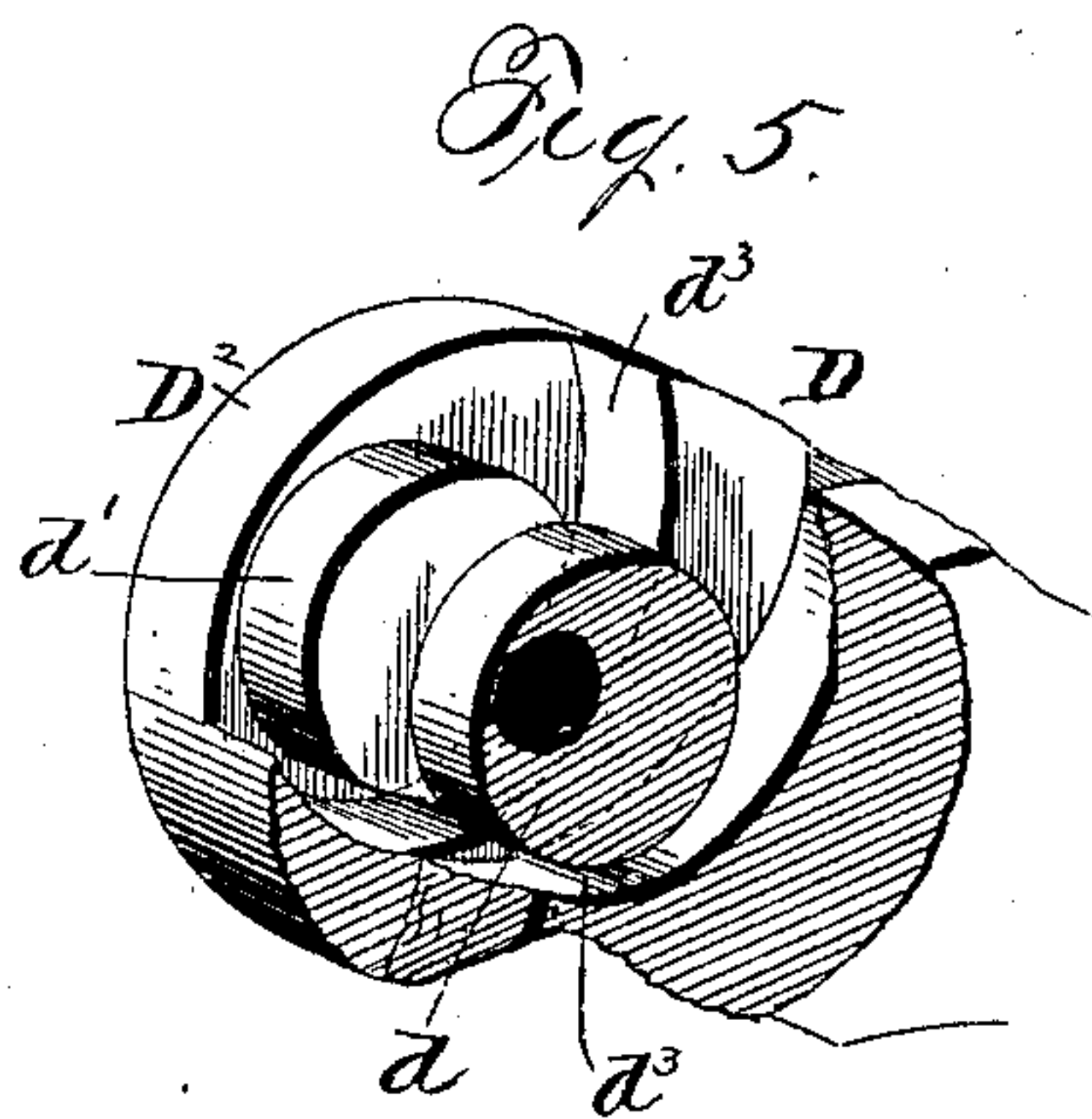
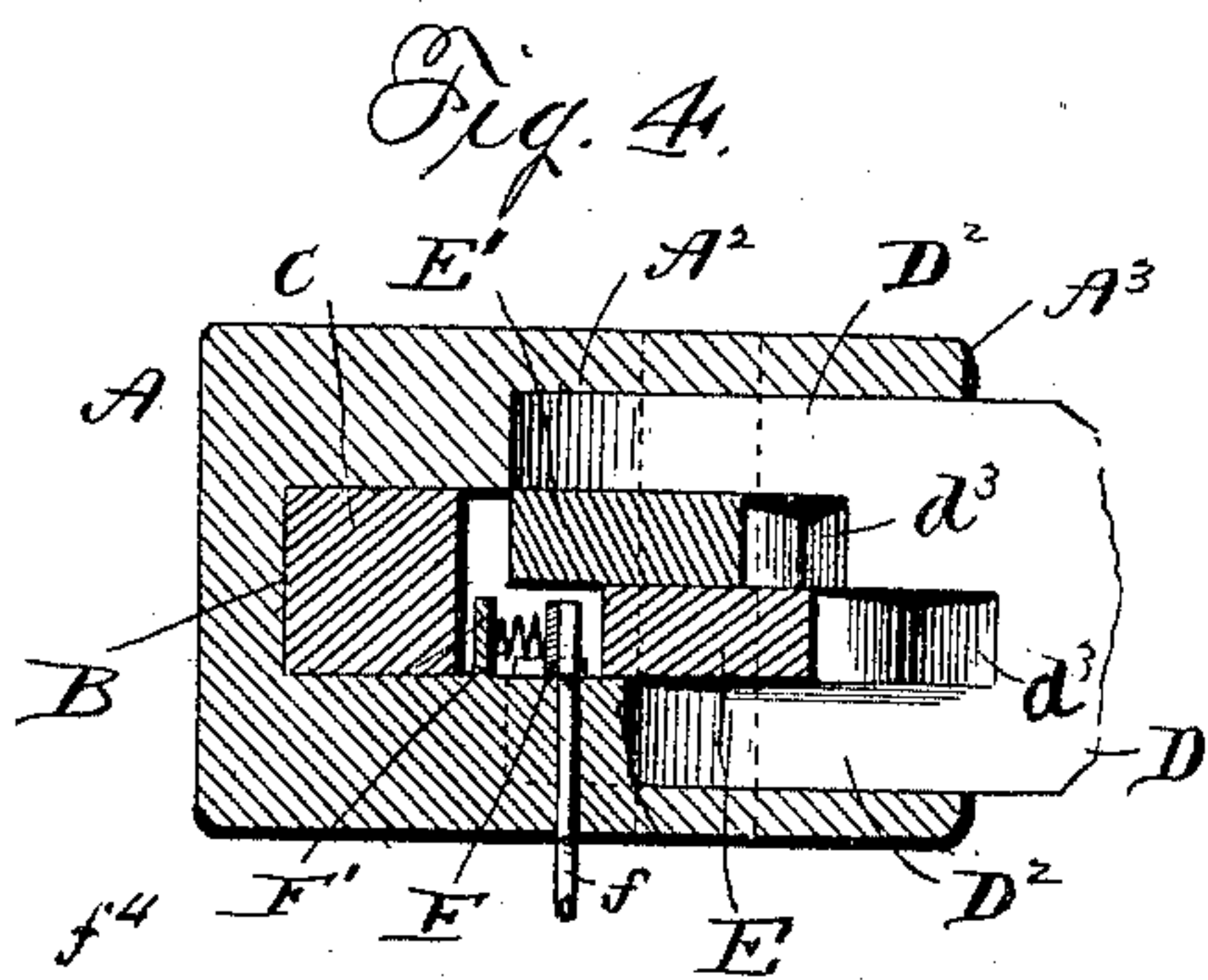
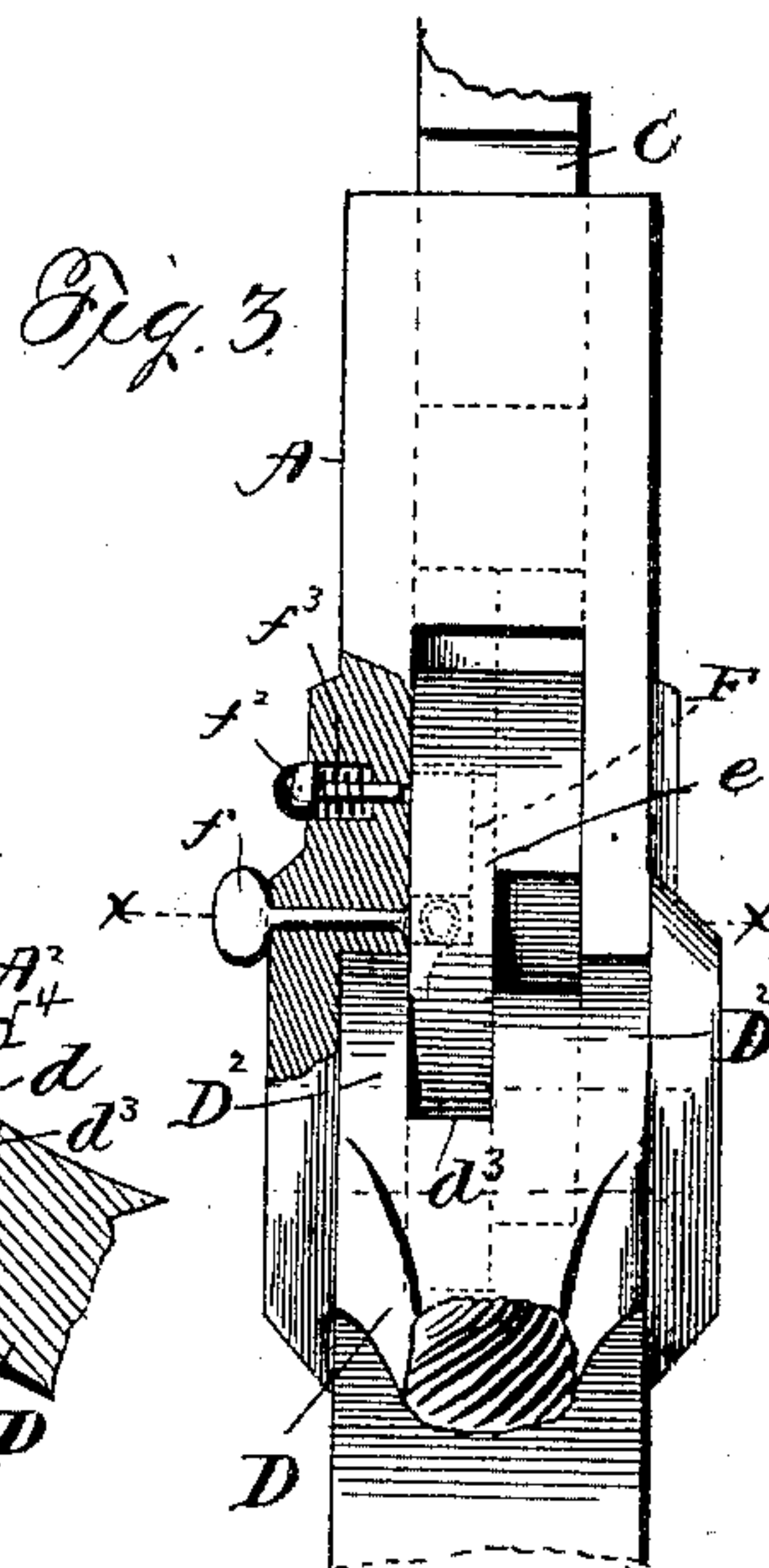
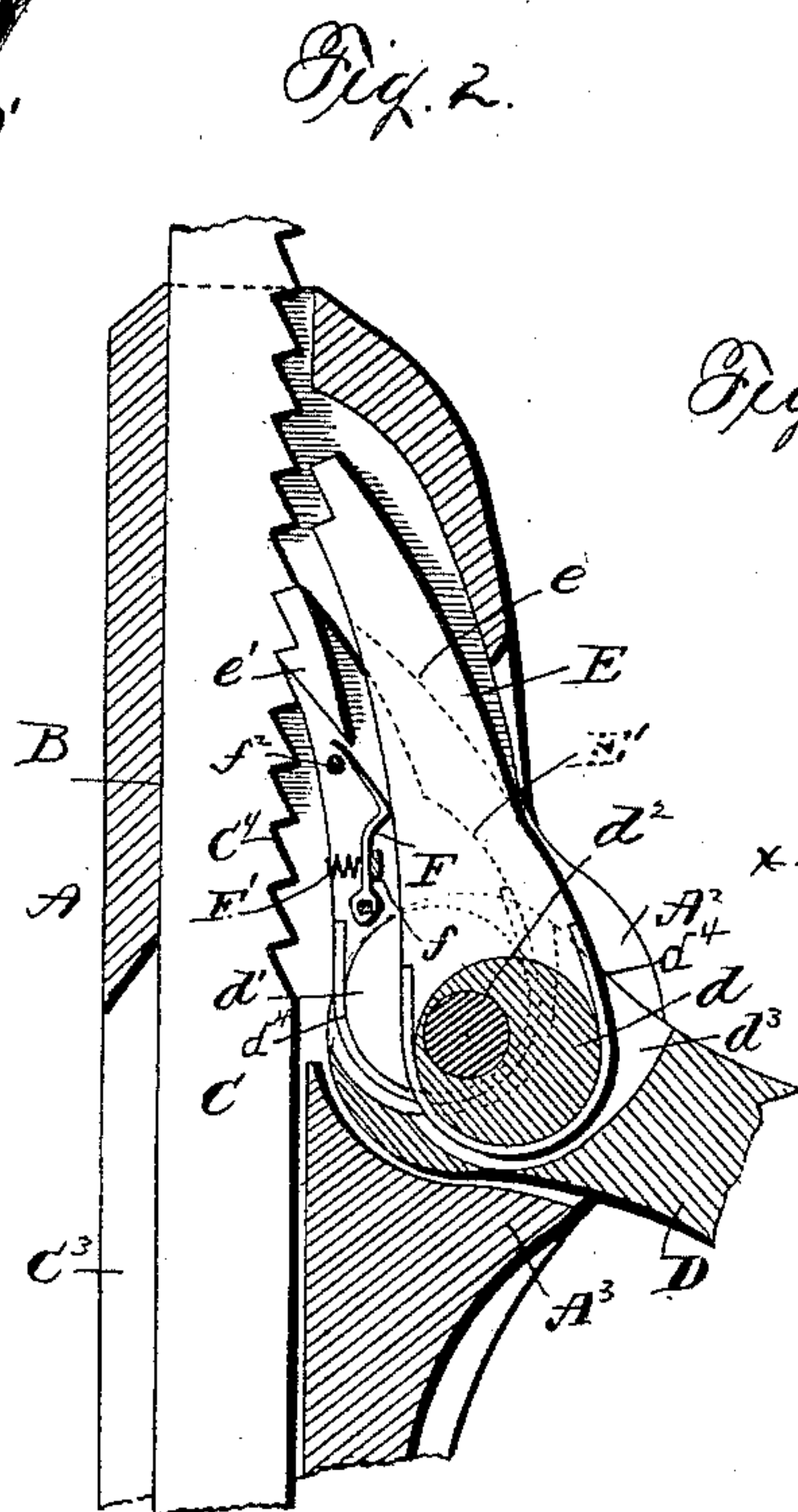
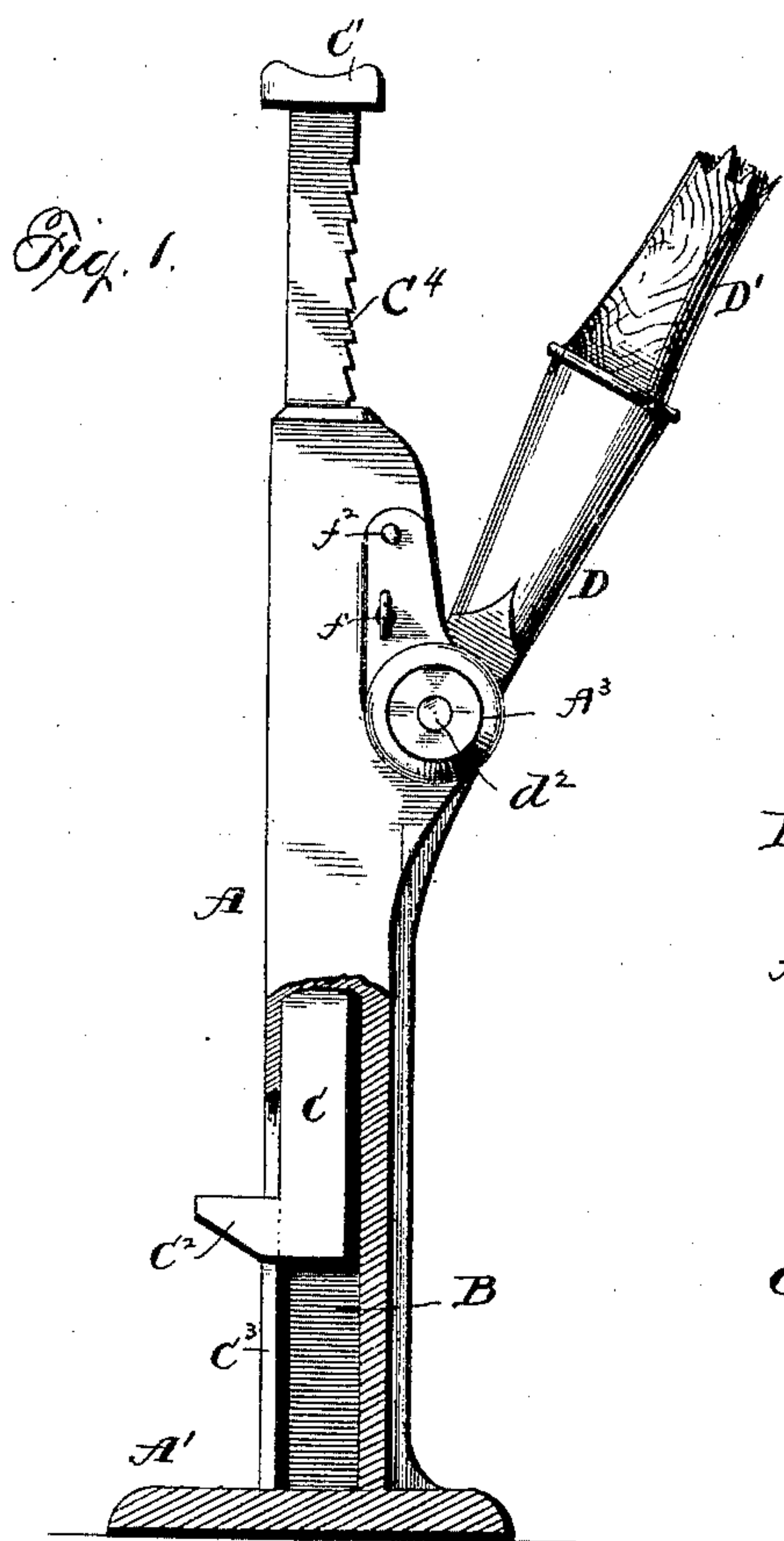


(No Model.)

J. W. ALFRED.
LIFTING JACK.

No. 461,880.

Patented Oct. 27, 1891.



Witnesses
Chas. J. Williams or.
E. E. Hart

Indventor
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UNITED STATES PATENT OFFICE.

JAMES W. ALFRED, OF PITTSBURG, PENNSYLVANIA.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 461,880, dated October 27, 1891.

Application filed December 4, 1890. Serial No. 373,560. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. ALFRED, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Lifting-Jacks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in lifting-jacks.

The invention consists in the peculiar construction and in the novel combination, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, like letters of reference indicating like parts throughout the several views, and in which drawings—

Figure 1 is a side view of a lifting-jack constructed in accordance with my invention. Fig. 2 is a side view of the operating mechanism, the same being shown upon an enlarged scale. Fig. 3 is a front sectional view of the same, and Fig. 4 is a horizontal section upon the line $x x$ of Fig. 3. Fig. 5 is an enlarged detail in perspective of the operating-cams.

Reference now being had to the details of the drawings by letter, A represents the standard, which is made of cast-iron and is provided with a suitable base portion A', said base portion being cast integral with the standard and may be of any convenient or desired size or form. The standard A is provided with a central longitudinal opening B, extending throughout the entire length of the standard, said central opening being preferably rectangular in cross-section, and within this opening is placed the lifting-bar C, which is provided at its upper end with a bearing-block C', and at its lower end a horizontal lug or extension C² is provided, which lug is adapted to project through a vertical slot C³, pro-

vided for the purpose in the rear face of the standard, said slot extending from the extreme lower end of the standard upward to a point slightly below the point at which the operating hand-lever is pivoted on the opposite side of the jack.

The vertical face of the lifting-bar C upon the side opposite to that provided with the lug C² is provided with a series of notches, with which the hereinafter-described mechanism for moving and regulating the movements of the said lifting-bar engage in operating the device.

D is a casting which forms the inner end of the operating-lever. This casting is provided at one of its ends with a socket to receive the handle-bar D', and at its opposite end is composed of two longitudinally-projecting arms D², which have between them two eccentrics d and d' , the whole being of such width as will adapt it to be fitted in a vertical recess A², provided in the front face of the extension A³ in the upper portion of the standard.

The casting D, carrying at its inner end the arms D² and eccentrics d and d' , is pivotally connected with the standard A by means of a pivot d^2 , passed through the enlarged portion A³ of the standard, and the arms D² and eccentrics d and d' at the points at which said eccentrics unite with the arms D². In an offset in the standard B and in the lever D are formed the seats or recesses d^3 to receive the eccentrics d and d' .

E and E' are the dogs or latches carried by the eccentrics. One of said latches or dogs is adapted to normally rest within the notches in the face of the rack-bar C⁴. In this connection I wish to call particular attention to the forms of the latches E and E' and their connection with the eccentrics and to the points at which said eccentrics are pivoted with reference to the bodies of the latches, as in the peculiar construction and arrangement of these parts resides the essential feature of the present invention.

It will be observed upon reference to the drawings that the bodies of the latches E and E' are heavy, and that when in their places they are slightly inclined from a vertical position. This inclination, although slight, should be sufficient to at all times insure

their being kept in place by gravity. The latches have attached to their bifurcated portions straps of metal d^4 , which pass around the eccentrics d and d' and which serve to prevent the latches from becoming detached therefrom. These eccentrics are so arranged with reference to each other on the pivot that the greatest possible amount of power is obtained as the lifting force is applied in a direct line from the pivotal center to the point at which the power is imparted to the rack-bar. It will also be seen that when one of the latches is passing upward the other is going down, owing to their position on opposite eccentrics.

The latches E and E' are adapted by reason of the step-like form of their free ends to alternately engage each with two teeth of the rack-bar, thus giving greater security against breakage and distributing the strain more evenly. The latch or dog E is provided with a laterally-projecting shoulder e , which overlaps the shorter latch or dog E' and provides a wider bearing-surface to engage with the rack-bar C^4 , while latch E', which is shorter than latch E, and consequently engages the rack-bar C^4 at a point lower down than that at which the latter engages it, also has a laterally-projecting shoulder e' .

The plate F is pivoted in a projection from the side of the standard A and works against the lower surface of the latch E and the shoulder e' of the latch E' and is pressed against the said sides by a coiled spring F' , which is attached to a projection f^4 . (See Fig. 4.) A thumb-latch f projects on the outside of the standard, the shaft of which latch passes through the standard and between the plate F and the dog or latch E out of normal contact with the latches E and E'; but when the thumb-latch f is turned so that its greatest diameter will be perpendicular to the spring F the latches will fall of their own weight on the rack-bar, and when the lever is moved either up or down one of the latches in its ascent will catch in the teeth of the rack-bar and raise it.

Near the upper end of the plate F is a pin f^2 , which passes through the side of the standard and is adapted to either project inside of the standard and engage the front side of the plate F or to be drawn back out of engagement with the same. A coiled spring f^3 , through which the pin passes, presses it normally outward and holds it out, so that to use the pin the operator has simply to press it in, when it will engage with the plate F and, holding the latter back, also hold back the latches E and E', which by their disengagement with the rack-bar will allow the same to drop to the ground.

It will be readily seen how by the turning of the thumb-latch to either a horizontal or vertical position and the alternate movement of the two latches up or down the rack-bar is either raised or lowered.

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

1. The combination, with the standard, movable racked lifting-bar, and a plurality of eccentrically-pivoted latches on the same pivot and adapted to engage the toothed side of the rack-bar, one above the other, and mechanism for operating the latches, of a spring adapted to hold the latches out of engagement with the lifting-bar during their upward movement, substantially as and for the purpose specified.

2. In a lifting-jack, the combination of the standard, the movable racked lifting-bar, and two actuating-latches on a common pivot, the spring-plate and the pin engaging the same and adapted to simultaneously hold all of the latches out of engagement with the rack of the lifting-bar during the downward movement of said bar, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES W. ALFRED.

Witnesses:

W. J. W. COVDEN,
GUY R. C. ALLEN.