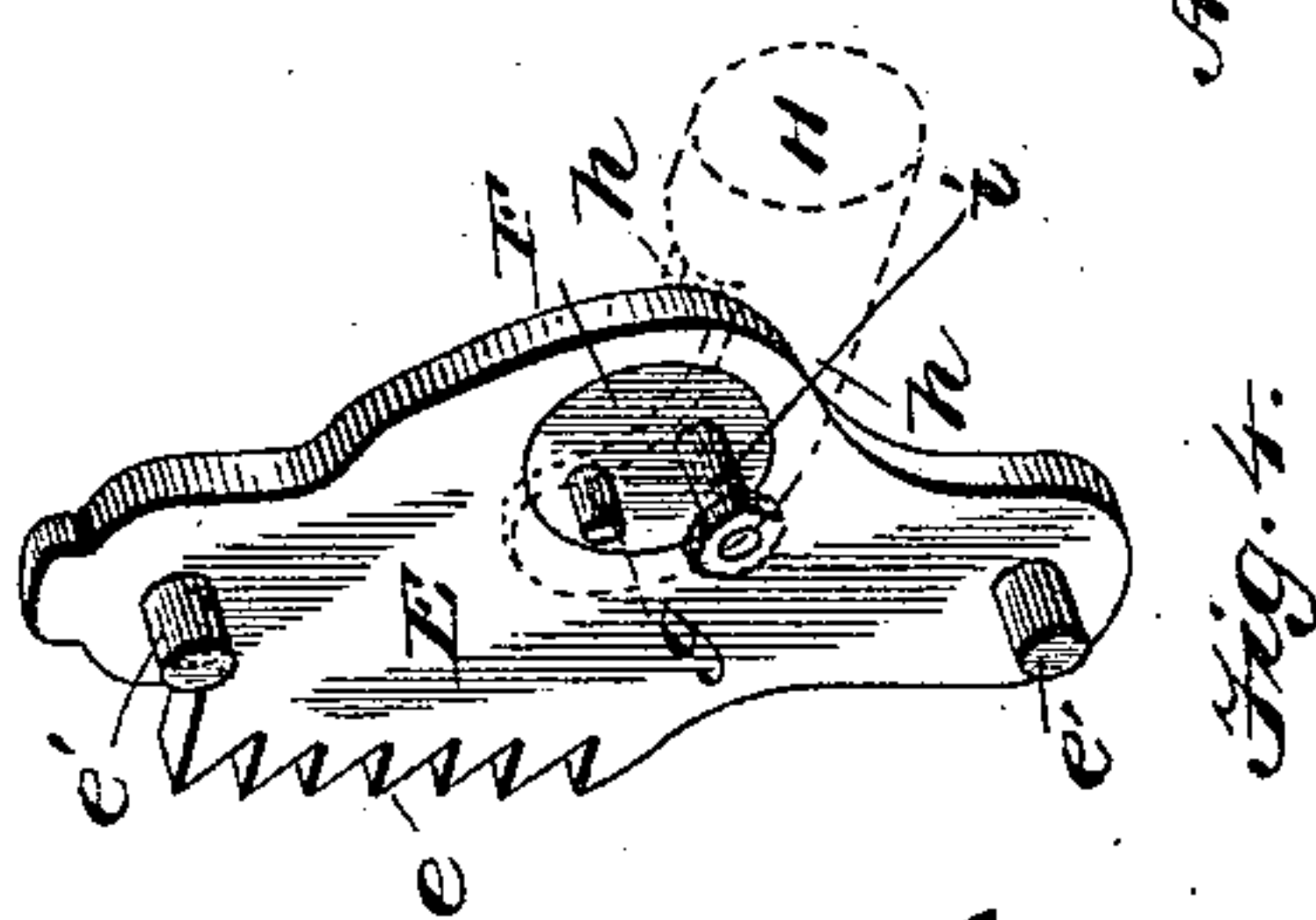
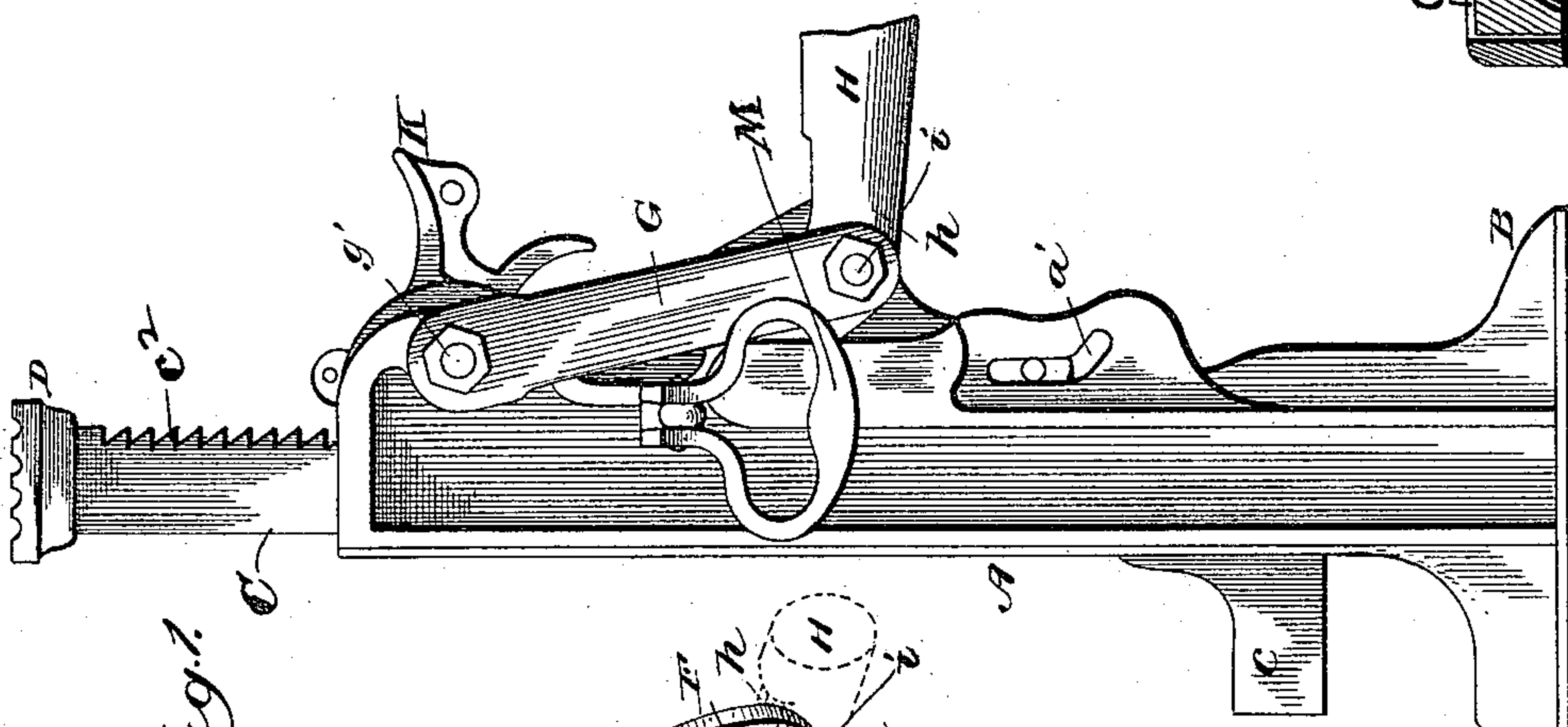
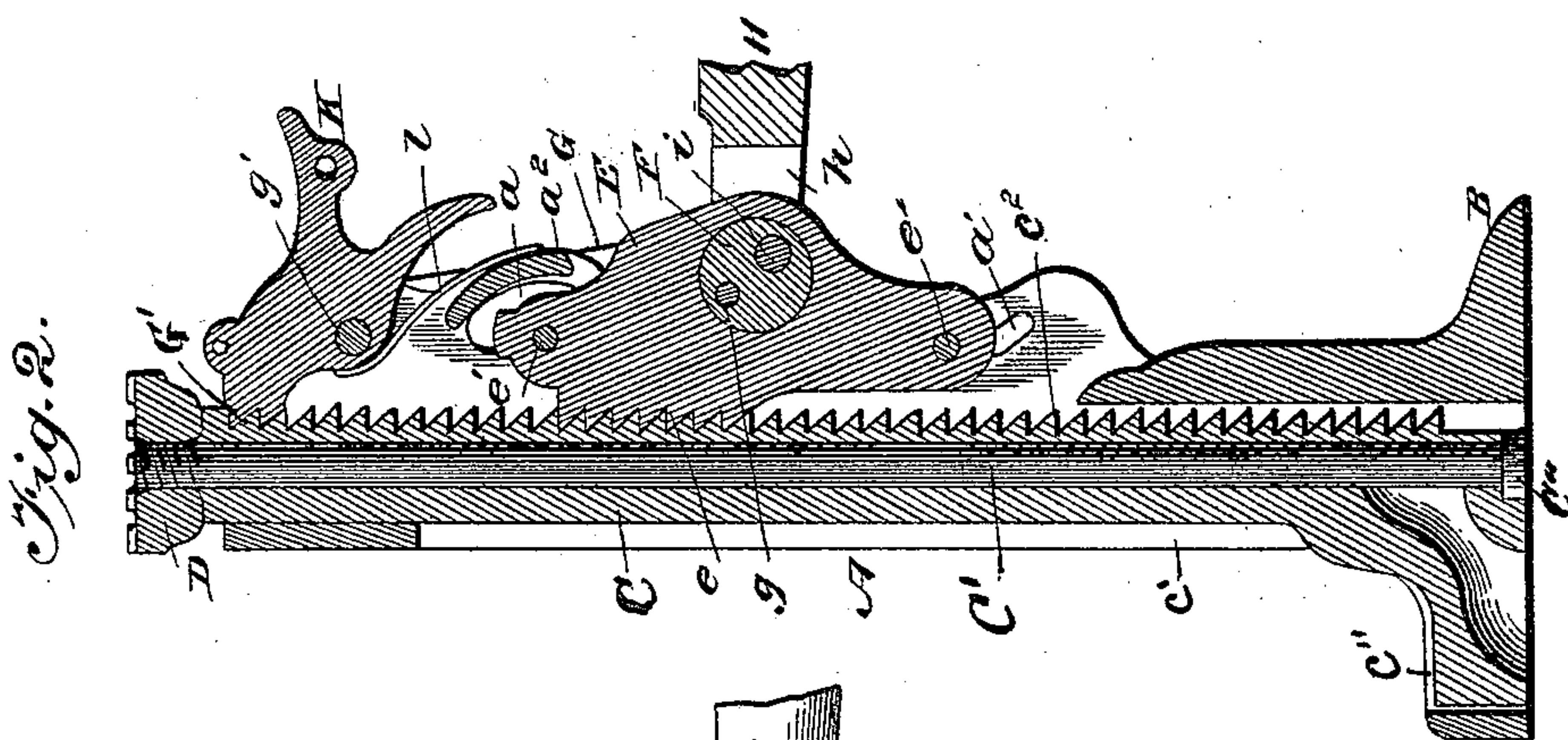
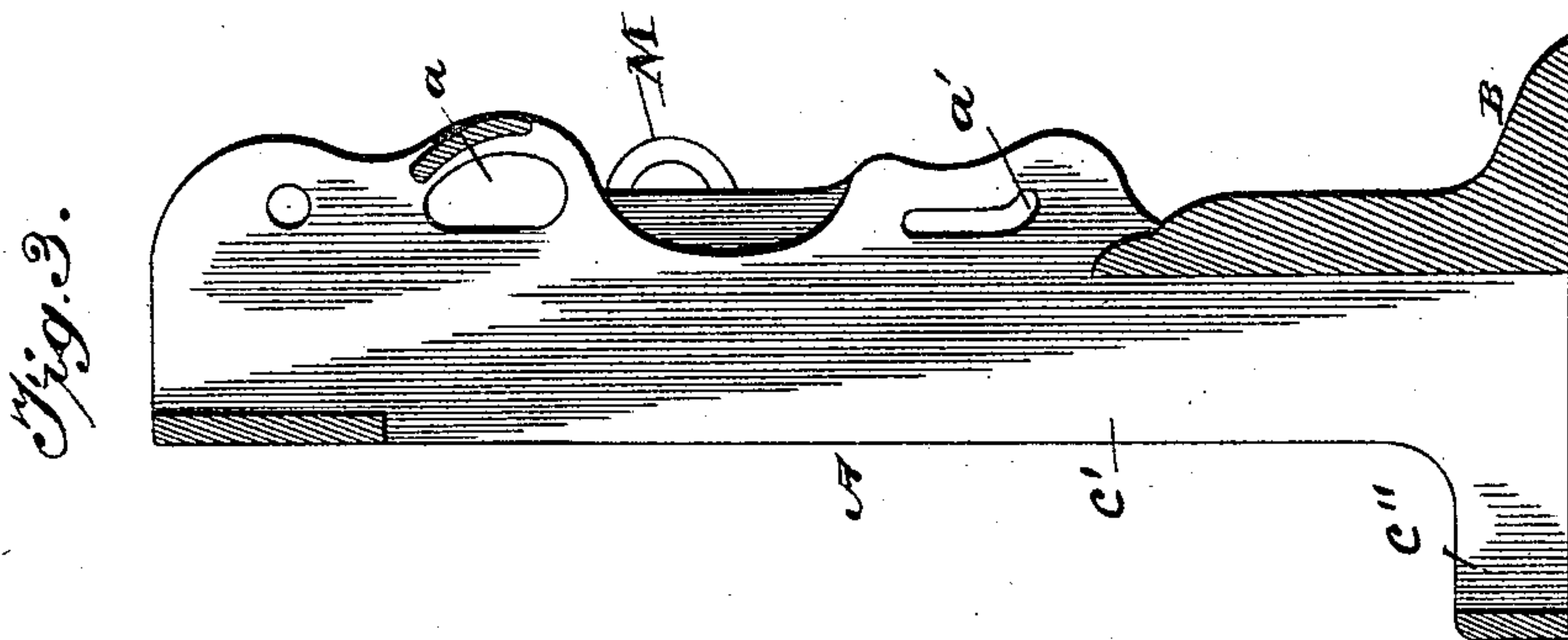


(No Model.)

T. MAXON.  
LIFTING JACK.

No. 451,288.

Patented Apr. 28, 1891.



Witnesses

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# UNITED STATES PATENT OFFICE.

THOMAS MAXON, OF DAYTON, OHIO.

## LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 451,288, dated April 28, 1891.

Application filed February 5, 1891. Serial No. 380,293. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS MAXON, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to lifting-jacks, and has for its object the provision of a strong durable jack, of few yet efficient parts, not likely to get out of order, and in all respects perfectly adapted for the uses to which mechanism of this class is applied. To this end my invention consists in the jack and the parts thereof, as hereinafter described and claimed.

In the drawings, Figure 1 shows a view of my jack in side elevation; Fig. 2, a vertical central section; Fig. 3, a view similar to Fig. 2, to illustrate the structure of the standard, for which purpose the movable parts are omitted; and Fig. 4 a detail perspective view of the lifting-dog and a portion of the operating-lever in dotted lines to show the mode of connecting these parts.

Referring to the drawings by letters, A designates a suitably-shaped standard cast in one piece, preferably, and provided with a base B of appropriate design. Within an opening that extends from top to bottom of the standard is a lifting-bar C, capable of vertical movement therein, and having at its lower end on the front side a lifting-foot c, which latter moves in a suitable slot c' in the standard, and when the bar is at its lowest position is seated or contained within a recess c'', provided for its reception in the base B. This lifting-bar is made hollow from end to end, and contains a reinforcing or strengthening rod or bar C', extending its entire length. Said rod may be secured therein by any suitable means, as by providing at its lower end a head C'' and screw-threading its upper end and placing thereon a nut D. The face of the latter is serrated, and it constitutes a lifting or supporting surface at the upper end of the lifting-bar. While I prefer this construction of lifting-bar, which is similar to that shown in Letters Patent of the United States No. 395,161, granted to me December

25, 1888, I of course do not intend to be limited to the use of a bar so constructed.

The rear face of the lifting-bar is provided with or formed into teeth c<sup>2</sup>, preferably as shown, ratchet in shape, which extend substantially from top to bottom, with which similarly-shaped but reversely-arranged teeth e on the front face or edge of a lifting-dog E are adapted to engage and through the medium of which when said dog is properly operated said lifting-bar may be raised, as is usual in devices of this description.

The dog E is located at a point about midway between the top and base of the standard A, being situated in a recess or space between the sides of the latter. At or near its vertical center it has a transversely-extending circular opening, in which is seated an eccentric F, adapted to be moved or oscillated upon a pivot pin or bolt i, whose outer ends are journaled in openings in the lower ends of swinging links G, depending at a slight angle of inclination from a vertical line from a transverse pivot pin or bolt g', placed near the top of the standard A. Likewise journaled on the bolt i, in a space left between each side of the dog E and the links G, are the arms h h of the operating-lever H, whose end is forked or bifurcated to form said arms. The latter are connected with the eccentric by means of a pin g, which is passed transversely through all three; and it is to be noted at such a point that when the operating-lever is in a horizontal plane said pin will be in a plane above the latter, preferably such a one that a line drawn through said pin and the pivot-pin i will stand at an angle of forty-five degrees. This construction, as will be readily understood, enables the power or force exerted on the lever H to be applied most nearly in the direction of the load to be lifted, as well as insures that the dog will be forced and held in engagement with the lifting-bar. Preferably the teeth of the dog are located above the plane of the eccentric, so that there is a pushing action against the lifting-bar, rather than a lifting, as would be the case were such teeth in a lower plane. It is also to be observed that the shape and relative situation of the arms h h are such as to completely cover the sides



of the eccentric, which, in consequence of its position in the lifting-dog, is thus completely housed.

Passing through the upper end of the lifting-dog is a pin or bolt  $e'$ , whose ends project beyond the sides of the same and into slots  $a$ , formed in each side of the standard  $A$ , which slots, both in their vertical and horizontal dimensions, are greater than the diameter of said pin. A similar pin  $e'$  passes through the lower end of the dog and into slots  $a' a'$ , in each side of the standard; but these latter, unlike the former, have a width just equal to the diameter of the pin, although vertically being greater, and at their lower portions are deflected at an angle in a direction rearward away from the lifting-bar. These two sets of pins and slots form guides for the lifting-dog  $E$  in its vertical movements. The lower pair, excepting as to their inclined portions, are parallel with the lifting-bar and one side of the upper pair, that adjacent to the bar, is also parallel, so that when said dog is to be moved upward it will be compelled to move in a line parallel with the line of movement of the lifting-bar. When the dog is to be moved downward, so as to get a new purchase to raise the bar higher, the superior width of the upper recesses or slots will enable the upper pin and dog to move sufficiently to permit the disengagement of the teeth of the dog from those of the lifting-bar, said dog vibrating on the lower pin; or, if lowered enough to pass the latter into the deflected portion of the guiding-slot, such will operate to move said dog bodily away from the lifting-bar.

It is of course not necessary that the guide-pins should be provided as above described, for, instead, they may be simply studs projecting from the sides of the dog.

To hold the lifting-bar to the position to which it may be raised, I preferably pivot upon the same bolt from which the links  $G$  depend, where said bolt passes between the sides of the standard, a pawl  $K$ , having teeth  $G'$  to engage with the teeth of said bar. This pawl is automatically caused to engage with such teeth by means of a flat spring  $l$ , which at one end bears against the under side of the pawl, and at its other upon an adjacent piece  $a^2$ , extending between the inner sides of the standard sides. Such pawl may be the same as that shown in my hereinbefore-referred-to patent, and may be operated and locked out of engagement with the lifting-bar teeth in a similar manner.

My device is simple in construction, yet powerful and certain in its action. Owing to the position of the cam relative to the operating-lever, the power applied is most advantageously employed, while in conjunction with the swinging links and the guiding devices the movements of the lifting-dog into

and out of engagement with the lifting-bar are positively and quickly effected.

For convenience in transporting my jack I provide on opposite sides pivoted handles  $M$   $M$ , by which it can be readily picked up and carried.

Preferably the lower portions of the upper guide-slots are the widest and the rear walls are inclined toward the top portions either on a curved or a straight line, so that the guide-pins will be engaged thereby and compel the lifting-dog to move toward the lifting-bar, should such engagement become necessary because of failure of the other parts to cause the dog to have such movement.

Having thus described my invention, what I claim is—

1. The combination of a standard, a toothed lifting-bar therein, a holding-dog pivoted on the standard and normally engaging the said lifting-bar, a lifting-dog working in a vertical slot in the side of the standard and provided with teeth engaging the lifting-bar, means for vertically guiding this dog, an eccentric journaled in an opening formed in this dog about midway between its ends, an operating-lever provided with a fork the arms of which embrace the dog and eccentric, a horizontal pivotal bolt  $i$ , passed through the eccentric and the arms of the fork and extended out laterally therefrom, swinging pivotal links connecting the ends of this bolt to a point on the standard, and means, such as a pin  $g$ , for locking the eccentric to the arms of the fork, substantially as described.

2. In combination with a standard having upper and lower guide-slots, the lifting-dog having pins at its upper and lower ends to engage said slots, the horizontal dimension of the upper slots being greater than the diameter of their pins, and the lower portions of the lower slots being deflected outwardly, an operating-lever connected to said lifting-dog, and a lifting-bar, substantially as and for the purpose shown.

3. In combination, a standard having upper and lower guide-slots, a lifting-bar having teeth, a lifting-dog also toothed, an eccentric journaled in said dog, an operating-lever secured to said eccentric, swinging links carrying the pivot for the latter and the operating-lever, and the pins at upper and lower parts of the dog engaging the before-mentioned slots, said pins and slots operating to guide said dog so as to permit a vertical and a horizontal movement, substantially as shown.

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

THOMAS MAXON.

Witnesses:

JOHN L. H. FRANK,  
CARL H. VON KLEIN.