

(No Model.)

N. MEYERS.
Mechanical Movement.

No. 237,991.

Patented Feb. 22, 1881.

Fig. 1.

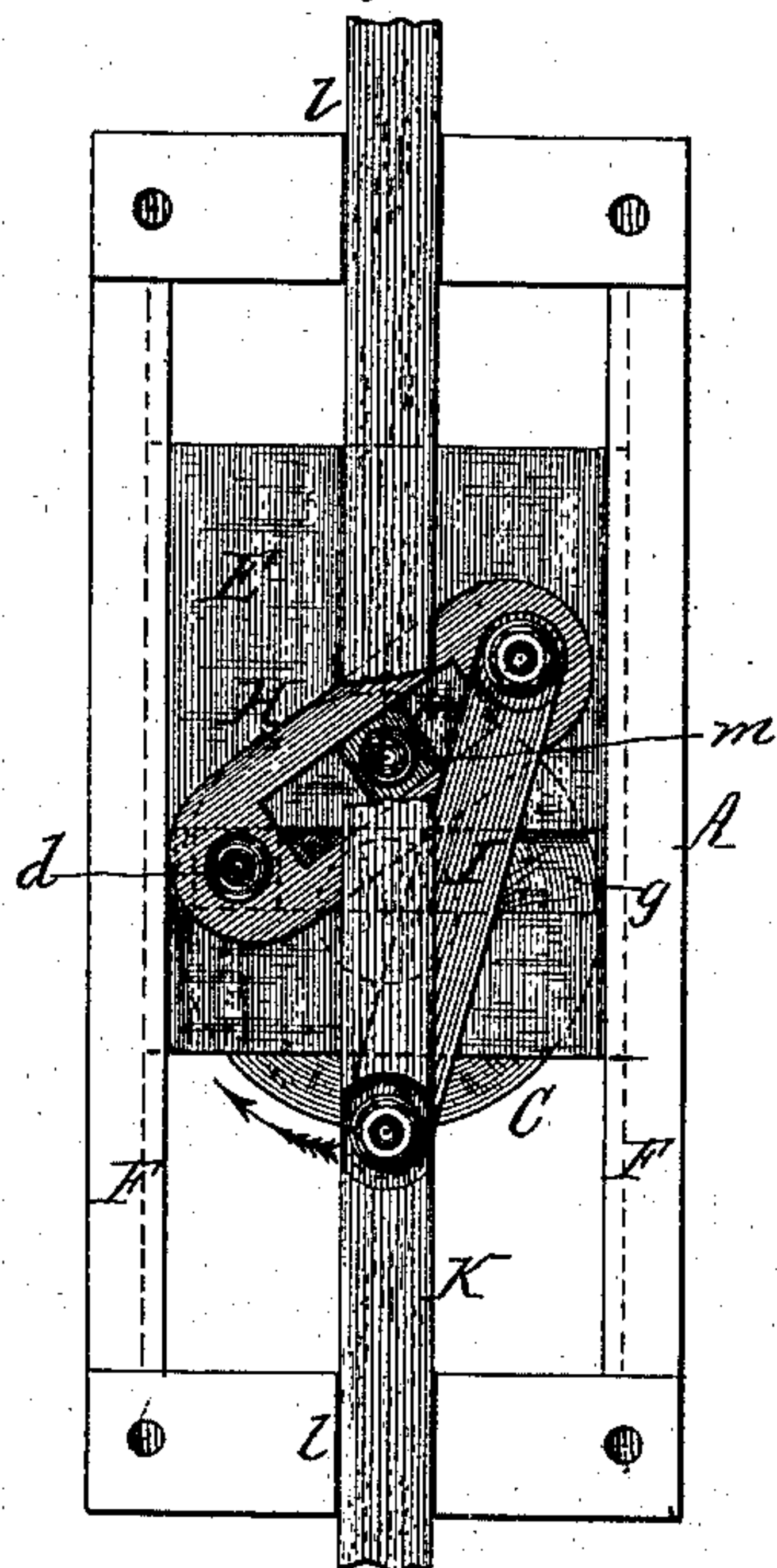


Fig. 2.

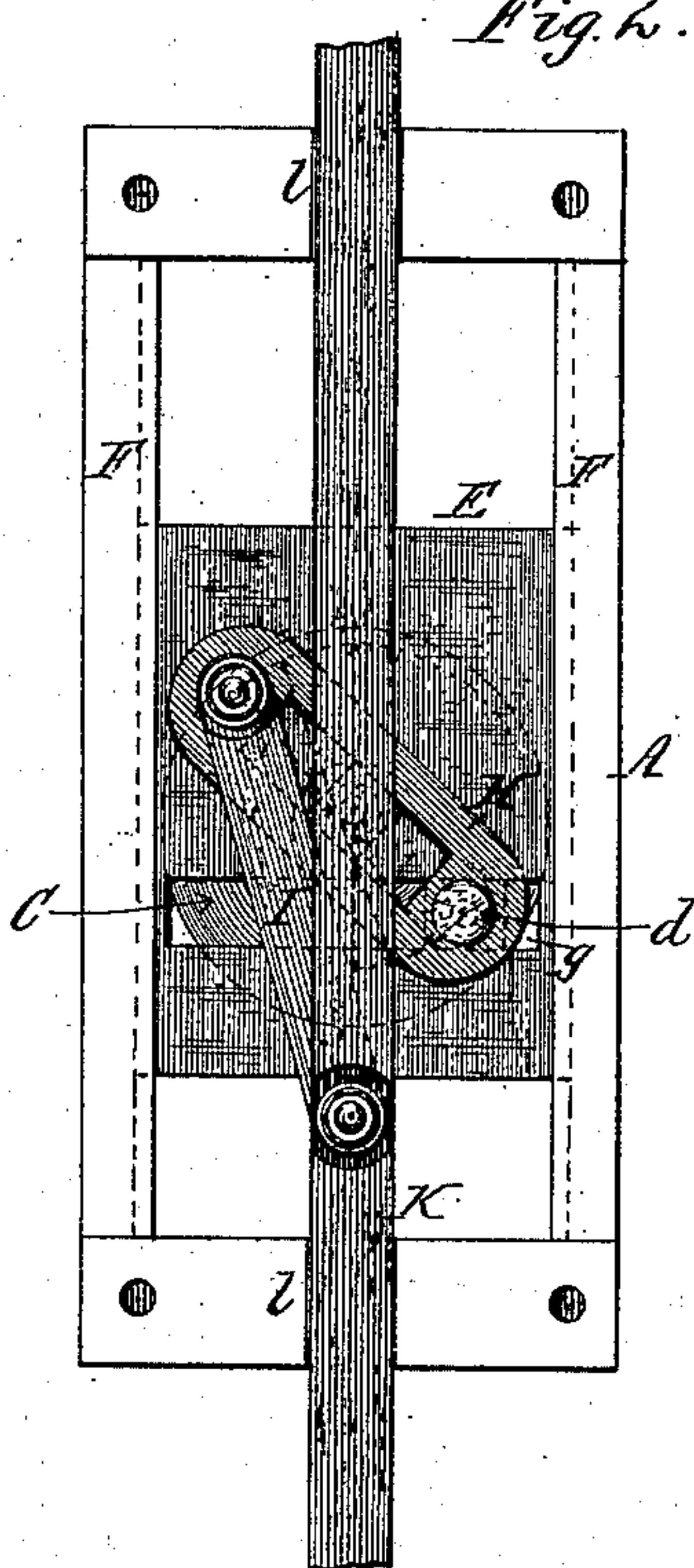


Fig. 3.

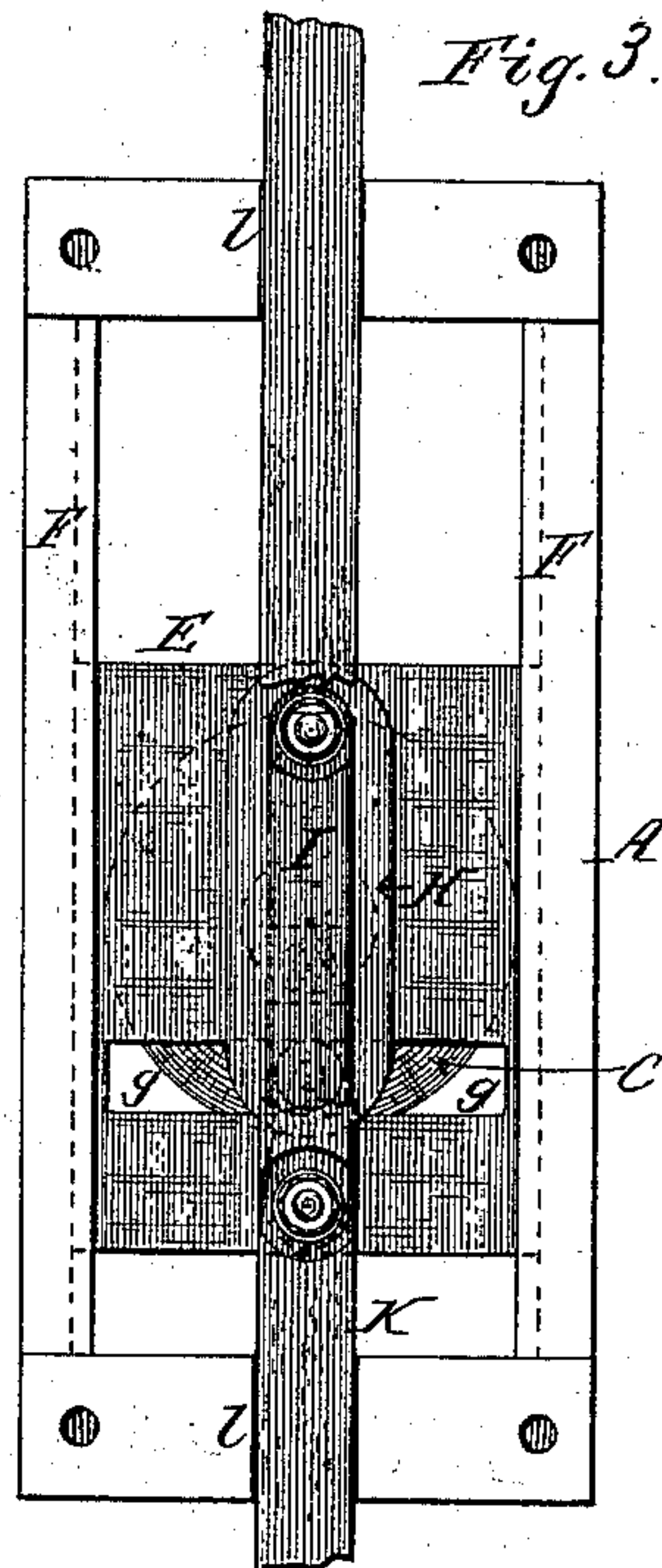


Fig. 4.

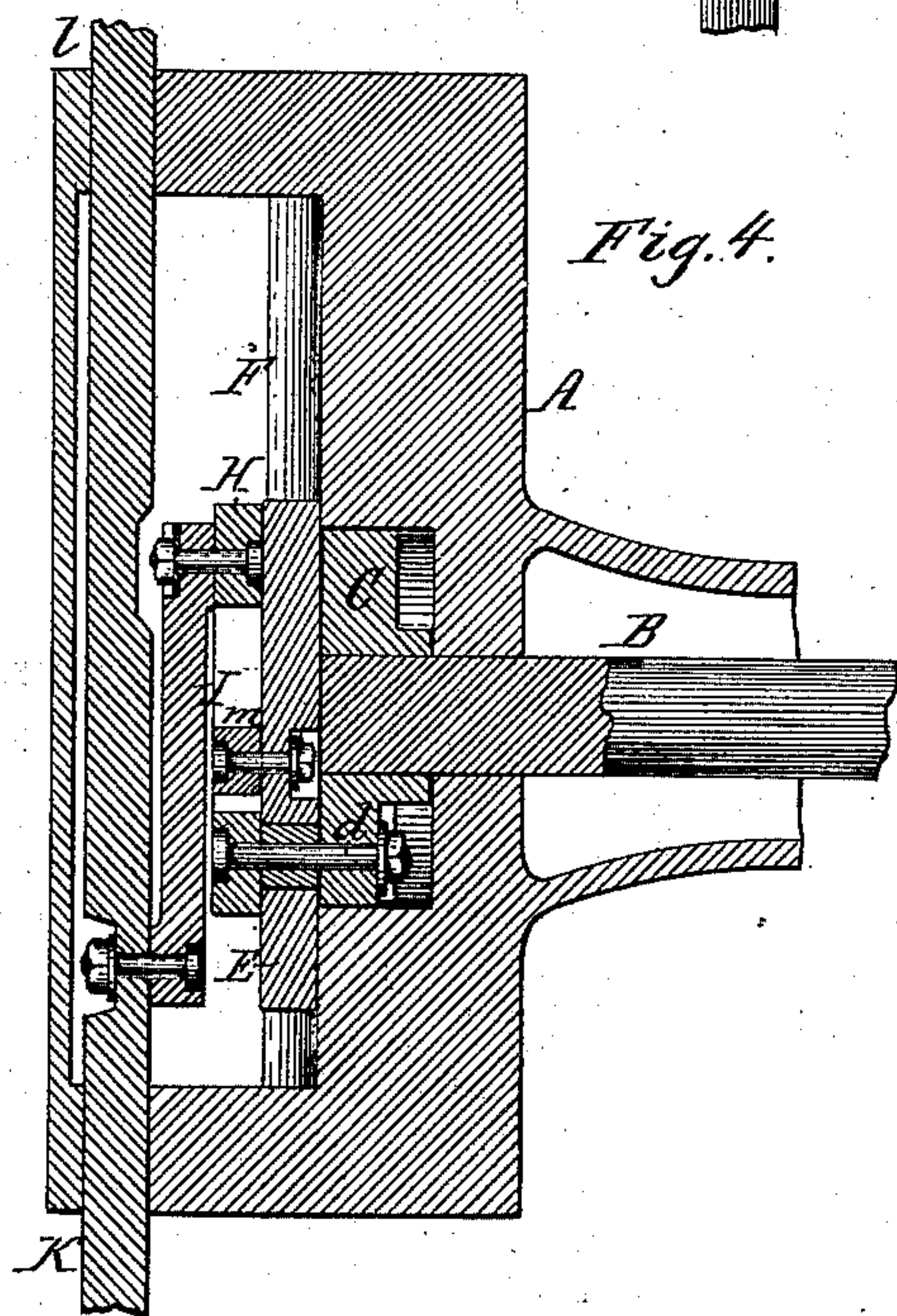
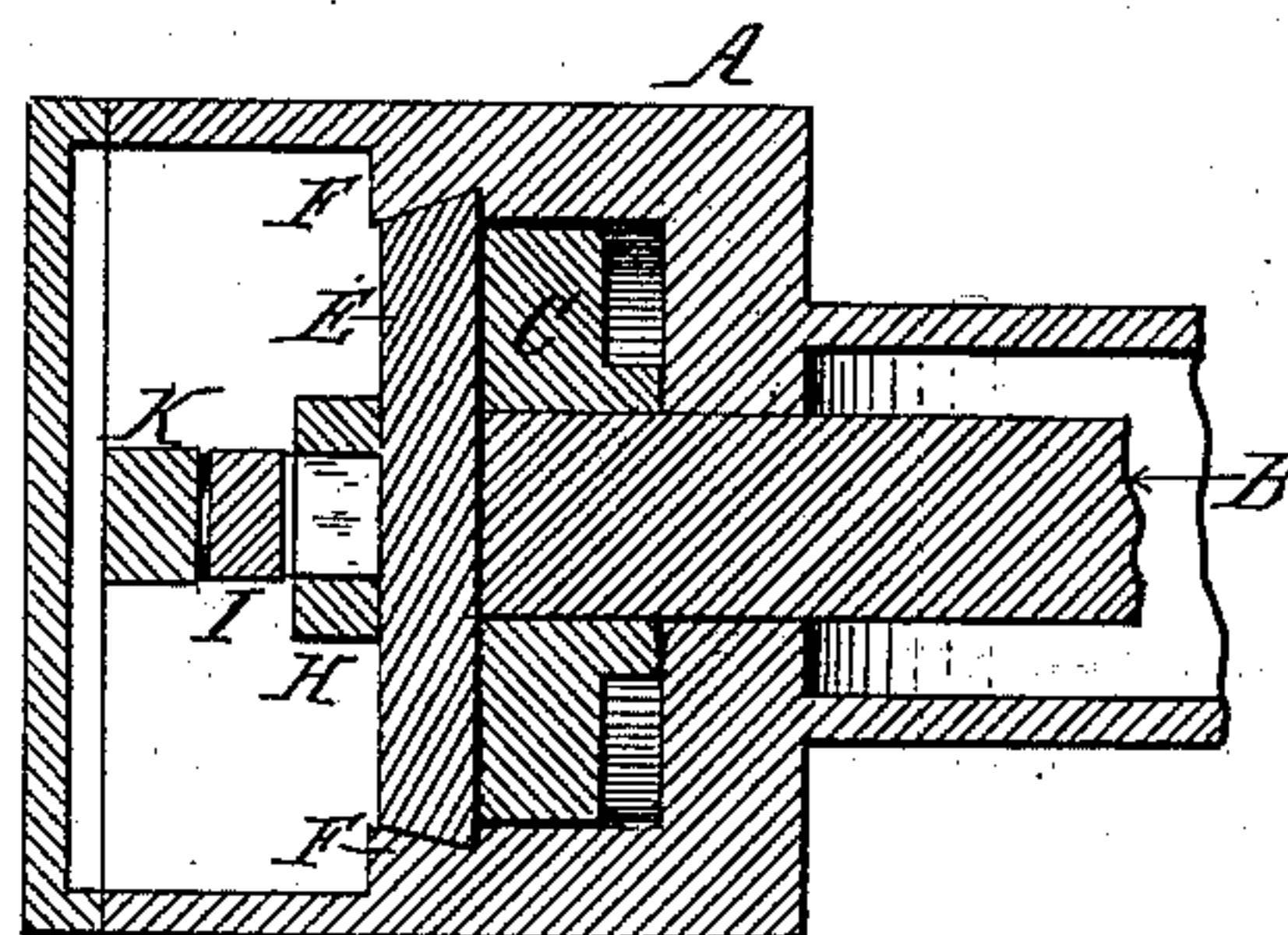


Fig. 5.



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UNITED STATES PATENT OFFICE.

NICHOLAS MEYERS, OF BUFFALO, NEW YORK, ASSIGNOR TO JOHN M. FAIR,
OF SAME PLACE.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 237,991, dated February 22, 1881.

Application filed August 19, 1880. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS MEYERS, of the city of Buffalo, in the county of Erie and State of New York, have invented a new and
5 useful Improvement in Mechanical Movements, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to the construction of a novel mechanism, whereby a double dip mo-
10 tion is imparted to a reciprocating bar or rod.

The object of this invention is to produce a mechanism of simple construction, whereby the desired motion is imparted to the bar smoothly and noiselessly, and without sudden or abrupt
15 changes of motion.

My invention consists of the peculiar combination and arrangement of parts of which my improved mechanism is composed, as will be hereinafter set forth.

20 In the accompanying drawings, which represent my improved mechanism applied to the needle-bar of a sewing-machine, Figure 1 is a front view of my improved mechanism, showing the needle-bar about midway in its
25 upward stroke. Fig. 2 is a similar view, showing the needle-bar at the end of its downward stroke. Fig. 3 is a similar view, showing the needle-bar at the highest point of its dip motion. Fig. 4 is a sectional elevation of
30 the mechanism in the same position at right angles to Fig. 3. Fig. 5 is a horizontal section through the center of the driving-shaft.

Like letters of reference refer to like parts in the several figures.

35 A represents the head of the arm in which the horizontal shaft and other moving parts are supported.

B represents the horizontal driving-shaft, provided at its front end with a crank-wheel, C, which is countersunk in the head A, and
40 carries a projecting crank-pin, *d*.

E is a block or plate arranged to slide up and down over the face of the crank-wheel C, between vertical ways or guide-bars F, which
45 are secured to the front side of the head A. The contiguous edges of the block E and guide-bars F are preferably inclined in the form of a dovetail, as shown.

g is a horizontal slot formed in the block E,
50 for connecting the same with the crank-pin *d*,

which latter projects through the slot *g*, and is preferably surrounded by a rectangular box, which slides in the slot *g*.

H represents a link or slotted bar arranged on the face of the block E and attached with
55 its lower end to the crank-pin *d*, while its upper end is connected, by a descending connecting-rod, I, with the needle-bar K. The latter is guided between vertical ways *l* on the face side of the head A, in the usual manner. The
60 link or slotted bar H swings on a fulcrum-pin, *m*, which is secured centrally to the sliding block E, and preferably provided with a rectangular box, on which the link slides, and
65 which turns on the pin *m*.

Assuming the parts to be in the position shown in Fig. 1, and upon rotating the shaft B in the direction of the arrow, the crank-pin *d* will raise the block E and the link H, which
70 latter turns at the same time on the pin *m*, with its upper end in a direction opposite to that in which the crank-pin moves, until the crank-pin arrives in the upper dead-center, when the center of the crank-pin and the center lines of the link and connecting-rod all lie in the plane
75 of the center line of the needle-bar. During the downward movement of the crank-pin the link, the block, and the connecting-rod descend, forcing the needle-bar down until the latter arrives in its lowest position, which is
80 represented in Fig. 2, and which occurs before the crank-pin reaches the lower dead-center. The crank-pin now moves from the right to the left through the slot *g* of the block E, and the upper end of the link H swings from the
85 left to the right in a curve which rises toward the center line of the head A and descends on the opposite side, as indicated by dotted lines in Fig. 2, whereby the needle-bar is first slightly raised and then lowered before the upward
90 stroke of the needle-bar begins. The distance to which the needle-bar is raised between the end of its downward stroke and the beginning of its upward stroke can be increased or lessened by decreasing or increasing the distance
95 at which the fulcrum-pin *m* is arranged from the crank-pin *d*, whereby the curve through which the upper end of the link H sweeps is correspondingly lengthened or reduced, and the size of the loop which is formed by the
100

needle is correspondingly increased or reduced. In this manner the double dip is imparted to the needle-bar by a mechanism of very simple construction, and which is reliable and noise-
5 less in its operation.

My improved mechanism may also be employed for actuating the plungers of brick-machines, or for operating steam or other valves, or for any other purpose in which the peculiar
10 motion which it produces may be desirable or useful.

I claim as my invention—

The combination, with the bar K and the rotating driving-shaft B, of a crank-wheel, C, and pin *d*, secured to the shaft, a block, E, 15 sliding in vertical ways F and provided with horizontal slot *g*, the link H, swinging on a fulcrum-pin, *m*, secured to the block E, and the rod I, connecting the upper end of the link with the bar K, substantially as set forth.

NICHOLAS MEYERS.

Witnesses:

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