

(No Model.)

2 Sheets—Sheet 1.

L. COSGROVE.

WORK HOLDER FOR METAL WORKING MACHINES.

No. 316,526.

Patented Apr. 28, 1885.

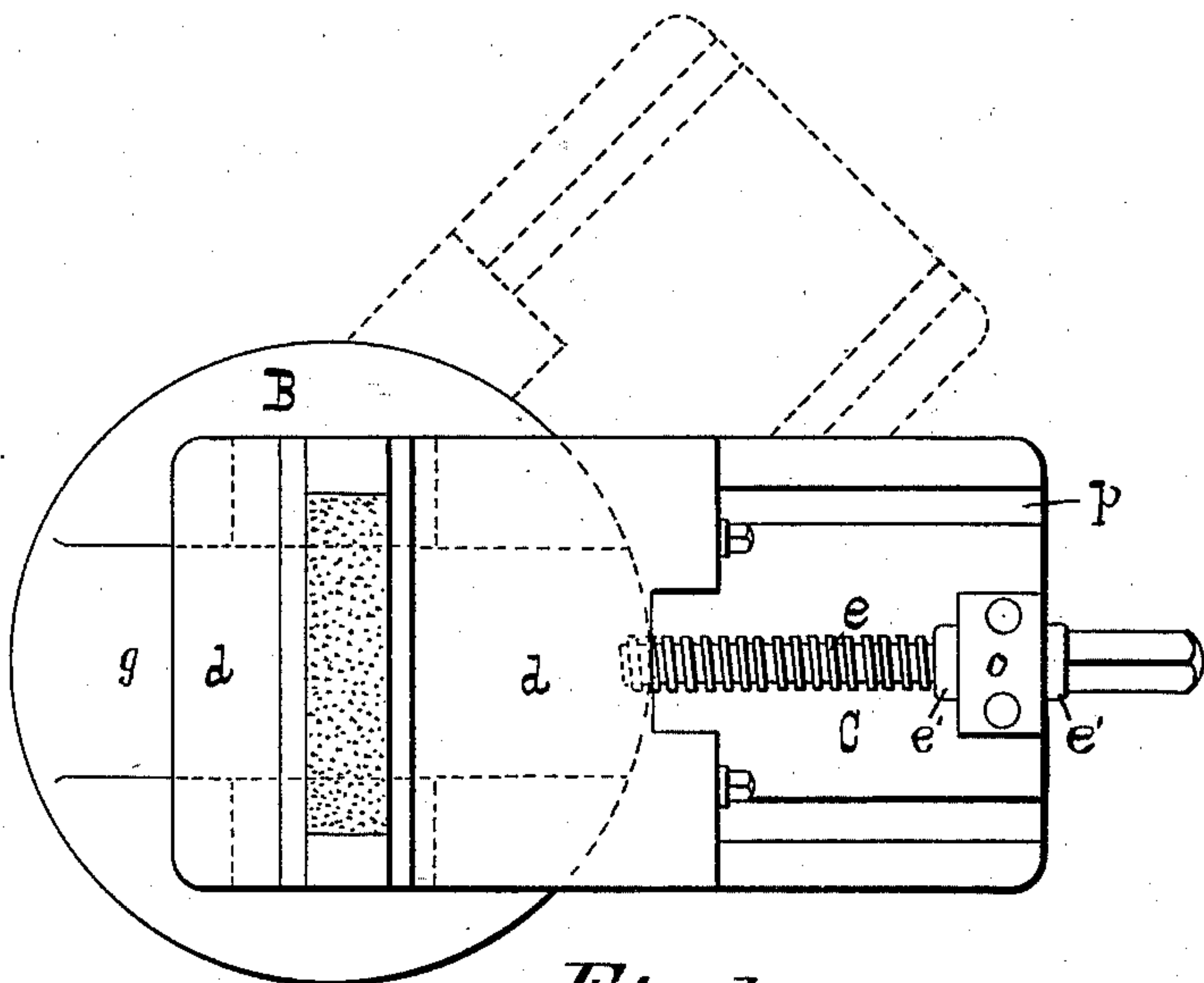
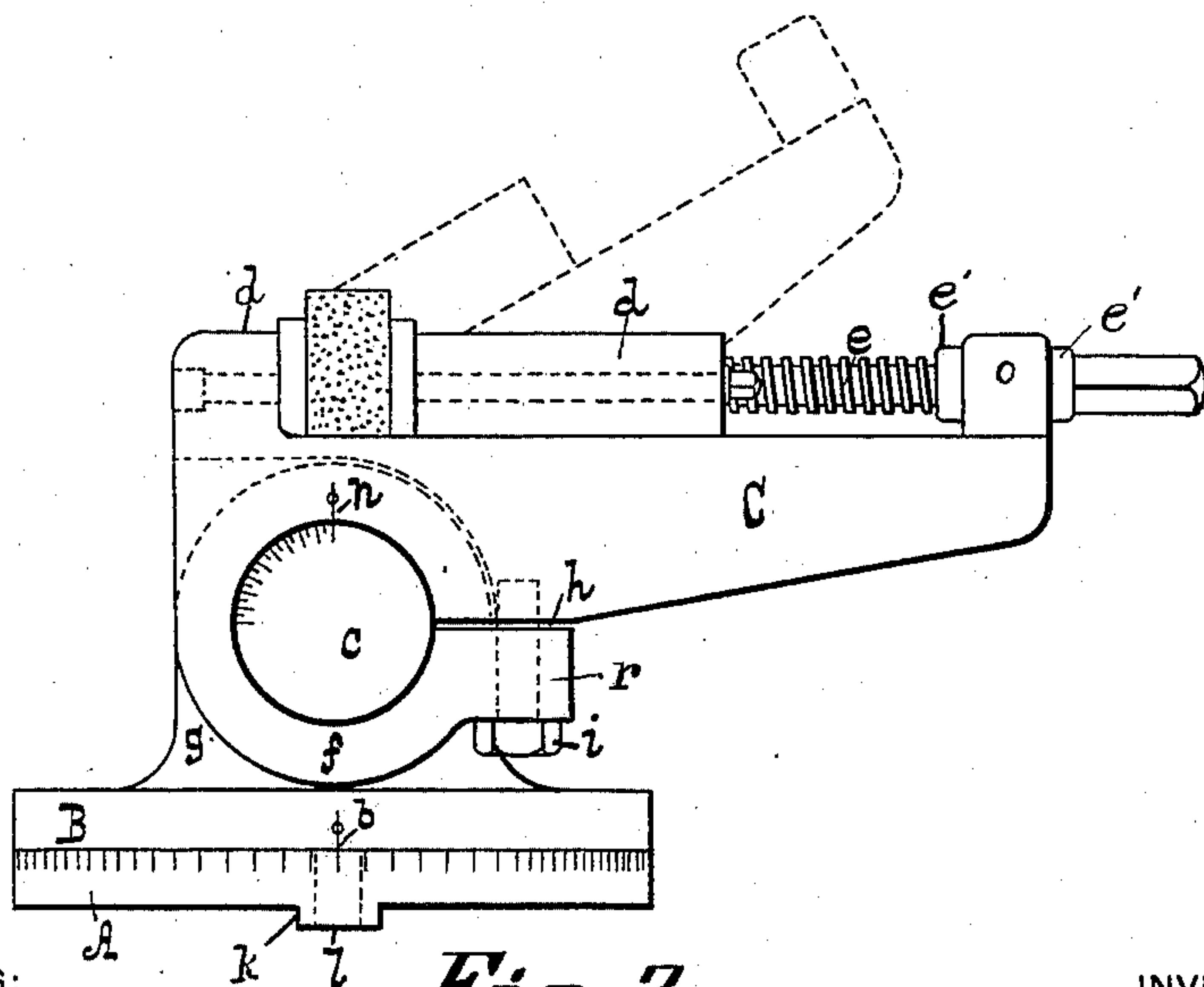


Fig. 1.



WITNESSES:

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Fig. 2.

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By

G. A. Boyden

Attorney.

(No Model.)

2 Sheets—Sheet 2.

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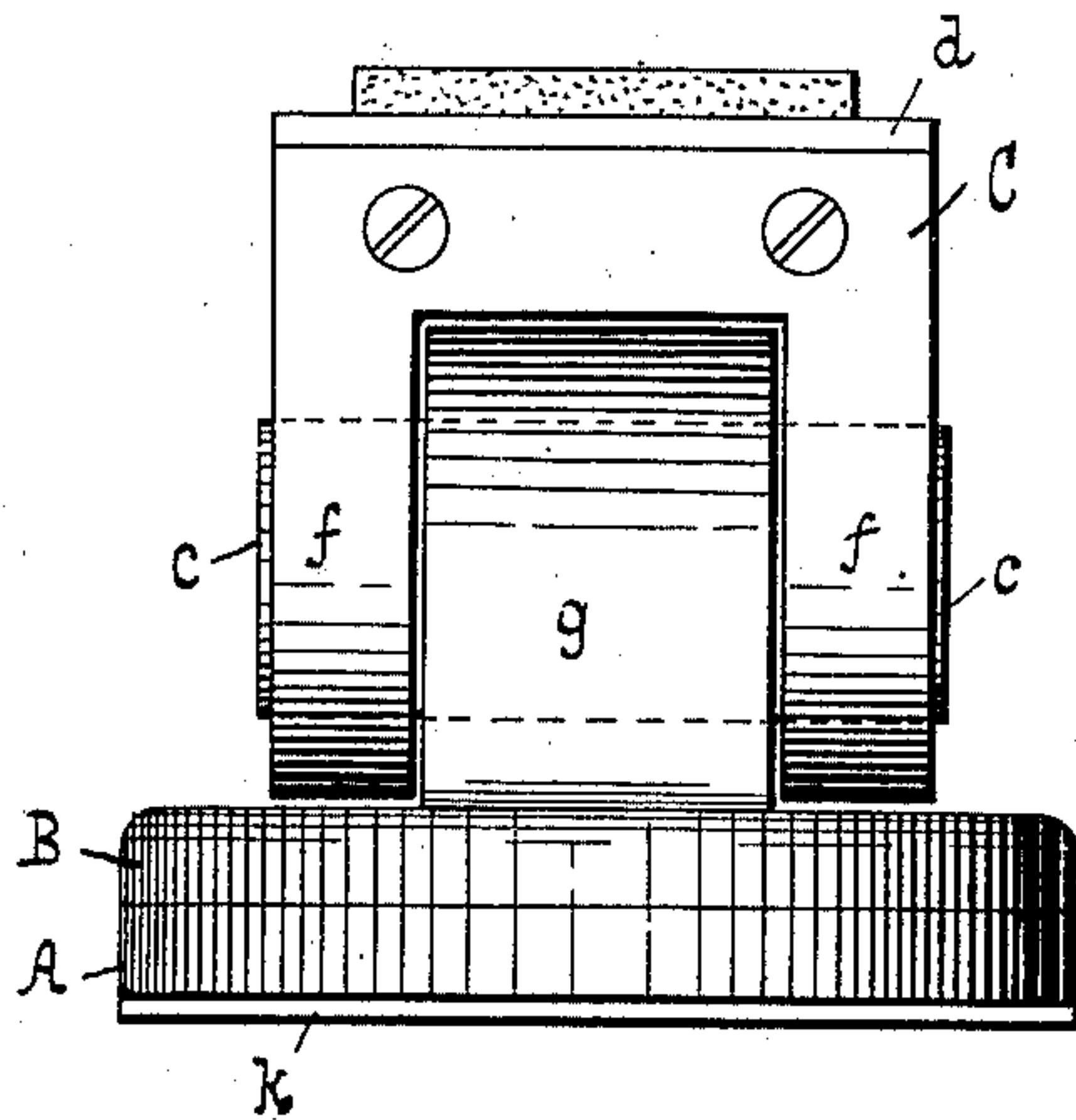


Fig. 3.

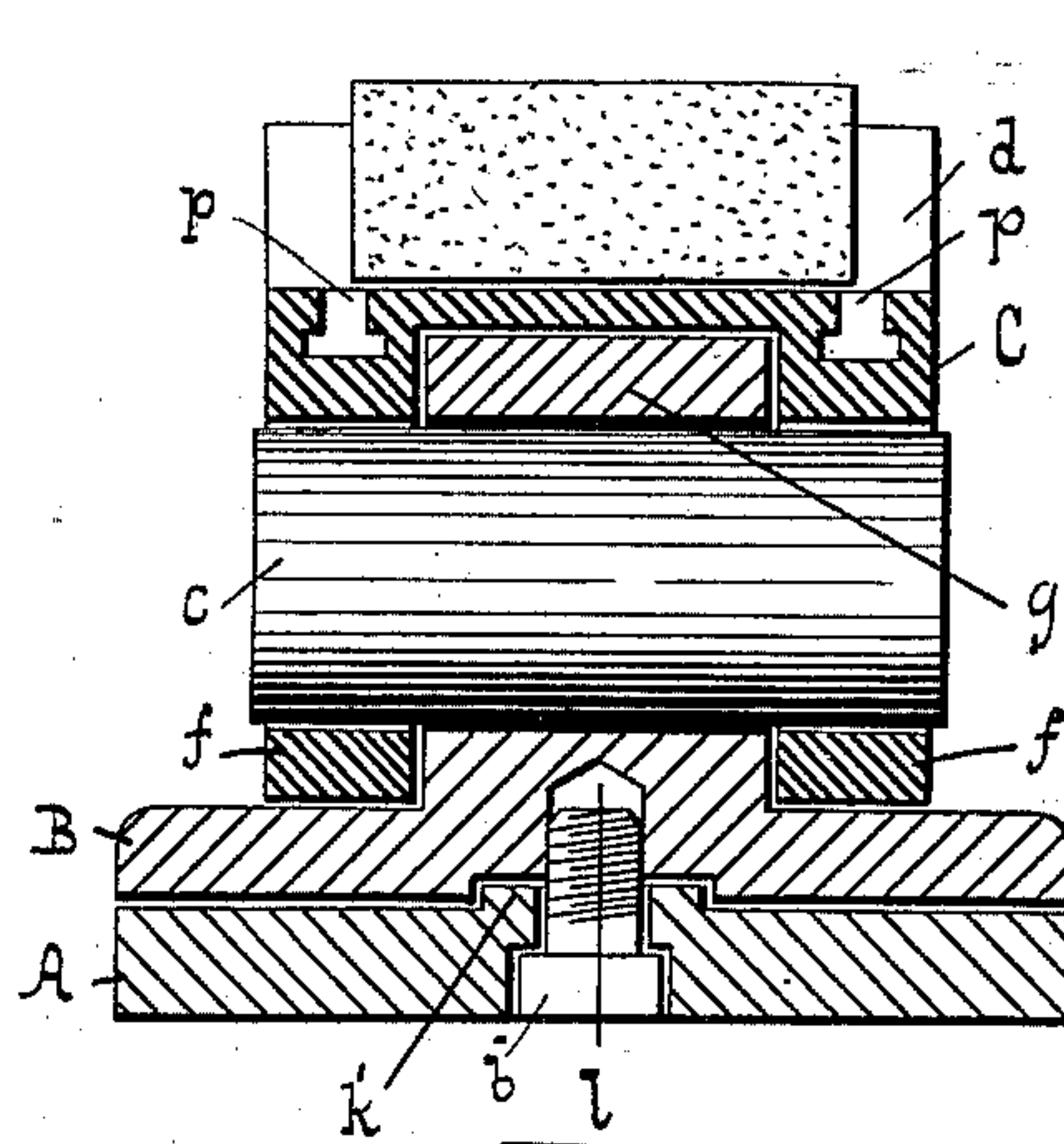


Fig. 4.

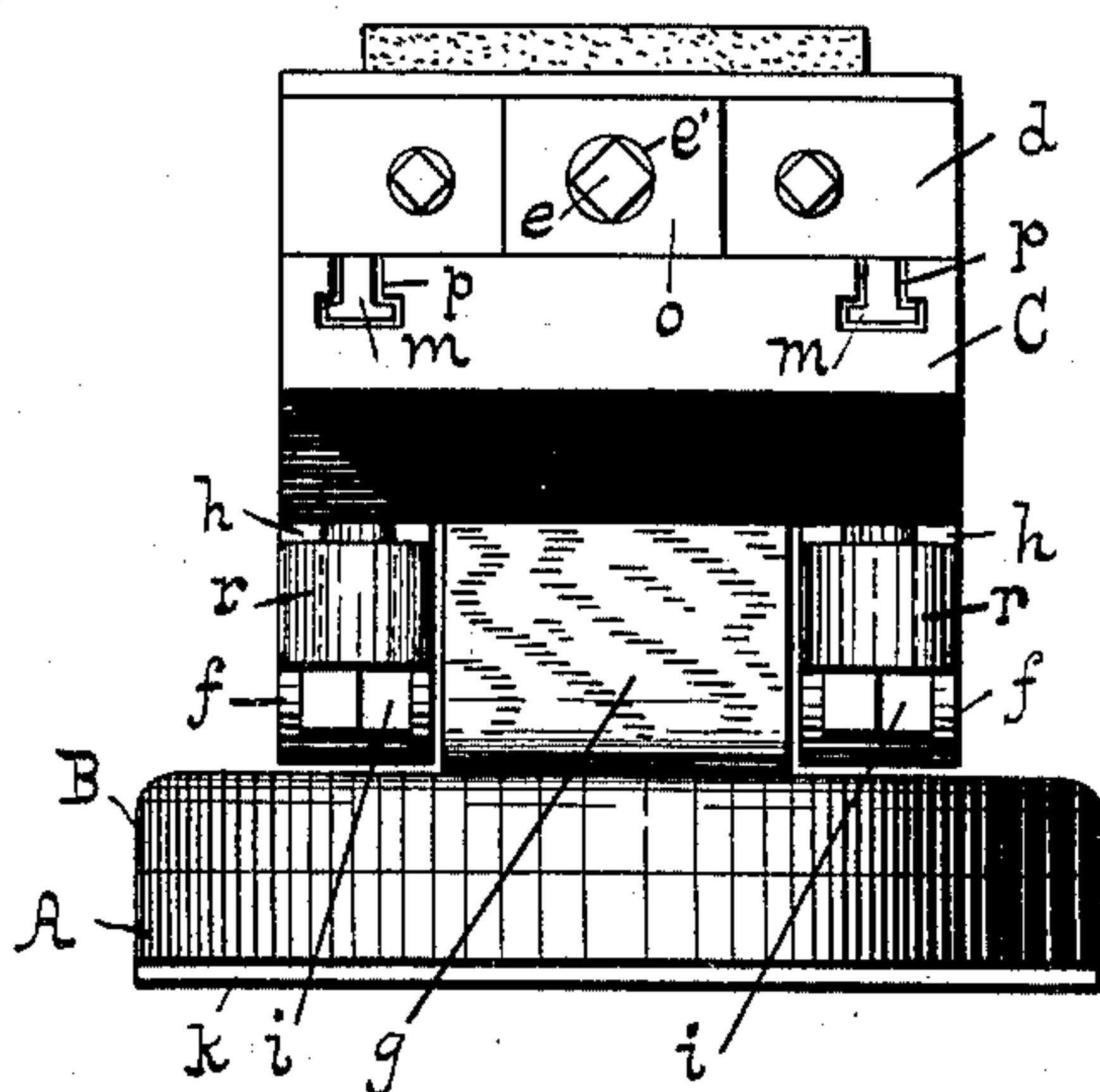


Fig. 5.

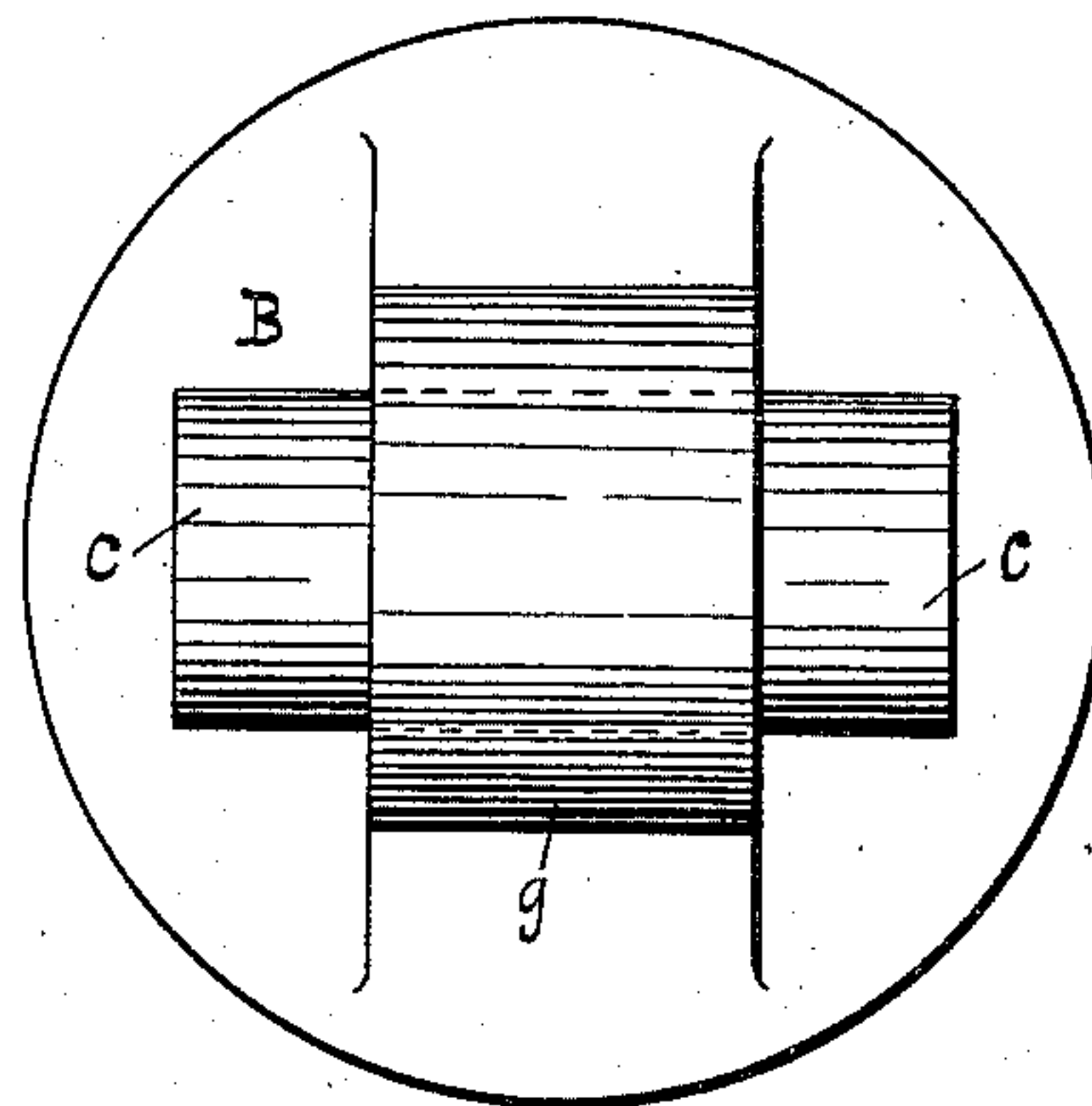


Fig. 6.

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INVENTOR:

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UNITED STATES PATENT OFFICE.

LAWRENCE COSGROVE, OF BALTIMORE, MARYLAND.

WORK-HOLDER FOR METAL-WORKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 316,526, dated April 28, 1885.

Application filed September 1, 1884. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE COSGROVE, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Machine-Chucks, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in vises for metal-planers, milling-machines, drill-presses, &c., and the objects of which are to provide and arrange mechanism by which the work to be operated on may be presented at different or desired angles to the tool, and also that two adjustments may be accomplished at right angles to each other. I attain these objects by mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view of the device, showing the horizontal adjustment by dotted lines; Fig. 2, a side view showing the vertical adjustment by dotted lines; Fig. 3, a rear view; Fig. 4, a sectional view through the axes of the pivoting-point of the frame with the bar in full; Fig. 5, an opposite end view to Fig. 3, and Fig. 6 a top view with parts removed.

Similar letters refer to similar parts throughout the several views.

The letter A designates the bed-plate, which is circular in form, the periphery of which has graduated marks, by which the vise may be accurately and conveniently adjusted to any angle from a given point in a horizontal position by placing the dial-mark *b* at the desired angle designated by the graduated mark, and it is provided with an oblong projection, *k*, on its under surface, which fits in slots in the bed-plate of the machine to which the device may be attached, thereby preventing it from shifting its position thereon, and also a circular projection, *k'*, on its upper surface that projects into a circular recess in the under side of the plate B, and attached thereto by the screw *b'*, as shown in Fig. 4. By this construction the plate B is accurately centered on the bed-plate A, and permitted to turn thereon.

To the bed-plate A is attached, in the manner as above stated, the plate B, which consists of a plate corresponding in diameter to

that of the bed-plate A, provided with the dial-mark *b* on its periphery, and on its upper surface with a projection or lug, *g*, through which passes a round bar, *c*, of suitable metal, with its ends projecting from either side of the lug *g*, thereby forming two trunnions, on which the vice proper is vertically adjusted. The bar *c* is secured to the lug *g* by being driven into a hole bored therein, thereby securely holding it in its place. One end is provided with radial graduation marks, by which, in connection with the dial-mark *n*, the desired incline or angle of the frame C is acquired.

The frame C is provided with clamping-jaws *d*, one of which is stationary and the other movable, the latter being held to the frame C, and its movements guided thereon by the projections *m*, fitted to and sliding in the slots *p*. The jaw is actuated by the screw *e*, secured to the frame C by passing through the lug *o*, and having collars *e'* placed on each side of the lug, said collars being secured to the screw, one of which may be integral therewith, or in case a cap is used a recess turned in the screw will answer the same purpose. The threaded end of the screw *e* is threaded into the jaw *d*, and the opposite end made square to receive a crank-handle, by which it is operated and the movable jaw actuated accordingly, whereby the work is clamped between or released from the jaws. From the under side of the frame C project two lugs, *f*, which form bearings around the bar *c*, and on which the frame pivots, the same being bored out to correspond with the diameter of the bar *c*, and provided with slots *h* and binding-screws *i*, passing through the projection *r*, and threaded into the frame, by which the same is securely held to the trunnions formed by the bar *c*, when it is placed at the desired angle by tightening the screws *i*, which draw the projecting portions *r* toward the frame, the slot *h* permitting the same, thereby firmly clamping the two together.

In attaching the frame C to the plate B, the projection *g* of the latter is placed between the lugs *f*, with the holes placed opposite to each other. The bar *c* is then placed in the hole of one of the lugs, and driven into that of the projection *g*, and partly through the same into the hole of the opposite lug. The screws *i* be-

ing withdrawn or released to allow the bar *c* to easily pass through the holes in the lugs *f*, the size of which they govern, and which, when the bar *c* is in position, are replaced or tightened up to hold the frame at the desired angle, as above stated.

This vise when attached to various machines may be used for a number of purposes—such as drilling holes at various angles, forming angular surfaces, making cutters, &c.

The device is operated as follows: The screws *i* are slightly withdrawn, which permits the bearings *f* to expand, and thereby release their grip on the bar *c*, by which the frame *C* may be placed at any angle from a horizontal to a vertical plane, and when so placed the screws *i* are screwed up, which contract the slotted bearings *f*, causing them to regrip the bar *c*, and securely hold the frame *C* thereto. By placing the dial-mark *n* to an angle designated by the graduation-mark on the bar *c* the work clamped in the vise will then be presented to the tool accordingly, thereby conveniently and accurately determining the angle; and in case it is desired to shift the frame *C* around on its pivoting-point *l* the screw *b'* is slightly withdrawn, which frees the two plates *A* and *B* in relation to each other, and thereby permitting one to turn on the other, the dial-mark *b* and the graduation-marks on the periphery of the plate *A* affording means to determine angles, &c., as above stated.

Having fully described my invention, what I claim, and wish to secure by United States Letters Patent, is—

1. In a vise for metal-working machinery,

the frame *C*, provided with suitable gripping-jaws, in combination with mechanism, substantially as shown, by which the bearings *f* of the frame *C* are clamped and held to the bar *c*, whereby the frame *C* may be placed and held at any angle from a horizontal to a vertical plane, as herein set forth.

2. The combination of the frame *C*, provided with suitable clamping-jaws, the bearings *f*, provided with slots *h*, the screws *i*, and the bar *c*, attached to a suitable frame or bed-plate, as set forth.

3. In a gripping and holding vise, the combination, with suitable jaws, of the frame *C*, adapted to be set and held at any angle from a horizontal to a vertical plane, and provided with a pivoting center, *l*, whereby the frame is moved at right angles to its vertical adjustment.

4. The combination, with the frame *C*, of the trunnions *c*, bearings *f*, provided with the slots *h*, and binding-screws *i*, as herein shown and set forth.

5. The combination of the frame *C*, having a vertical adjustment, the base *B*, the base-plate *A*, pivoted to the base *B*, thereby forming a horizontal adjustment, and both adjustments provided with suitable graduations and dial-marks, whereby any given angle may be presented to the cutting tool or drill either in a horizontal or vertical plane.

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

LAWRENCE COSGROVE.

Witnesses:

WM. B. NELSON,
G. A. BOYDEN.