

No. 648,221.

Patented Apr. 24, 1900.

W. L. SMITH.
BOX MAKER'S FORMER.

(Application filed May 13, 1899.)

(No Model.)

2 Sheets—Sheet 1.

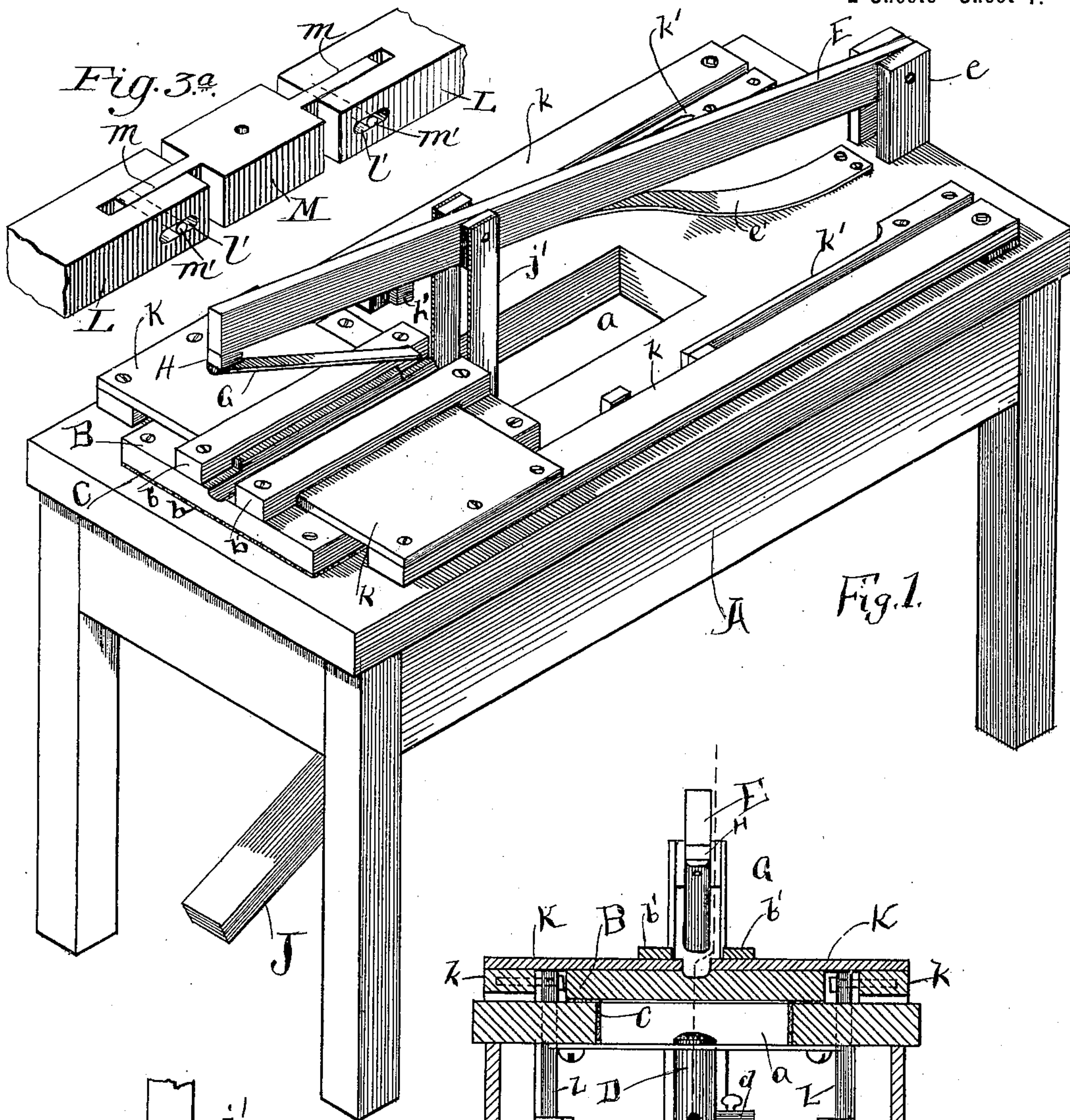


Fig. 3a.

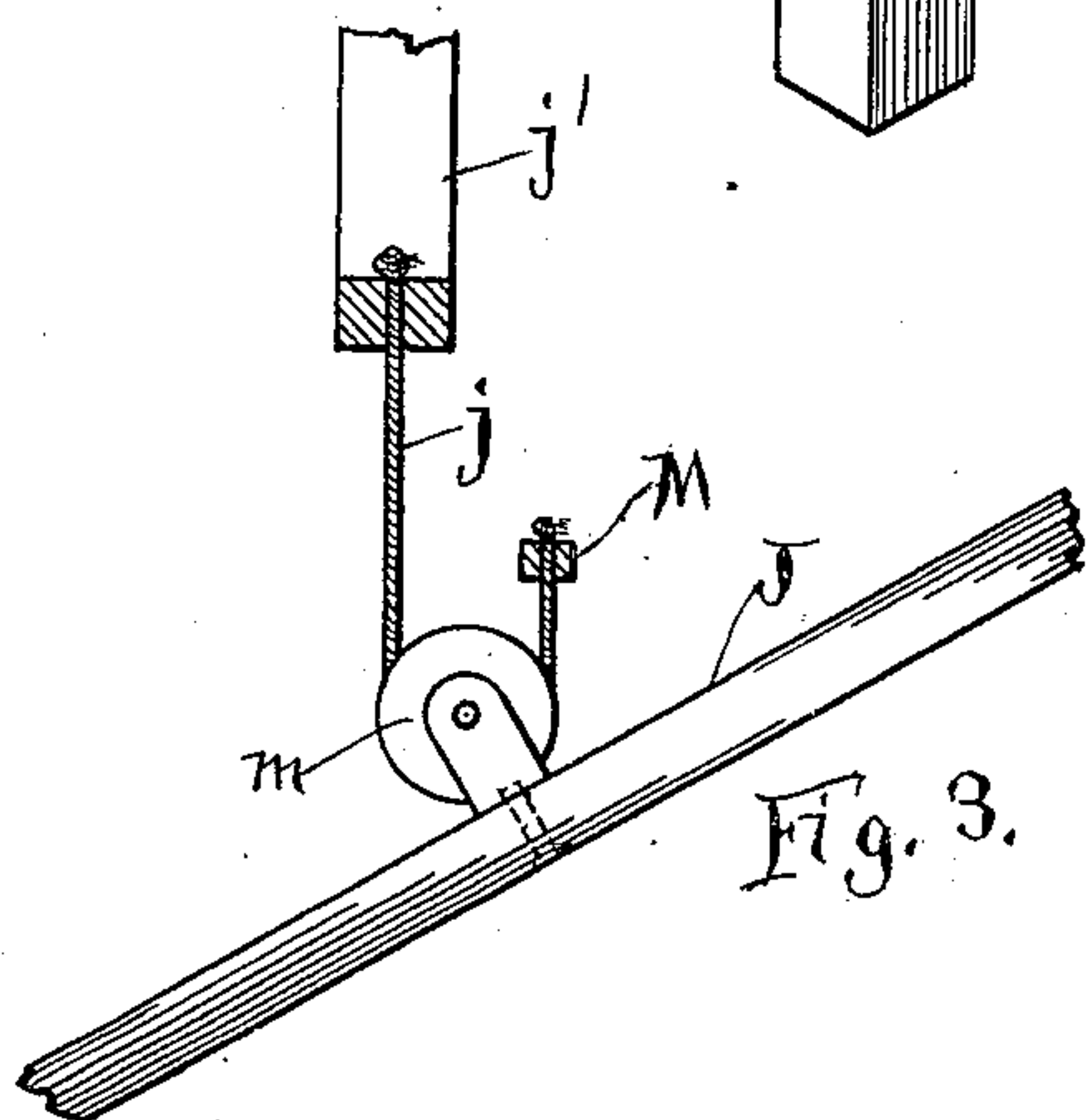
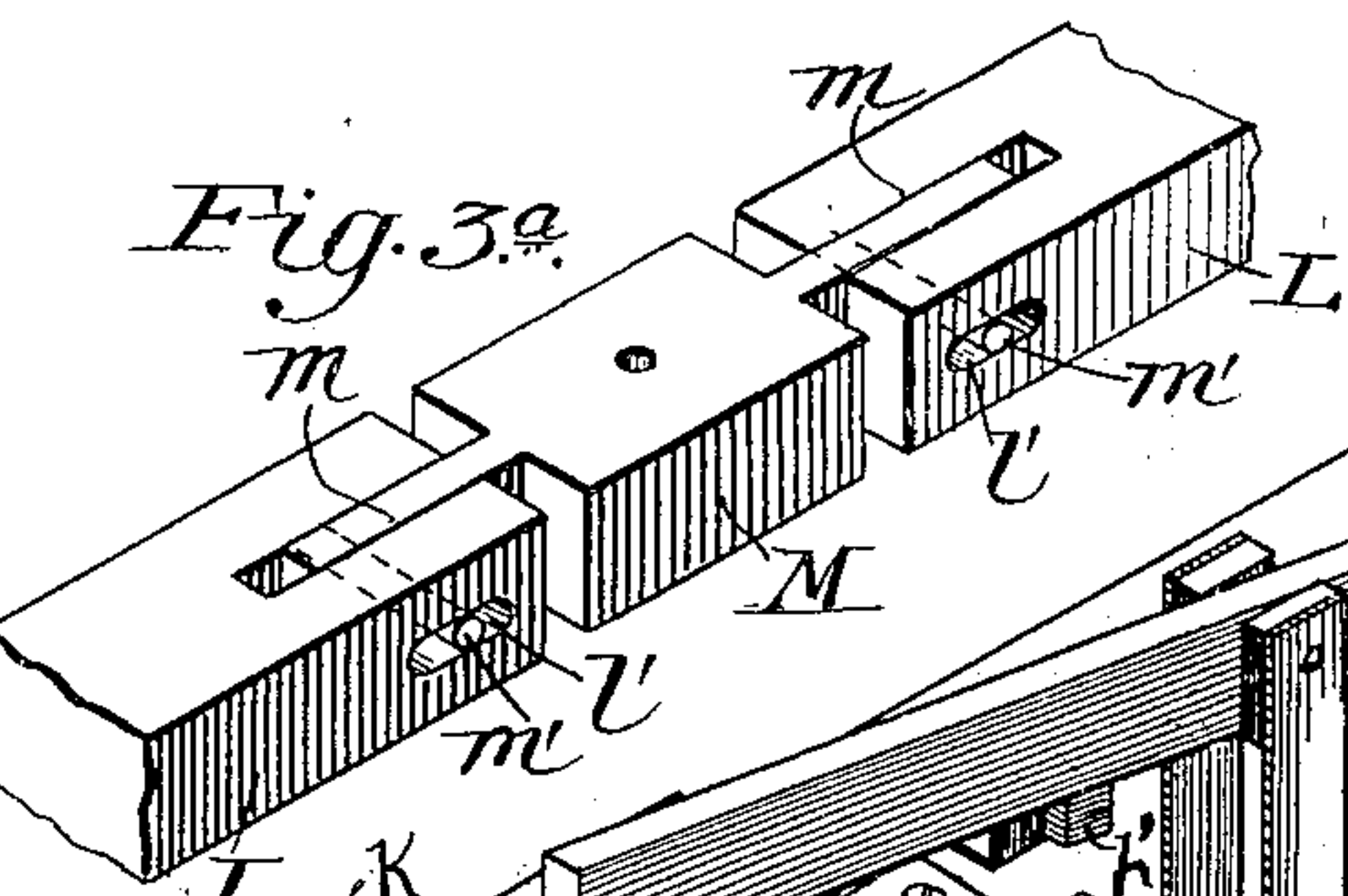


Fig. 3.

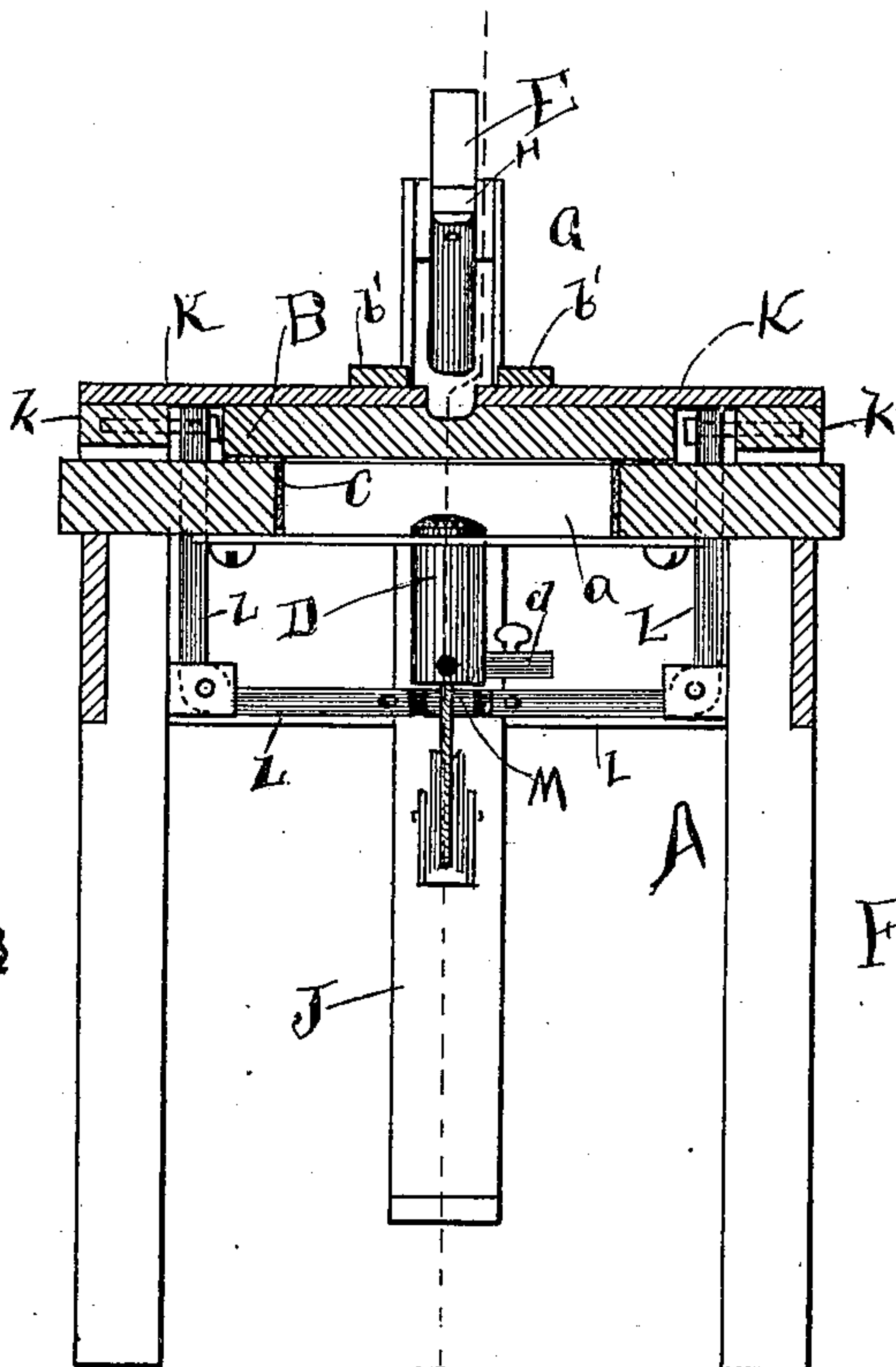


Fig. 2.

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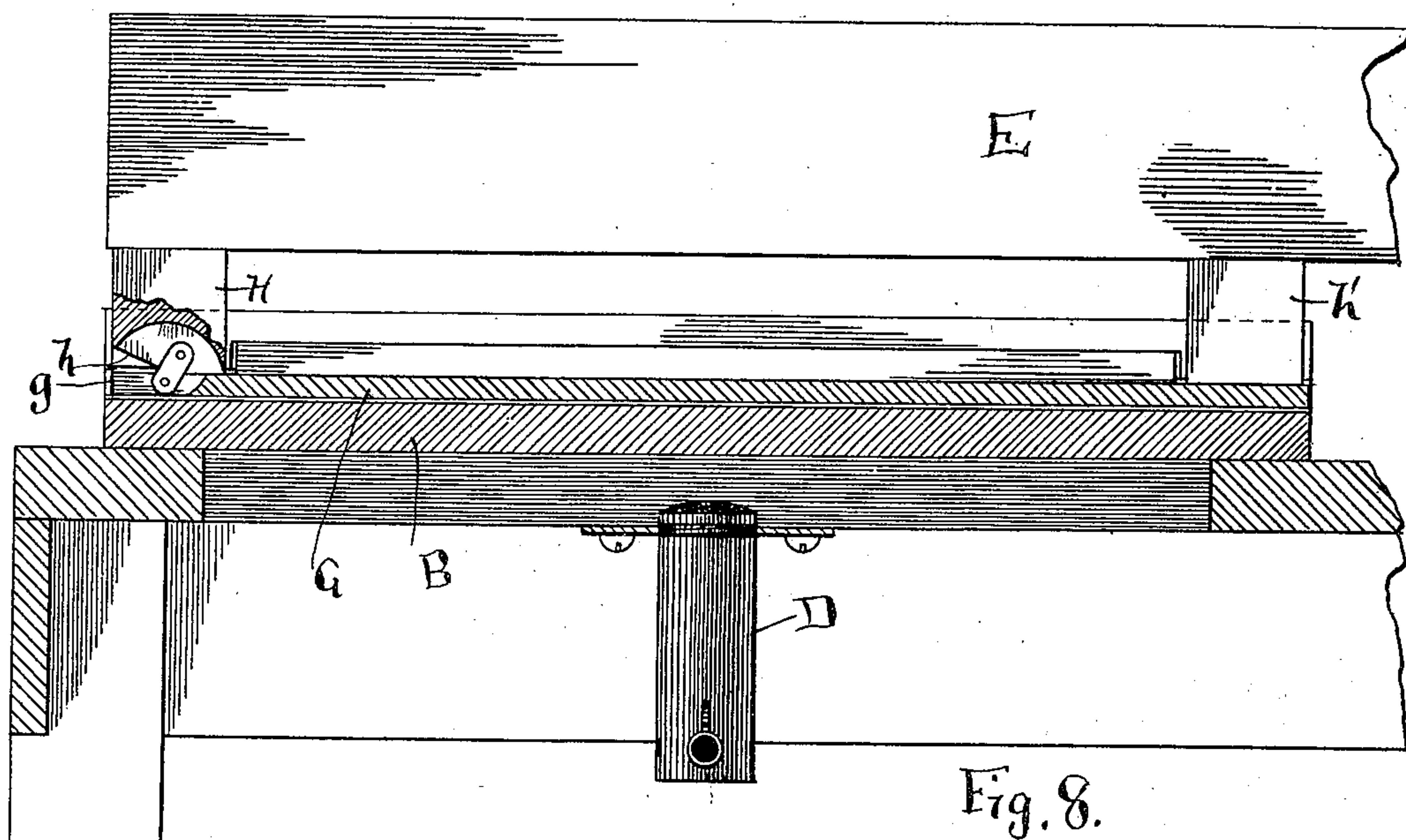
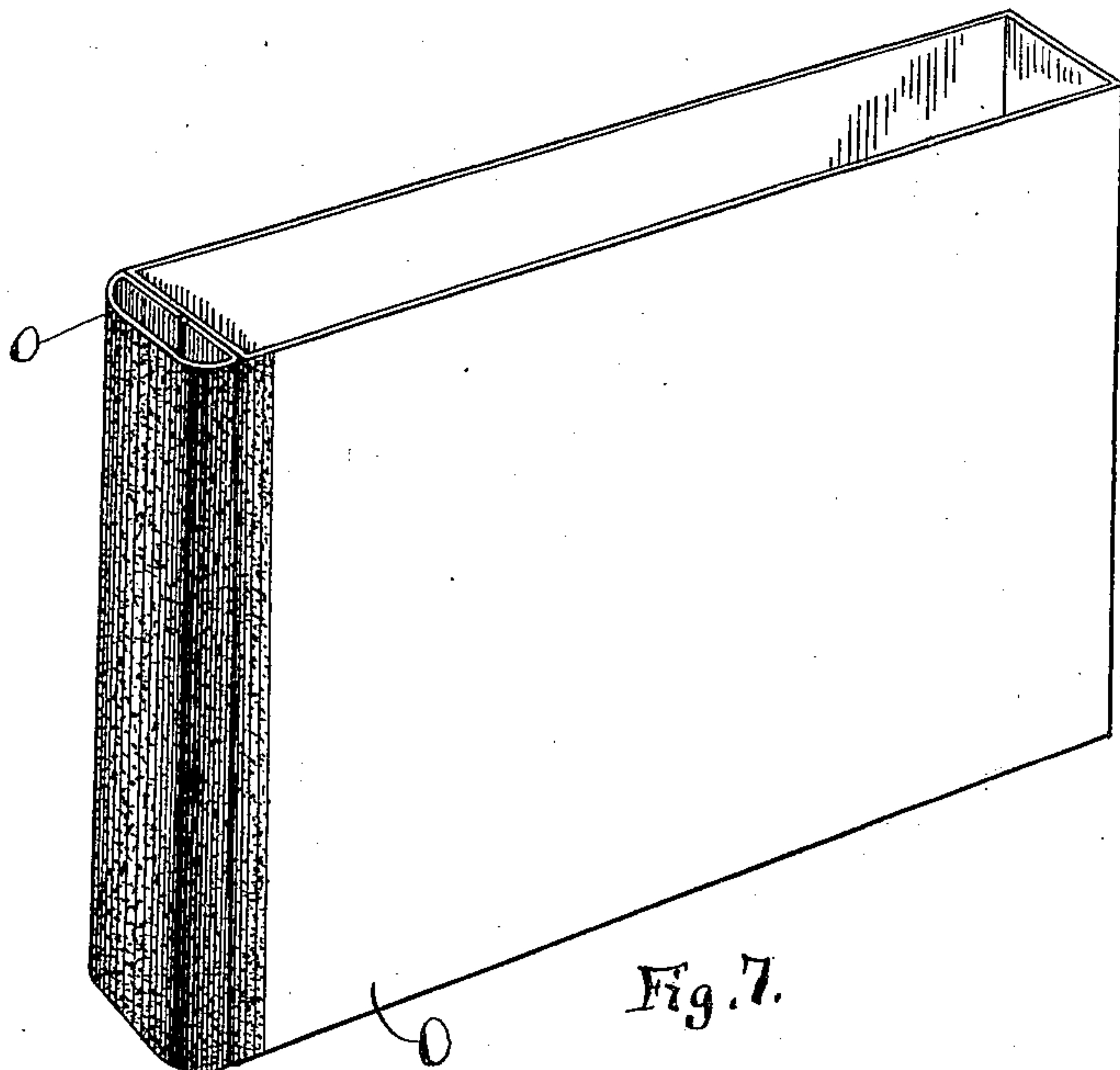
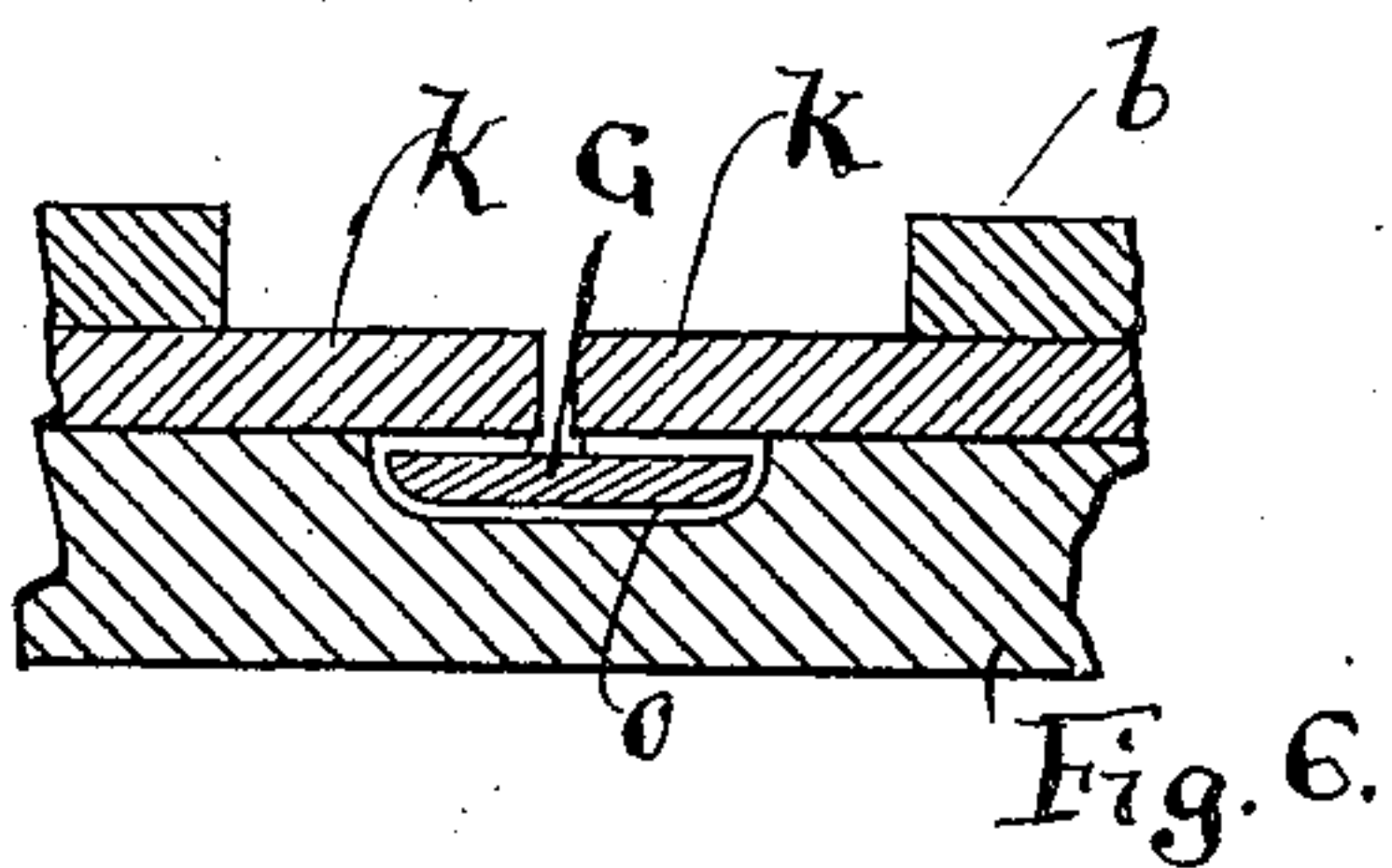
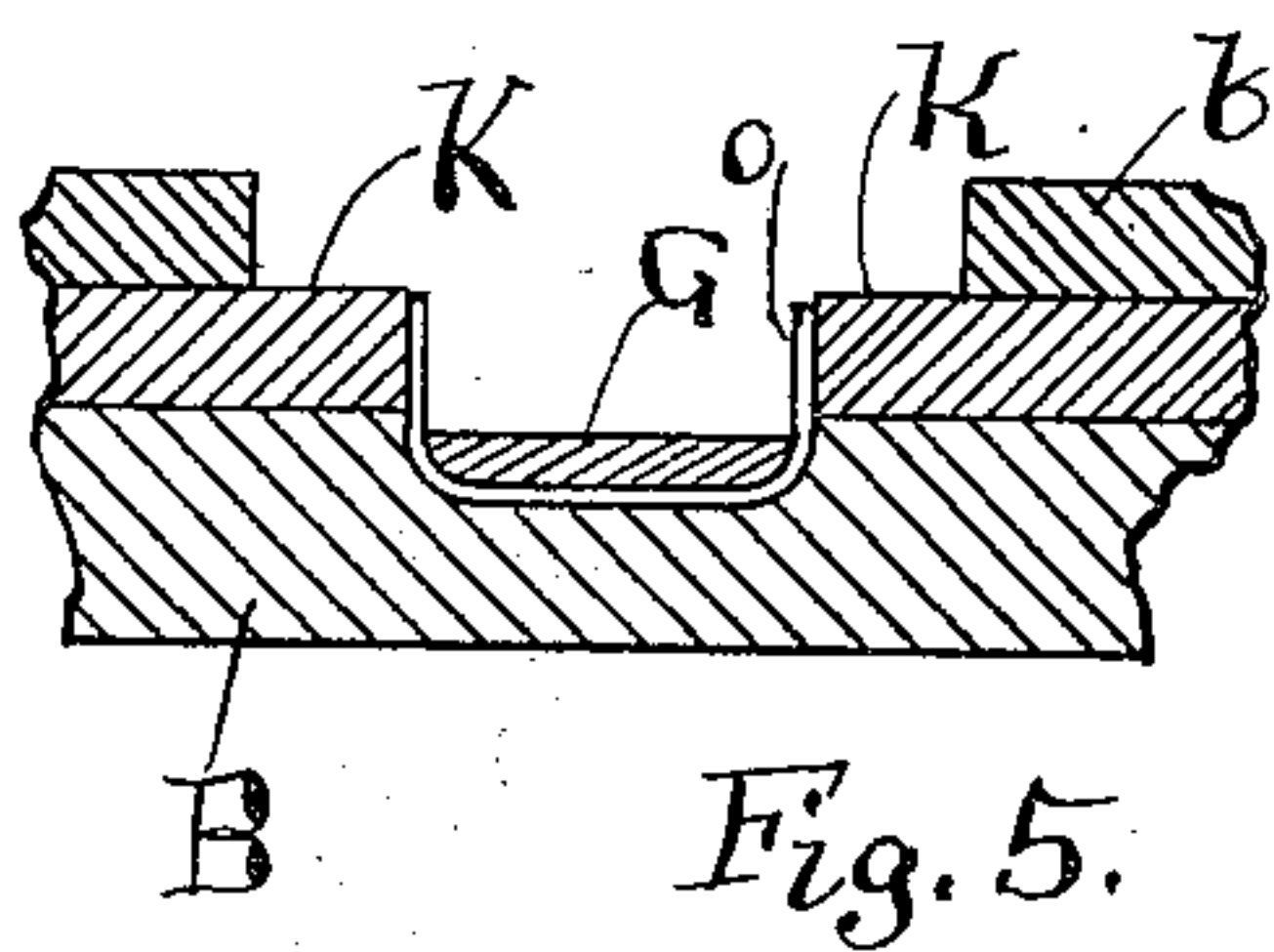
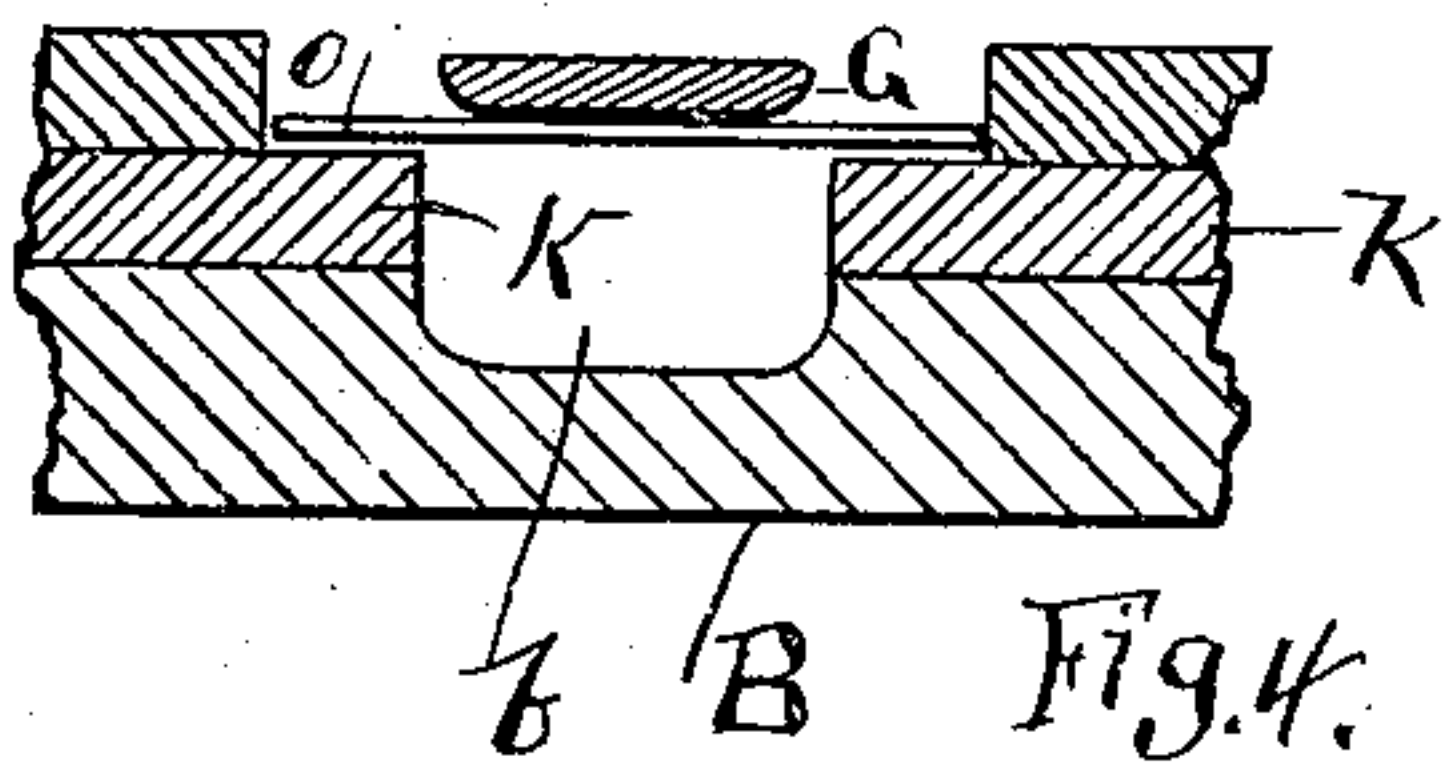
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UNITED STATES PATENT OFFICE.

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BOX-MAKER'S FORMER.

SPECIFICATION forming part of Letters Patent No. 648,221, dated April 24, 1900.

Application filed May 13, 1899. Serial No. 716,771. (No model.)

To all whom it may concern:

Be it known that I, WALTER L. SMITH, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Box-Maker's Formers, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to a box having a rounded end made of a single piece of cardboard or the like and to the machine for forming the same. Its object is to provide a box, with a book form or rounded end, which can be cheaply made, and which will retain its shape, and mechanism for quickly and conveniently permanently shaping the rounded end of the box. This object is accomplished in the manner and by the means hereinafter fully described, and which are illustrated in the accompanying drawings, in which—

Figure 1 is an isometric view of the former. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a detail of the pedal mechanism applied thereto. Fig. 3^a is a detail in perspective of certain parts of the operating mechanism. Figs. 4, 5, and 6 are detail transverse sections of the forming-jaws, showing the different positions assumed in the operation. Fig. 7 is an isometric view of the box in the manufacture of which the device is used, and Fig. 8 is a detail vertical longitudinal section of the machine.

The former is mounted upon a suitable table or bench A, which has in its top an aperture *a*. Across one end of this aperture and located upon what may be termed the "front" of the table there is a metal die-plate B, having a groove *b*, longitudinal as to the table and insulated from the table by a suitable sheet C of non-heat-conducting material. A burner D is located immediately below the die-plate B and provided with a suitable gas-pipe *d*, so that the plate may be heated. A vertically-swinging arm E is pivoted at the rear end of the table, as in the standard *e*, and extends forward over the groove *b* in the die-plate B. This arm is supported by a spring *e'*. A metal pressure-strip G, adapted to fit within the groove *b*, is carried by the forward

end of the lever E, being attached thereto by means of a link *g*, secured to a block H, fixed to the under face of the arm. A portion of the lower end of the block H is beveled, as shown at *h*, so that when the arm E is in its elevated position, as shown in Fig. 1, the strip G assumes a position oblique to it. The second block *h'* is fixed to the lower face of the arm E, opposite the inner end of the strip G, and is of the same length as the block H, so that when the arm is depressed to sink the strip G into the groove *b* pressure is applied to both ends of the strip.

The arm E is actuated by a pedal J, located below the table and suitably connected with the arm, as shown, by means of the cord *j* and the rigid link-bar *j'*.

A pair of reciprocating metal plates K K rest upon the die-plate B and are located, respectively, upon opposite sides of the groove *b* and spanned by guide-loops *b'*, fixed to the plate B. Each of these plates is fixed to an oscillating arm *k*, pivoted to the top of the table A near its rearward end, and the plates are thrown backward away from the groove *b* by means of springs *k'*, bearing against their carrying-arms. The reciprocation of the plates K K is also accomplished by means of the pedal J. The connection with the pedal is by means of bell-cranks L L, one for each of the plates, these bell-cranks being pivotally attached to the standard of the table A, one arm of each being connected with one of the levers *k* and their other or horizontal arms being both attached to a block M, to which is attached one end of the cord *j*. This cord passes around a sheave *m*, carried by the pedal J, so that the downward movement of the pedal causes the advance of all of the arms E and *k k*. As shown, the connection between the block M and the levers L L is by means of tenons *m* on the block loosely entering mortises *l* in the ends of the levers and pins *m'*, set transversely through the tenons and loosely through longitudinal slots *l'* in the levers. It is necessary in practice that the strip G enter the groove *b* before the plates K K are advanced, and this is accomplished by making the spring *e'* of less tension than the springs *k' k'*, so that when

pressure is applied to the pedal J the spring e' is the first to yield, the springs k' not being compressed until the strip G is firmly seated within the groove b .

- 5 The box in the manufacture of which the machine forming in part the subject of this application is employed is shown at O, and the particular part of the box formed by the machine is the rounded or tubular end piece
 10 o , which is formed of a single oblong strip having its side edges overturned until they approximately meet. While I describe the part o as "tubular," I use the term loosely, as the form assumed by the part is in cross-section an irregular oval. In forming this box
 15 end the strip o is placed over the groove b , resting upon the plates K K, as shown in Fig. 4. Pressure being applied to the pedal J, the strip G is now brought down, carrying
 20 the piece o into the groove b , as shown in Fig. 5, the side edges of the piece o being upturned and resting against the inner edges of the plates K K. These plates now being advanced, the edges of the piece o are folded
 25 down upon the back of the strip G, as shown in Fig. 6. The plates B and K K being heated by the lamp D, the piece o soon becomes hot and when removed from the machine will retain the form to which it has been folded.
 30 Pressure upon the pedal J being removed, the springs k' k' at once throw back the plates K K, and then the spring e' raises the strip G, which assumes the inclined position shown in Fig. 1, so that the formed tube may readily
 35 slip from its inner end.

Various details of the construction may be varied without departing from the scope of the invention—as, for example, the attachment of the compression-strip G to the lever
 40 E might be at the rearward instead of the forward end of the strip.

The connection between the pedal and the compression and folding members may be varied from that shown and described. In this
 45 particular my invention consists in so attaching the pedal to the movable parts of the machine that by a single stroke of the pedal the compression members and folding members will be successively advanced and retracted.

I claim as my invention—

1. In a box-maker's former, in combination, 50
 an apertured table, a grooved metal die-plate mounted on the table over its aperture, a burner for heating the die-plate, a spring-sup-
 55 ported oscillating arm above the table, a compression-strip pivotally carried by such arm for entering the groove of the die-plate, reciprocating folder-plates adapted to overlap such groove, and means for advancing the
 60 compression-plate and folder-plates successively.
2. In a box-maker's former, in combination, a grooved die-plate, an oscillating arm above the die-plate, a compression-strip pivotally
 65 attached at one end to the arm, a stop for limiting the angular movement of the strip, such arm being adapted to bear upon the free end of the strip when it is within the die-plate groove.
3. In a box-maker's former, in combination, 70
 a grooved die-plate, a spring-supported oscillating compression member, spring-retracted folder-plates, a pedal, a cord having its ends
 75 connected respectively with the compression members and the folder members and being in running engagement with the pedal, the
 springs of the folder members being of greater tension than the spring of the compression member.
4. In a box-maker's former, in combination, 80
 a spring-supported oscillating arm carrying a compression member, a pair of reciprocating folder-plates, spring-retracted oscillating
 85 arms carrying such plates, a bell-crank for actuating each of such arms, a pedal, a cord having one end attached to the first-mentioned
 oscillating arm and its other end connected with the free ends of the bell-cranks, such
 90 cord being in running engagement with the pedal, and the springs coöperating with the folder-plates being of greater tension than the spring coöperating with the compression member.

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Witnesses:

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