

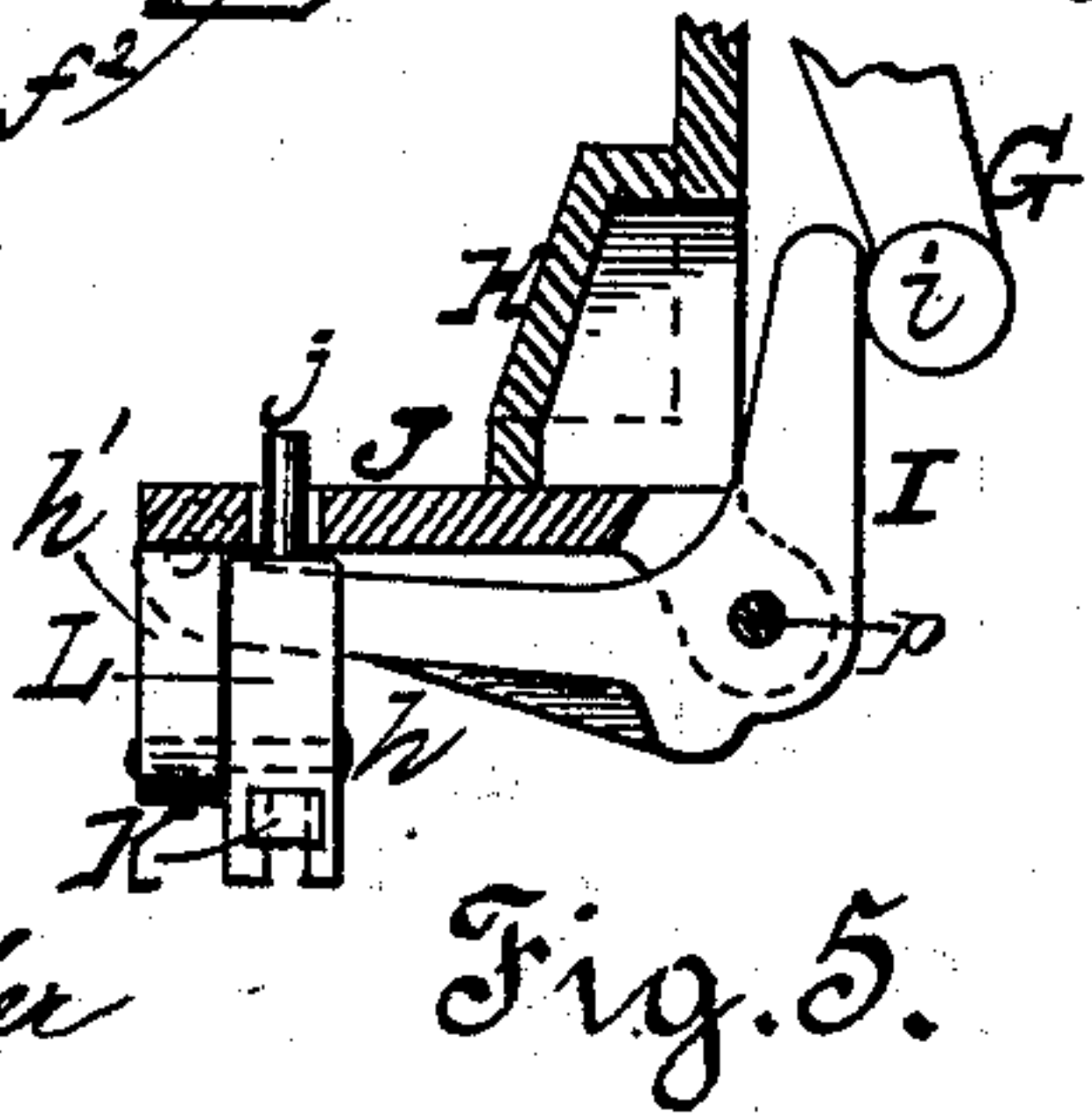
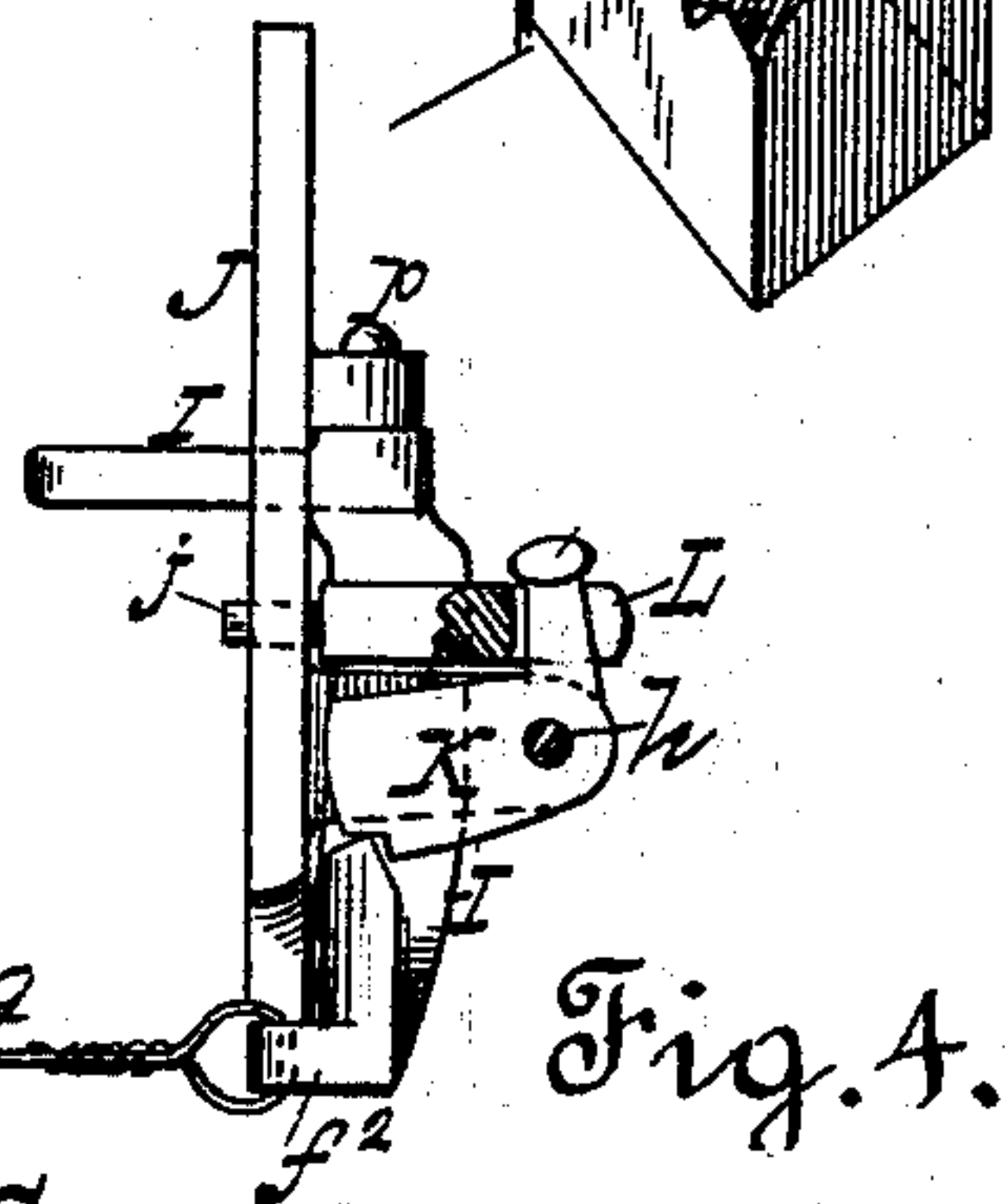
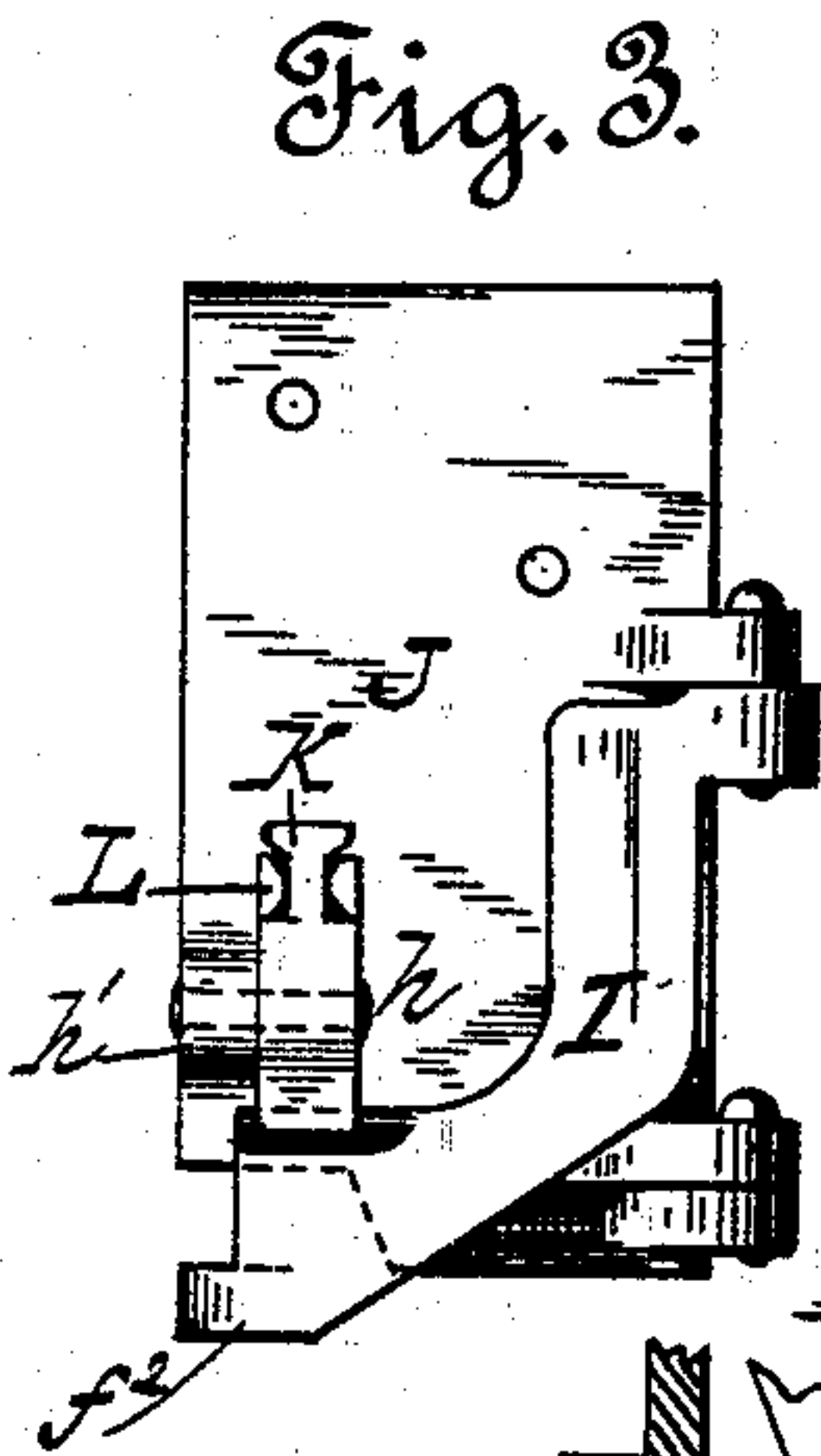
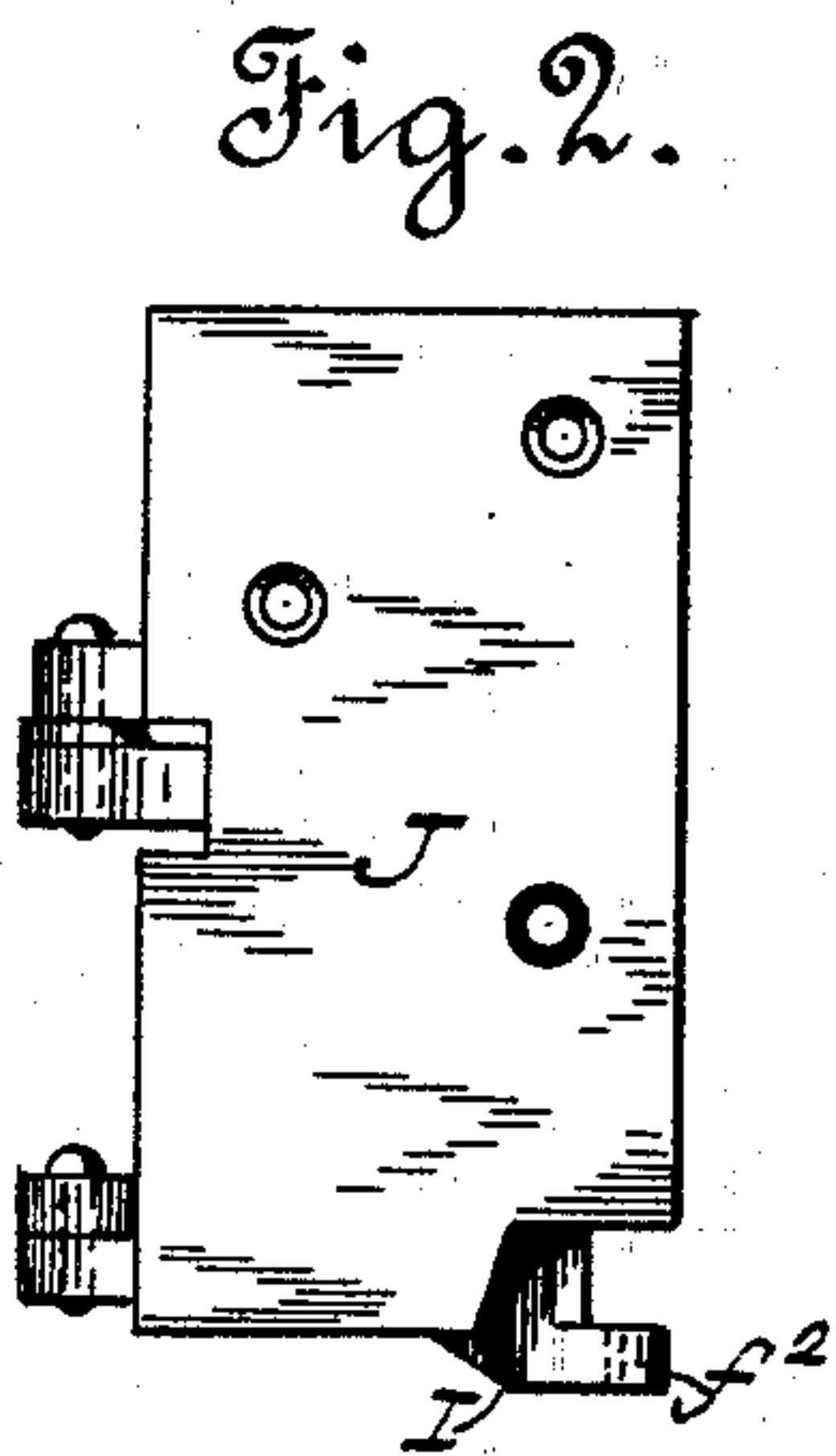
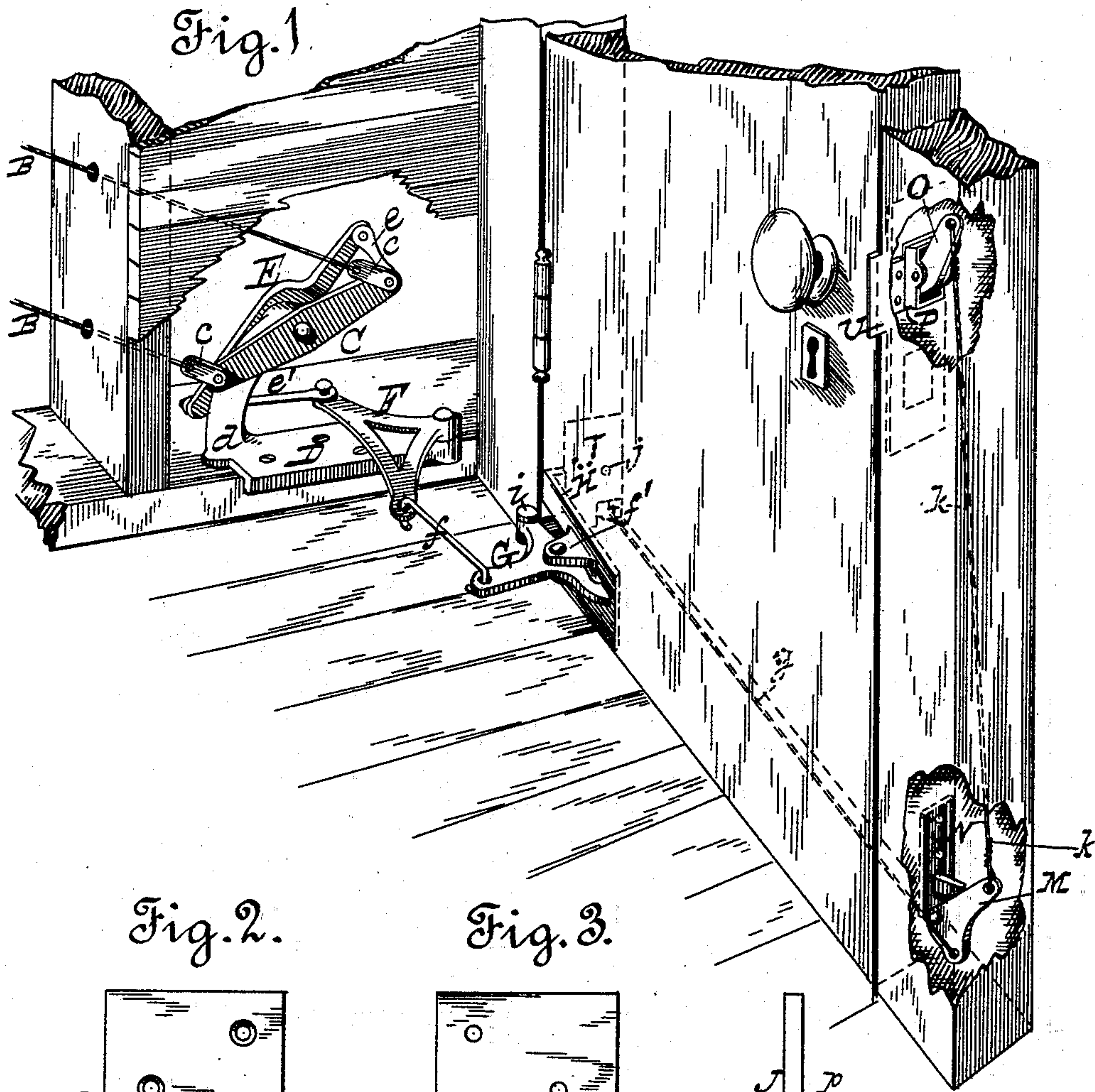
(No Model.)

3 Sheets—Sheet 1.

G. RISCHMULLER.  
DOOR OPERATING DEVICE.

No. 524,769.

Patented Aug. 21, 1894.



Witnesses.

*H. J. Anteverde.*

*G. Rischmüller*

Inventor.

*George Rischmüller.*  
*by J. M. Hester*

(No Model.)

3 Sheets—Sheet 2.

G. RISCHMULLER.  
DOOR OPERATING DEVICE.

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Patented Aug. 21, 1894.

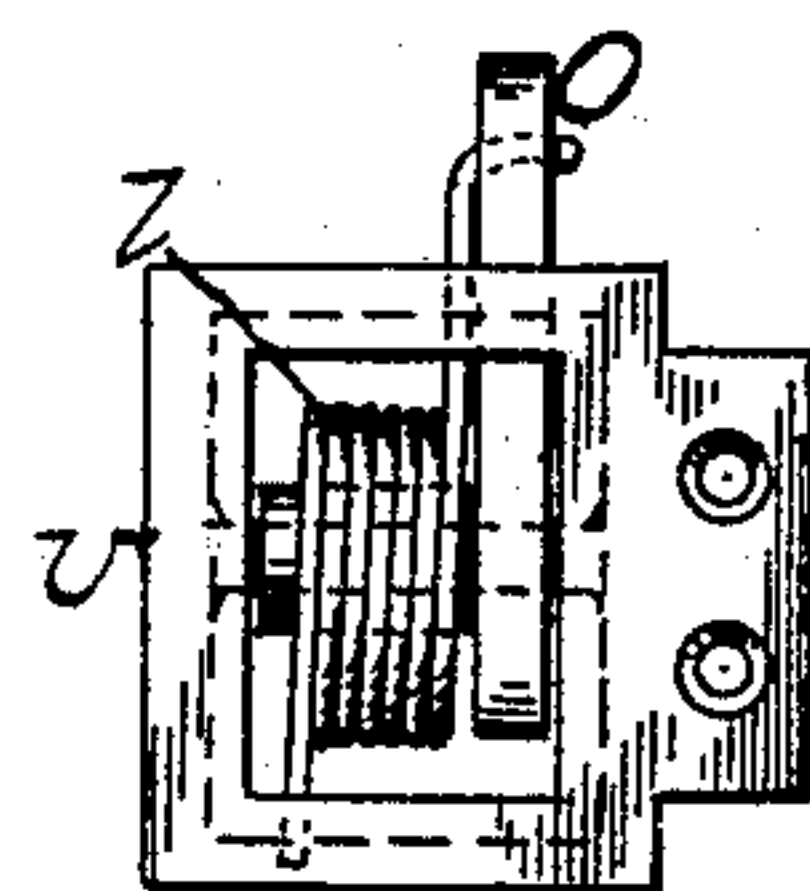
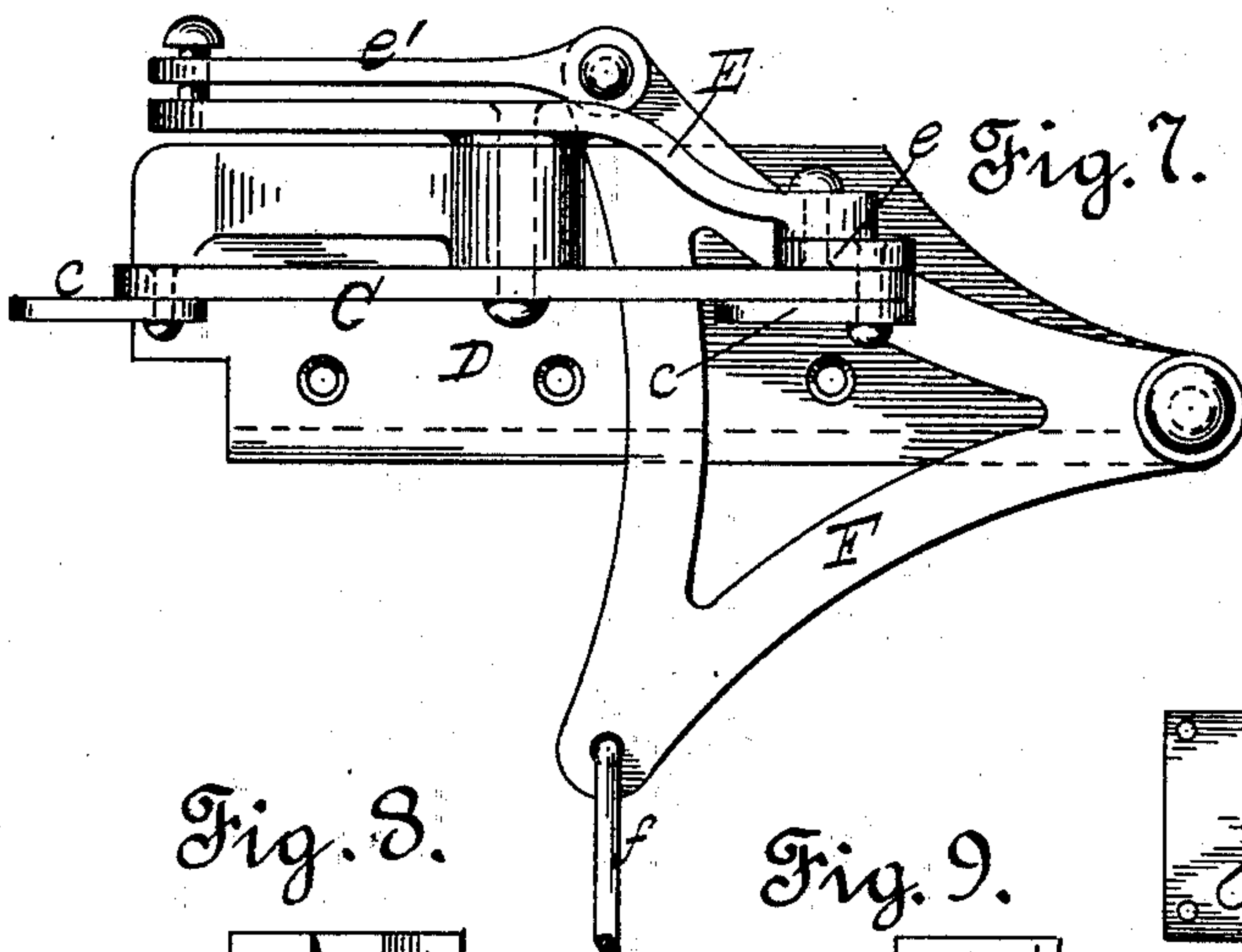
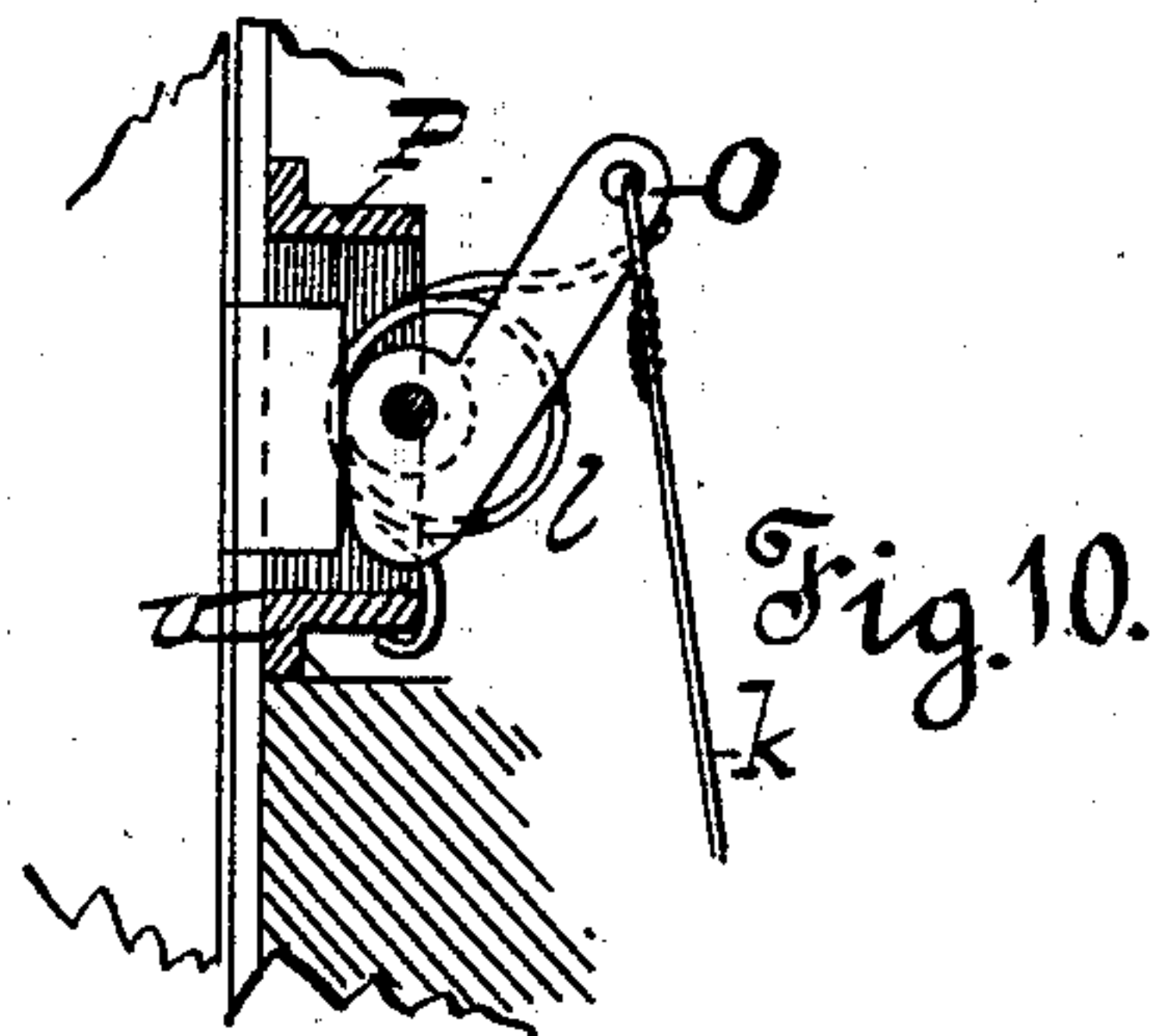
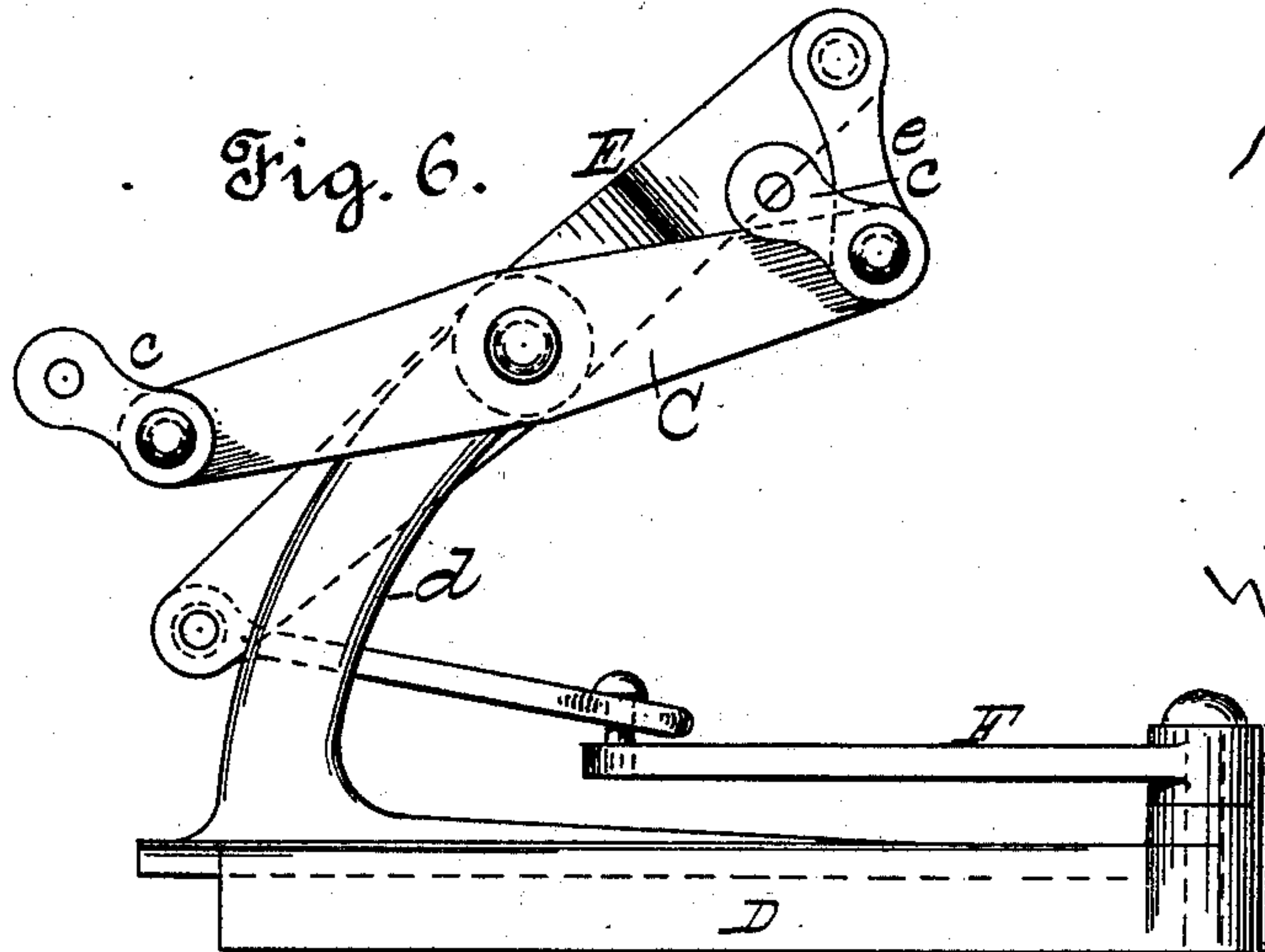


Fig. 8.

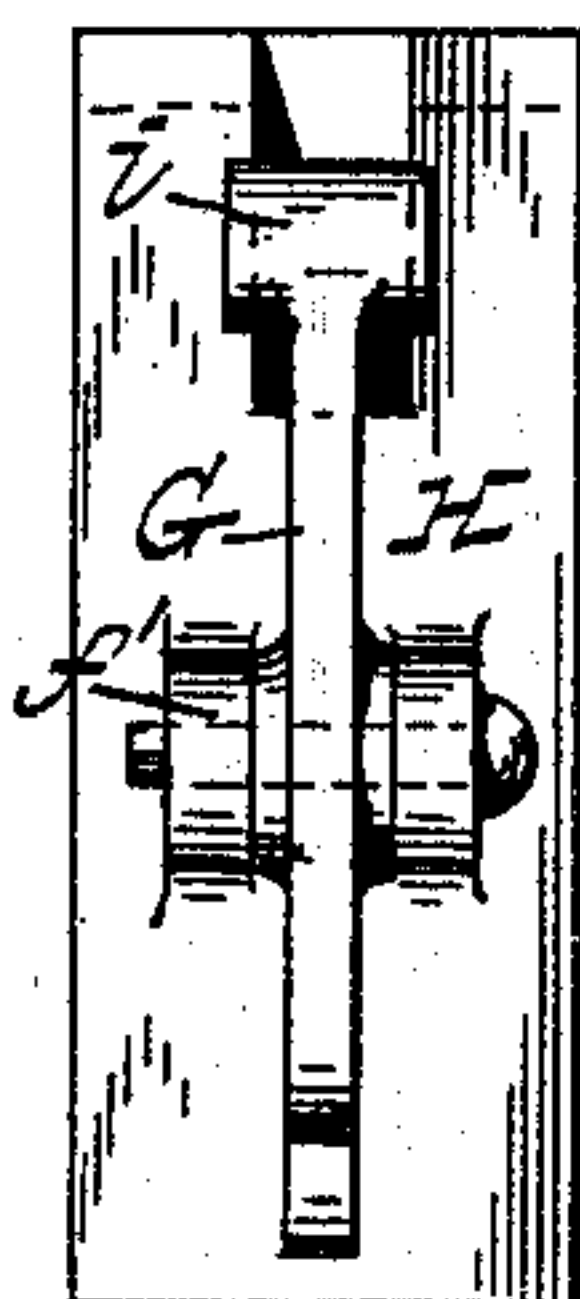


Fig. 9.

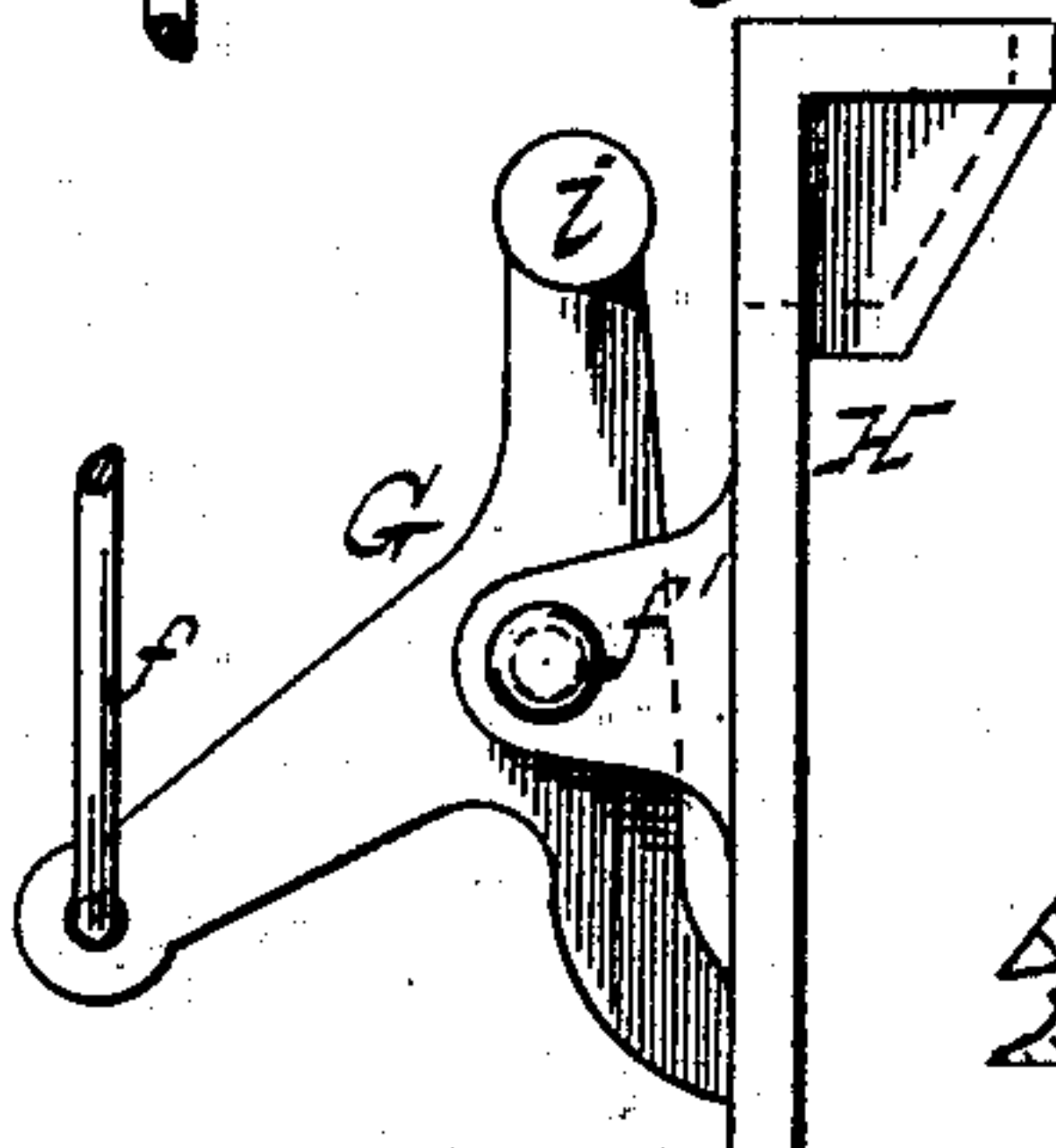
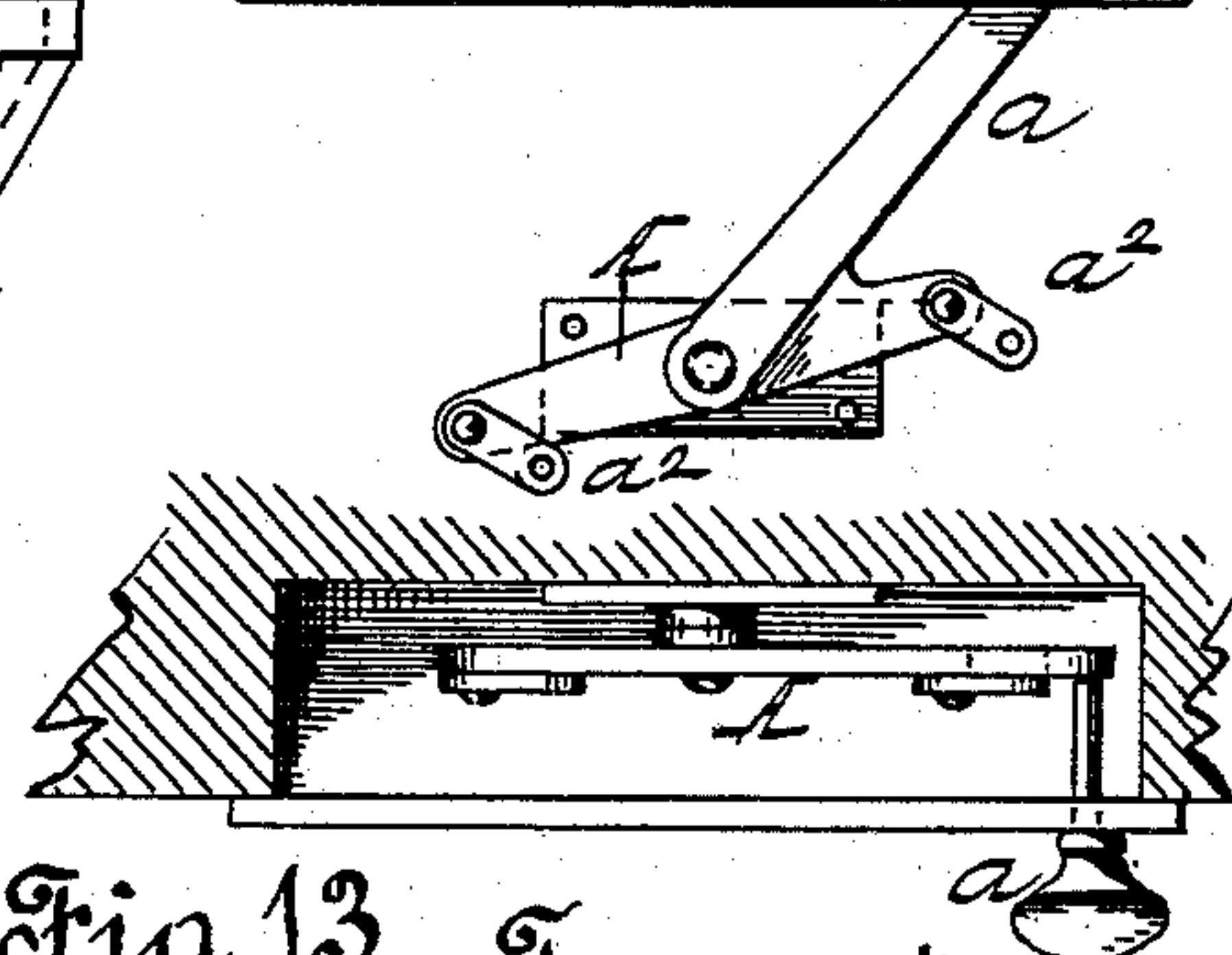
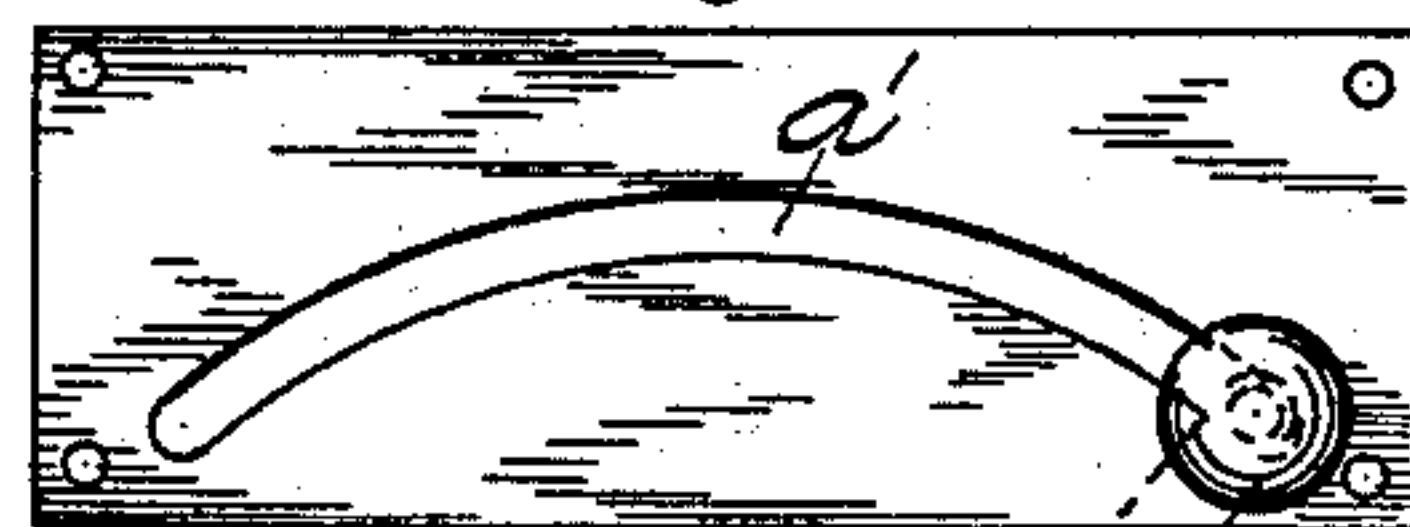


Fig. 12.



Witnesses.

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*Attorney*



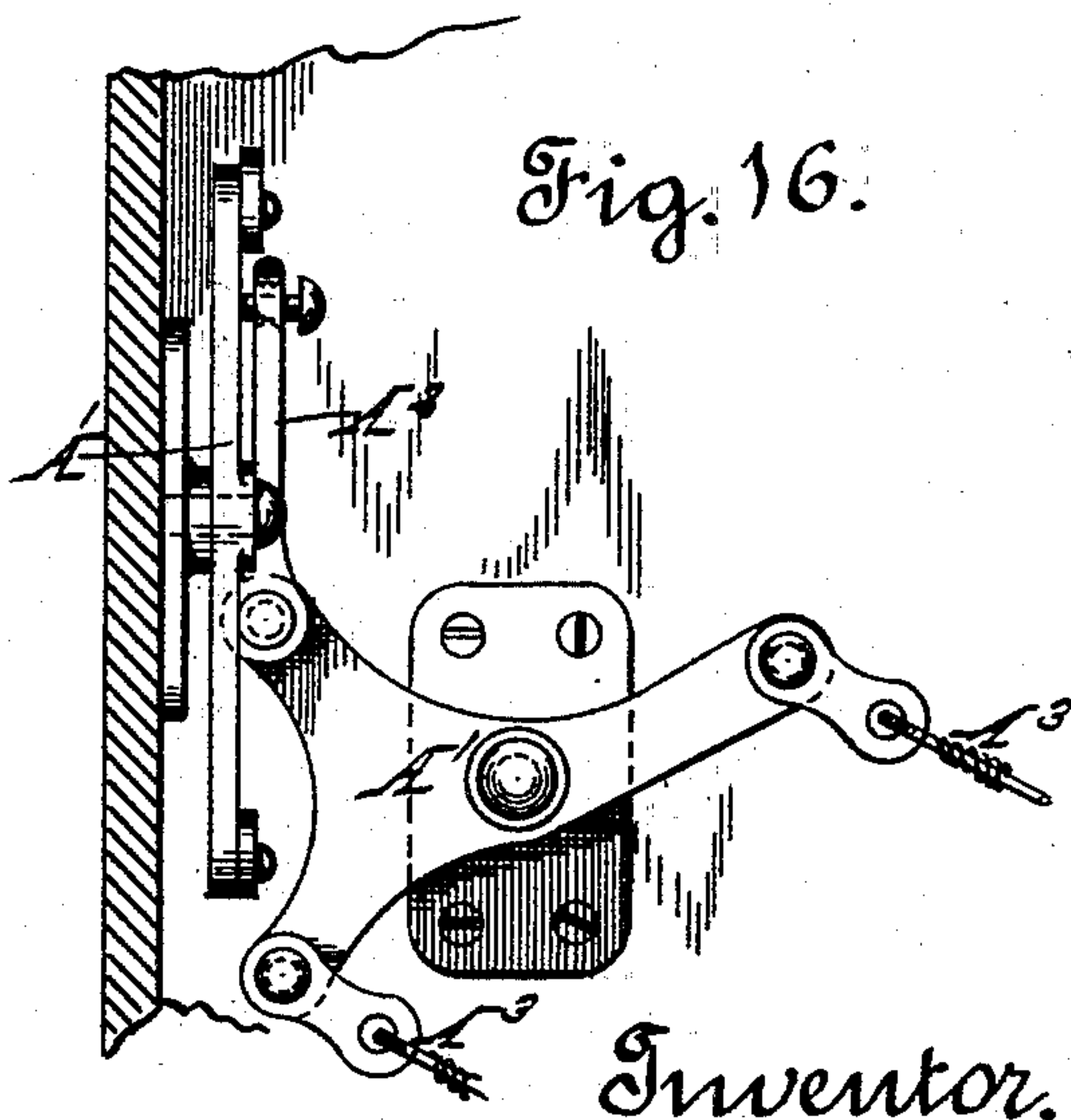
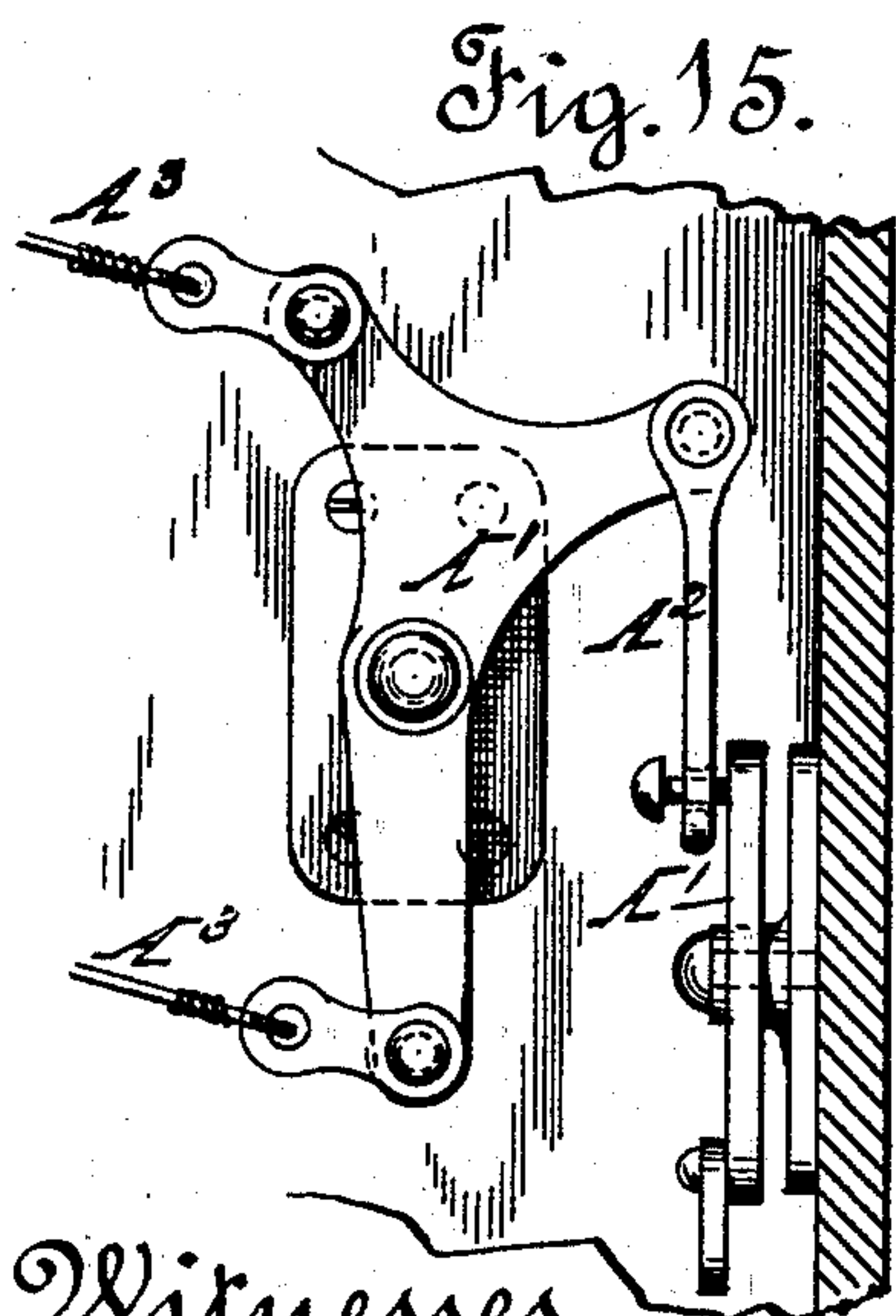
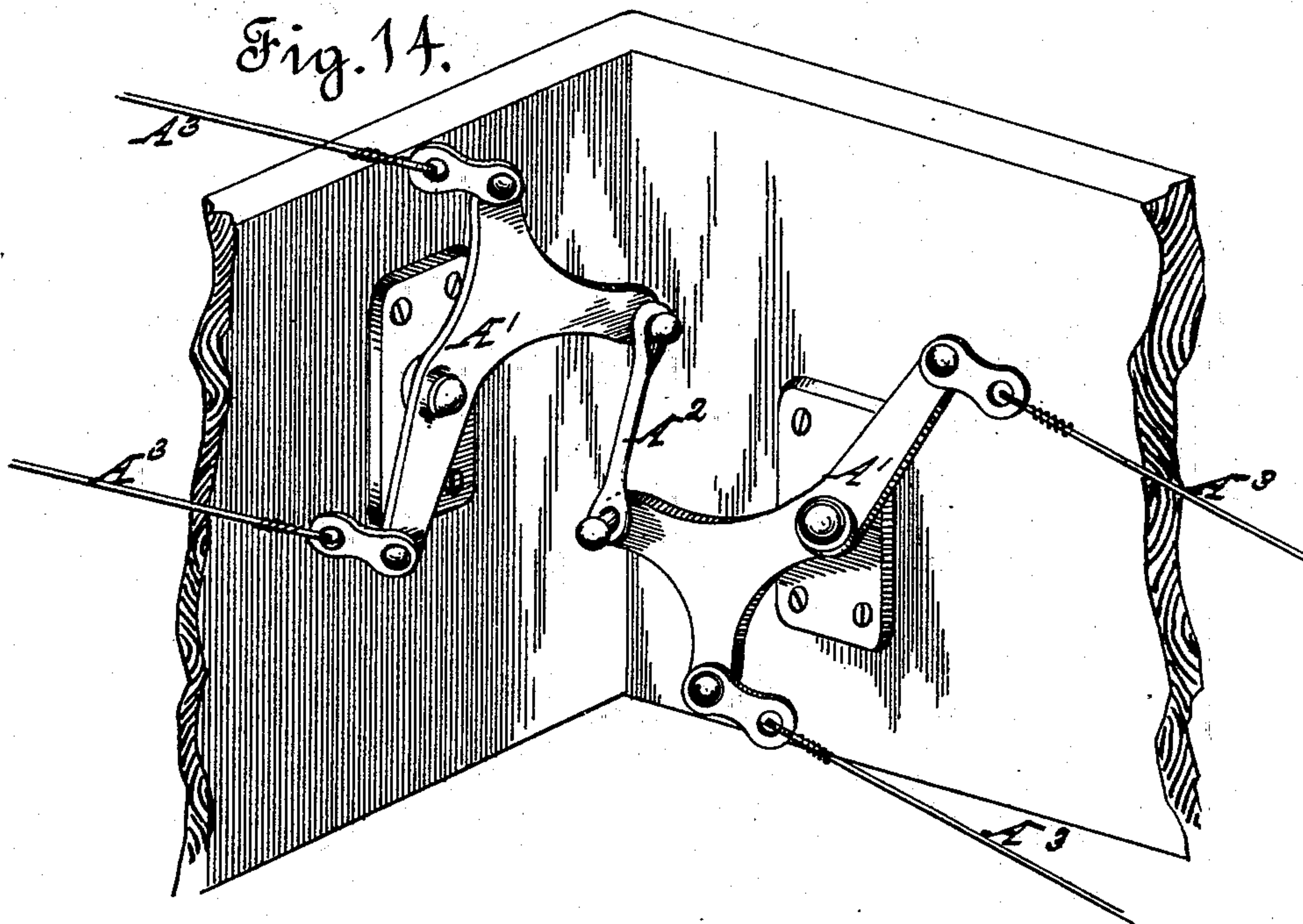
(No Model.)

3 Sheets—Sheet 3.

G. RISCHMULLER.  
DOOR OPERATING DEVICE.

No. 524,769.

Patented Aug. 21, 1894.



Witnesses.

*H. Korteveerde*

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Inventor.

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*Attorney*



# UNITED STATES PATENT OFFICE.

GEORGE RISCHMULLER, OF SAN FRANCISCO, CALIFORNIA.

## DOOR-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 524,769, dated August 21, 1894.

Application filed October 1, 1892. Serial No. 447,546. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE RISCHMULLER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Door-Operating Devices; and I do hereby 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.

My invention relates to an improved door-operating device, designed more especially for operating or opening and closing a street, or ground-floor, door from an upper floor, and it has for its object to provide for the direct transmittal of the power of the hand-actuated lever to the door or object to be operated upon; to effect both the opening and closing of the door from the same elevated or distant point; to provide for the closing of the door after opening of the same by a reverse movement of the hand-actuated lever; to prevent the sudden closing or slamming of the door from currents or drafts of air through the house; to dispose or inclose the door operating mechanism properly, and to lock or clutch the door-latch actuating mechanism against operation when the door is opened in the usual way by the application of the hand to the knob; and to these ends the invention consists of a certain novel combination and arrangement of parts, substantially as hereinafter more fully disclosed and pointed out in the claims.

In the accompanying drawings,—Figure 1 is a broken perspective view showing my invention, in part, as applied for use to a street, or ground-floor, door. Figs. 2, 3 and 4 are reverse side views, and an edge view, respectively, of the bracket-plate, carrying the primary lever for actuating the door-latch, the retracting dog and the clutch or lock for said lever. Fig. 5 is a partly horizontal section and partly plan view of the same parts, also showing broken-away the lever that immediately acts upon the primary lever of the door-latch retracting dog. Figs. 6 and 7 are side and plan views, respectively, of a bell-crank,

with its actuating levers, that connects with the lever acting upon said primary lever. Figs. 8 and 9 are front and plan views of the lever adapted to act upon said primary lever. Figs. 10 and 11 are a side and a sectional view of the latch retracting dog. Figs. 12 and 13 are a side view, and a plan view, respectively, of the hand-actuated lever, with its guide-bracket and links adapted to connect by lines or wires with the actuating levers of the aforesaid bell-crank, and Figs. 14, 15 and 16 are a broken perspective view, and side views at right angles to each other, respectively, of a modification of the aforesaid bell-crank and its actuating levers, for use in a turn or angle of the stairway down which the lines or wires extend.

In carrying out my invention, I provide a centrally pivoted lever A, let into the stairway casing at the head of the stairs, upon an upper floor, and having a knobbed handle  $a$  standing at an obtuse angle, or diagonally, thereto, with its knob projecting through an arcuate guide-slot  $a'$  in a plate or board covering a recess in said casing which recess receives said lever and its handle, to provide for the convenient manipulation of the lever.

The lever A has at its ends two short links  $a^2$   $a^3$ , and to these are designed to be connected the upper ends of two stout wires or lines B, the lower ends of which are also connected to short links  $c$   $c$  carried at the ends of a lever C centrally pivoted upon the up-right arm  $d$  of a bracket D screwed or secured to the base or sill of the studding of the ground-floor hall-way, near the rear edge of the door. Upon the same pivot as the lever C, is also centrally pivoted a bent lever E connected at one end by a short link  $e$  to one end of the lever C.

The opposite or forward lower end of the bent lever E is connected by a link  $e'$  to one end of a horizontal bell-crank F, pivoted or hung upon a pivot-stud of the bracket D, the opposite free end of the bell-crank F being connected by a link  $f$  to the rear end of a right angled lever G, suitably pivoted to the door, preferably between cheek-pieces of a socket  $f'$  of a bearing-plate H, secured to the street-door near its hinged edge, at the lower corner.

The free inner end of the lever G has a cy-



lindric portion or stud  $i$  adapted to engage one arm of a right-angled lever I, hung upon a pintle or pivot  $p$  supported upon and at the inner edge of a vertical plate J secured or

5 screwed to the hinged post of the door-frame. K is a latch or dog having its notched edge adapted to engage a beveled-edge of the lever I, and lock it against movement, and pivoted to swing or move in a vertical plane  
10 upon a pivot or stud  $h$  supported in a bracket  $h'$  projecting from the plate J. The upper arm of the latch or dog K is held by a headed end thereof, and has a limited amount of play, in the slotted end of a slide or push-bar  
15 L having a reduced cylindric end  $j$  sliding in an aperture in the plate J and projecting thereat toward, and so as to be engaged by, the back edge of the door.

The lever I has one arm carried downward  
20 and outward and to the free end  $f^2$  thereof is connected a wire or line  $g$  passing between the carpet-strip and floor and connecting with an angle-lever M pivoted upon a plate N, secured in the door-jamb, near the floor.

25 O, is a dog, hung or pivoted upon a pintle or pivot, in the opening of a frame-like casting or plate P, integral with the catch or socket plate U fastened to, and flush with, the door-jamb, said dog being connected, at its upper  
30 end by means of a wire  $k$  with the upper end of the angle-lever M. The pintle or pivot of the dog O, also affords a support for a coiled spring  $l$ , one end of which catches or bears upon one edge of the opening of the plate U,  
35 while the other end bears upon the outer or upper end of the dog O, to normally retain the latter in the position shown in Figs. 1 and 10, with its inner or acting end retracted, said end of dog being directly opposite the point of re-  
40 ception for, and in engagement with, the door latch.

In Figs. 14, 15 and 16 is shown provision for adapting the mechanism or invention to turns or angles in stairways, the same consisting of  
45 tri-armed levers  $A' A'$  arranged in planes at right angles to each other, or at other angles according to the angle or turn in the stairway, and connected together by a link  $A^2$ , having its ends attached to an arm of each lever, two  
50 wires or lines  $A^3$  being connected to the other two arms of each lever and answering to the continuous wires or lines above described.

In operation, it will be seen that by manipulating or moving the knobbed handle  $a$  of  
55 the lever A in the required direction the wires or lines B B will be drawn upon, pulling the lever C rearward, causing the lever E, through the link  $e'$ , to actuate the bell-crank F, in turn similarly moving, through the link  $f$ , the lever  
60 G. The lever G will thus force inward one arm of the lever I effecting through the wire  $g$  the actuation of the lever M, pulling through the wire  $k$  the outer end of the dog O downward, causing the inward movement of the  
65 lower end of said dog which, by its engagement with the door-latch, disengages the latter from the socket or catch of the door-jamb.

The continued movement of the hand-lever brings the stud  $i$  of the lever G into engagement with the plate H of the door, and thus  
70 results finally in opening the door.

It is apparent that the door being under the control of the opening and closing wires or lines the door can be held open at any required angle, and be prevented from slamming or  
75 suddenly closing. It will also be seen that the reverse movement of the hand-lever will, through the aforesaid parts, including the two wires or lines, effect the closing of the door.

It is obvious that, should the wires B B<sup>2</sup> become inoperative or caught in the wall as the door is closed by hand, the lever G would force the opposite end of the lever I inward and, thus throwing the other end of the latter lever rearward, would cause the dog O to unlatch  
85 the door. This, it will be seen, however, is overcome by the use of the latch or dog K locking the lever I when the door is open, and yet disengaged from the lever I when the door is closed as above described to permit of the  
90 unlatching of the door when the lever A is operated.

I claim and desire to secure by Letters Patent—

1. The combination with a door of a door-  
95 actuating lever; a bell crank lever supported at some convenient point; two vertically swinging levers connected at one end, and fulcrumed on the same pin; links connecting the arms of the bell-crank lever to the door  
100 actuating lever, and to the free end of one of the vertically swinging levers; and connections between the second lever and the handle of the apparatus, all substantially as shown.

2. In a door-operating device, the combina-  
105 tion with the door-unlatching mechanism and its initially operating lever hung upon the hinge-post, and means for operating said lever, of a dog or latch engaging, and temporarily holding said lever against movement,  
110 and means for tripping or disengaging said dog or latch from said lever, substantially as set forth.

3. In a door-operating device, the combina-  
115 tion, with the door-unlatching mechanism and its initially operating lever, hung upon the hinge-post, and means for operating said lever, of the dog or latch engaging said lever, and a slide or push-bar engaging said dog or latch and itself engaged by the back edge of  
120 the door as the latter is closed, substantially as specified.

4. In a door-operating device, the combina-  
125 tion, with the door-unlatching mechanism and its initially operating lever hung upon the hinge-post, and formed of a right angled arm, arranged at one side of its pivot, and an arm standing at a right angle to the aforesaid arm, upon the opposite side of its pivot and means for operating said lever through one of said  
130 arms, of a dog or latch engaging the other arm of said lever and temporarily holding it against movement and a slide or push-bar engaging said dog or latch and having a re-



duced end portion resting in an aperture of the support therefor, and adapted to release said dog or latch from said lever as the door is closed, substantially as specified.

- 5 5. In a door-operating device, the combination, with a door-actuating lever, a bell-crank connected thereto, centrally pivoted connected levers, one connected to said bell-crank, and lines or wires ranging along the  
10 stair-way and connecting with the other of said centrally fulcrumed levers, of the relatively angularly-disposed, connected, tri-

armed levers, to accommodate turns in the stairway one connected to said lines or wires, and means for actuating said levers by additional wires or lines connected to the other  
15 of said levers, substantially as set forth.

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

GEORGE RISCHMULLER.

Witnesses:

JNO. L. BOONE,  
CHAS. D. WHEAT.