

No. 746,183.

PATENTED DEC. 8, 1903.

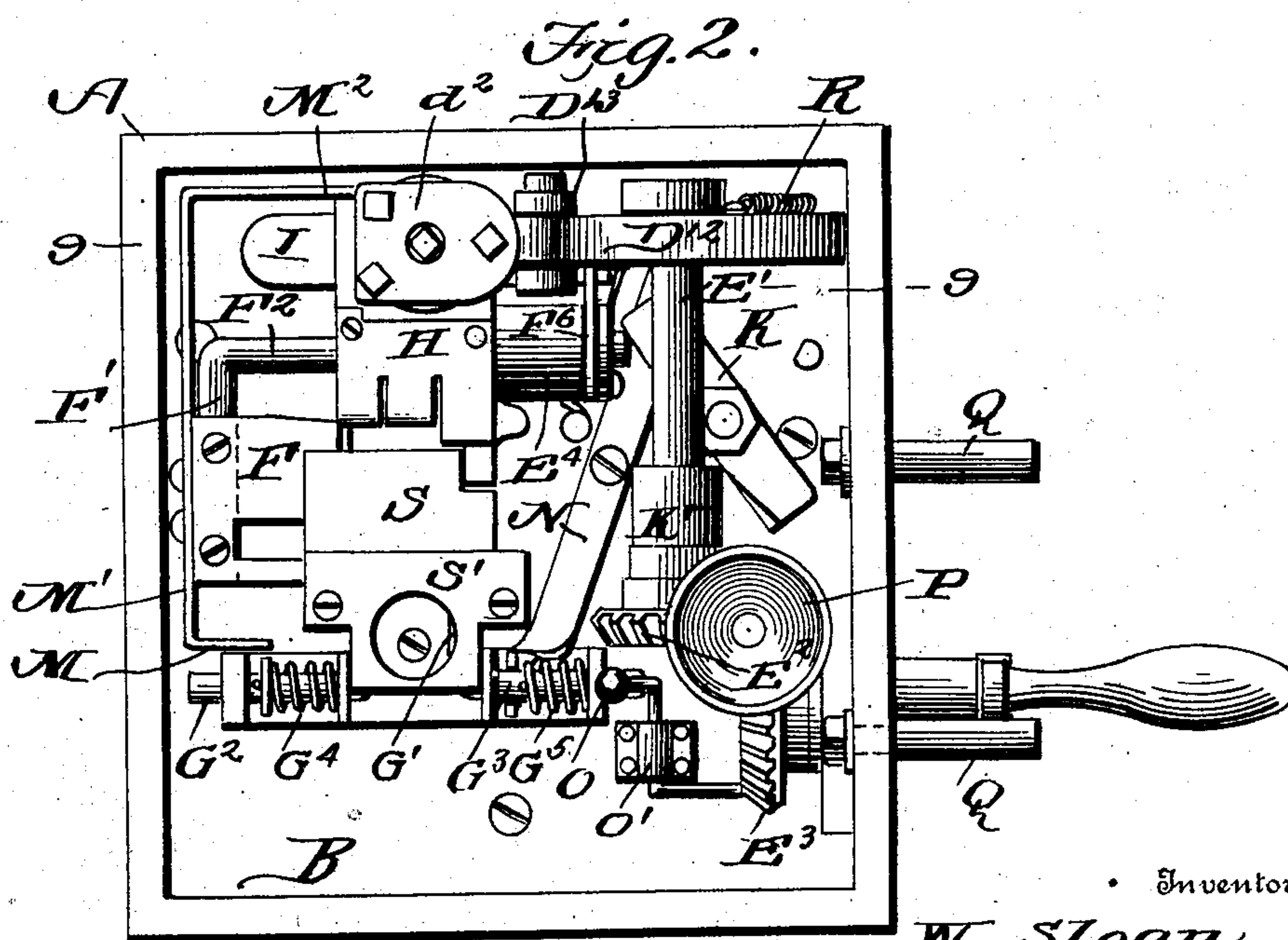
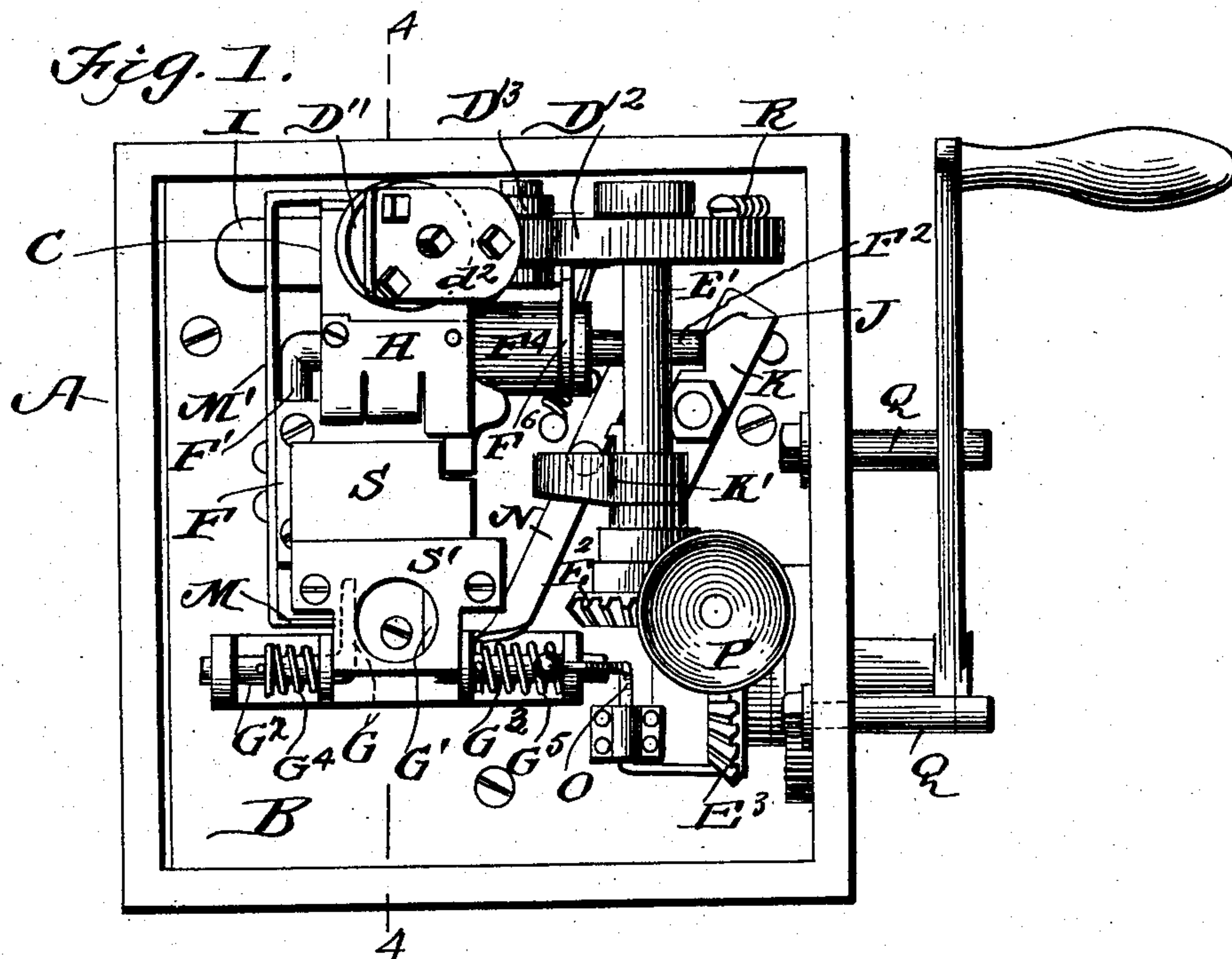
W. SLOAN & J. E. ROBINSON.

FRAUD PREVENTIVE DEVICE FOR VENDING MACHINES.

APPLICATION FILED AUG. 2, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses

*Wm. Blundell,
Clarence Shaw*

Inventors

*W. Sloan
J. E. Robinson*

By *Marshall Brock*
Attorneys

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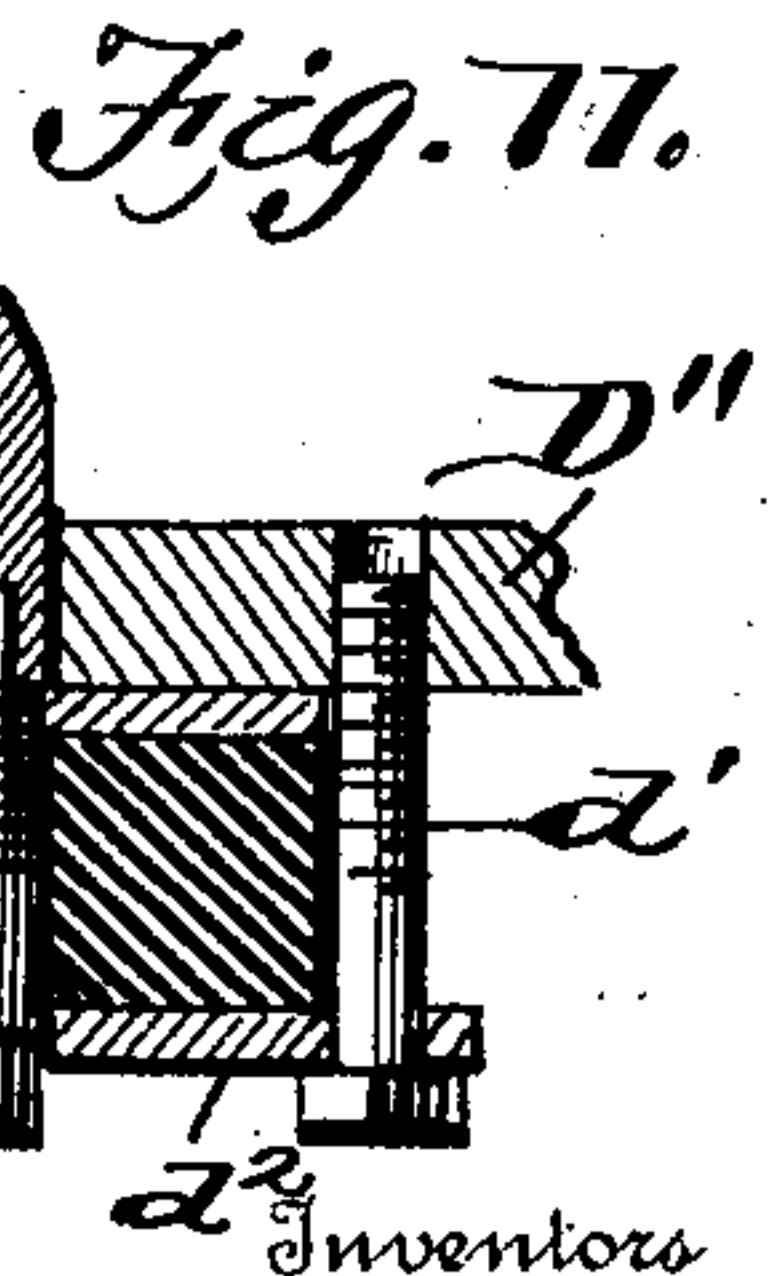
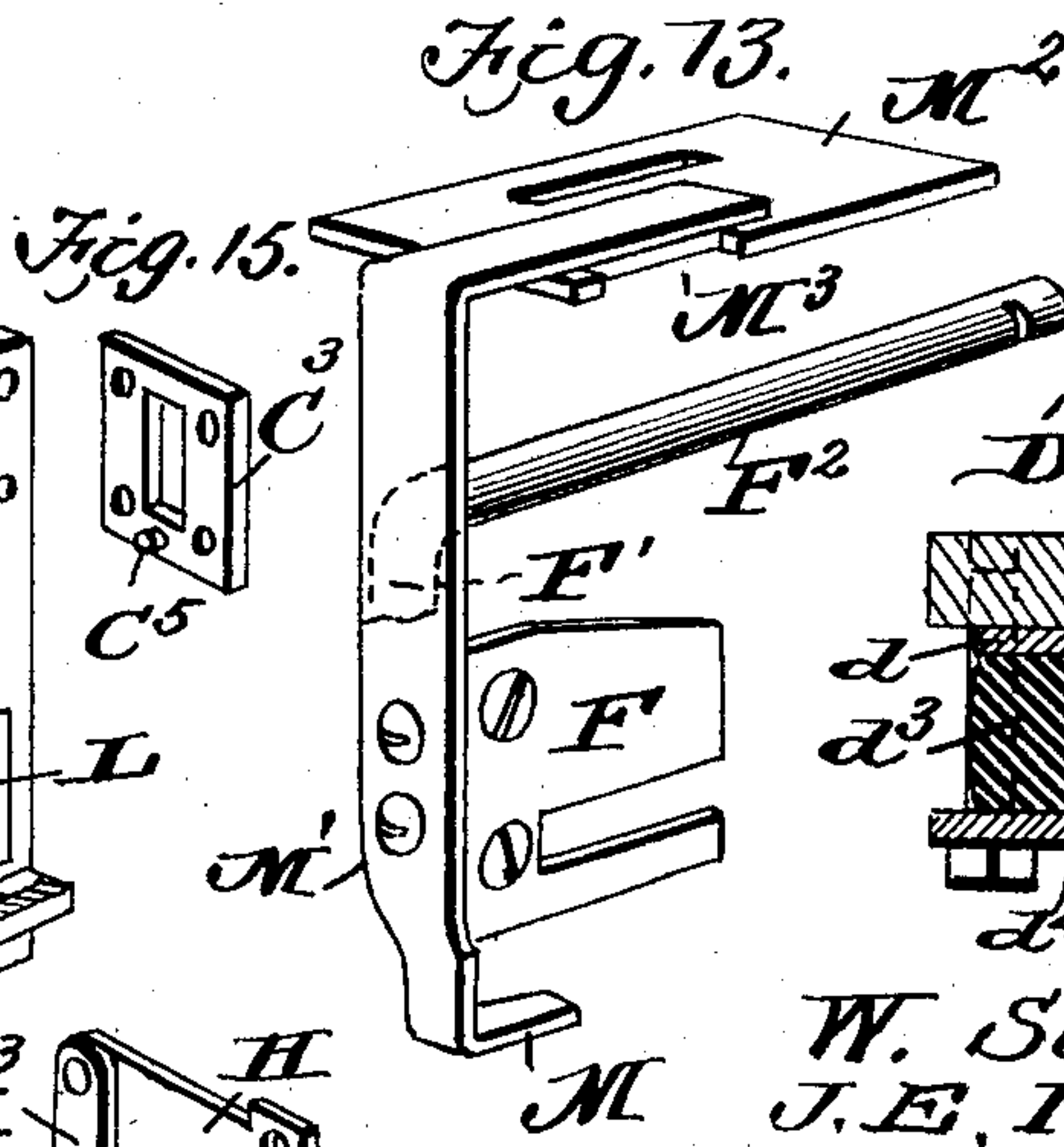
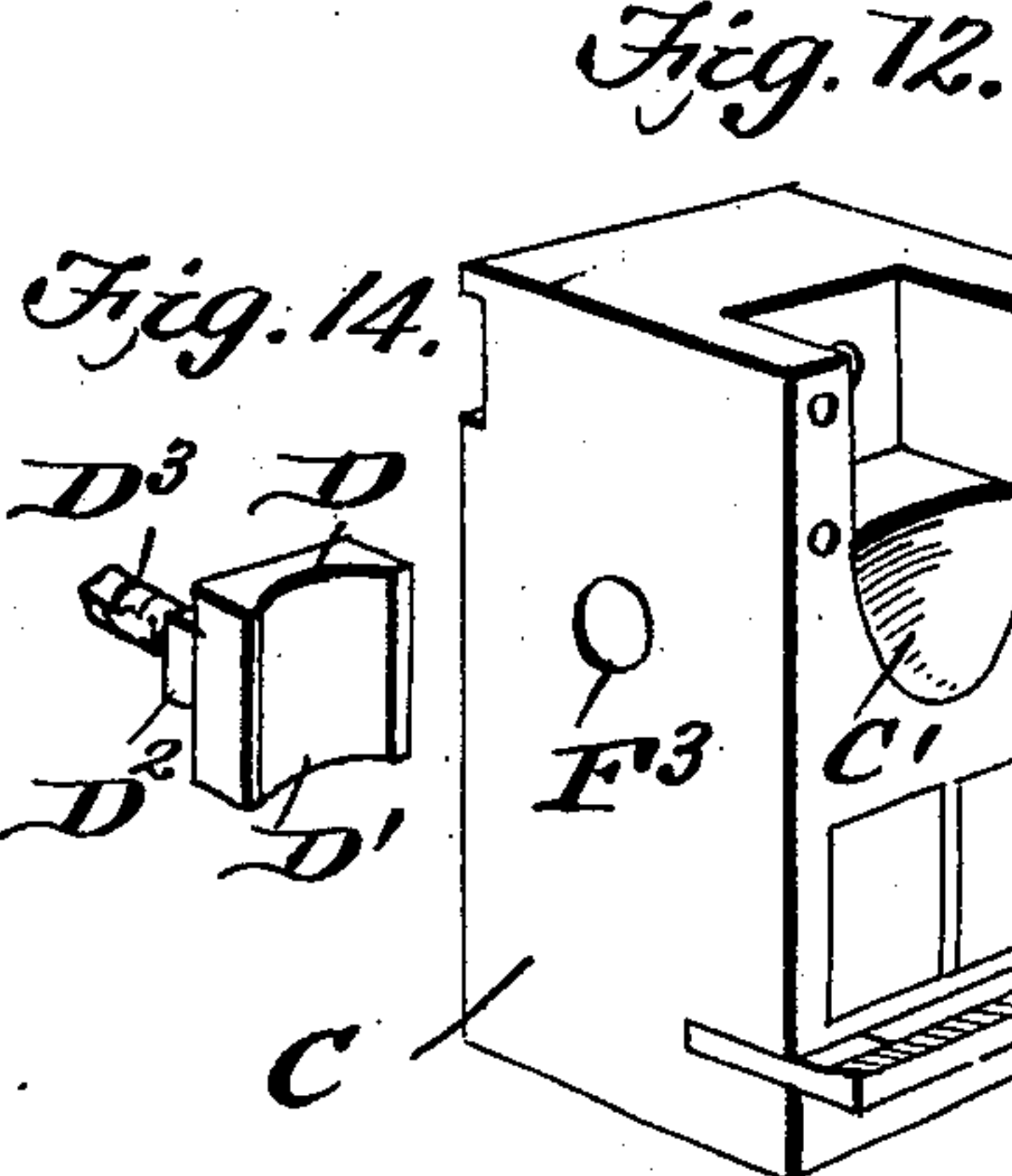
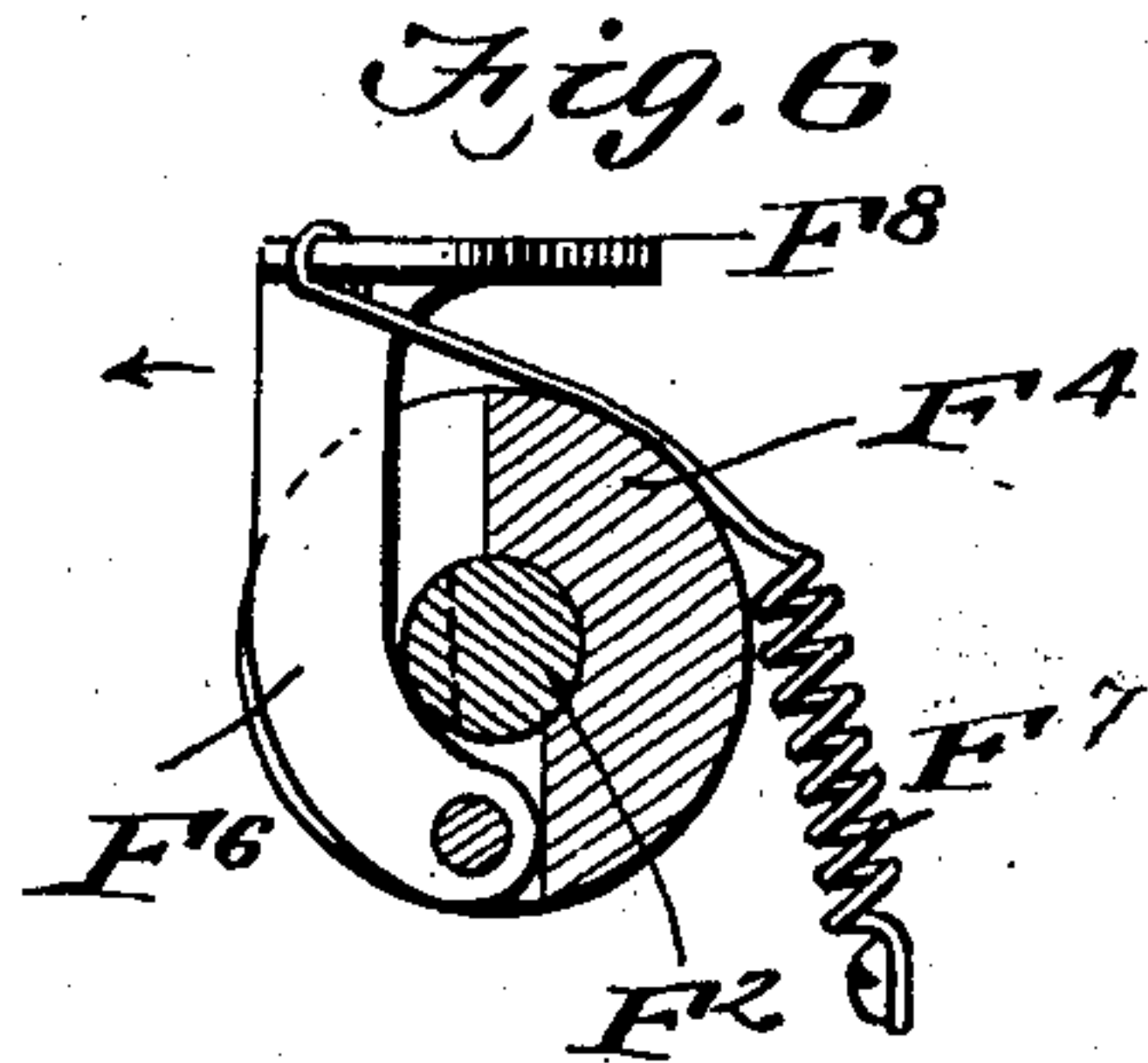
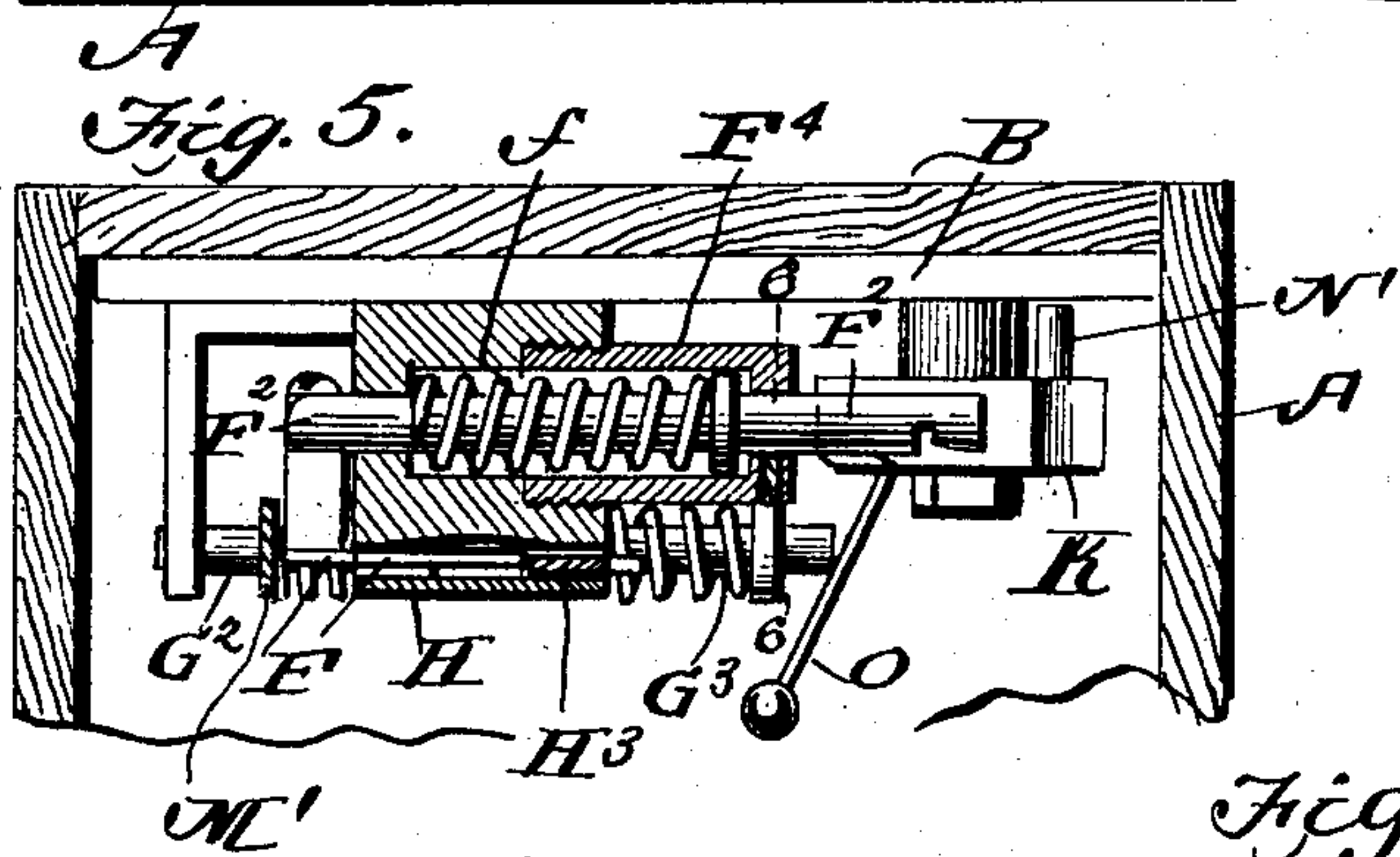
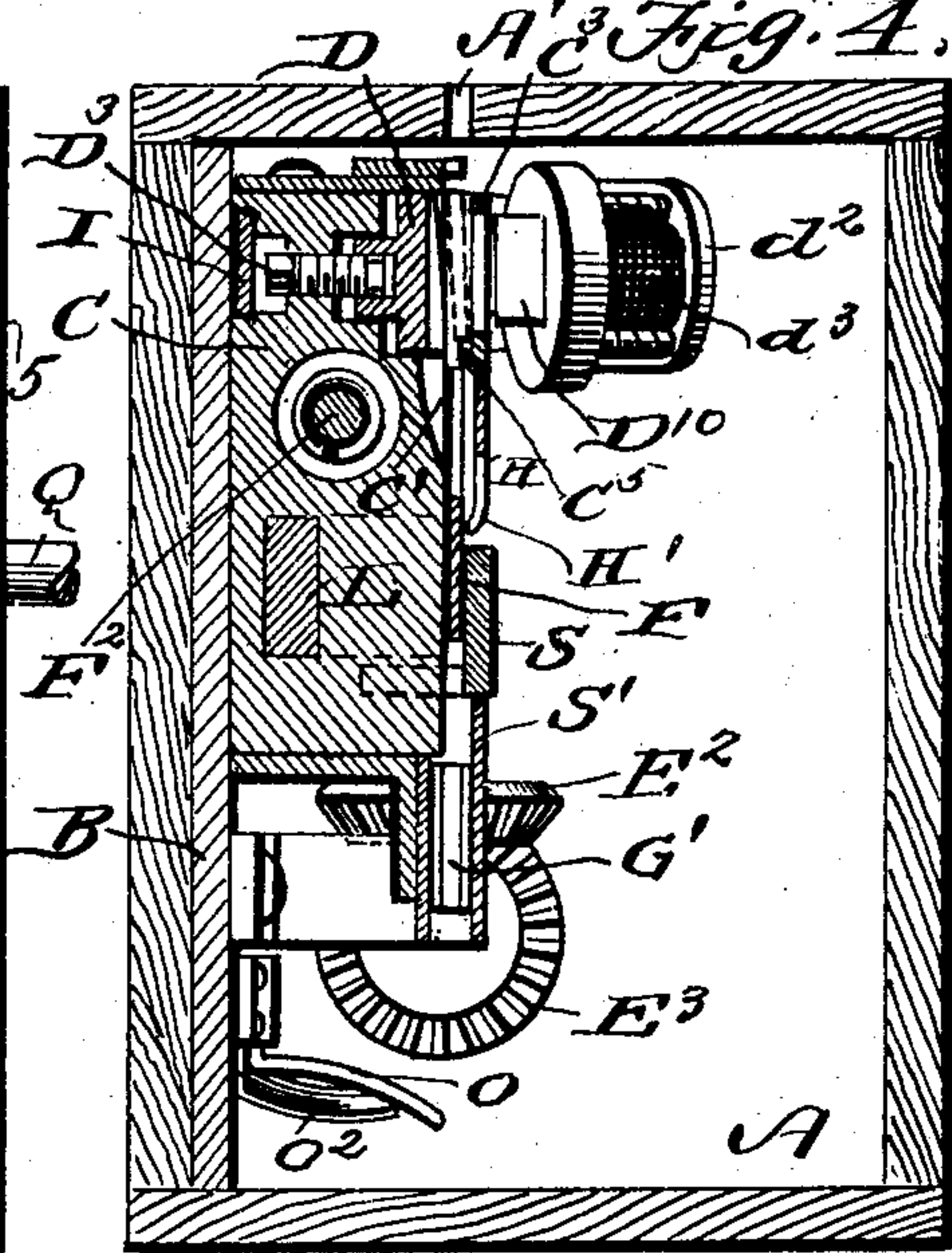
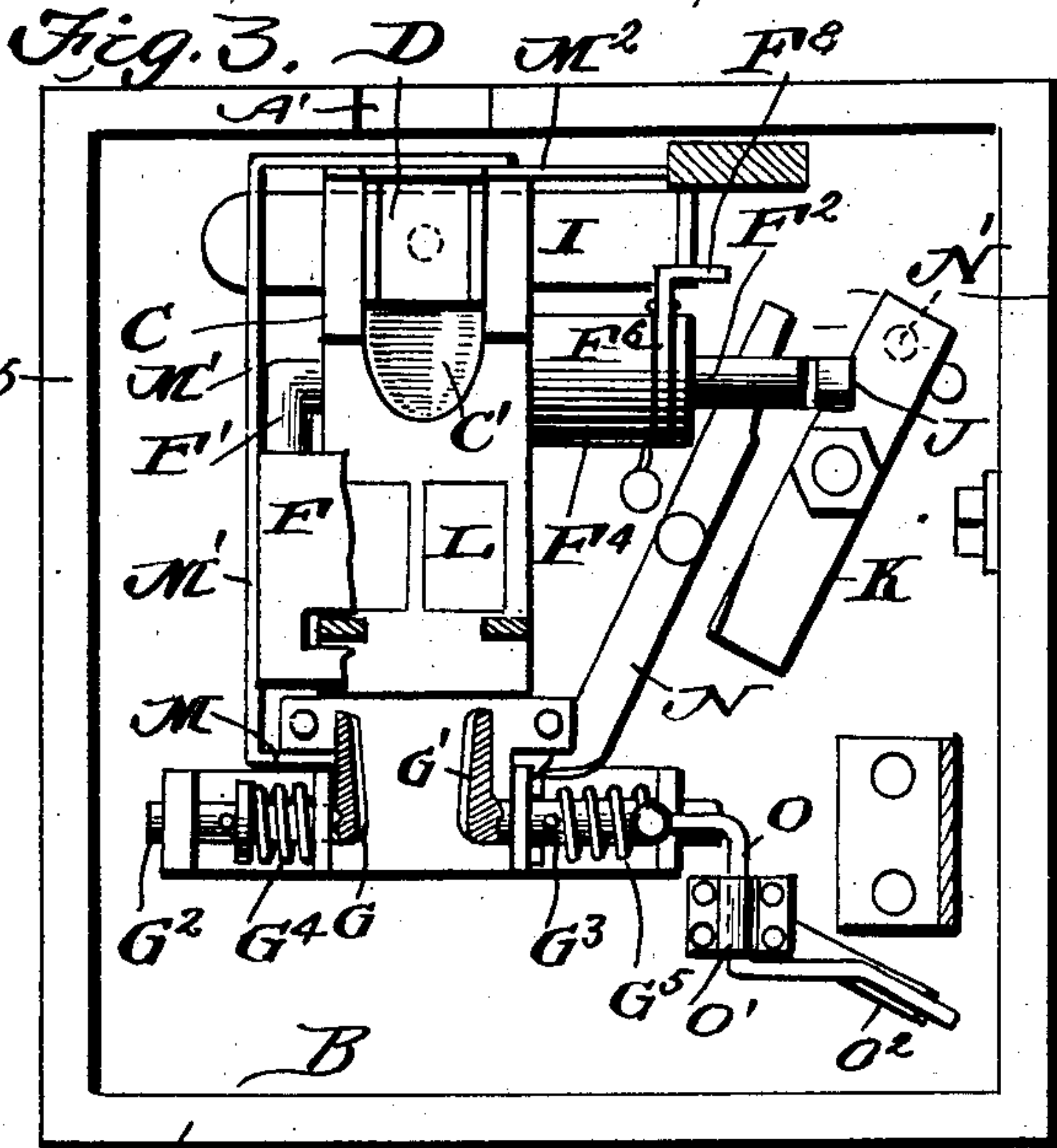
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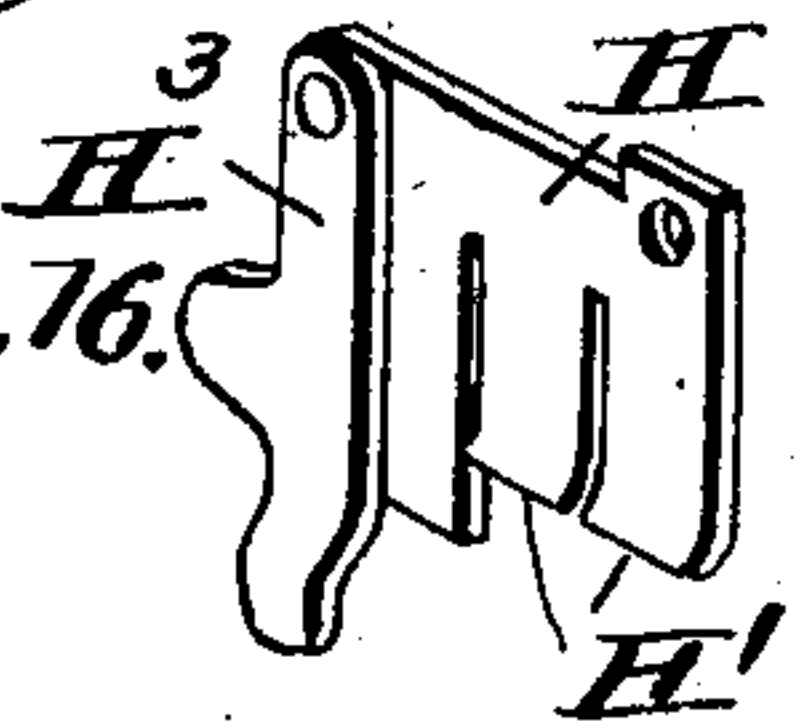
APPLICATION FILED AUG. 2, 1902.

NO MODEL.

3 SHEETS—SHEET 2.



Witnesses
M. Blouet
Charles Hay



W. Sloan,
J. E. Robinson,
By *Manfred Brock*
Attorneys

No. 746,183.

PATENTED DEC. 8, 1903.

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3 SHEETS—SHEET 3.

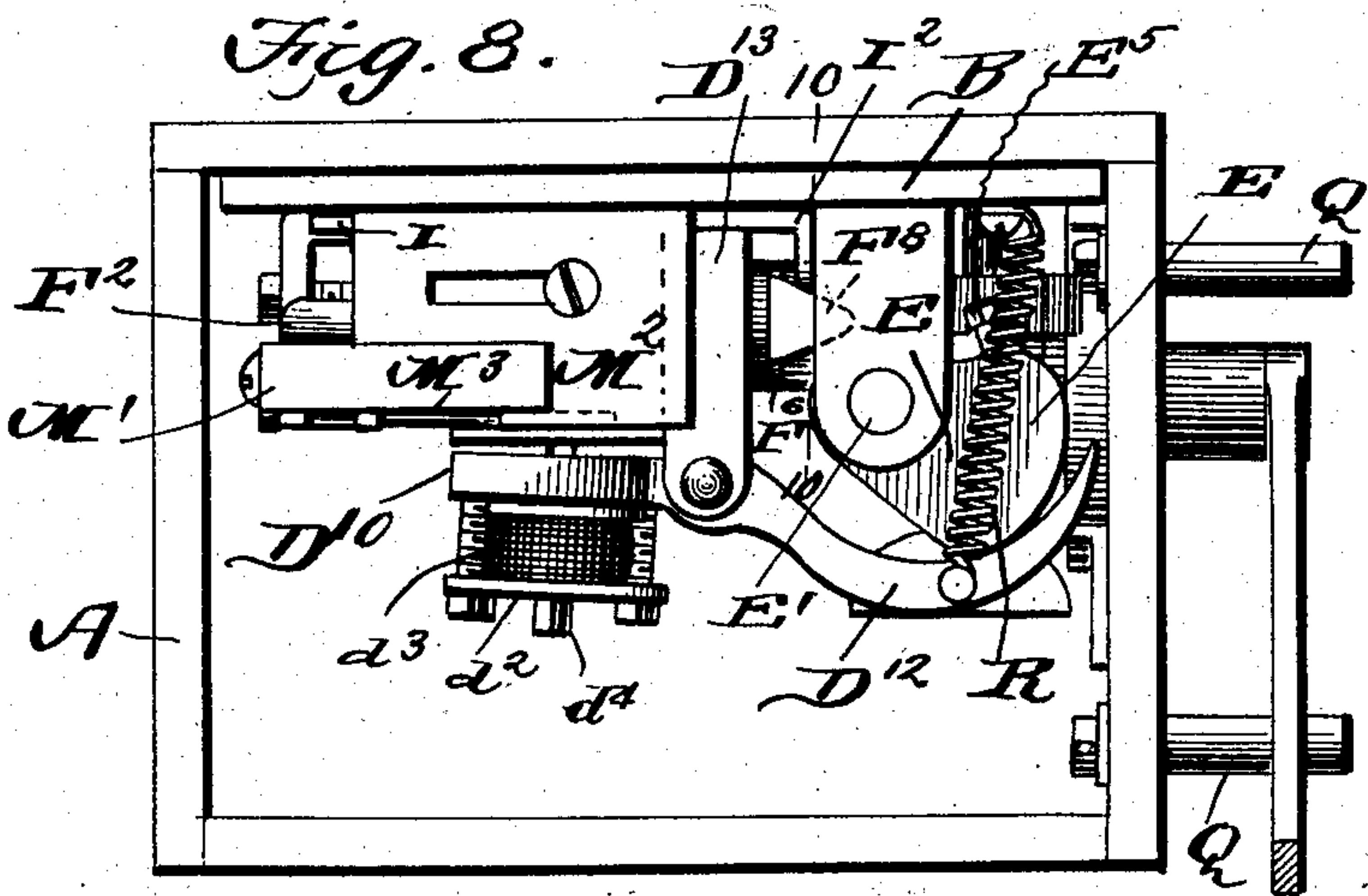
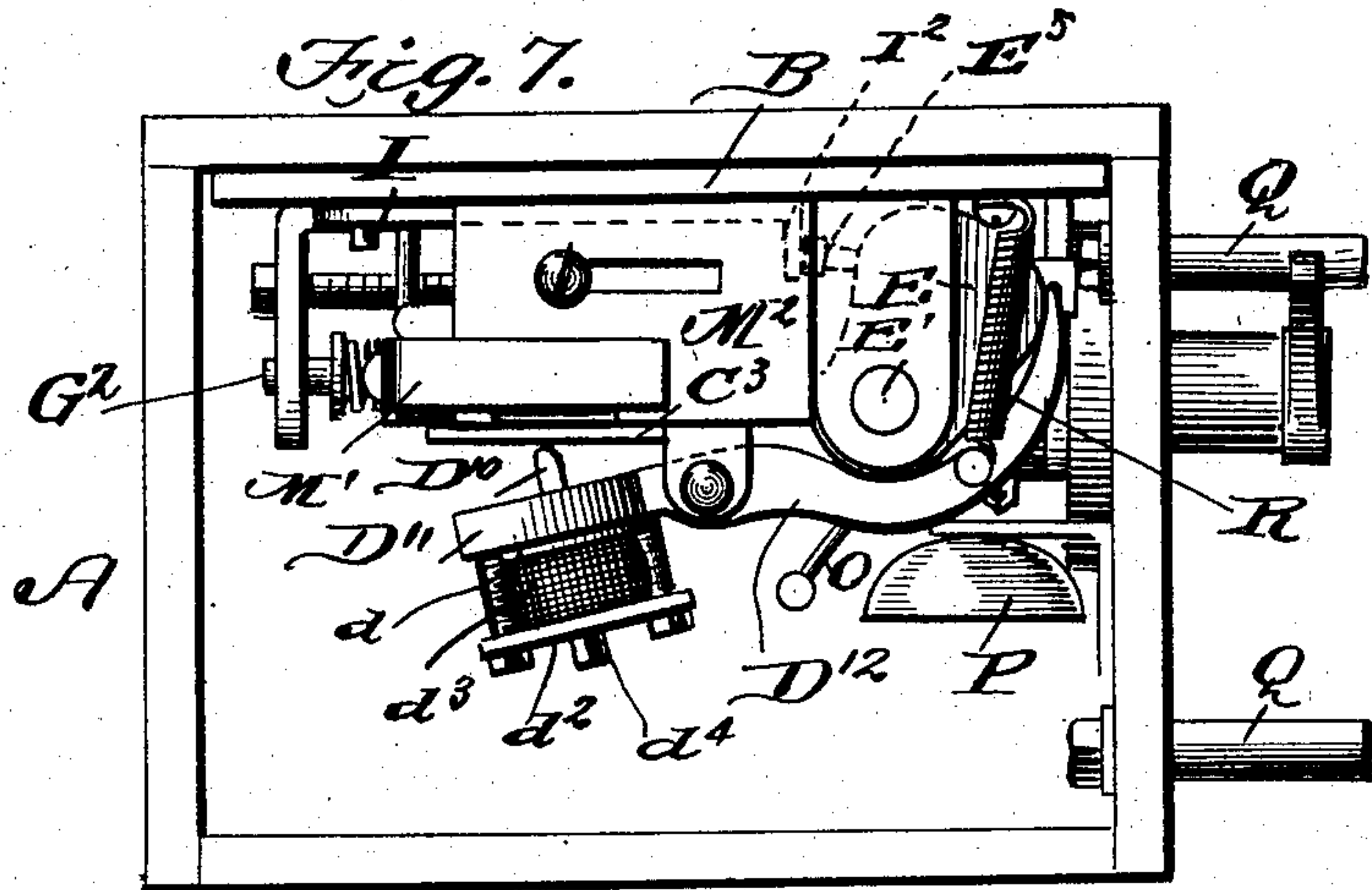
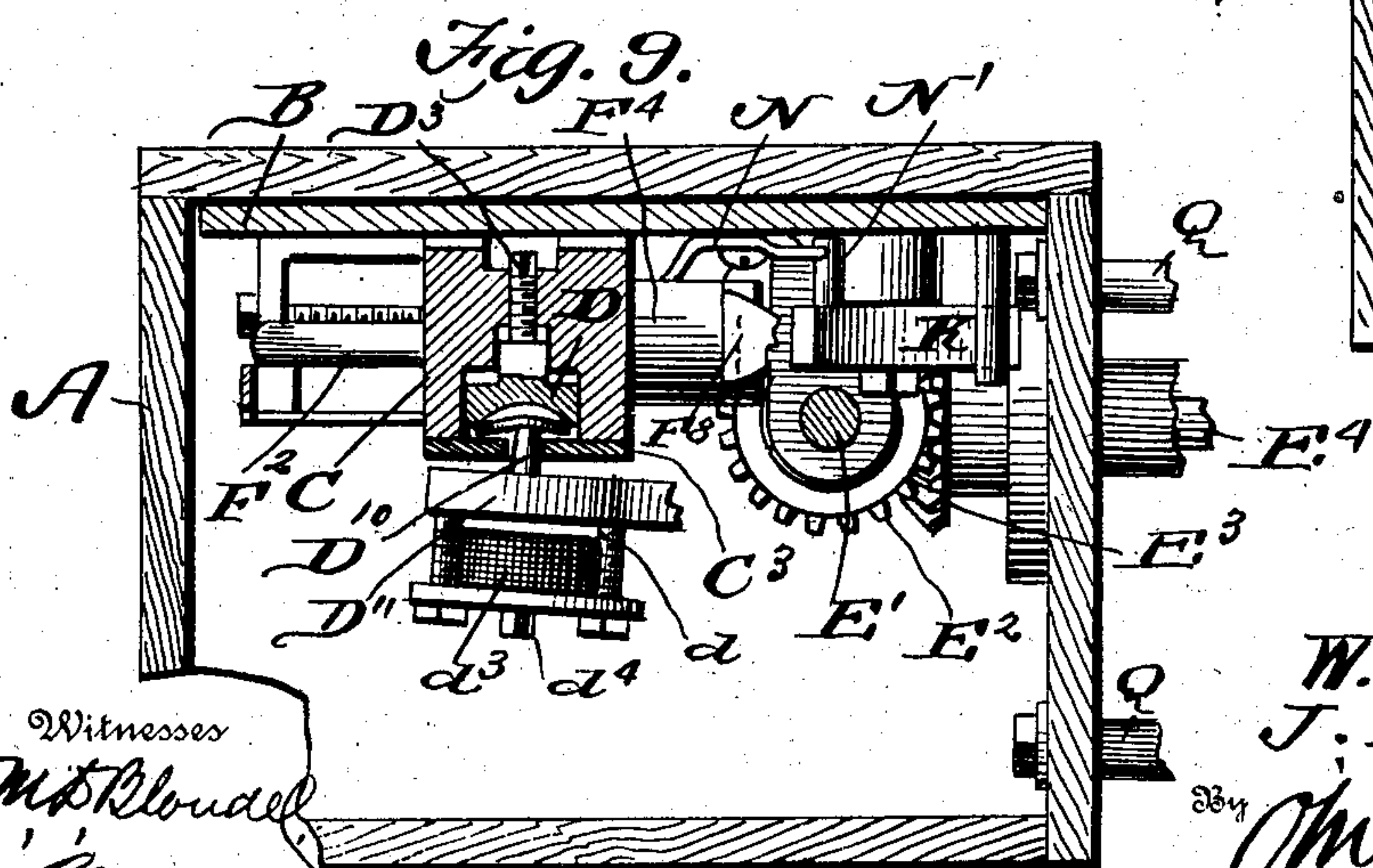
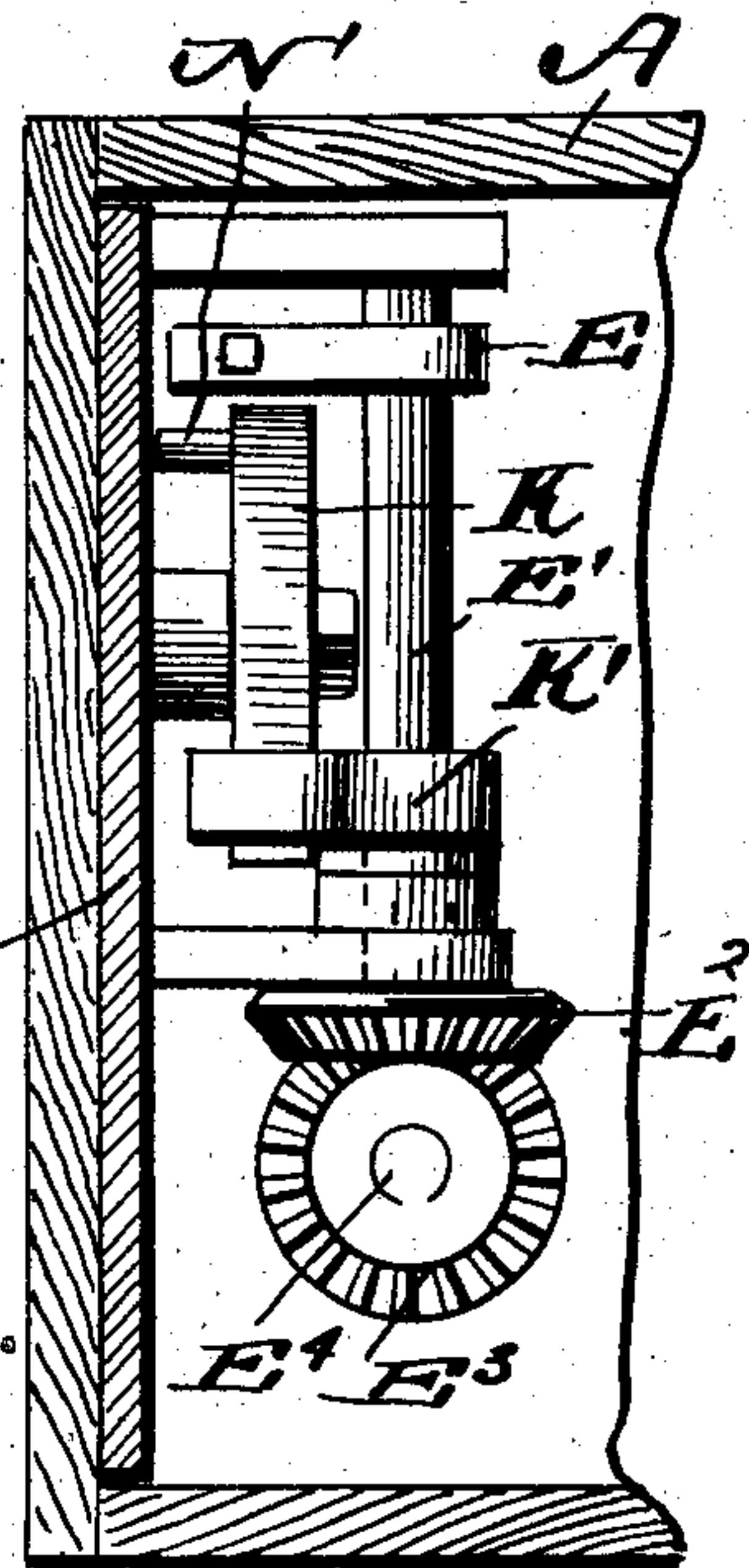


Fig. 10.



Witnesses
M. R. Cloude
Charles H. Shaw

Inventors
W. Sloan
J. E. Robinson,
By *Murder Brock*
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM SLOAN AND JOHN E. ROBINSON, OF CLEVELAND, OHIO, ASSIGNORS
OF ONE-THIRD TO JOHN P. FERAN, JR., AND GEORGE HUMMELL, OF
CLEVELAND, OHIO.

FRAUD-PREVENTIVE DEVICE FOR VENDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 746,183, dated December 8, 1903.

Application filed August 2, 1902. Serial No. 118,165. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM SLOAN and JOHN E. ROBINSON, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Fraud-Preventive Device for Vending-Machines, of which the following is a specification.

This invention relates to an improved fraud-preventing device for vending and various coin-operated machines; and the object thereof is to provide a device that can be either applied to the machines now in use or one that can be applied to a machine for the purpose of rejecting slugs of various metals and permitting only a good coin to pass into the coin-chute.

Another object of our invention is to provide a device that can be regulated according to the strength of the coin used for operating the machine; and with these briefly-stated objects in view our invention consists of certain details of construction and novelties of combination and arrangement, as will be fully set forth in the following specification and pointed out in the claims, reference being had to the drawings, in which—

Figure 1 is a face view of our improved device held within a casing. Fig. 2 is a similar view showing the parts in a different position. Fig. 3 is a similar view of the device with the parts in the position shown in Fig. 1, but with parts of the mechanism removed and others broken away, as shown in section. Fig. 4 is a sectional view on about the line 4 4 of Fig. 1. Fig. 5 is a sectional view on about line 5 5 of Fig. 3. Fig. 6 is an enlarged detail sectional view on the line 6 6 of Fig. 5. Fig. 7 is a plan view of the device with the top of the casing removed, the position of the parts in this figure being the same as those in Fig. 1. Fig. 8 is a similar view with the parts adjusted to the position shown in Fig. 2. Fig. 9 is a detail sectional view drawn on about line 9 9 of Fig. 2. Fig. 10 is a sectional view on about the line 10 10 of Fig. 8. Fig. 11 is an enlarged section of the plunger and its support. Figs. 12, 13, 14, 15, and 16 are detail views of construction.

In the drawings we have illustrated a construction adapted for a machine in which a nickel is used, although we may say that the machine may be used upon machines in which coins of various denominations are used, and in carrying out our invention we employ a casing A, which may be constructed of any suitable material and of any suitable design, and within this casing is vertically arranged a base-plate B, carrying a casting C, in the front face of which is formed a recess C', that forms the passage-way for the coin, and arranged within the upper edge of the recess is what we shall term an "anvil" D, the face of which is concaved, as shown at D', and from the rear face projects a non-circular hub D², in which is swivelly held a threaded stem or bolt D³, which works through a threaded aperture in the casting and by which the anvil is moved backwardly or forwardly within the recess. A plate C³ is arranged over the face of the casting adjacent the upper edge thereof and has a slot produced therein through which projects a plunger D¹⁰, carried by the outer end D¹¹ of a lever D¹², that is pivotally held in brackets D¹³, projecting from the base-plate. The said lever has its outer end terminating in a curved portion, against which an operating-cam E works, said cam being held upon a shaft E', journaled in brackets that project from the base-plate, as clearly shown. A beveled pinion E² is arranged upon the lower end of the shaft and has a beveled pinion E³ meshing therewith, which is carried upon the inner end of a stub-shaft E⁴, whose outer end projects through the casing and has an operating hand-lever secured thereto, by which the said shaft is operated.

The plunger D¹⁰, before referred to, is adjustably and yieldingly held to the lever for the purpose of permitting an adjustment thereof to accommodate the plunger, allowing it to give or yield to a certain extent when thrown against a coin, and to provide such a construction we employ a plate d, arranged against the outer face of the lever and has its periphery notched, through which project the bolts d' that are threaded into the said lever.

A plate d^2 is also arranged upon the outer ends of the bolts, and between these plates is arranged a cushion d^3 , of rubber or any suitable material. A short bolt d^4 is threaded at its inner end and projects through a threaded aperture in the plate d and is swivelly connected to the plunger, while its outer end has a squared or wrench surface by which the bolt is moved in or out to adjust the plunger.

When a coin is dropped through the opening A' in the casing, it passes into the passage-way in front of the anvil and is held directly in front of the anvil by a lug or pin C^5 , projecting from the plate C^3 , and after the coin has been thus deposited the hand-lever is drawn downwardly, which through the medium of the gears and cam forces the outer end of the lever, and likewise the plunger, inwardly, the said plunger engaging the coin and forcibly projecting it against the anvil and holds it in such position until the hand-lever is reversed, and upon the return movement of this lever the plunger is withdrawn, which allows the coin to drop down in front of the casting, where it is caught between the vertically-projecting and diverging members G and G' of the horizontally-movable arms G^2 and G^3 , where it remains until the handle is again operated; but, for example, if a slug of metal whose strength is less than that of the nickel should have been dropped into the slot the plunger in engaging the same will force it against the anvil and press it into the recess, bending it, so that when the plunger is released the slug will be held to the face of the casting by means of a plate H , that has its lower edge slotted and the tines or members of the plate produced by the slots bent inwardly, as shown at H' , said inwardly-bent portions holding the coin until it is forcibly projected to one side of the casting by means of the ejector-plate F , which is held upon the vertical member F' of a horizontally-movable arm F^2 , which slides through a bore F^3 , formed in the casting, and also through a cylinder F^4 , screwed into the casting. The free end of the arm has a notch produced therein in which is designed to fit the locking-lever F^6 , that is pivotally held in a slot produced in the outer end of the cylinder and which is forcibly held against the arm by means of a spring F^7 . The upper end of the lever terminates in a beveled head F^8 , which is arranged for engagement with a sliding plate I , operating through the casting, as will be explained hereinafter. The arm and ejector-plate are normally projected forwardly, so that the plate F will rest across the face of the casting by means of a spiral spring f , which is arranged in the bore of the casting and cylinder and bears at one end against the casting and at its opposite end against a collar formed upon the arm, and the said arm and plate are forced backwardly by means of a lever K , that is pivotally held to the base-plate and is operated by an arm K' , carried by the shaft E' . Now upon the return

movement of the hand-lever the cam will be drawn backwardly to the position shown in Fig. 7, when a screw or bolt E^5 , carried by the cam, will engage the inwardly-bent end I^2 of the sliding plate, forcing it against the beveled head of the locking-lever, which throws the said lever out of engagement with the notch in the horizontally-movable arm F^2 , releasing the same, which through the medium of the spring will be returned to its normal position after bringing the ejector-plate across the face of the casting and ejecting the slug to one side of the casting, where it drops to the bottom of the casing.

Should a live metal, such as iron or steel, be dropped into the slot and the plunger fail to bend it as it would soft metal, the slug will drop down in front of the casting past the plate H , but will be held directly against the casting below the plate by means of a magnet L , which is held within the casting and to one side of the path of the ejector-plate F , so that upon releasing the arm carrying the plate the said slug of live metal will be ejected in precisely the same manner as the bent slug.

The arm G^2 is normally held toward the arm G^3 by means of a finger portion M of an arm M' , that is securely fastened to the vertical portion of the arm F^2 , and its upper end is connected with a plate M^2 , which has a slot or recess M^3 provided therein, which normally rests over the slot A' in the casing; but as the ejector is thrown to one side the plate M^2 will be moved across the said slot in the casing, closing the same and preventing a coin or slug being dropped into the machine while the machine is being operated. The horizontal sliding arms G^2 and G^3 are held by brackets projecting from the base-plate. Spiral springs G^4 and G^5 surround the arms and the tendency of the spring G^4 is to throw the vertical arm G away from the arm G' , the finger M' normally preventing such movement. When, however, the ejector-plate to which the arm M and finger M' are attached is moved across the casing, the finger M' is carried with it, and the coiled spring pressing on a suitable pin carried by the arm G^2 moves that arm and its vertical arm G away from the vertical arm G' . The spring G^5 presses inward on a pin carried by the arm G^3 , and in order that the arm G' may be moved away from the arm G , thus increasing the space between the arms and releasing the coin, a lever N is provided which is pivoted within a casing and has one end provided with a bifurcated laterally-projecting portion which straddles the shaft G^3 and its opposite end arranged for engagement by a pin N' , carried by the lever K , so that when the lever is thrown forwardly to operate the arm and ejector the arm G^2 will be drawn back against the tension of the spring G^5 , thus increasing the space between the vertical portion of the arms and insuring a perfect drop of the coin, from whence the coin

passes into the coin-chute of the machine, and as this arm G^3 is operated by the lever N it will engage a spring-actuated arm O , projecting it over against a gong P for sounding an alarm and indicating that the machine has been operated. Suitable stop-pins Q are arranged upon the exterior of the casing for limiting the movement of the operating-lever, and in practice we also employ a spring R for holding the cam-lever into positive engagement with the cam. We also provide the plate H upon the edge opposite the ejector with a pawl H^3 , which is pivotally held at its upper end to the said plate H and provides a guide for the coin as it drops from the anvil, but which allows the slug to be pushed past the edge of the plate, as will be clearly understood.

From the foregoing it will be seen that we provide a device by which a live or dead metal other than a nickel is ejected and prevented from dropping into the chute of the vending-machine proper, and by adjusting the screw d^3 the plunger may be regulated to accommodate the thickness of a nickel, and, further, that by adjusting the screws or bolts d' the tension of the rubber cushion may be likewise regulated, so that greater or less tension will be applied to the coin or slug.

The operation of the various parts of our device is as follows: When the handle is drawn downward, the shaft E' will be rotated through the medium of the gears E^3 and E^2 , and rotation of the shaft will rotate the arm K' and cam E , both of which are rigid with the shaft, and this rotation will continue until the handle comes into contact with the lower stop Q . The cam bearing on the inner face of the curved lever D^{12} will force same inward, causing it to strike any coin caught by the pin C^5 . Simultaneous with the movement of the cam the arm K' will swing the pivoted lever K , and the notched portion J of the lever K engages the free end of the arm F^2 , sliding it through the cylinder F^4 . This sliding movement of the arm F^2 carries the arms F' M' and plates F and M^2 toward that side of the casing opposite the handle. As the handle reaches its downward limit the notched portion of the arm F^2 comes into alinement with the locking-lever F^6 , which is drawn by the spring F^7 into the notch, thus locking the parts against return movement. As the handle nears the limit of its upward movement the bolt E^5 , carried by the cam E , strikes the inwardly-bent end of I^2 of the sliding plate I , and this inwardly-bent portion strikes the beveled head F^8 of the locking-lever F^6 and forces same out of engagement with the arm F^2 , and the spring returns the parts connected to the arm F^2 to their original position. As the finger M moves to one side the spring G^4 moves the arm G^2 horizontally, the finger M returning the arm G^2 to its normal position when the spring f returns the other parts. On downward movement of the handle and just prior to the en-

gagement of the notched portion of the arm F^2 by the lever F^6 a pin N' , carried by the lever K , engages the lever N and moves the arm G^3 away from the arm G^2 . The lower outwardly-bent end of this lever is bifurcated, the arm G^3 passing through the bifurcated portion and fitting snugly, so that movement of the lever N will draw the arm G , and with it the arm G' , away from the coin and against the tension of the spring G^5 , which will subsequently aid in restoring the parts to their normal position. The cranked arm O has its central portion revolvably journaled in a bracket O' , and the striker end is actuated by movement of the arm G^3 , which projects it against the gong P . A spring O^2 , bearing on the opposite end of the arm O , returns it to its normal position. The movement above described, which spreads the arms G G' apart, permits the coin to fall into the coin-chute. In the event a slug and not a nickel is deposited into the chute A' and the handle operated it will also be caught by the pin C^5 and struck by plunger and if of soft metal, such as lead, it will be bent so that on return of the handle to its original position the slug instead of falling to the arms G G' will be caught and held by the tines of the plate H . On the upward movement of the handle it will be acted on in the following manner: The slug being held by the tines of the plate H is in the path of the return movement of the ejector-plate F , and as the handle nears the limit of its upward movement the mechanism is unlocked, as previously described, and the ejector-plate is returned by the spring to its normal position, the return movement of the plate bringing it into contact with the slug and throwing the latter to one side. In case of a blank of iron or steel the action would be the same, except that instead of being bent by the plunger and held by the fingers H by reason of its bent condition it is held in the path of the plate F by the magnet L and ejected in the same manner as the lead slug. The spring F returns the arm F^2 to its normal position when the handle is released and the bevel-head F^8 , contacting with the bent end I^2 , slides the plate I back to its normal position. Suitable plates S and S' are arranged adjacent the front of the casting to provide a guideway for the coin after it leaves the plate H and during its passage to the vertical portions of the arms G^2 and G^3 . The plate S' has a central circular sight-opening formed therein in alinement with the path of a coin, and when a coin temporarily comes to rest between the arms G and G' the central portion of the coin will register with said sight-opening and will be visible therethrough to the operator. When a coin has passed the plunger and magnet, having stood the test, it falls on and is caught by the arms G^2 G^3 , where it is held in front of the sight-opening. The handle is then turned down the second time, and as the arms are spread apart, as previously described, the coin falls into the

chute of the vending-machine. Were the device constructed without the sight-opening and so that when a good coin was inserted it would normally fall immediately into the coin-chute of the vending-machine on the first downward and upward movement of the handle and the vending device failed to work, it would be difficult to determine whether the coin had become jammed or displaced in the device herein described or in the vending-machine; but by the use of the arms G^2 and G^3 the coin is held in sight after passing the fraud-testing device and the patron can be certain that his coin has passed into the chute of the vending-machine.

It may be well to say that a nickel possesses more strength than other dead metals—such as lead, brass, copper, &c.—and therefore requires a greater force to bend it than the metals mentioned, and therefore while the plunger will bend a slug made of the said metals it will yield when forced against a nickel and allows it to drop down to the coin-chute, when the plunger is withdrawn in a perfect condition, and, further, by arranging the magnet in the path of the coin-chute live metals—such as steel, iron, &c.—will be caught and held in the chute until the projector-plate forces it to one side of the machine.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a device of the kind described, the combination with an anvil arranged in a coin-chute, of a stop-pin adapted to hold the coin in advance of the anvil, a plunger adapted to strike the face of the coin, arms arranged below the plunger and adapted to support the coin, means for conducting the coin to said arms after it has been struck by the plunger, means for spreading said arms apart, and means for actuating the plunger.

2. In a fraud-preventing device, the combination with the base-plate, of a casting held thereto and having a coin-chute produced in its front face, of an anvil adjustably held in the casting and having its front face concaved and projecting into the said chute, a bracket carrying a lever whose free end is provided with a yielding plunger, means for operating the said lever, a magnet arranged in the casting below the said anvil, guide-plates arranged in front of the casting, an ejector operating across the front of the casting, and means for operating the said ejector, substantially as shown and described.

3. In a fraud-preventive device for vending-machines, the combination with a casing, of a base-plate carrying a casting, an anvil arranged within the casting, a horizontally-movable arm sliding through the casting, said arm having one end bent downwardly and an ejector-plate connected thereto, and its opposite end having a notch produced therein, a spring encircling the arm and adapted for holding it in its forward position,

a locking-pawl carried by the cylinder for holding the said arm against the tension of the spring, a plunger arranged within the casing and adapted for holding a coin against the anvil, means for operating the said plunger, and means for releasing the said horizontal movable arm and ejector, substantially as shown and described.

4. In a device of the kind described, the combination with a casing having a coin-chute therein, of an anvil having a concaved face arranged in said chute, means for holding a coin in advance of said anvil, a plunger adapted to strike the face of a coin and to force a lead slug into the concavity of the anvil and bend same, a plate having tines arranged in the chute below the anvil and adapted to hold a bent coin, an ejector adapted to throw said coin out of the chute, and means for actuating the plunger and ejector.

5. In a fraud-preventive device for vending-machines the combination with the casing, having a casting arranged therein, whose forward face is provided with a coin-chute, an anvil arranged within the casting and projecting into the coin-chute, a shaft arranged within the casing adjacent the casting, a cam carried by the said shaft, a lever pivotally held within the casing and adapted to be operated by the said cam, said lever carrying a plunger adapted to force a coin against the anvil, an ejector arranged in front of the casting, spring-actuated holding-arms arranged below the casting and means for operating the said plunger and ejector and means for operating the said arms, substantially as shown and described.

6. In a fraud-preventive device for vending-machines, the combination with a casing, of a casting arranged therein and having a coin-slot produced in its front face, of an anvil adjustably held within the casting and a slotted plate arranged in front of the anvil and connected to the said casting, a pin projecting from the plate into the path of the coin-chute, a lever pivotally held in the casing, and having a plunger held to one end thereof, adapted to project through the slotted plate, a shaft having a cam for operating the said plunger, a horizontally-movable arm carried by the casting, an ejector connected to the said arm and extending across the face of the casting, a magnet arranged within the casting adjacent the said ejector, guide-plates arranged in front of the casting, spring-actuated arms arranged below the casting and adapted to hold a coin, means for operating the said cam, means for moving the horizontally-movable arm and ejector and also means for operating the said arms, substantially as shown and described.

7. In a fraud-preventive device, the combination with the anvil, that is arranged in a coin-chute or passage-way, a plate carrying a pin for holding the coin in front of the said anvil, a lever carrying a plunger adapted to operate against the coin, a plate connected to

said plunger intermediate the plunger and lever, a cushion arranged adjacent the plate, a second plate for holding the said cushion in position, and means for operating the said plunger, substantially as and for the purpose specified.

8. The combination with coin receiving and holding means, of a lever carrying a plunger adapted to strike the face of a coin, a magnet arranged below the plunger and adapted to

hold a magnetizable spurious coin, and an ejector adapted to be projected across the poles of said magnet and discharge the said spurious coin, substantially as specified.

WILLIAM SLOAN.

JOHN E. ROBINSON.

Witnesses:

WM. H. MENTAL,

FRED HASSEL.