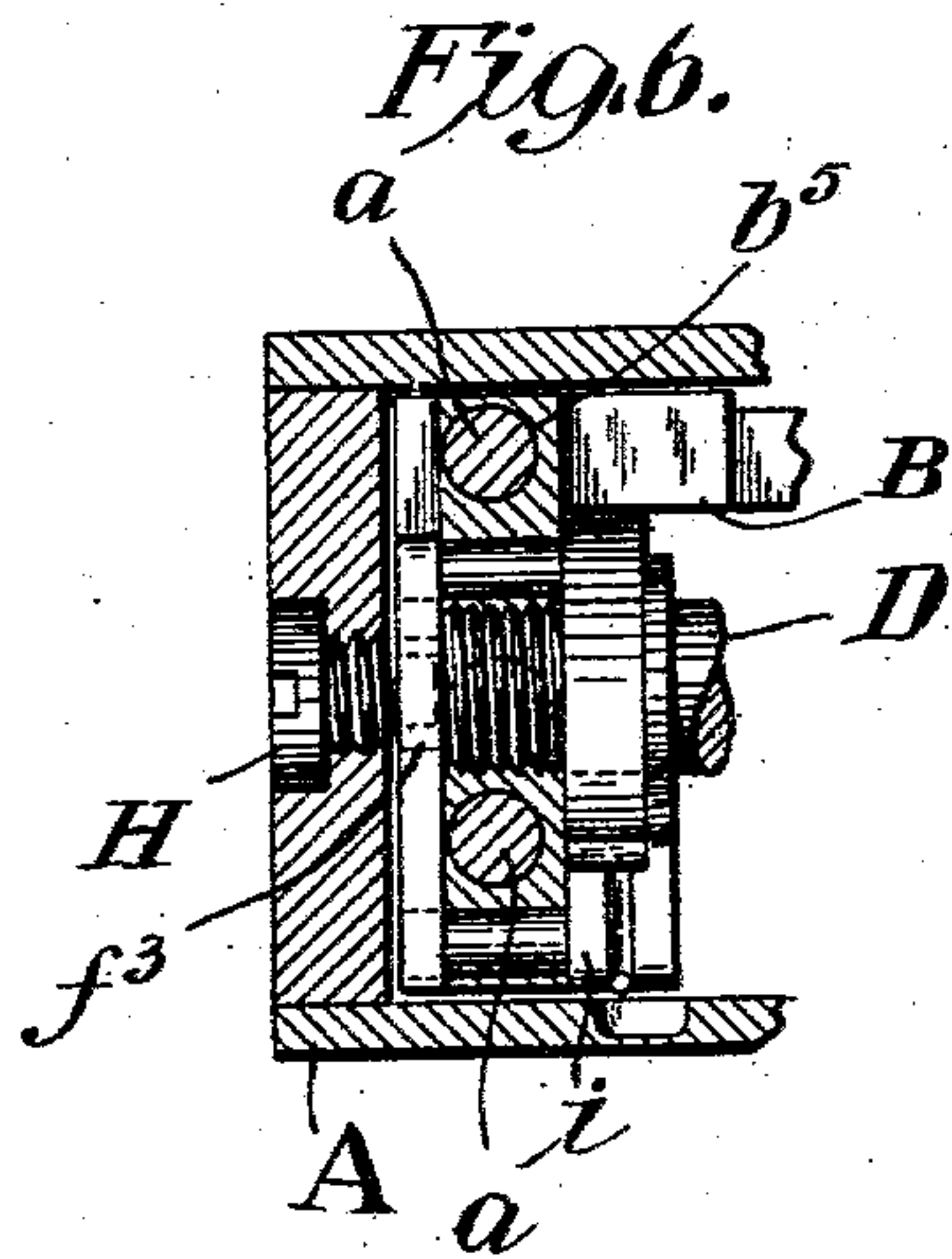
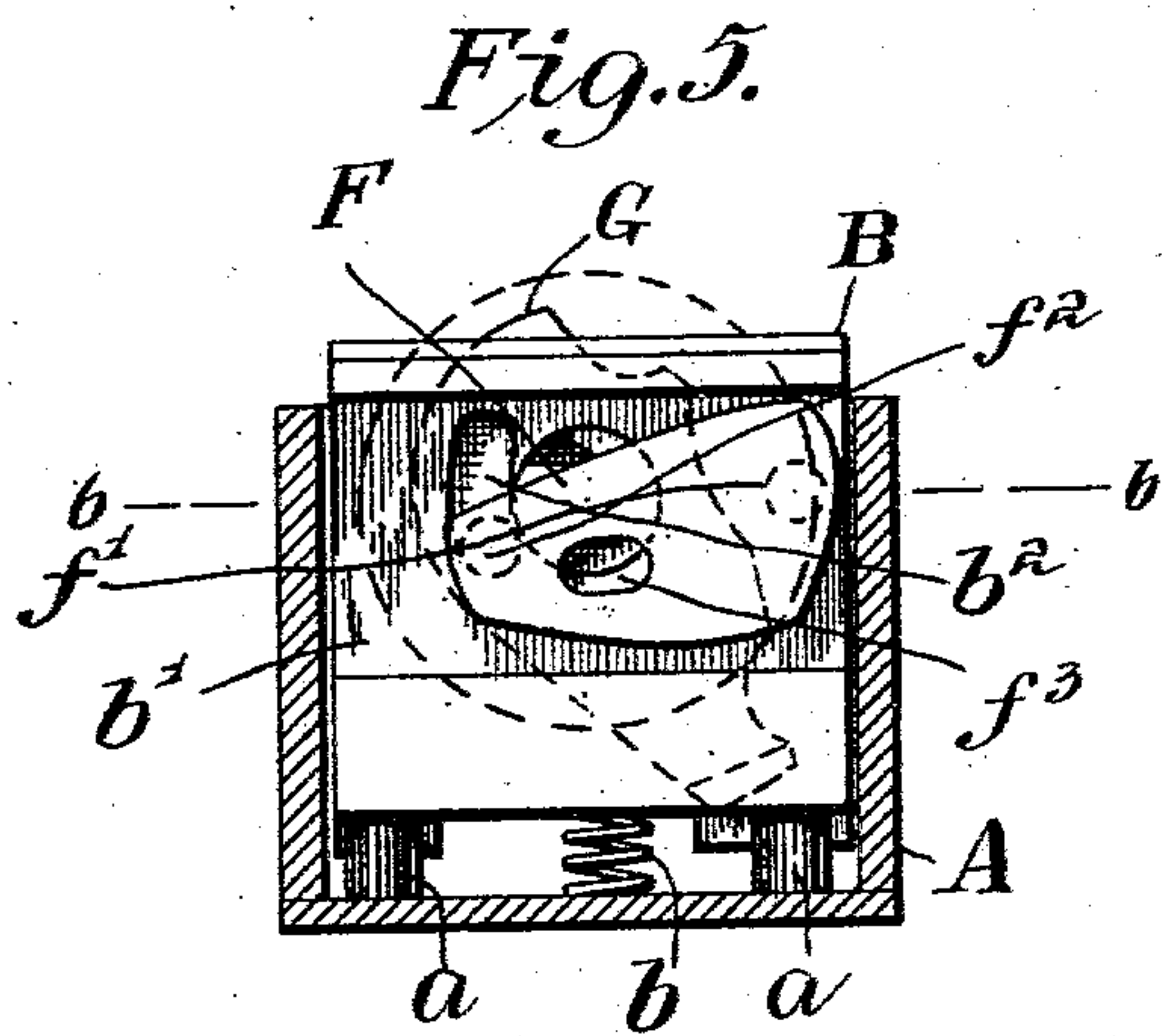
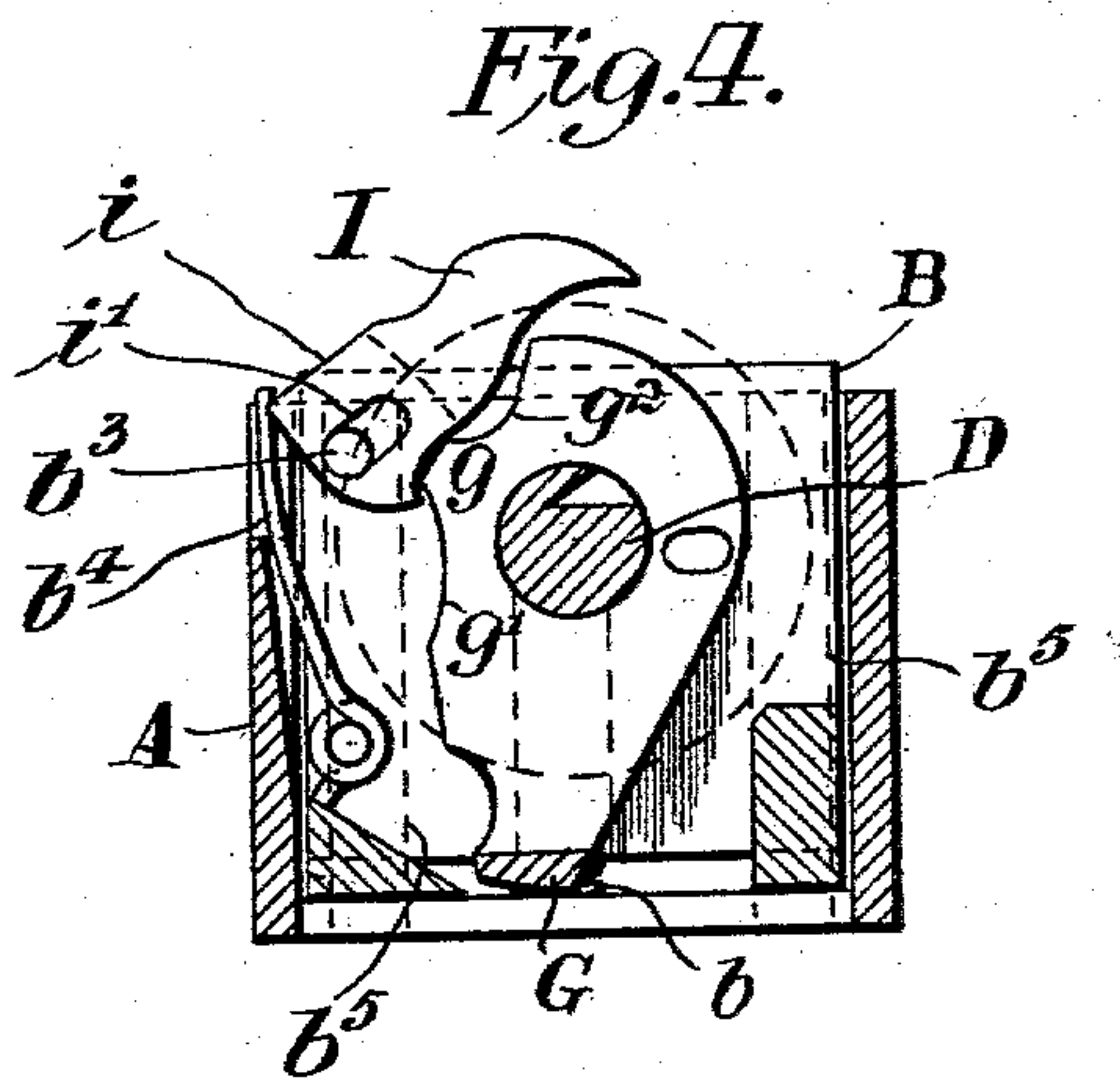
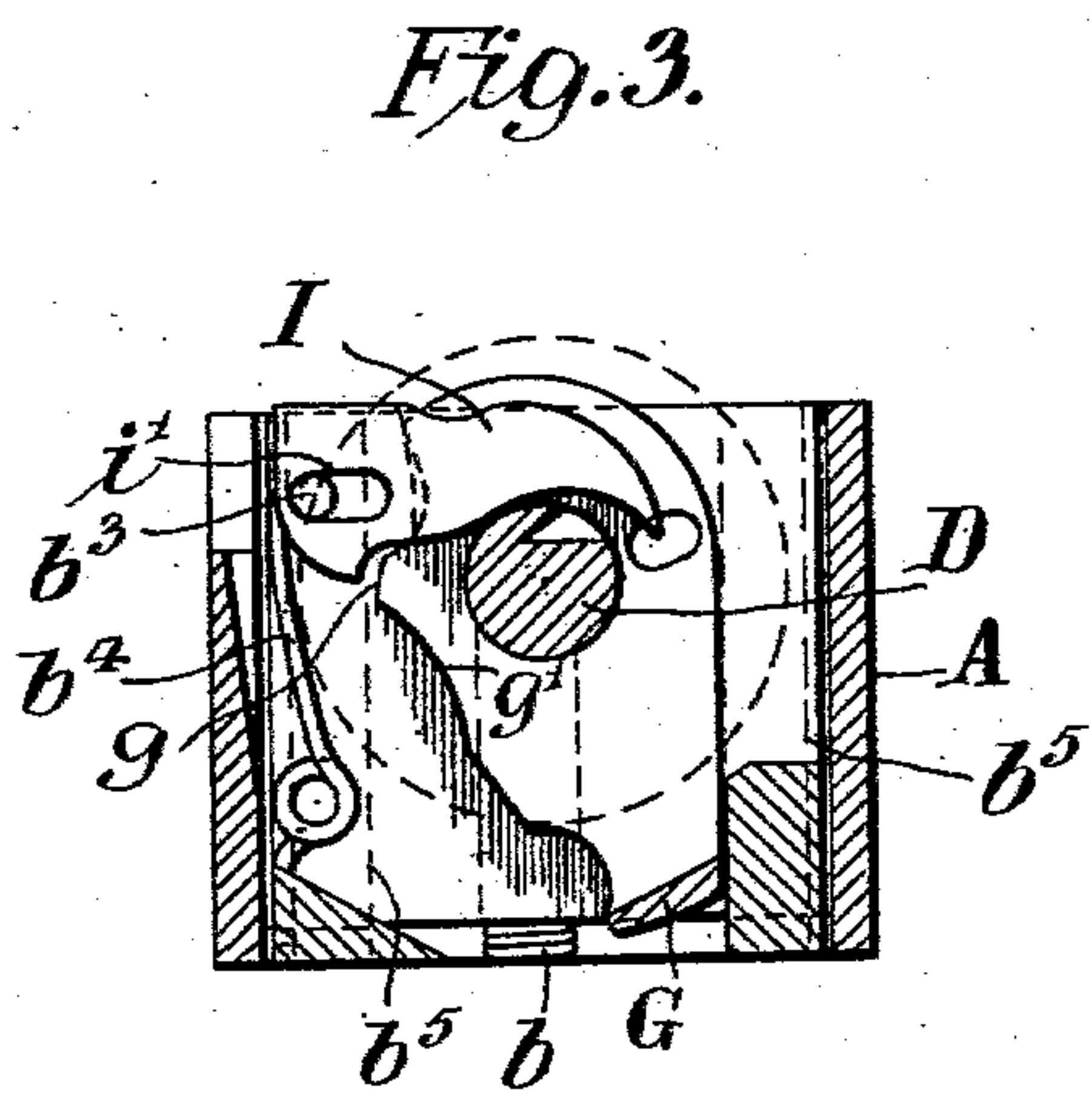
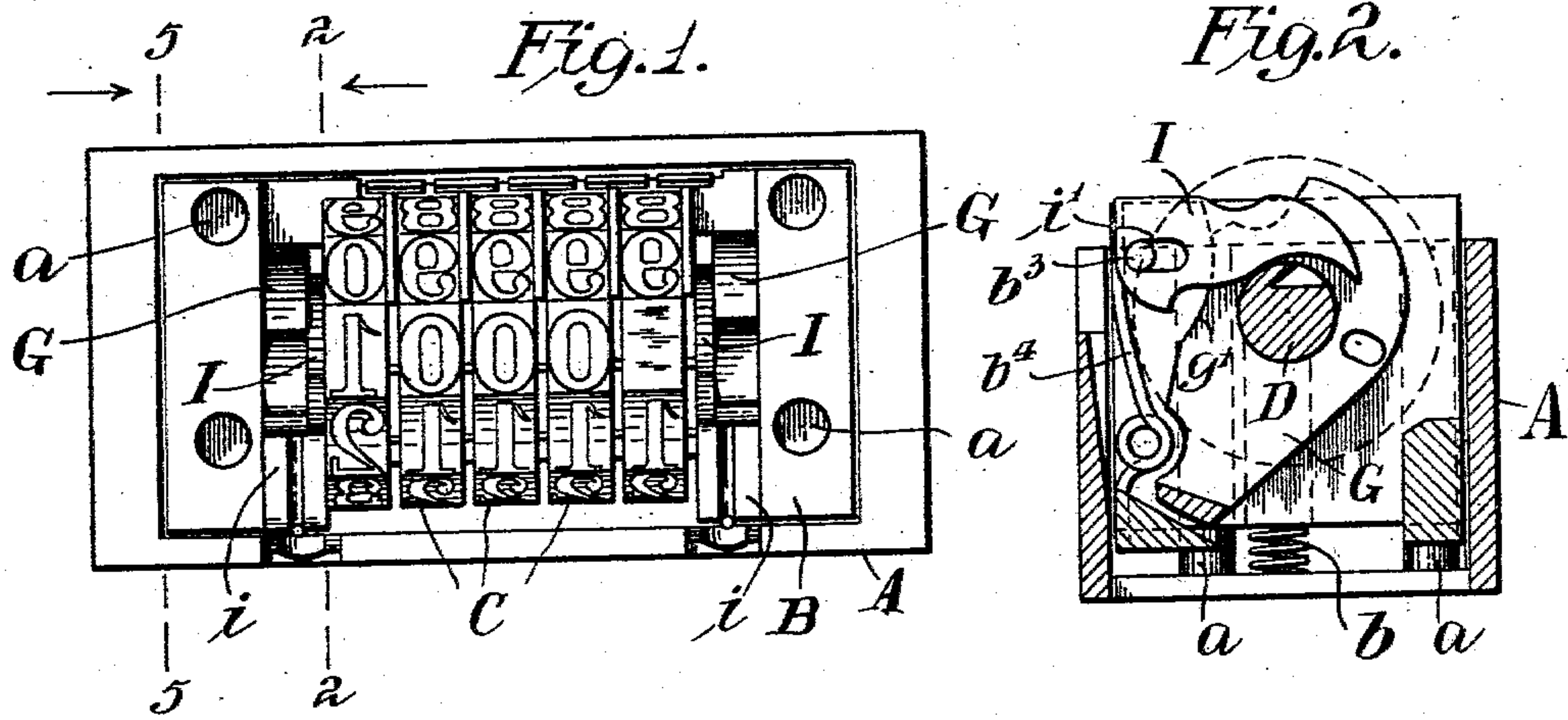


No. 743,569.

PATENTED NOV. 10, 1903.

F. SANDERS.  
NUMBERING MACHINE.  
APPLICATION FILED JULY 28, 1902.

NO MODEL.



Witnesses  
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# UNITED STATES PATENT OFFICE.

FRANK SANDERS, OF BROOKLYN, NEW YORK, ASSIGNOR TO WETTER NUMBERING MACHINE COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

## NUMBERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 743,569, dated November 10, 1903.

Application filed July 28, 1902. Serial No. 117,236. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK SANDERS, a citizen of the United States, residing in the borough of Brooklyn, in the city and State of New York, have invented certain new and useful Improvements in Numbering-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to consecutive-numbering machines or other machines of like character in which the numbers or other characters are arranged upon the peripheries of a plurality of numbering-wheels which are adapted to be rotated to bring the desired number or character to the line of print.

In machines of this character it is very desirable and often necessary to combine a great deal of mechanism in a small and compact space, and accordingly the simpler that mechanism and the smaller the number of parts that the machines possess the easier it will be to combine those parts in a minimum of space.

In the use of consecutive-numbering machines it is desirable to employ some means of separating or lifting the paper from the type or numbering wheels directly after the impression has been made, so as to prevent the paper from becoming smutched or the impression from being blurred by the rotation of the type or numbering wheels.

In Letters Patent of the United States No. 648,440, dated May 1, 1900, there is described one mechanism by which the paper is lifted from the type or numbering wheels directly after the impression has been made and before the next rotation of the wheels has been effected.

One object of the present invention is to produce a simpler mechanism for actuating the lifter than that described in the aforesaid Letters Patent, and the simplification consists in one essential respect in so disposing the lifter as to cooperate directly with the end of the pawl-frame, thereby omitting altogether certain parts of the mechanism shown and described in said Letters Patent.

Another object is to provide against the binding of the inner and outer frames or cases

of such numbering-machines, which binding is often caused by pressure upon the sides of the outer case, as frequently occurs when they are locked with type in printing-presses, which binding renders the machines inoperative for the time being. This object is accomplished by making the inner frame or case of a relatively loose fit within the outer frame or case and providing suitable guides in the outer frame or case to secure a vertical movement of the inner frame or case within the outer frame or case.

The improved mechanism will be more fully described hereinafter with reference to the accompanying drawings, in which—

Figure 1 is a plan view of a numbering-machine in which the present improvements have been embodied. Fig. 2 is a section on the plane indicated by the line 2 2 of Fig. 1, the inner frame or case being in its elevated position. Fig. 3 is a view similar to Fig. 2, but with the frame or case in its depressed position. Fig. 4 is a view similar to Figs. 2 and 3, but showing the lifter in its raised position. Fig. 5 is a section on the plane indicated by the line 5 5, Fig. 1. Fig. 6 is a horizontal sectional detail on the plane indicated by the line 6 6 of Fig. 5.

In the numbering-machine herein selected for the purposes of illustration and explanation and in which the invention has been embodied an outer frame or case A and an inner frame or case B are provided, and said frames or cases have a limited relative movement with respect to each other in the usual manner. The inner frame or case B has a relatively loose fit within the outer frame or case A in order to prevent binding between the two frames or cases, which is liable to occur when pressure is brought to bear upon the exterior of the outer frame or case walls tending to compress said walls. In order to guide the inner frame or case within the outer frame or case and to prevent the same from having lateral displacement, two relatively long slender guide rods or pins *a* are secured within and at each end of the outer frame or case A, and corresponding vertical bores *b* are cut in the inner frame or case and are re-



spectively engaged by said rod or pins, thereby guiding the inward and outward movement of the inner frame or case and causing it to take place in a vertical direction. These  
 5 guide rods or pins also prevent the binding of the inner and outer cases which often takes place in numbering-machines employed in cylinder-presses. Such binding occurs especially when the numbering-machines are  
 10 set up so that the roller or cylinder moves from one end of the numbering-machine to the other instead of from one side of the numbering-machine to the other, thereby causing one end of the inner frame or case of the  
 15 numbering-machine to be moved into the outer frame or case slightly in advance of the other end.

Within the inner frame or case B the type or numbering wheels C are mounted to rotate  
 20 on a shaft D, which is fixed in said inner frame or case B. The latter is supported within the outer case A upon vertical springs b and has a limited vertical movement therein.

The particular means whereby the necessary movement is imparted to the type or numbering wheels C to cause them to rotate in the proper manner and at the proper time is immaterial to the present invention, and only so much of the mechanism therefor as is  
 25 related to the present invention need be described. Inasmuch, furthermore, as there are two similar lifting devices which are symmetrically placed with respect to the numbering-wheels, one lifter being placed at each  
 30 end of the numbering-machine, and inasmuch as the mechanism for actuating both of the lifters is precisely the same, a description of one of the lifting devices and one end of the numbering-machine will be sufficient.

40 The pawl-frame G is mounted to oscillate on the fixed shaft D, and provided thereon in the usual manner are pawls for the actuation of the several type or numbering wheels. In one end of the inner frame or case B a recess b' is cut, and a lever F, pivoted at f' to the inner frame or case B, is set therein. Said lever F is provided at its free end with a pin or stud f<sup>2</sup>, which extends through an elongated opening b<sup>2</sup> in the inner frame or  
 45 case B and engages the pawl-frame G. A screw-pin H is seated in the end of the outer frame or case A and enters a slot f<sup>3</sup> in lever F, whereby as the inner frame or case B is reciprocated up and down within the outer  
 50 frame or case A by the action of a pressure-platen and springs b said lever is actuated and the proper movements of the type or numbering wheels are effected.

A lifter or contact device I, having a head  
 60 i and a slightly-elongated slot i', is pivoted on the inner frame or case B, a pin or stud b<sup>3</sup> projecting from said frame or case B and engaging said slot i'. A spring b<sup>4</sup> presses against the pivoted end of the lifter, and thereby  
 65 causes said lifter to remain normally below the line of print, with its free end resting upon the shaft D. The end of the pawl-frame

G forms a cam, having an actuating portion g and dwell portions g' and g<sup>2</sup>, which cooperate with end or edge portions of the head i upon the lifter I, said end or edge portions of the head i forming a cooperating surface for the cam. 70

The resting or normal position of the lifting mechanism is shown in Fig. 2. Upon the  
 75 movement of the frame or case B into its depressed position within the frame or case A the oscillation or swing of the pawl-frame G, which accompanies said movement, causes the actuating portion g of the cam to move  
 80 toward and under the lifter, the latter being forced against the action of spring b<sup>4</sup> to move slightly in a lateral direction, as is permitted by the elongated slot i'. This second position of the lifter, which occurs when the  
 85 inner case B is in its depressed condition, is shown in Fig. 3. As soon as the depressing force is withdrawn and the springs begin to force the inner frame or case outward, the actuating portion g of the cam will actuate  
 90 and raise the lifter, and thereby separate the paper from the type or numbering wheels before the rotation of said numbering-wheels commences, and whereby the rotation of the numbering-wheels takes place after the lifter  
 95 has separated or removed the printed paper from said wheels. Finally as the inner frame or case B returns to its first or elevated position the spring b<sup>4</sup> causes the lifter to snap back into its normal position below the line  
 100 of print, with its free end resting upon the shaft E and the actuating portion g of the cam in contact with one end of the head i.

It may be observed, in conclusion, that means employed heretofore for effecting the  
 105 separation of the paper from the numbering-wheels, owing to the complexity of such means and large number of cooperating parts, are liable to become clogged with ink, and thereby stopped and thrown out of operation, and  
 110 finally the parts of the mechanism become jammed and broken by the continuing reciprocation of the inner case. In the mechanism herein described, however, which is very simple and less liable to become clogged  
 115 with ink, there are no parts which will be jammed or broken in case the lifting mechanism should cease to operate.

I claim as my invention—

1. In a numbering-machine, the combination with the numbering-wheels, the pawl-frame and means to actuate the pawl-frame, of a lifter or contact device cooperating with the pawl-frame, whereby the rotation of the numbering-wheels takes place after the lifter  
 120 has separated or removed the printed paper from said wheels. 125

2. In a numbering-machine, the combination with the numbering-wheels, the pawl-frame and means to actuate the pawl-frame, of a lifter or contact device having a range of movement above and below the plane of print, and cooperating with the pawl-frame, whereby the rotation of the numbering-wheels  
 130



takes place after the lifter has separated or removed the printed paper from said wheels.

3. In a numbering-machine, the combination with the numbering-wheels, the pawl-frame and means to actuate the pawl-frame, of a cam formed at one end of the pawl-frame, and a lifter or contact device cooperating with said cam, whereby the rotation of the numbering-wheels takes place after the lifter has separated or removed the printed paper from said wheels.

4. In a numbering-machine, the combination with the numbering-wheels, the pawl-frame and means to actuate the pawl-frame, of a cam formed at one end of the pawl-frame and having an actuating portion and two dwell portions, and a lifter or contact device cooperating with said cam whereby the rotation of the numbering-wheels takes place after the lifter has separated or removed the printed paper from said wheels.

5. In a numbering-machine, the combination with the numbering-wheels, the pawl-frame and means to actuate the pawl-frame, of a cam formed at one end of the pawl-frame, and a lifter-lever having at its pivoted end a head cooperating with said cam, whereby the rotation of the numbering-wheels takes place after the lifter has separated or removed the printed paper from said wheels.

6. In a numbering-machine, the combination with the outer frame or case, an inner frame or case movable within the outer frame

or case, numbering-wheels mounted in the movable frame or case, the pawl-frame, and means to actuate the pawl-frame, of a cam formed at one end of the pawl-frame, and a lifter or contact device cooperating with said cam, whereby the rotation of the numbering-wheels takes place after the lifter has separated or removed the printed paper from said wheels.

7. In a numbering-machine, the combination with the numbering-wheels, the pawl-frame and means to actuate the pawl-frame, of a cam at each end of and forming a part of the pawl-frame, and a lifter or contact device cooperating with each of said cams, whereby the rotation of the numbering-wheels takes place after the lifter has separated or removed the printed paper from said wheels.

8. In a numbering-machine, the combination with an outer frame or case, and an inner frame or case movable within said outer frame or case but having a relatively loose fit within the same, said inner frame or case carrying the numbering-wheels, of guide rods or pins secured to said outer frame or case and said inner frame or case having bores cut in the same which are engaged respectively by said rods or pins.

This specification signed and witnessed this 24th day of July, A. D. 1902.

FRANK SANDERS.

In presence of—

ALFRED W. KIDDLE,  
LUCIUS E. VARNEY.