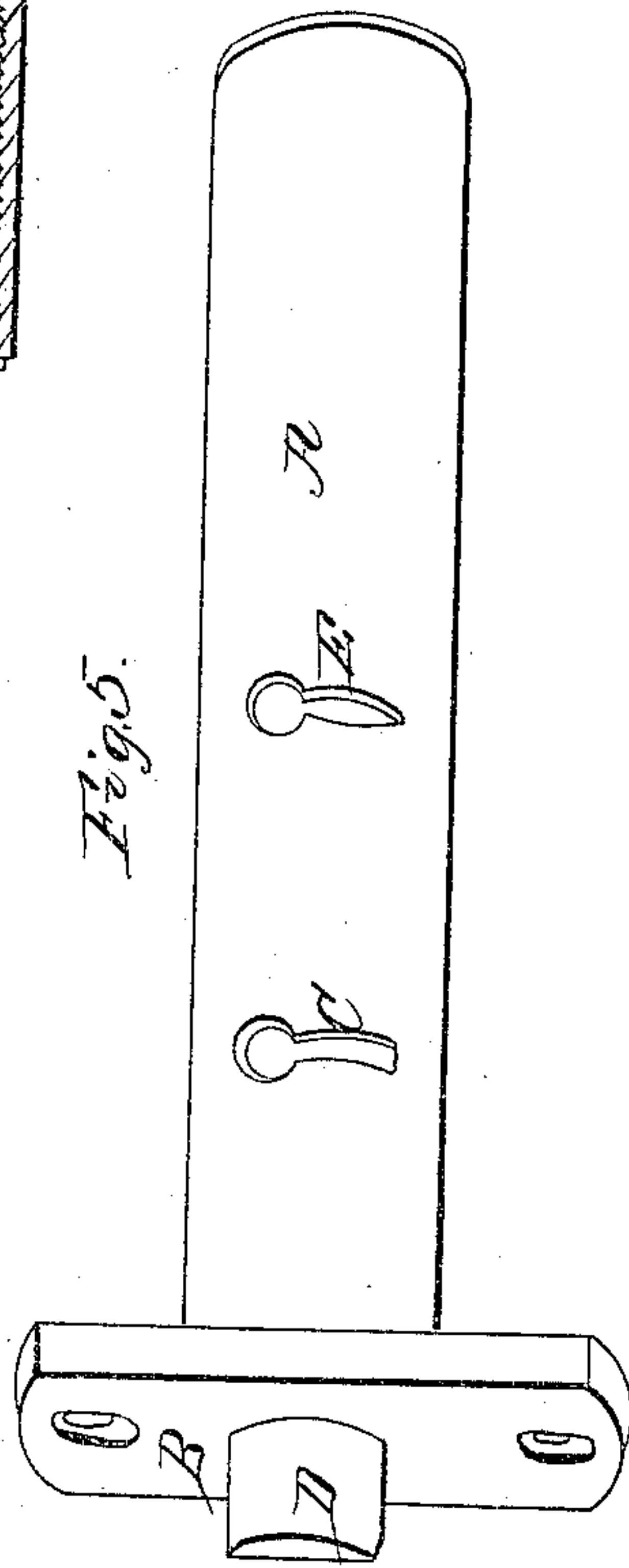
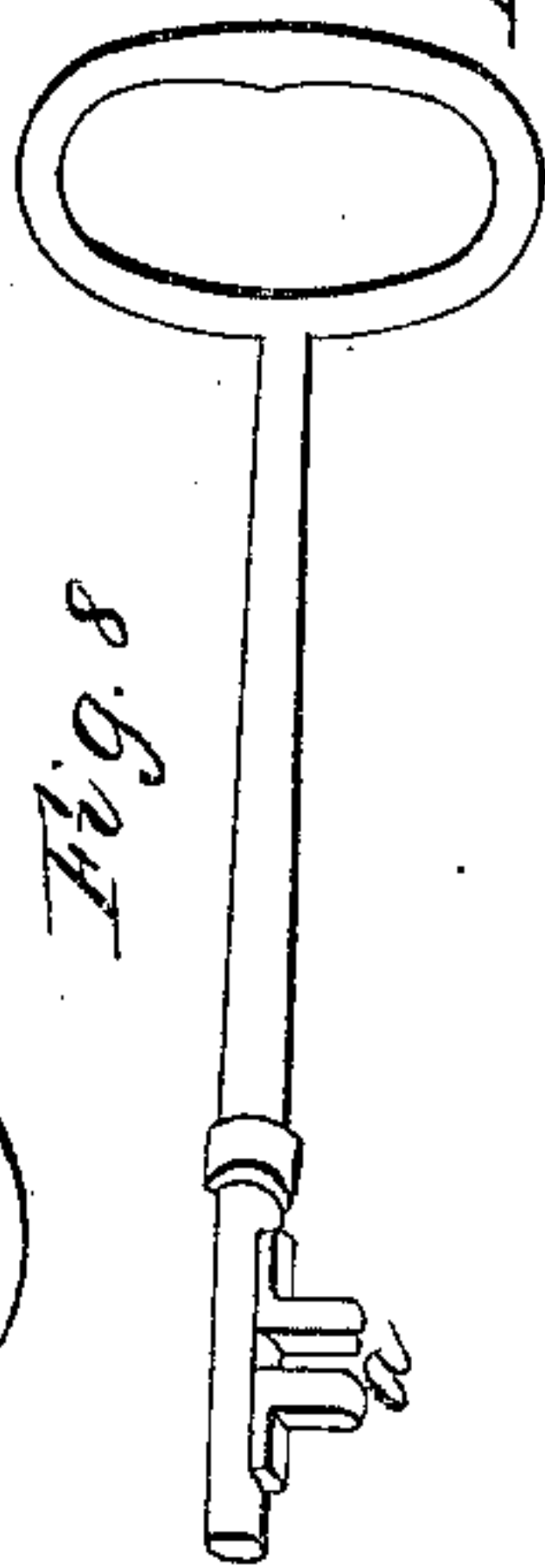
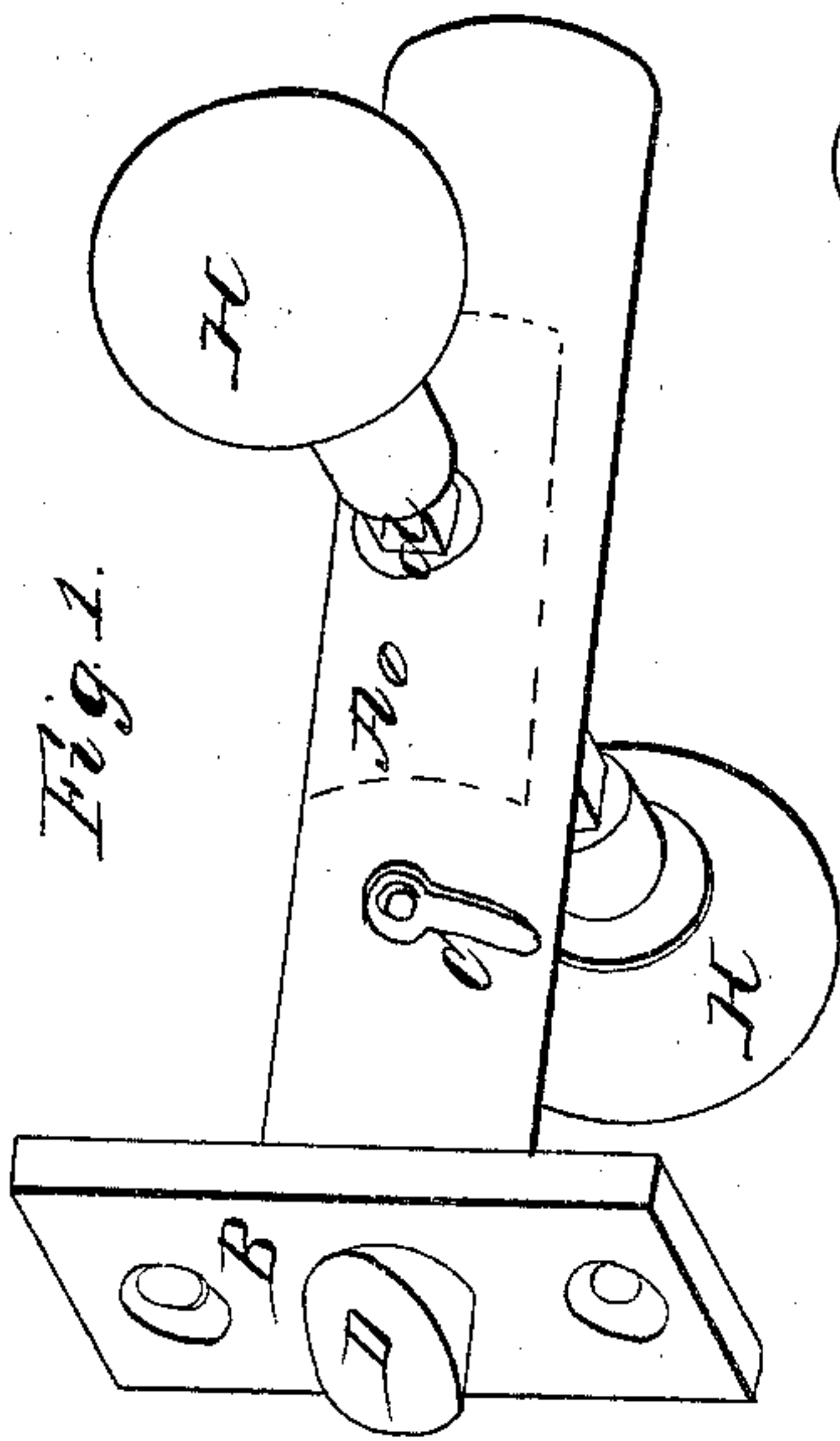
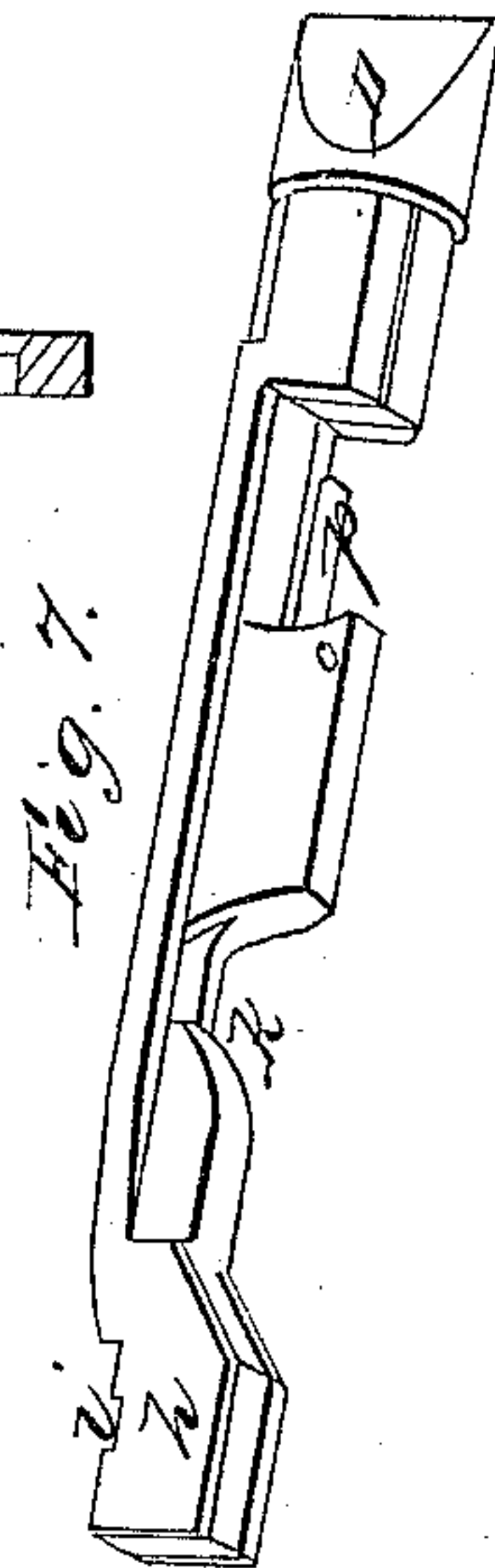
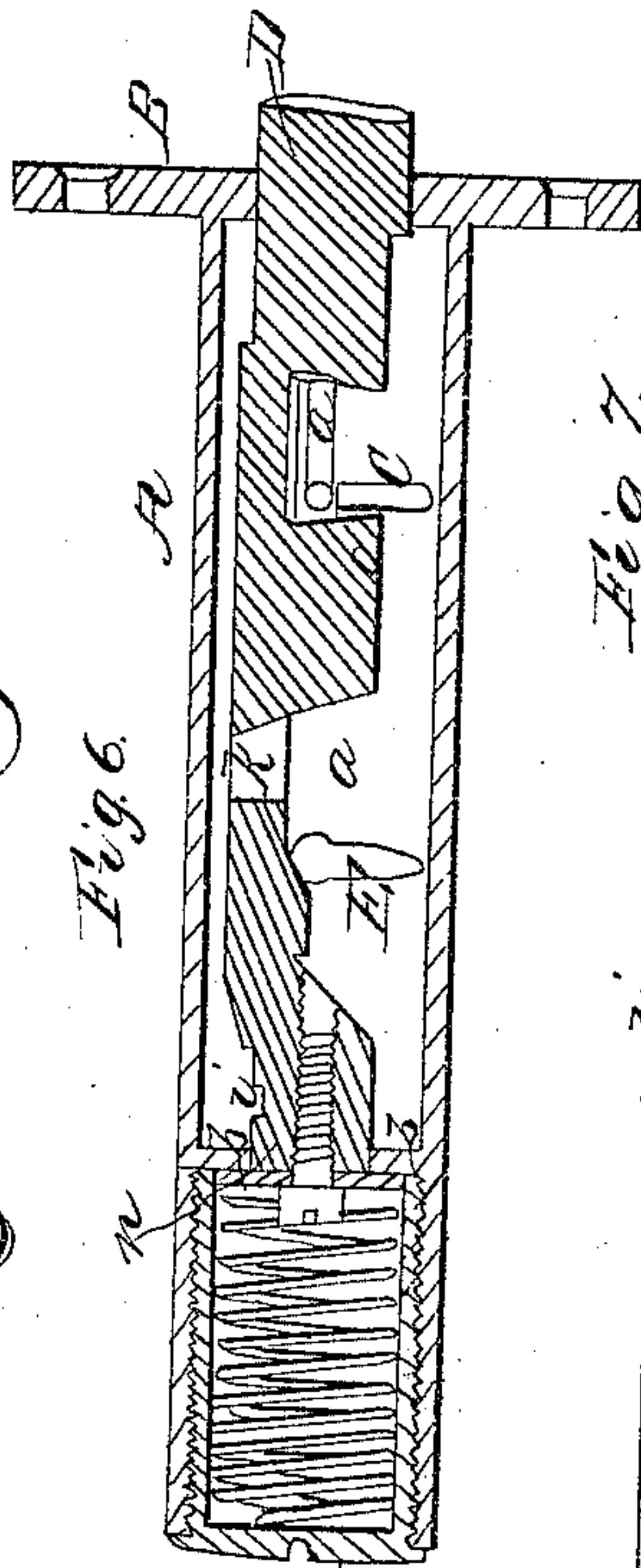
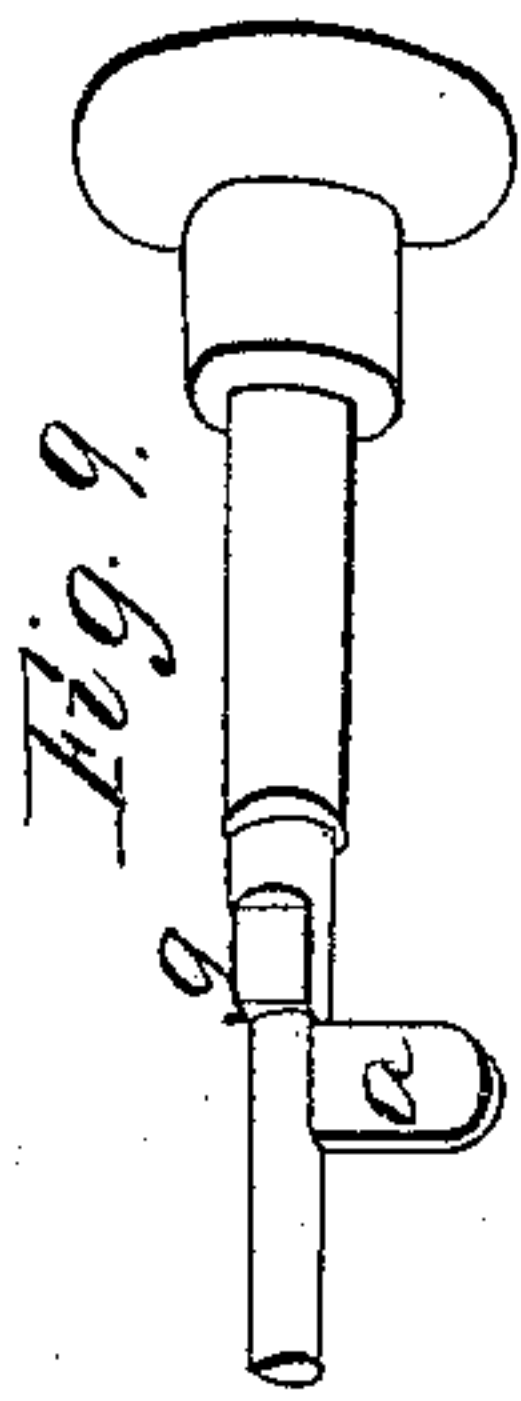
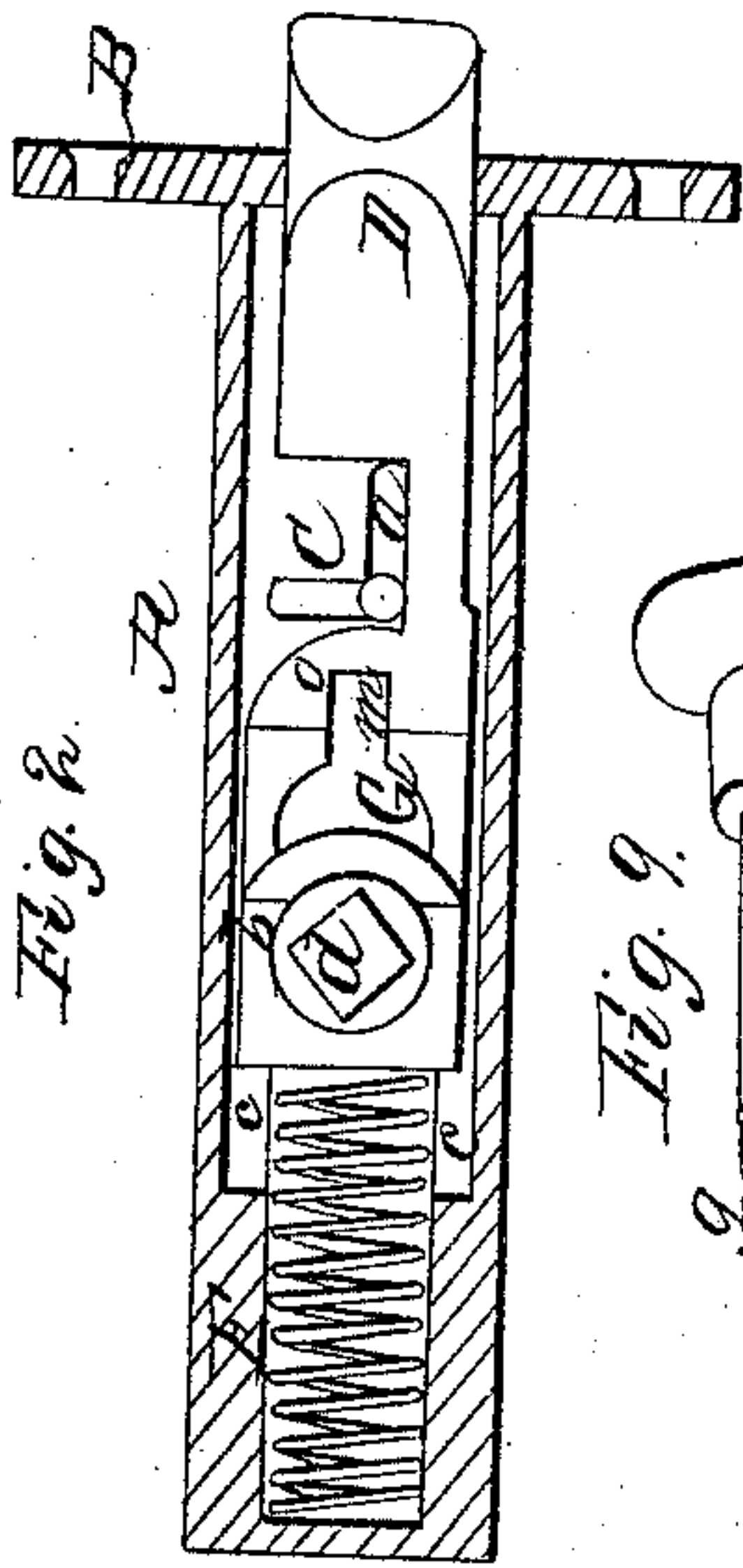
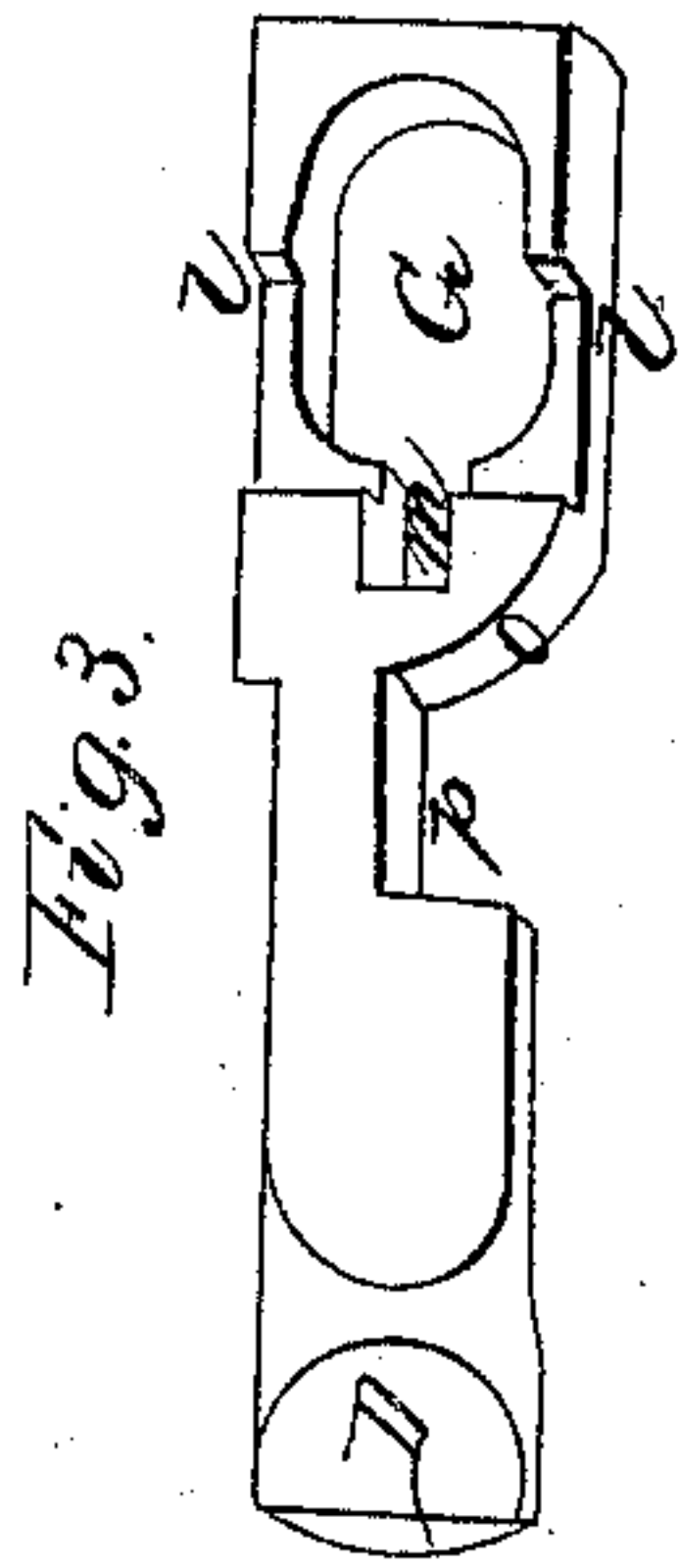
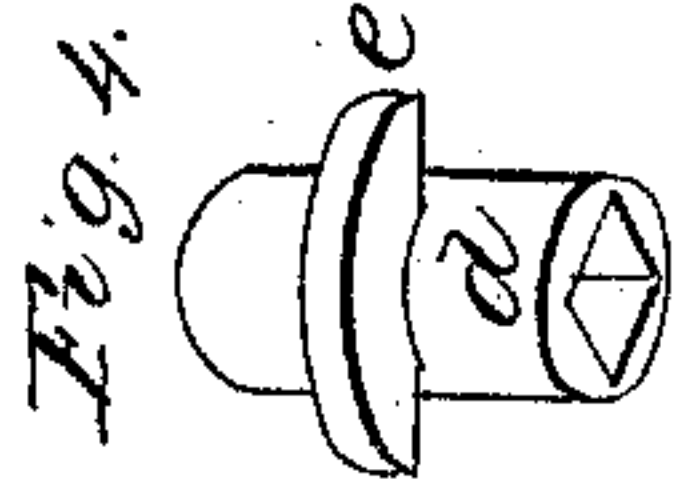


*W.A. Ives,*

*Latch.*

*No 16,089.*

*Patented Nov. 18, 1856.*





# UNITED STATES PATENT OFFICE.

WILLIAM A. IVES, OF NEW HAVEN, CONNECTICUT.

## SPRING LATCH AND LOCK.

Specification of Letters Patent No. 16,089, dated November 18, 1856.

*To all whom it may concern:*

Be it known that I, WILLIAM A. IVES, of the city and county of New Haven and State of Connecticut, have invented a new and useful Improvement in Spring Latches and Locks; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make a part of this specification, in which—

Figure 1 is a perspective view of a spring latch and lock when the common knob is used to open the door from both sides, showing the key-hole for the safety key. Fig. 2 is longitudinal section of the same, cut vertically through the center. Fig. 3 is a perspective view of the bolt of Fig. 1. Fig. 4 is a perspective view of the socket of the knob shaft, with its cam. Fig. 5 is a perspective view of a spring latch where the door is to be opened from the outside with a key, as a spring lock. Fig. 6 is a longitudinal section of Fig. 5, cut vertically through the center. Fig. 7 is a perspective view of the bolt of Fig. 5. Fig. 8 is a perspective view of the outside key of Fig. 5. Fig. 9 is a perspective view of the inside key for both.

My improvement consists in constructing the spring latch and lock with a cylindrical case in such a manner that while it may be used with knobs, to open the door from both side, in the ordinary way of spring latches, or by one knob to open from the outside, or by a key to open from the outside, in the manner of a common spring lock, yet by the use of a key on the inside (which serves to open the door from the inside) the bolt may be secured as safely as any slide bolt, and so as to render it impossible to force back the bolt from the outside by any means whatever, without first having the key on the inside turned back to release it, as hereinafter described.

I make the cylinder, A, of malleable iron, or any other suitable material, and on the front end I attach a shield, B, Figs. 1, 2, 5, and 6, by which it is to be fastened to the door. In this cylinder I make a key-hole, as seen at C, Figs. 1, 2, 5, and 6, having the fulcrum nearly in the center of the cylinder, (so that the lip, *a*, of the key, Fig. 9, will swing, or turn, wholly within the cylinder,) for the inside key, to open the door from the inside, (which also serves as a

safety key to secure the bolt,) and when a key is to be used to throw back the bolt, from the outside, I make another key-hole, as seen at E, Figs. 5 and 6, also having the fulcrum of the key exactly in the center of the cylinder, so that the lips, *a'*, of the key, Fig. 8, will swing, or turn, wholly within the cylinder, as shown at *a'*, Fig. 6. I make these key-holes on both sides of the cylinder, so that they may serve as either right or left hand latches; but the key-hole from the inside must not be cut through the outside of the door, and the key-hole from the outside must not be cut through the inside of the door. Near the inner end of the cylinder I insert a mortise partition, as seen at *b, b*, Fig. 6, to steady the inner end of the bolt, in the case of the key being used from the outside, while in that where the knobs are used the inner end of the bolt may rest against a projection in the cylinder, as seen at *c, c*, on one side, and be steadied by the socket of the knob shaft and its cam, *e*, on the other, all as seen in Fig. 2, and in the inner end of the cylinder I place a spiral spring, as seen at F, Figs. 2 and 6, to throw the bolt out to latch the door in the usual way. I make the bolt, D, of one piece of malleable cast iron or any other suitable material, substantially in the form shown in Fig. 3 for the knob latch and in Fig. 7 for that opened from the outside by a key, and in the bolt, D, where the inside or safety key works I fit a small spring, as seen at *f*, Figs. 3 and 7, to press against the square part, *g*, of the inside or safety key, Fig. 9, to hold the key steady in either of the three positions, as desired, and to the bolt, Fig. 7, to be used with the outside key, Fig. 8, there may also be attached spring tumblers, as *h*, Fig. 7, so that when it is not secured by the inside key any attempt to unlock it with a key might raise the tumblers so high that the notch, *i*, on the upper side would be caught by the partition, *b*, Fig. 6, and where the outside key acts upon the bolt, Fig. 7, I cut two or more holes through the bolt, (as indicated at *k*, Fig. 7, and one of them shown in Fig. 6,) through which the lips, *a'*, of the key, Fig. 8, pass in throwing back the bolt D.

To fit up the knob latch, Fig. 1, I have a detachable piece in the side of the cylinder, as indicated by the dotted lines at A, Fig. 1, which I remove and insert the spring, F, and the bolt, Fig. 3, and through the space,



G, in the bolt I insert the socket and cam, Fig. 4, as seen in Fig. 2, and then restore the removed part to its place in the cylinder and secure it there by a screw, at A, (which passes through the slot, *m*, Figs. 2 and 3, so as not to bind the bolt,) when the whole will be complete, as in Fig. 1, (except the knobs,) and ready to be inserted into the door, (which is done by simply boring a hole of the proper size and inserting the cylinder,) when the shaft, *d*, and knobs, H, H, are to be attached in the usual way. Then on turning the knob either way the cam, *e*, will come in contact with one of the projections, *l*, *l*, Figs. 2 and 3, and force back the bolt against the spiral spring, F, in the usual way to open the door, and on releasing the knob the spring, F, will throw the bolt forward, in the usual way, to latch the door.

To fit up the latch without the knobs, as Fig. 5, I insert the bolt, D, Fig. 7, into the cylinder through the shield, B, and secure the inner end with a washer and screw, as seen at *n*, or in any other convenient way, insert the spring, F, from the inner end of the cylinder, and turn in the screw, L, all as shown in Fig. 6, when the whole will appear as in Fig. 5, and be ready to be inserted into the door, and to insert it into the door I have only to bore a hole of the proper diameter, insert the cylinder, and cut a key-hole in the outer side of the door to admit the key, Fig. 8, into the key-hole, E, Fig. 5, when by the aid of the proper key (as Fig. 8) it can be opened from the outside of the door, and in both Fig. 1 and Fig. 5 I cut a key-hole on the inside of the door, to correspond with the key-hole, C, Figs. 1, 2, 5, and 6, to admit a key like Fig. 9. When this key is turned into the position shown at *a*, Figs. 2 and 6, (that is, at right angles to the key-hole,) it will secure the bolt, D, against the possibility of being drawn back by any means whatever applied from the outside of the door. If this inside key be turned in the opposite direction (whether the form of the bolt be like, *o*, in Figs. 2 and 3 or like *v*, in Figs. 6 and 7) the key will draw back the bolt to open the door, and to prevent the door being latched when

it is not desired the key may be turned till the lip is horizontal in the opposite direction to that of *a*, when it will hold the bolt back, so that the door will not latch, which may sometimes be very convenient, and the small spring, *p*, Figs. 3 and 7, pressing on the flat surface, *g* of the key, Fig. 9, will keep the key where it is placed.

The knob latch, Fig. 1, serves all the purposes of a common spring latch and a slide bolt, while that without knobs (Fig. 5) serves also as a spring lock to fasten the door from the outside, so that it can be opened only with the proper key, (and if the inside key be taken out the door is then safely locked against being opened from the inside, which may sometimes be very convenient,) so that no other fastening is necessary, thus saving expense, as well as avoid cutting the door unnecessarily. When used as a lock merely I leave off the spiral spring F, Fig. 6, and cut two or more notches in the underside of the spring tumblers *h*, Fig. 7, at the mortise partition *b b*, Fig. 6, by which the bolt will be secured in place. The key Fig. 8 when used with or without the safety key Fig. 9 must be allowed to turn entirely around within the cylinder A, Fig. 5, by which the usual backward and forward motion will be obtained. By the addition of spring tumblers with notches upon the upper side it can be made nearly if not quite impossible to throw back the bolt by means of a false key or by any means except with the key expressly fitted for the particular lock and a great variety of keys can be made.

What I claim as my invention and desire to secure by Letters Patent is—

The securing the bolt on the inside when the same key serves to turn back the bolt and also to hold it back when desired and when the said key or any additional key used is so constructed and arranged that it will swing or turn entirely within the tube or cylinder and be made to operate substantially as herein described.

W. A. IVES.

Witnesses:

W. HIGGINS,  
R. FITZGERALD.