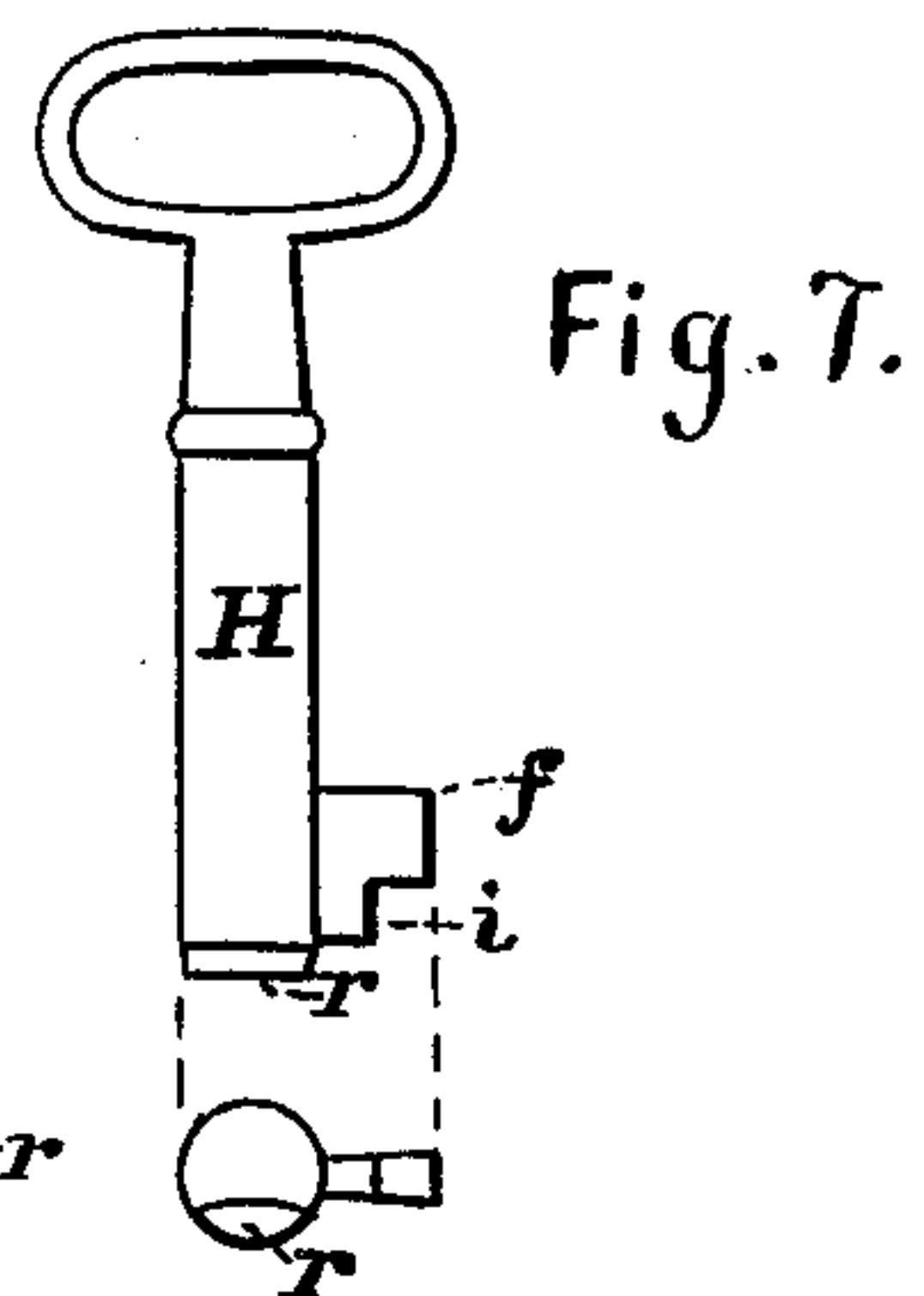
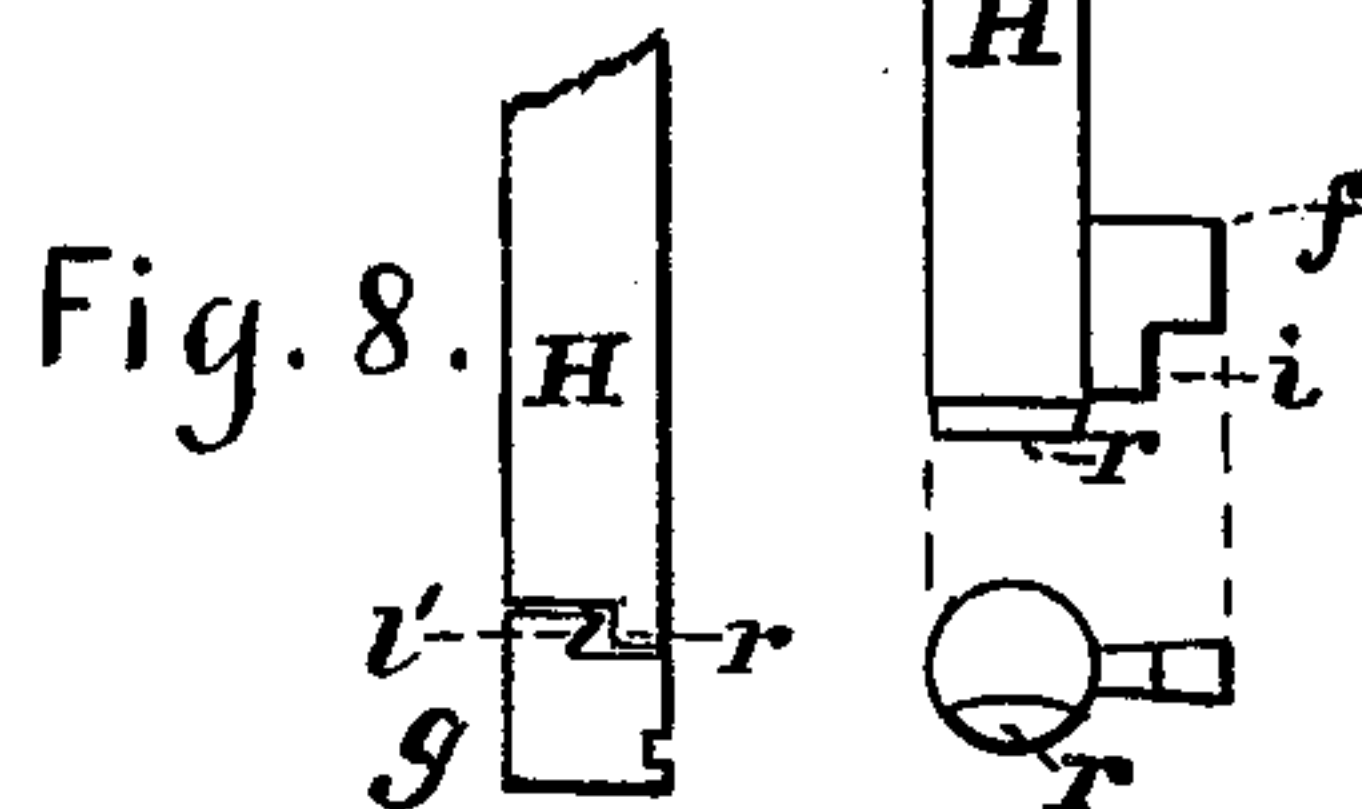
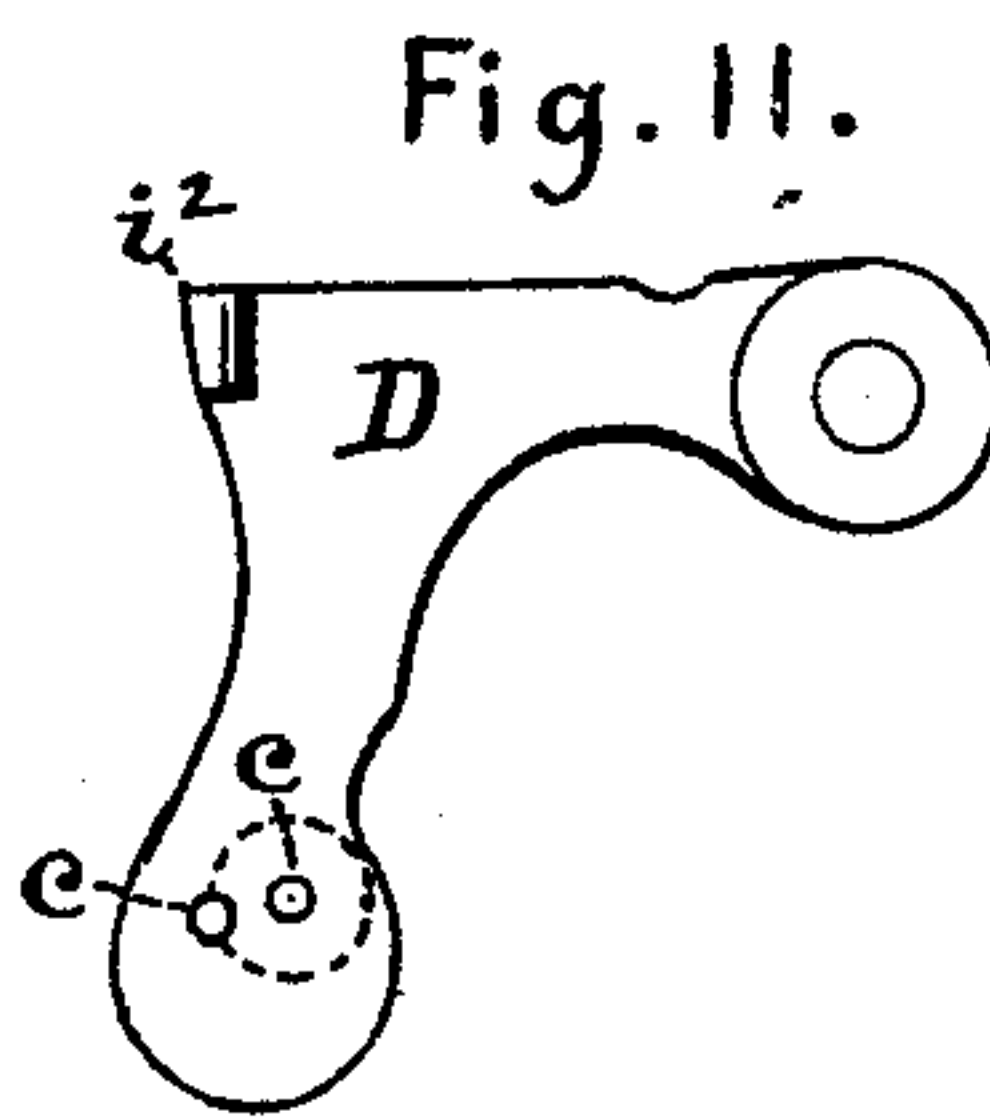
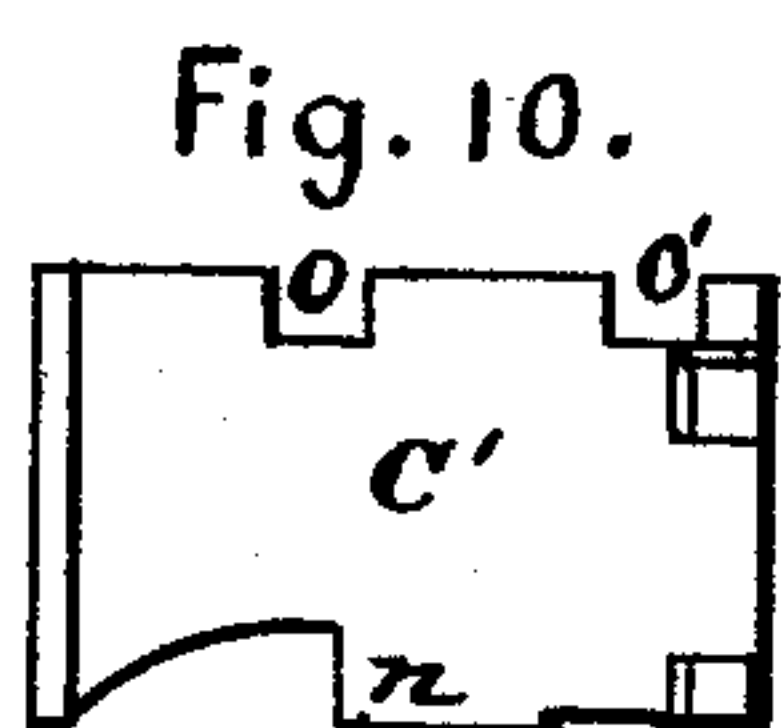
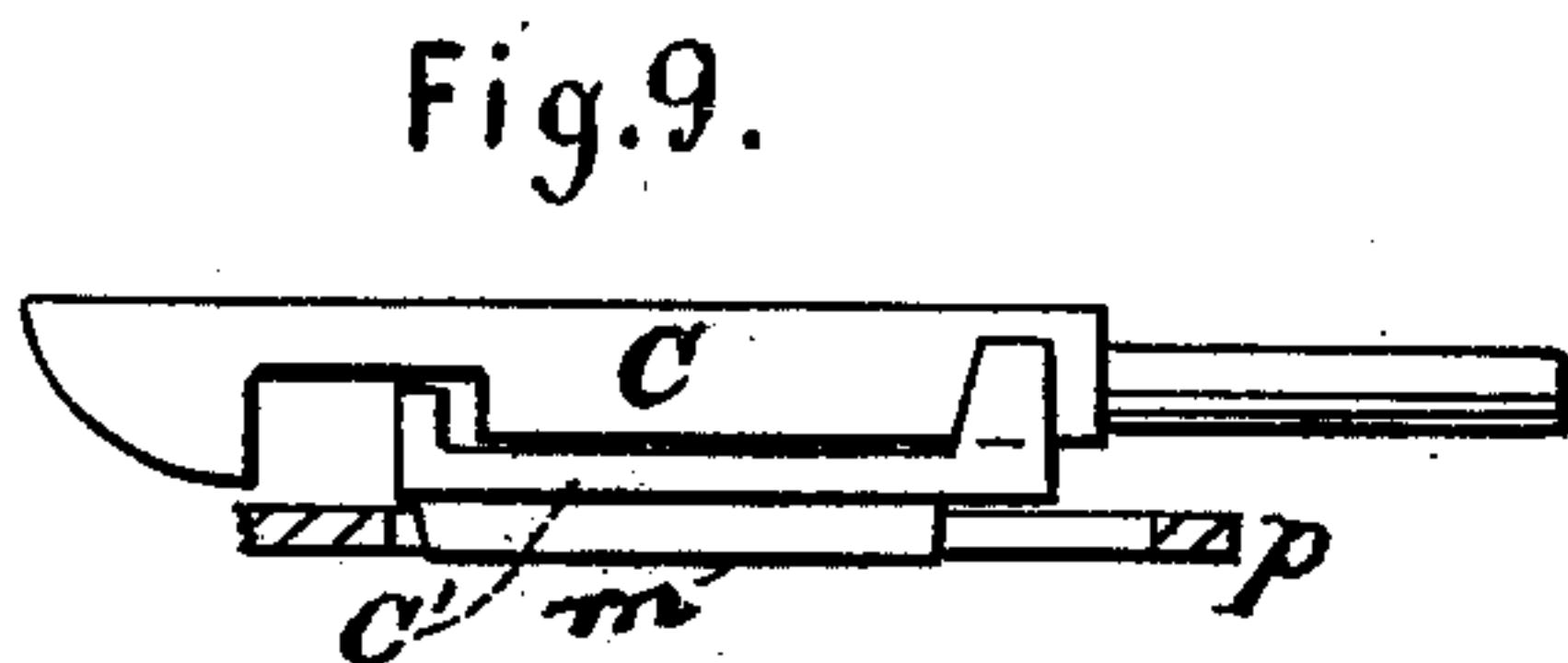
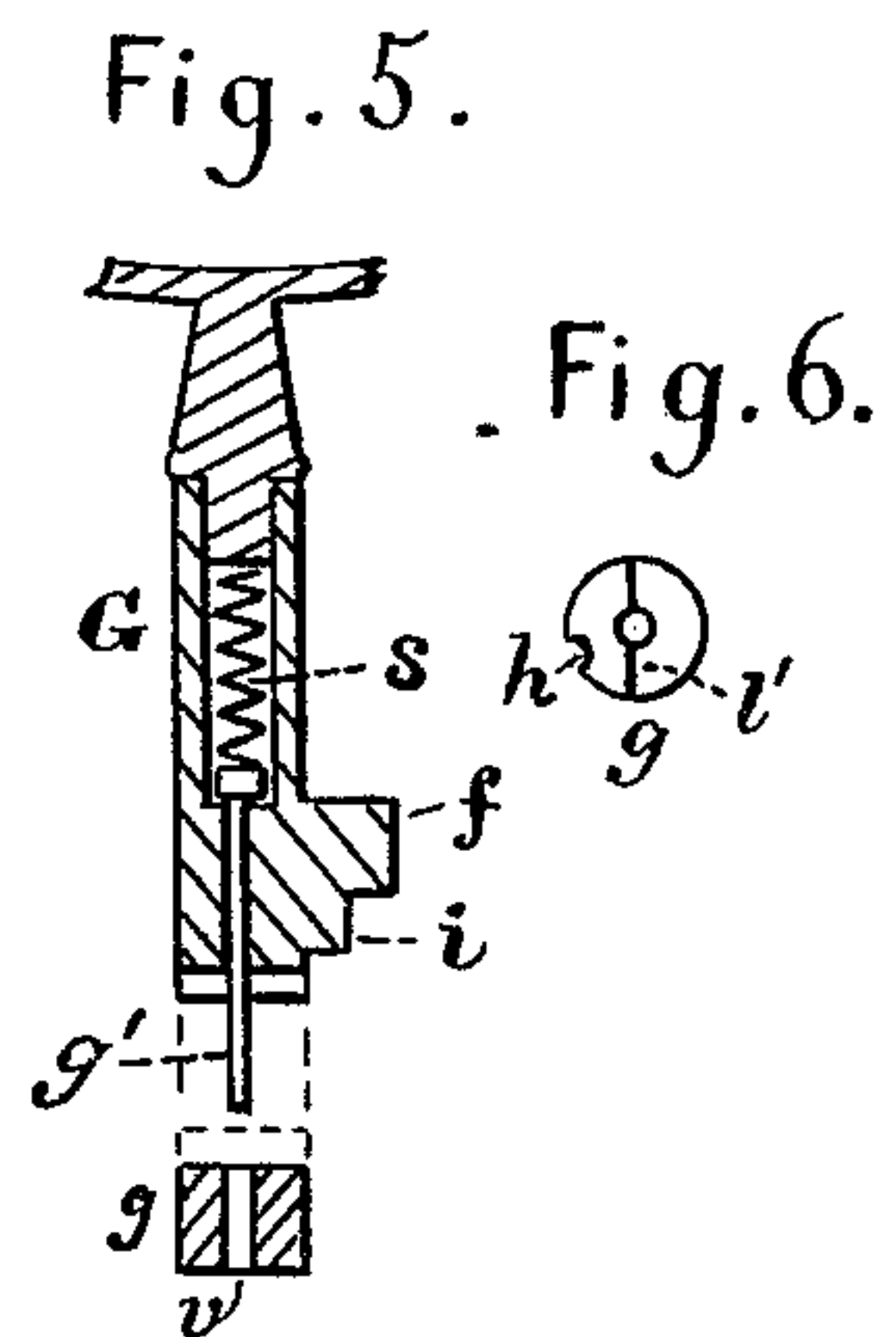
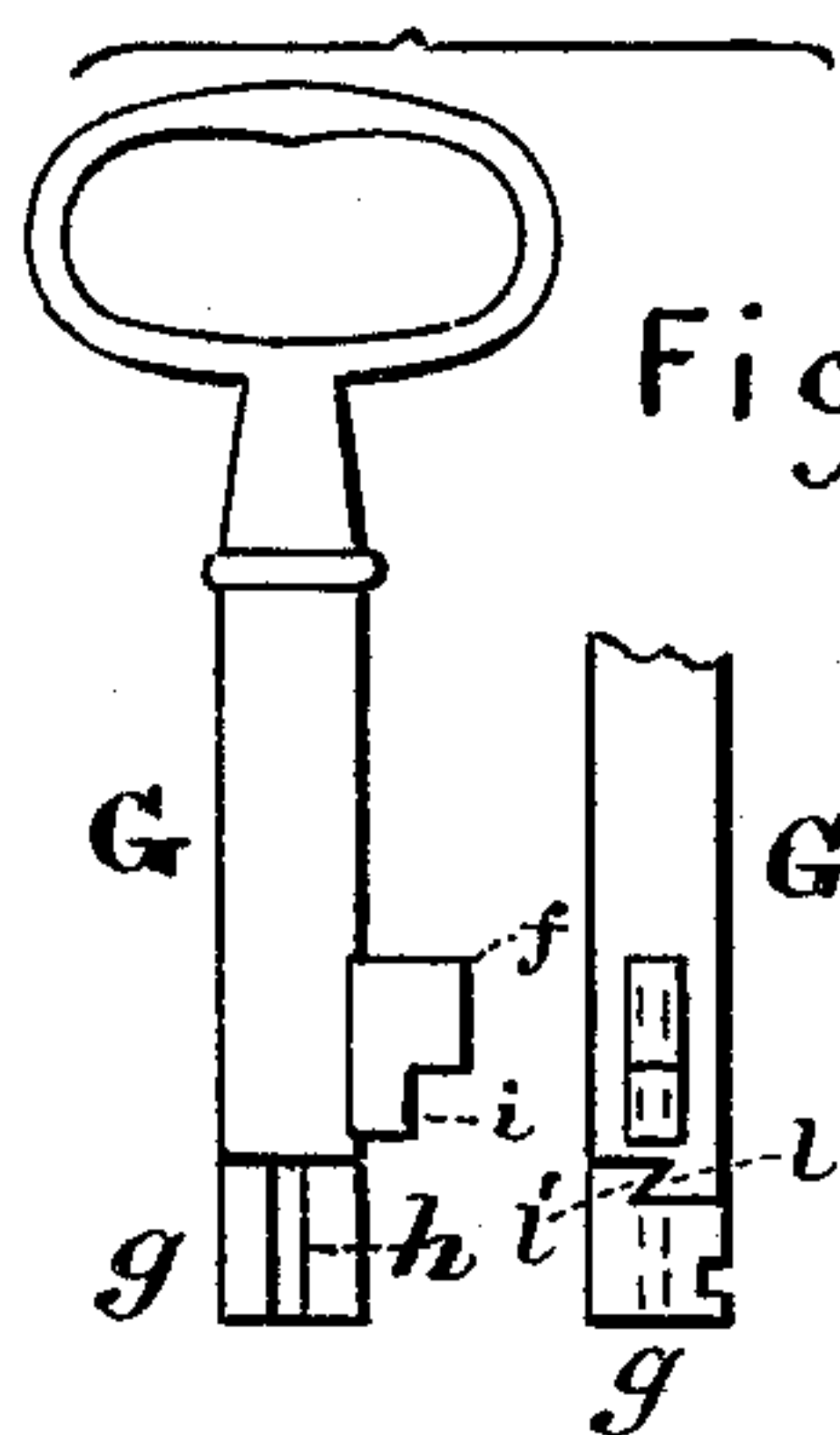
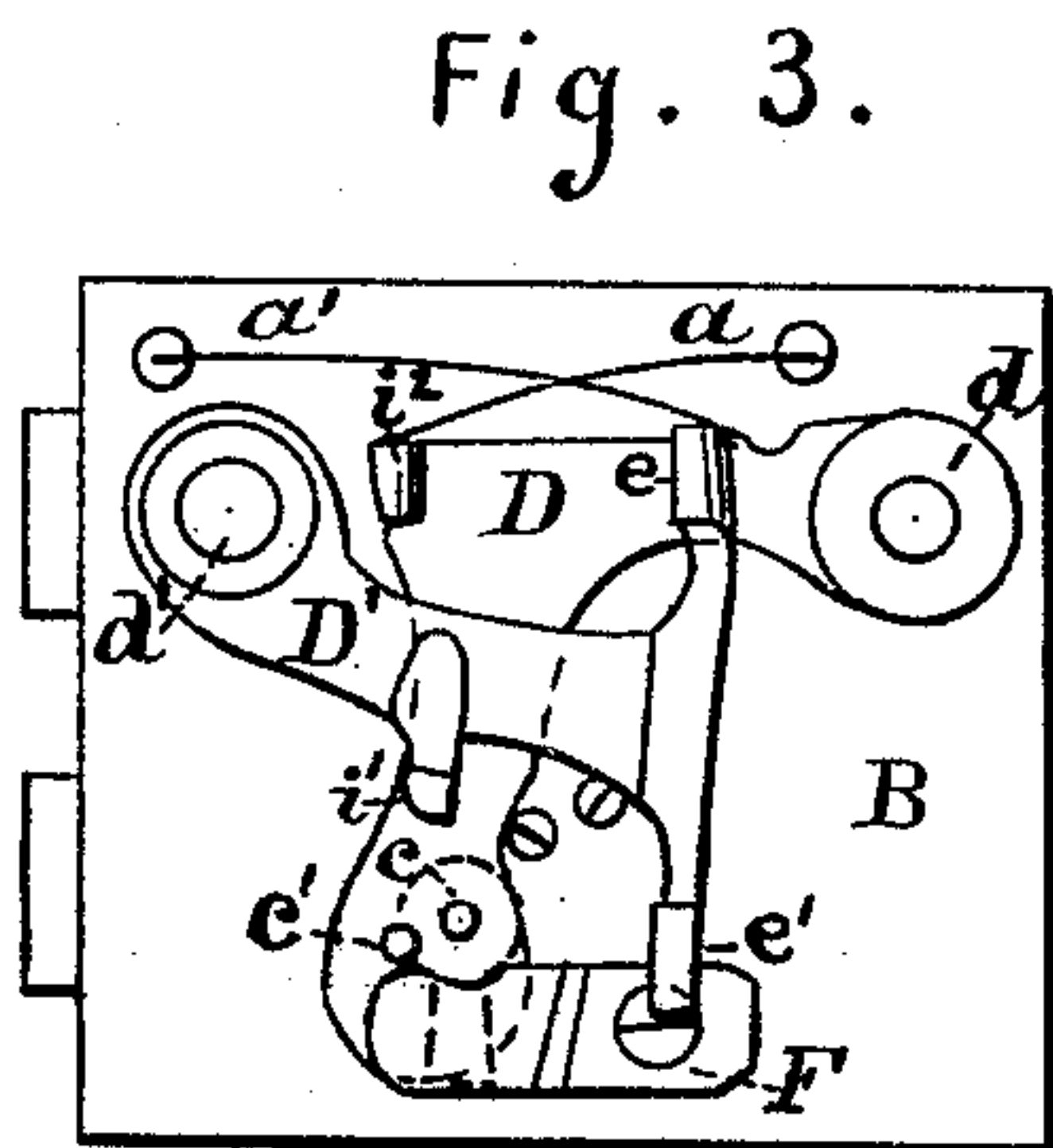
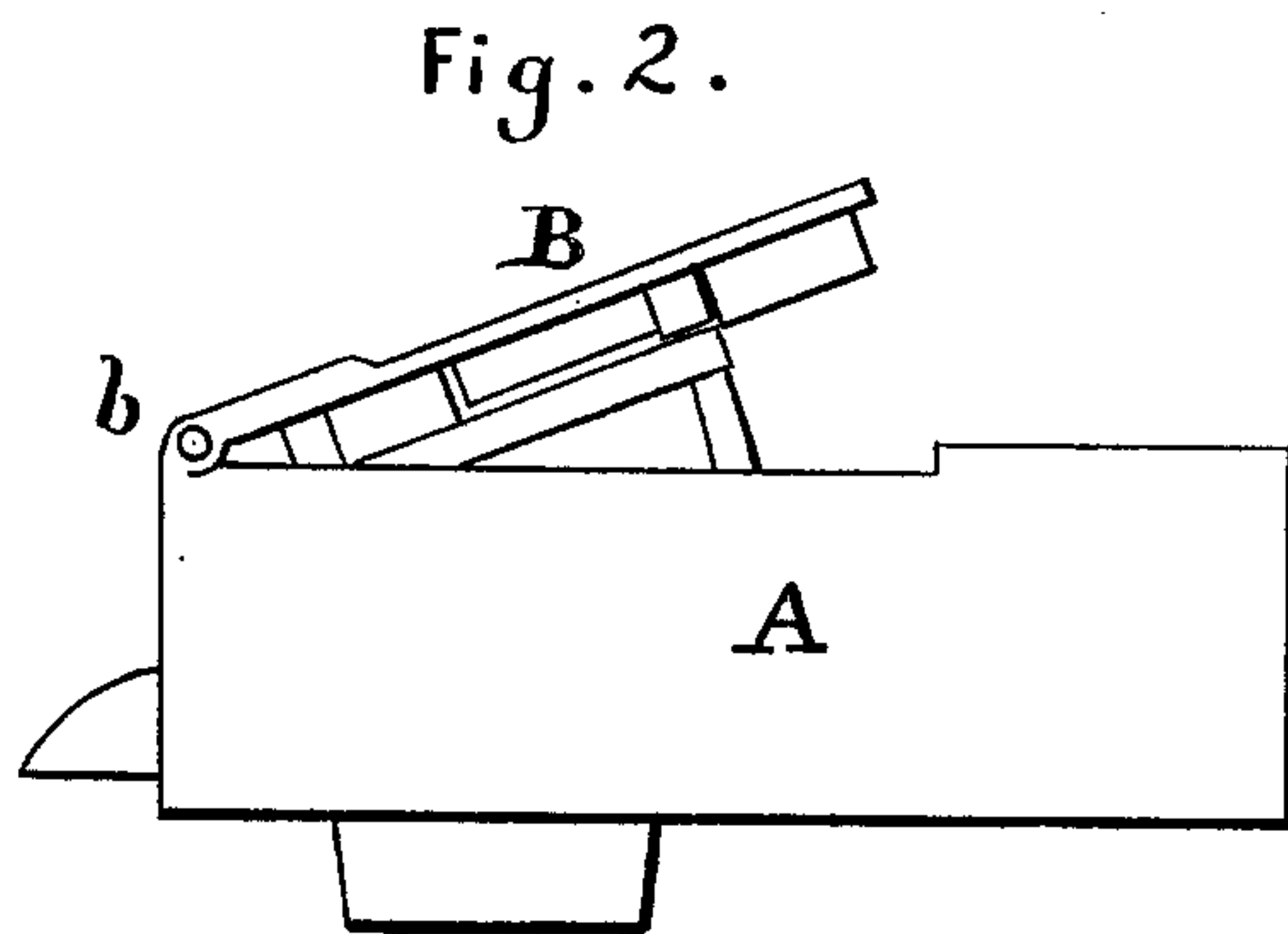
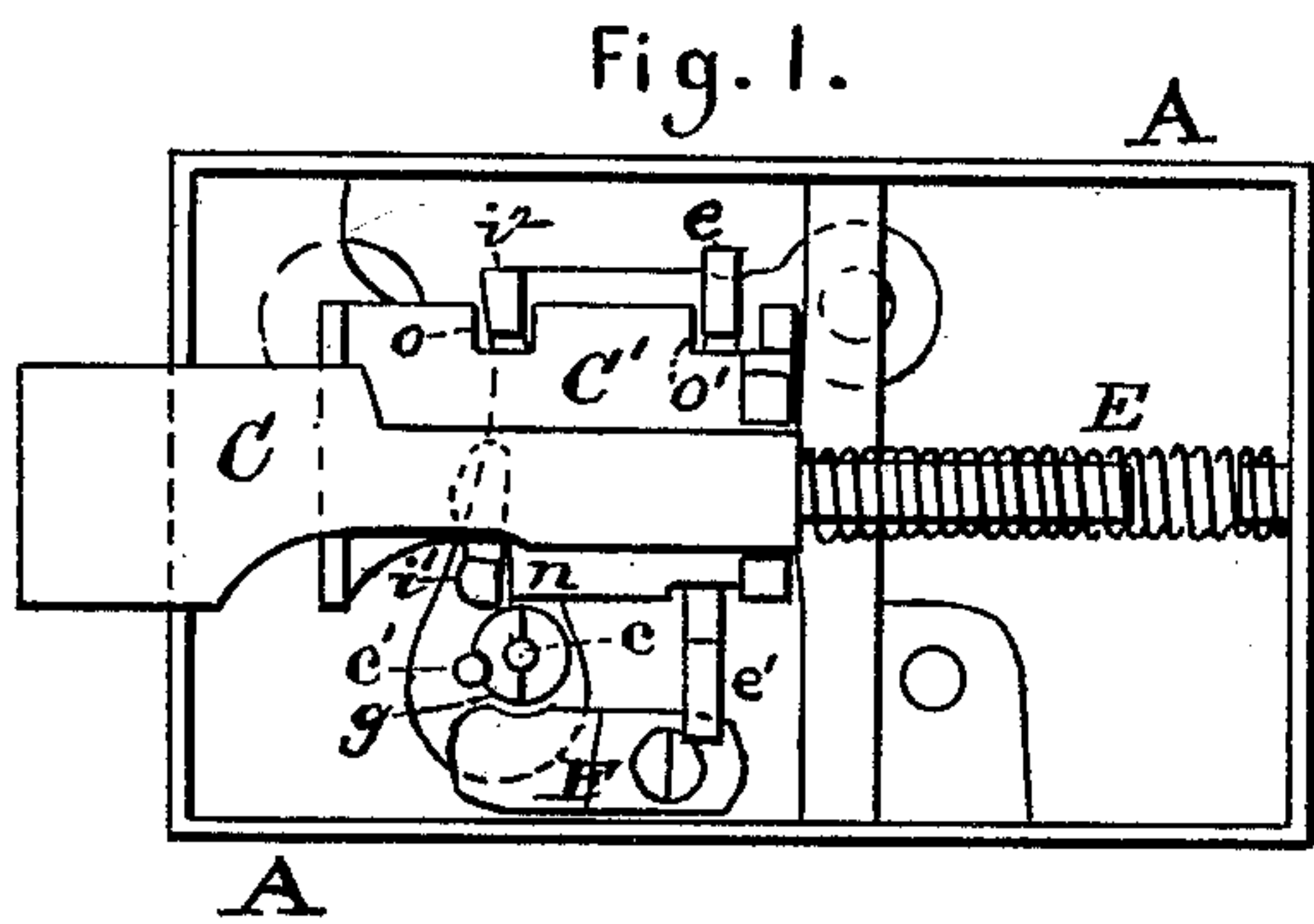


A. H. PALMER.
LOCK AND KEY.

No. 191,462.

Patented May 29, 1877.



Witnesses
W. Burris
P. B. Dupin.

Inventor :
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Attorney

UNITED STATES PATENT OFFICE

AUGUSTUS H. PALMER, OF UTICA, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO AMAZIAH D. BARBER, JR., OF SAME PLACE.

IMPROVEMENT IN LOCKS AND KEYS.

Specification forming part of Letters Patent No. **191,462**, dated May 29, 1877; application filed April 17, 1877.

To all whom it may concern:

Be it known that I, AUGUSTUS H. PALMER, of the city of Utica, in the county of Oneida, and State of New York, have invented certain new and useful Improvements in Locks; and I do hereby declare that the following is a full, clear, and exact description thereof, which 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, in which drawings—

Figure 1 is an interior view of the lock, the detachable part of the key being represented therein. Fig. 2 is a top or edge view. Fig. 3 represents the tumblers pivoted to the door in the back of the lock-casing. Fig. 4 represents the lock-key with the detachable piece connected thereto. Fig. 5 is a vertical section of the key and detachable piece. Fig. 6 represents the upper end of the detachable piece. Fig. 7 represents a supplementary key. Fig. 8 represents the supplementary key in position with the detachable piece. Fig. 9 represents in side view the locking-bolt in two parts. Fig. 10 is a plan of the plate forming a part of the locking-bolt. Fig. 11 represents one of the tumblers D, detached.

My invention relates to locks; and consists in certain novel improvements in the construction of the details of the same, as hereinafter shown and described, the device herein shown being more particularly adapted to signal-boxes of fire-alarm telegraphs and other constructions, in which trap-locks are desired.

In the said drawing, A designates the casing in which the lock mechanism is inclosed, the back of which is provided with a door, B, hinged at b.

The locking-bolt is composed of the bolt C and the plate C', so formed and placed that the bolt C may slide forward somewhat on the plate C' without moving the latter; but when the plate is moved back by the key the bolt C is withdrawn. (See Fig. 9.) The plate C' is formed with a guide, m, which moves in a slot in a plate, b, the latter being a part of the supporting-frame. The plate C' is also formed with recesses o o', to receive two of the lugs or

projections i² and e on the tumblers D and D', and a shoulder, n, against which the ward of the key bears in the operation of unlocking. (See Fig. 10.)

The tumblers D and D' are pivoted at d and d' to the door B, which forms a part of the casing, and are provided with lugs or projections—D, having the lug i² formed thereon, and D', having the lugs e, e', and i¹, as shown in the drawing. The relative position of the tumblers is shown in Fig. 3. They are severally provided with springs a a', which press them downward, the lugs i² and e entering the recesses o and o' of the plate C', when the tumblers are closed. These two lugs are beveled so as to slip readily into recesses of the plate C', when the latter returns to its position after being released from the key. The projection i¹, formed on the tumbler D', is near enough to the key-hole for the ward i of the key-bit to act against it when the key is turned.

A pin, c, projects from the lower part of the tumbler D, so as to be directly opposite the center of the shaft of the key, when it is placed in the key-hole. Another pin, c', is also fixed to tumbler D near pin c, both these pins being used in connection with the detachable part of the lock-key, as hereinafter stated. A guard, F, is provided for the lower end of tumbler D.

The lock-key G is provided with a detachable piece, g, the parts being matched, and each forming half a dovetail, as seen in Fig. 4. The piece g has a groove, h, in its side, to receive the pin c', and an aperture, v, through its center. A pin, g', projecting from the shaft of the key passes into the aperture v, the pin being pressed downward by a spiral spring, s, in the shaft of the key, which is somewhat hollow. (See Fig. 5.)

In the operation of unlocking, the key G, having the piece g attached, is pressed in the key-hole. The pin c on the tumbler D, being directly opposite the pin g', presses the latter back into the shaft of the key, and the groove h in the side of piece g receives the pin c'. Thus the piece g is placed on the pin c, and held by pin c'. The key being then turned, the shoulder l, acting against the shoulder l' of

piece *g*, moves the latter away, and, at the same time, raises the tumbler *D*, and its lug *i*² out of the recess *o*. The ward *i* of the key-bit, acting against the projection *i*¹, raises the tumbler *D'* and its lug *e* out of the recess *o'*. In the further turning of the key the ward *f* catches the shoulder *n* of the plate *O'*, the latter being released from the tumblers, and moves back the plate, and with it the bolt *C*. When the bolt is released from the key, it is returned forward by the spring *E*, and the tumblers are returned to the plate *O'* by the springs *a a'*, the piece *g* remaining on the pin *c*.

When the lock is fast, with the piece *g* remaining therein, as last described, the key *G* cannot be effectually used for unlocking, as the dovetailed shoulders *l* and *l'* prevent the shaft of key *G* and the piece *g* from being united or brought in close connection, as in Fig. 4, while the piece *g* is in the lock.

Another and supplementary key is therefore provided, the same being shown in Fig. 7, and marked *H*. Said key has a shoulder or projection, *r*, to act against the shoulder *l'* of piece *g*, when the key is turned, said projection *r* allowing the key *H* to be applied to the piece *g*, and placed on a line therewith, as shown in Fig. 8. The key *H* is also provided with the wards *i* and *f*, for the purposes before stated.

The door *B*, to the inner side of which the

tumblers are secured, is provided with a spring-lock, which is opened by a third key, for the purpose of taking out the piece *g* to replace it on the key.

Having described my invention, I claim—

1. The key *G*, provided with the spring-pin *g'*, and detachable piece *g*, as and for the purposes described.

2. The detachable piece *g*, having groove *h*, and being formed to match with the shaft of key *G*, receive the spring-pin *g'*, and connect with the tumbler *D* within the lock, substantially as set forth.

3. The tumblers *D* and *D'*, the former having the lug *i*² and pins *c* and *c'*, and the latter having the lugs *e* and *i*¹, said tumblers being pivoted and provided with springs, substantially as set forth.

4. The tumbler *D*, provided with the pins *c* and *c'*, for entering and retaining the part *g* of the key *G*, substantially as set forth.

5. The supplementary key *H*, provided with projection *r*, and formed to close with and operate with the detachable piece *g* when the latter is in the lock, as set forth.

In testimony that I claim the foregoing as my own I have affixed my signature in presence of two witnesses.

AUGUSTUS H. PALMER.

Witnesses:

JOHN W. PILLING,
A. D. BARBER, Jr.