

(Model.)

J. ADAMS.

COMBINED LATCH AND LOCK.

No. 377,733.

Patented Feb. 14, 1888.

Fig 1.

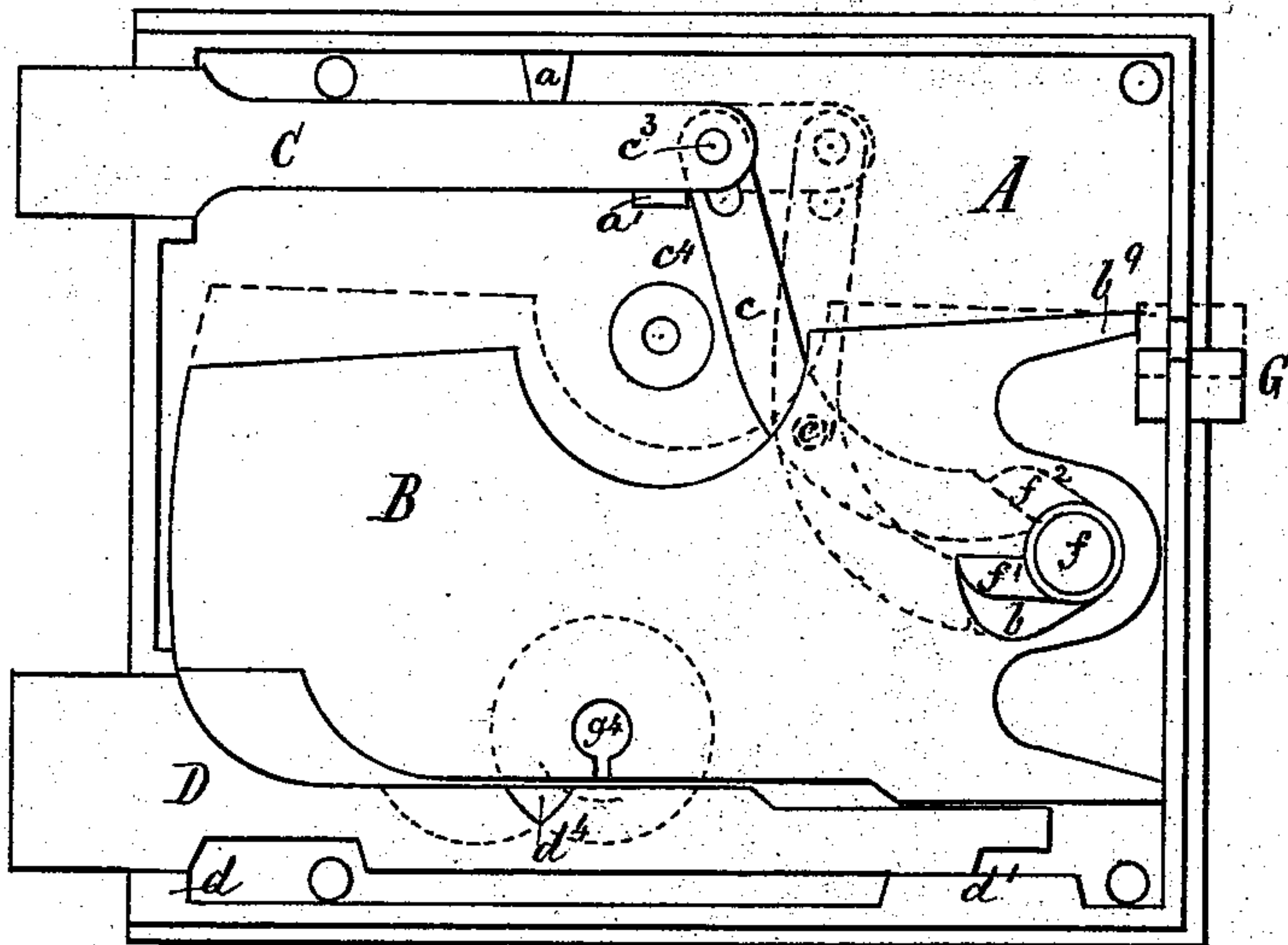


Fig 2.

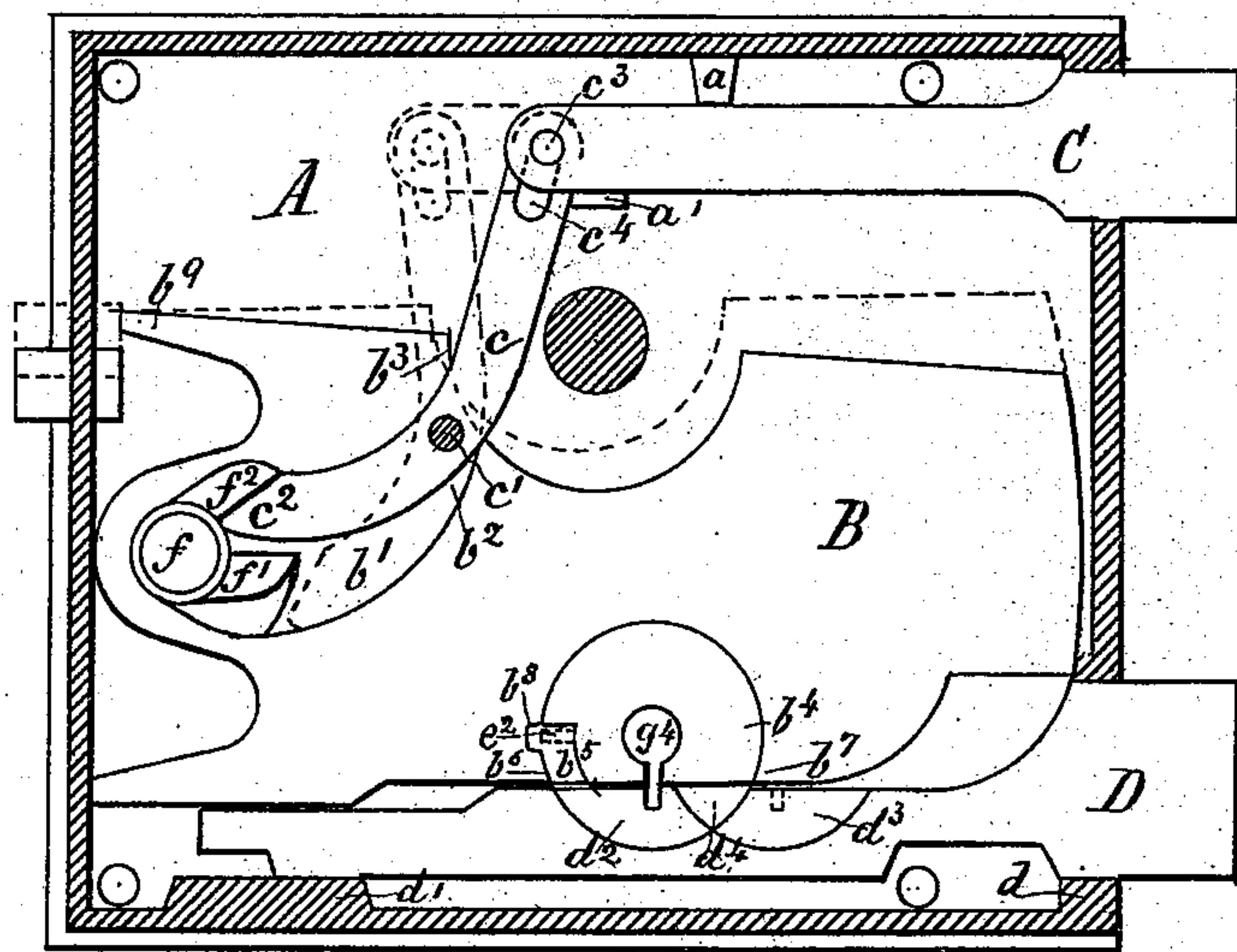
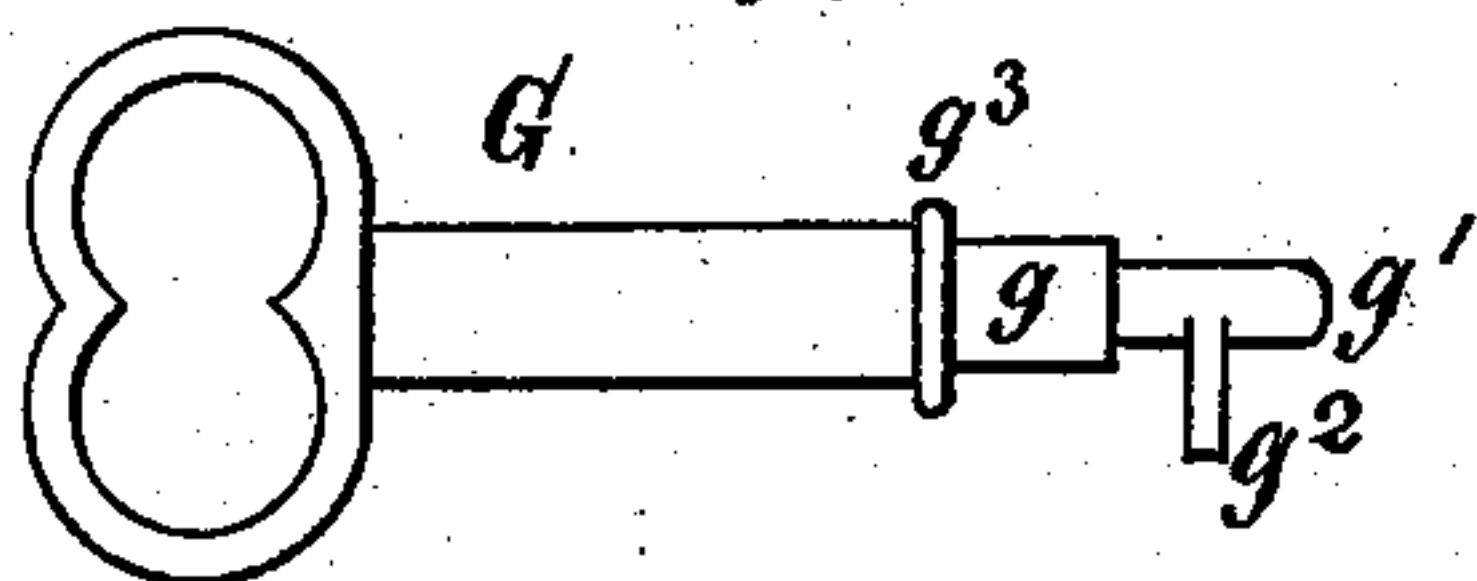


Fig 7.



Witnesses  
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Fig 3.



Fig 4.

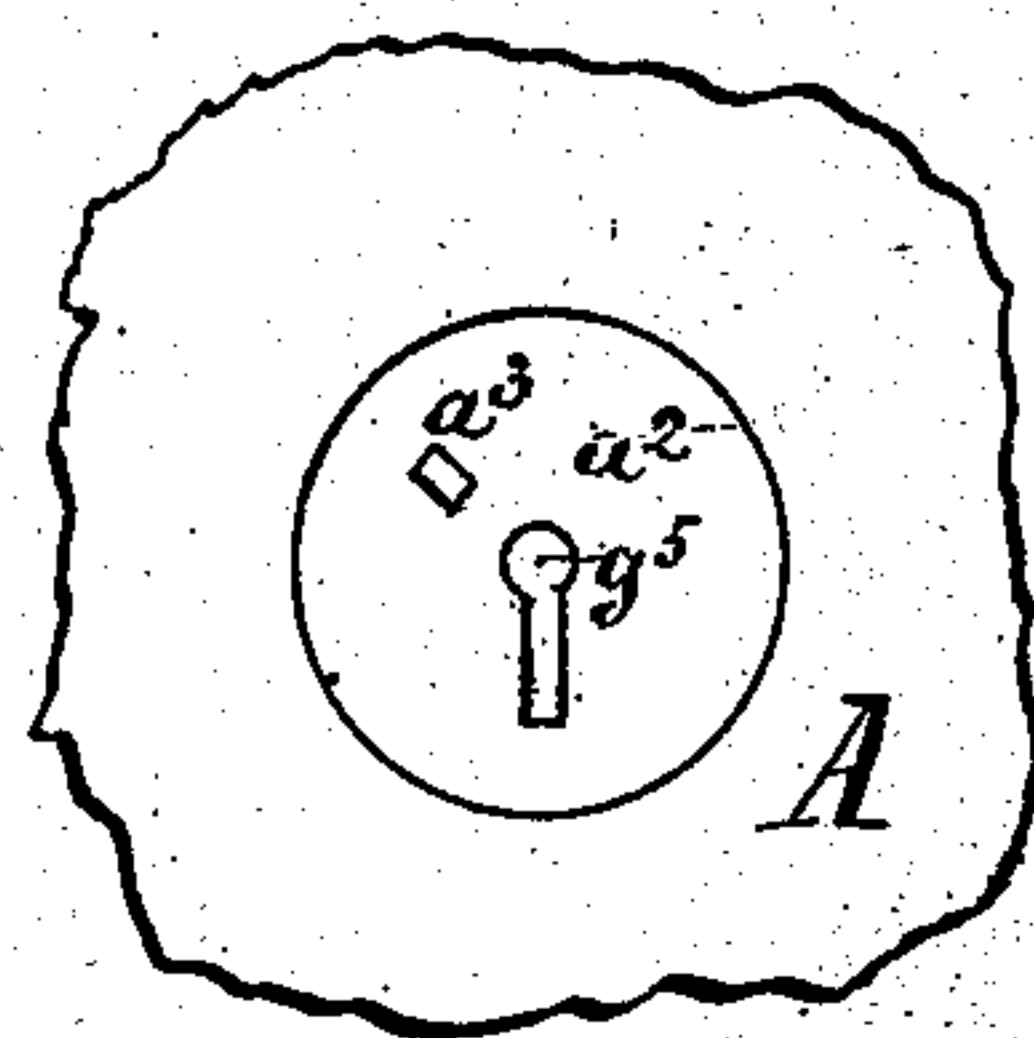


Fig 5.

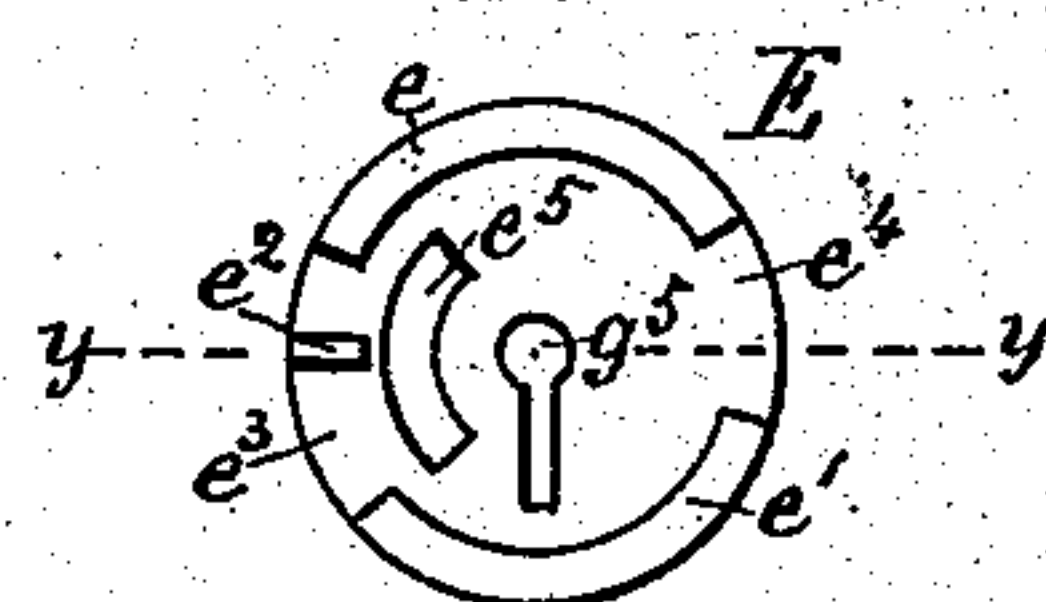


Fig 6.



Inventor  
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# UNITED STATES PATENT OFFICE.

JOHN ADAMS, OF CLAY CENTRE, KANSAS.

## COMBINED LATCH AND LOCK.

SPECIFICATION forming part of Letters Patent No. 377,733, dated February 14, 1888.

Application filed August 13, 1887. Serial No. 246,837. (Model.)

*To all whom it may concern:*

Be it known that I, JOHN ADAMS, a citizen of the United States, residing at Clay Centre, in the county of Clay and State of Kansas, have invented certain new and useful Improvements in Combined Latch and Lock; 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.

My invention consists of certain constructions, arrangements, and combinations of parts, hereinafter fully described and specifically claimed, whereby a latch is produced which is operated by means of the gravity of its tumbler and a key of simple construction, and which is guarded against "picking," and is otherwise as convenient and easy to operate as any of the superior spring-latches.

In the accompanying drawings, Figure 1 is a view of the latch having its cover removed. Fig. 2 is a section of the latch-case in the line  $xx$  of Fig. 3, the contents being shown in elevation. Fig. 3 is an end view of the latch. Fig. 4 is a view of a portion of the case, exhibiting the seat of a tumbler-operating disk. Fig. 5 is a front view of the said disk, and Fig. 6 is a section in the line  $yy$  of the same. Fig. 7 is a view of a key used in operating the device.

The letter A in the drawings represents an ordinary latch-case; B, a gravitating tumbler; C, a latch-bolt; D, a lock-bolt, and E a locking-disk.

The tumbler B has the shaft  $f$  of an ordinary knob mechanism for its fulcrum, and it is moved by means of a lug,  $f'$ , on said shaft. This lug  $f'$  is inserted into a notch,  $b$ , in the tumbler, which notch allows the lug a small amount of free motion, as seen in Figs. 1 and 2, and serves to lift the tumbler when the knob is turned up. When the tumbler rises, it moves the lower arm of the lever  $c$  of the latch-bolt, as will be seen. The lever  $c$  is pivoted at  $c'$  to the lock-case A, and is fitted into a suitable depression,  $b'$ , in the tumbler in such way that it can be freely moved around the pin  $c'$  by the swinging tumbler, the formation of the lever  $c$  and the depression  $b'$  being such that the lever is moved backward by the portion  $b^2$  of the depression when the tumbler rises, and forward by the portion  $b^3$  when the

tumbler descends. The lever  $c$  may also be moved backward by means of a lug,  $f^2$ , on the shaft  $f$  of the knob mechanism, the said lug moving the end portion  $c^2$  of the lever  $c$  down when the knob is turned down.

The latch-bolt C moves in guide-lugs  $a$   $a'$ , formed on the lock-case, and is provided with a pin,  $c^3$ , which moves in a slot,  $c^4$ , in the upper end portion of the lever  $c$ , and thus the described motions of the tumbler B and lever  $c$  serve to move the latch-bolt C either into or out of the lock, or, in other words, latch or unlatch the door provided with such device. The locking-bolt D moves upon two lugs,  $d$   $d'$ , of the latch-case, thereby forming a receptacle for dust and dirt, which is thereby prevented from entering the bearings of the bolt. The upper bearing of the locking-bolt is the lower surface of the tumbler B.

Opposite the joint-line of the tumbler and lock-bolt the lock-case is provided with a seat,  $a^2$ , for the locking-disk E, which disk is also partly seated in the tumbler B at  $b^4$  and lock-bolt D at  $d^2$   $d^3$ . The disk is provided with two rim-sectors,  $e$   $e'$ , and a lug,  $e^2$ . The rim-sectors move in their respective seats in the tumbler and lock-bolt—in the latter two alternately. The lug  $e^2$  is higher than the rim-sectors  $e$   $e'$ , and engages with a notch,  $d^4$ , in the lock-bolt when the disk is turned around by means of a suitable key, and thus the lock-bolt is moved out or in by turning the disk forward or backward. In order to open the latch-bolt when the lock-bolt is opened, thus saving the turning of the knob, the disk is turned up out of the notch  $d^4$  into a suitable groove,  $b^5$ , of the disk-seat  $b^4$ , and, arriving at the end of said groove, abuts against its end surface and lifts the tumbler, thus opening the latch-bolt, as above described. While ascending, the tumbler B changes its position in respect to the stationary disk, and in order to avoid breakage of the said parts two spaces,  $e^3$   $e^4$ , are left between the rim-sectors  $e$   $e'$ , which are turned in line with the lower surface of the rising tumbler and allow the portions  $b^6$   $b^7$  of the same to enter said spaces without jamming against the disk.

At the upper end of the groove  $b^5$  a lateral extension,  $b^8$ , is provided, into which the lug  $e^2$  enters while the tumbler B is rising, thus preventing breakage of the tumbler. When



the lock-bolt is moved out and the door is locked, the rim-sector  $e$  occupies the seat or depression  $d^2$ , and thus prevents the moving of the lock-bolt by the use of false keys and the like.

A night-latch or sliding check, G, of ordinary construction, is provided on the rear side of the lock-case, which latch is in line with a rear end portion,  $b^9$ , of the tumbler, and which when moved opposite the same prevents the tumbler from moving and the lock from being opened. In Fig. 4 a lug,  $a^3$ , is shown in the back of the lock, which occupies the end portion of a circular slot,  $e^5$ , in the disk E, and by its height allows or prevents the passage of the ward of the operating-key, so that only a ward of proper size can slip over the lug  $a^3$  and turn the disk back.

The gravitating tumbler B being hung to its fulcrum as close as practicable to the rear side of the lock and about the middle of its height, the tumbler is rendered more effective in its operation than otherwise and its weight can be greatly reduced without danger of rendering the same inoperative.

The knob-shaft may have the lugs  $f'$   $f^2$  formed with it, or it may be passed through a hollow collar having said lugs without changing the principle of my invention.

I contemplate in some instances making my locks with one knob on the inside of the door, so that the door cannot be opened from the outside without a key.

A key, G, used for operating the lock, is provided with a collar,  $g^3$ , a stepped end portion,  $g$   $g'$ , and a ward,  $g^2$ . Of the stepped end portion,  $g$   $g'$ , the part  $g'$  will enter the lock from the rear side, for which purpose the round portion  $g^5$  of the key-hole is made small, while at the opposite side the round portion  $g^4$  of the key-hole is made large, so the portion  $g$  of the

key can enter it. In the first case the step  $g$  serves as a collar for preventing the key from entering the lock too far, and in the second case the collar  $g^3$  is provided on the key G for the same purpose.

The knob and its shaft  $f$  may be omitted in some instances and an ordinary thumb-latch provided for operating the tumbler.

I do not wish to confine myself to the precise shape of the latch-lever  $c$ , as shown, for its form may in some instances be modified without changing the character of my invention.

What I claim as my invention is—

1. In a gravitating latch, the tumbler B, having depression  $b'$  and portions  $b^2$  and  $b^3$ , in combination with the lever  $c$ , latch-bolt C, and operating knob-shaft  $f$ , having lug  $f'$ , substantially as and for the purpose described.

2. The combination of the latch-case A, having disk-seat  $a^2$ , tumbler B, having disk-seat  $b^4$  and groove  $b^5$ , the lock-bolt D, having seats  $d^2$   $d^3$  and notch  $d^4$ , and the disk E, having lug  $e^2$ , substantially as and for the purpose described.

3. The combination of the tumbler B, having groove  $b^5$  and lateral groove-extension  $b^8$ , and the disk having lug  $e^2$ , rim-sectors  $e$   $e'$ , and spaces  $e^3$   $e^4$ , substantially as and for the purpose described.

4. The combination of the disk E, having lugs  $e^2$  and rim-sectors  $e$   $e'$ , and the bolt D, having notch  $d^4$  and seats  $d^2$   $d^3$ , substantially as and for the purpose described.

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

JOHN ADAMS.

Witnesses:

WM. MOORE,  
ENOCH CUMMINGS.