

(Model.)

G. G. ACKERSON & J. F. SHY.

DOOR LOCK.

No. 337,108.

Patented Mar. 2, 1886.

Fig. 1.

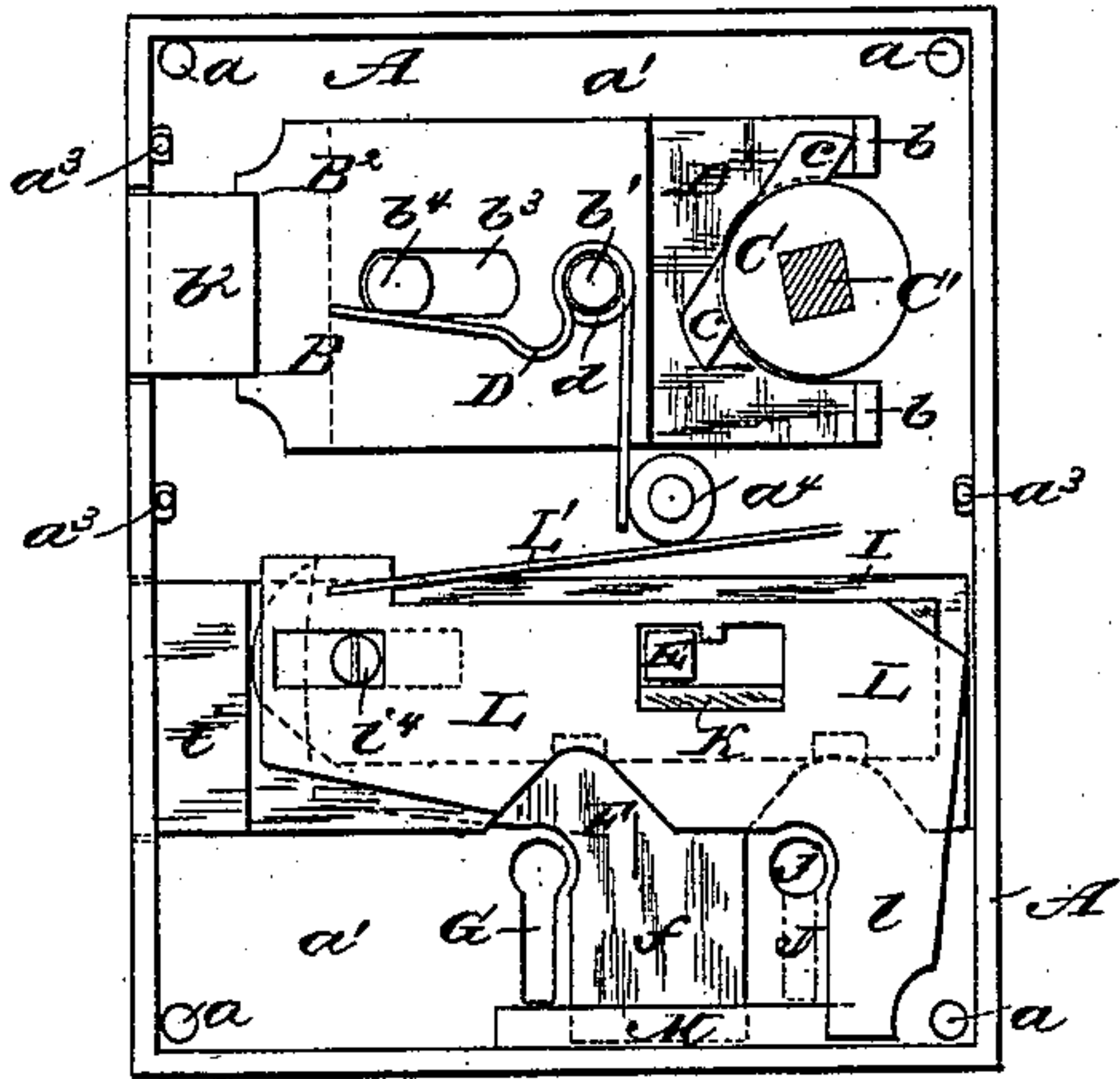


Fig. 2.

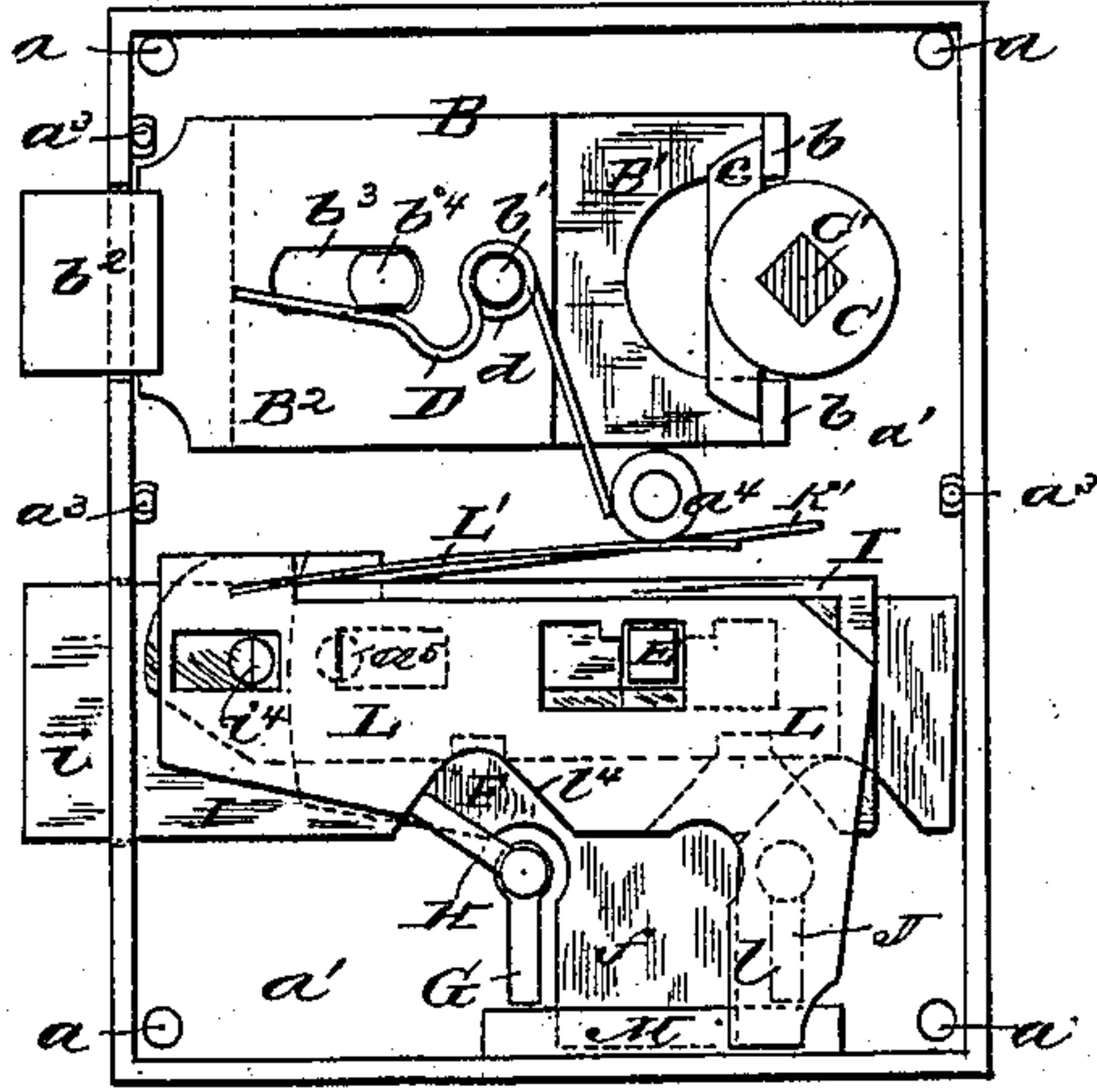


Fig. 3.

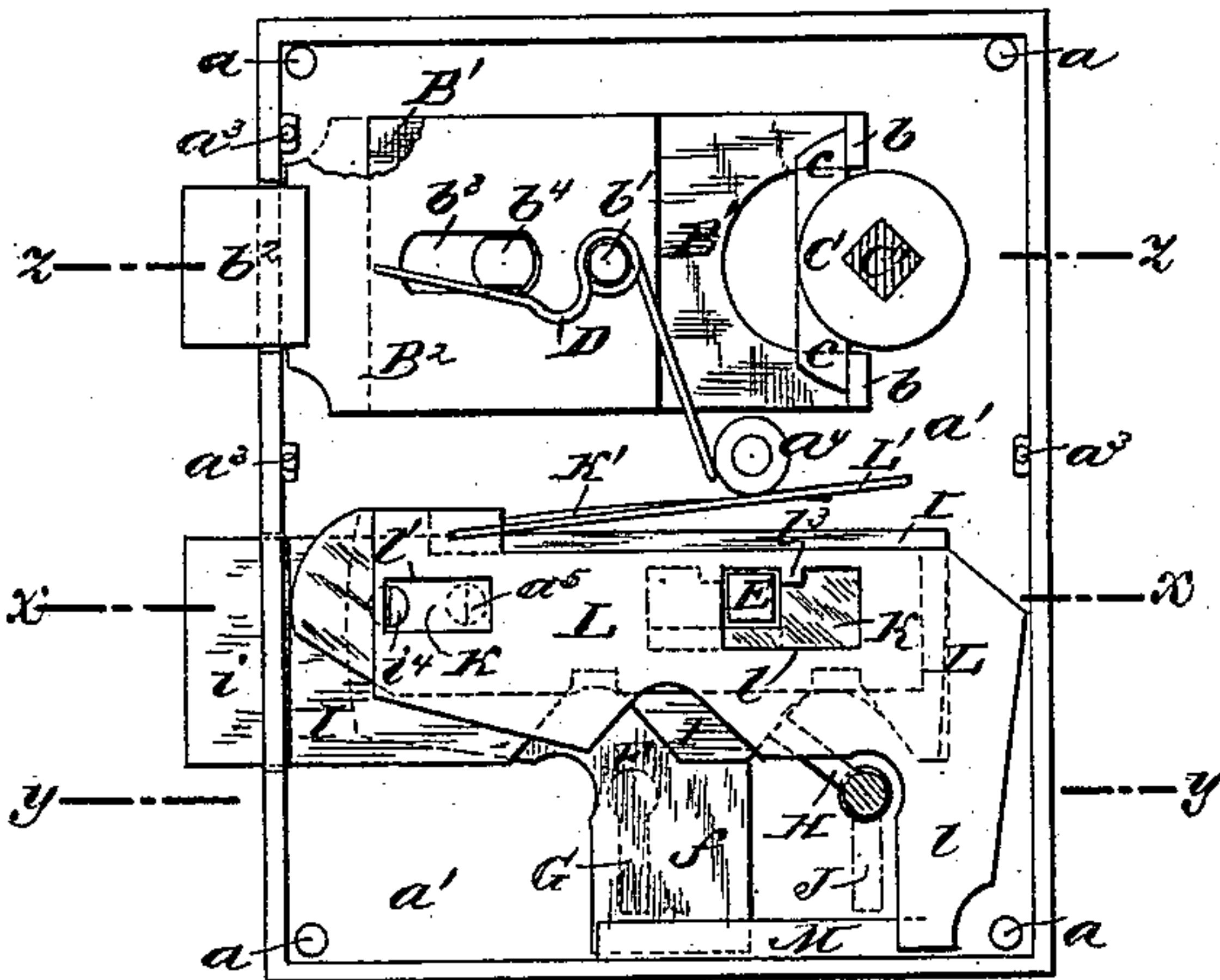


Fig. 6.

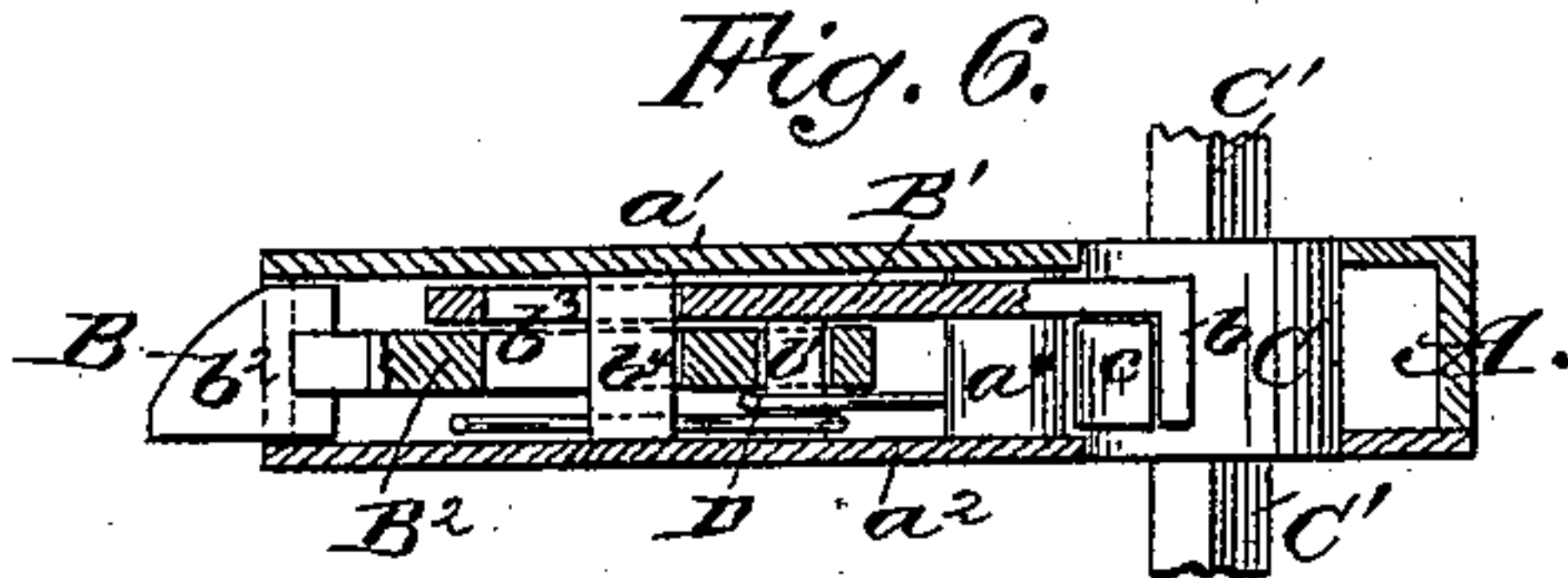


Fig. 7.



Fig. 8.

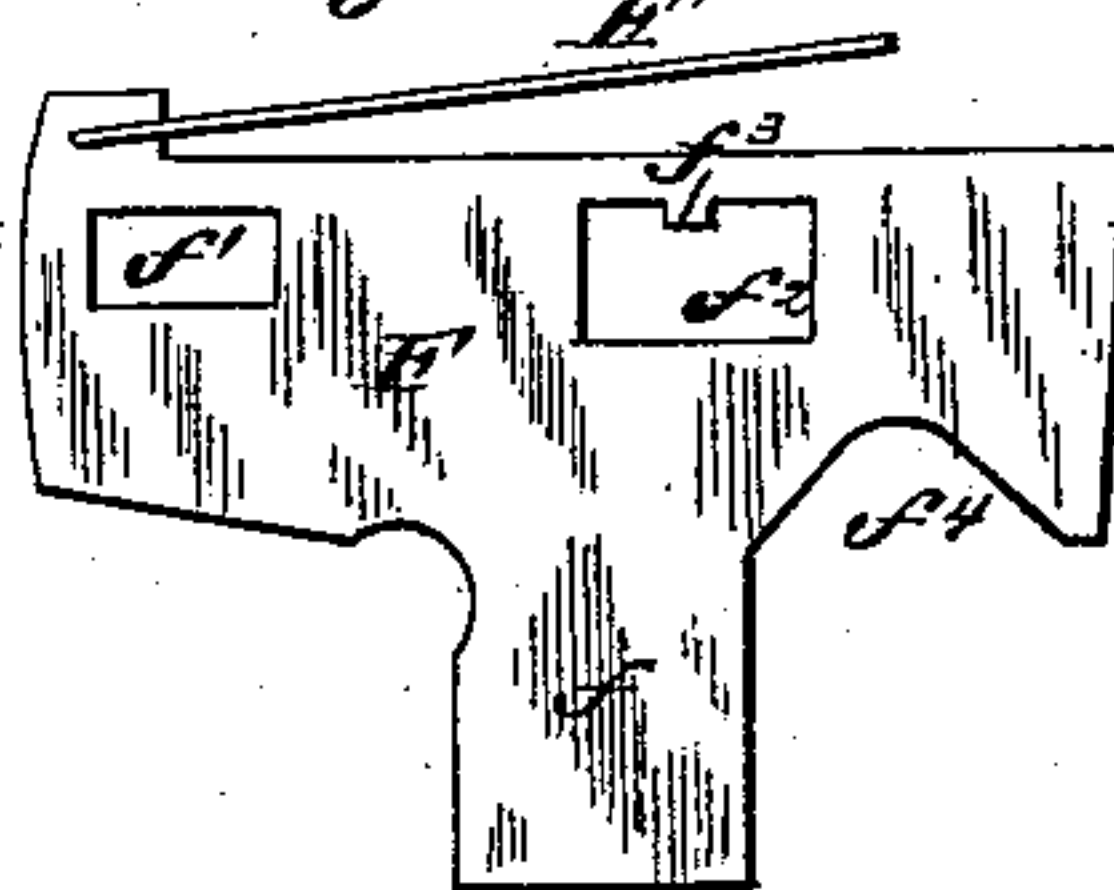


Fig. 9.

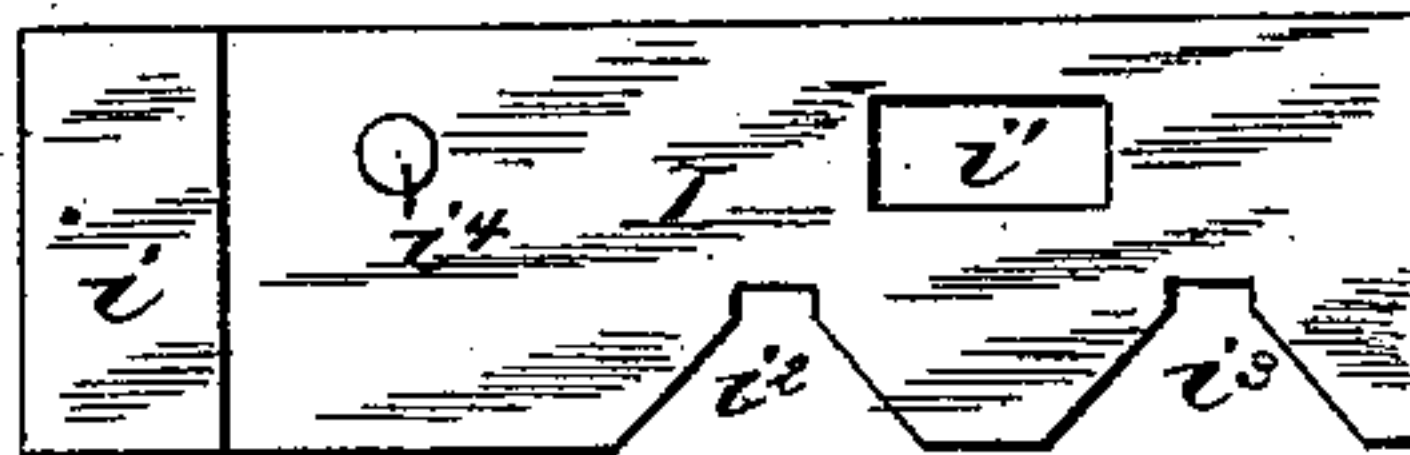
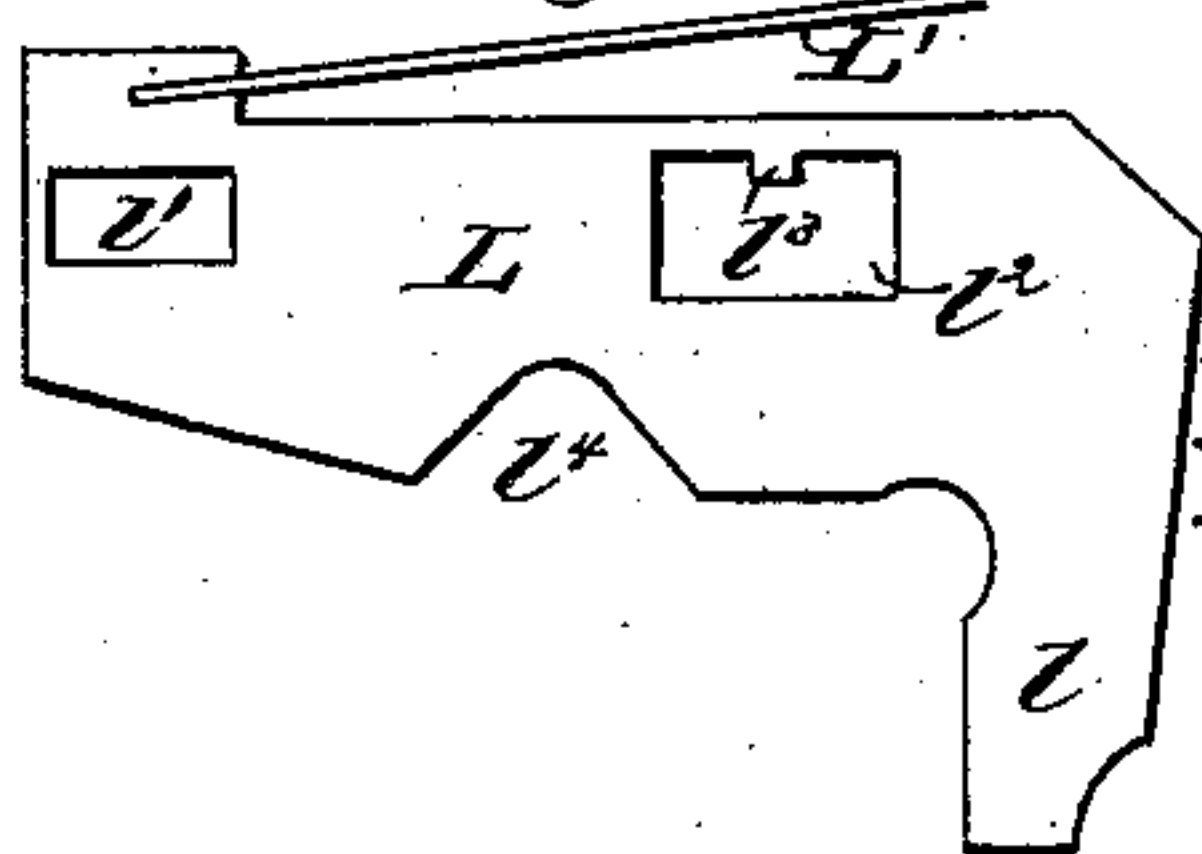


Fig. 10.



Fig. 11.



WITNESSES:

*W. H. B. B. B.*  
C. Sedgwick

INVENTOR:

*G. G. Ackerson*

*J. F. Shy*

BY

*Munn & Co*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

GARRET G. ACKERSON AND JULIUS FRENCH SHY, OF ST. LOUIS, MISSOURI.

## DOOR-LOCK.

SPECIFICATION forming part of Letters Patent No. 337,108, dated March 2, 1886.

Application filed September 28, 1885. Serial No. 178,378. (Model.)

*To all whom it may concern:*

Be it known that we, GARRET G. ACKERSON and JULIUS FRENCH SHY, both of St. Louis, and State of Missouri, have invented a new and Improved Door-Lock, of which the following is a full, clear, and exact description.

Our invention relates to locks more especially adapted for use on hotels and dwelling-house doors, and has for its object to provide a simple, inexpensive, strong, and durable lock which in its construction and use shall combine security of fastening with protection against picking, and also against looking through the key-holes of the lock when the bolt is projected by the key.

The invention consists in certain novel features of construction and combinations of parts of the lock, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a rear face view of the lock with the inner plate of the case removed and with the latching and locking bolts withdrawn. Fig. 2 is a rear face view of the lock, and shows the latching-bolt projected, and illustrates the action of the key in projecting the locking-bolt when the key is passed into the lock from its outer side, and also shows how the key moves the inner guard-plate to cover the inner key-hole of the lock. Fig. 3 is a rear face view of the lock, illustrating the action of the key in projecting the locking-bolt when the key is passed into the lock from its inner side, and also shows how the key moves the outer guard-plate to cover the outer key-hole of the lock. Fig. 4 is a transverse section of the lock, taken on the line  $x x$ , Fig. 3, and with the inner plate of the lock in place. Fig. 5 is a like view, taken on the line  $y y$ , Fig. 3. Fig. 6 is a like view, taken on the line  $z z$ , Fig. 3. Fig. 7 is an edge view of the reversible latch-bolt. Fig. 8 is a view of the outer key-hole guard-plate. Fig. 9 is an inside face view of the locking-bolt. Fig. 10 shows the tumbler of the locking bolt, and Fig. 11 is a view of the inner key-hole guard-plate.

The letter A indicates the lock-case, which

has holes at  $a$  through its outer and inner side plates,  $a'$   $a^2$ , respectively, through which holes the screws are to be passed to fasten the lock to a door. Studs  $a^3$  on the body of the case A enter holes in the inner plate,  $a^2$ , so that a screw passed through said plate into a threaded hole in a stud,  $a^4$ , of the case holds the plate  $a^2$  to place.

The latching-bolt B is made in two parts, a part,  $B'$ , which has back end lugs,  $b$ , against which one of the lugs  $c c$  of the dog C, fixed to the spindle  $C'$ , acts as the spindle is turned either way to throw back the bolt B, and also has a pin or stud,  $b'$ , which enters a hole in the other part,  $B^2$ , of the bolt, which carries the beveled head  $b^2$ , adapted to enter the striking-plate of the lock, (not shown,) and which plate is to be fixed to the door-casing. Both parts  $B'$   $B^2$  of bolt B are provided with a slot, as at  $b^3$ , through which a stud,  $b^4$ , on the lock-case passes to act with the head  $b^2$  to guide the latching-bolt as it is withdrawn or projected.

As shown in Figs. 6 and 7, the part  $B^2$  of bolt B may be reversed on the studs  $b' b^4$ , to present the bevel of the head  $b^2$  to either side, thus adapting the lock for use on either right or left hand doors. A wire spring, D, placed by its coil  $d$  on the stud  $b'$  of bolt B and bearing by its opposite ends or limbs on the lock-case studs  $a^4 b^4$ , acts normally to project the latching-bolt, and the spring may readily be removed when the part  $B^2$  of the bolt B is to be reversed, and may as readily be replaced.

To the front plate,  $a'$ , of the lock-case A is fixed a stud, E, which preferably is square or has a squared upper part, so it may be engaged at its opposite sides by stop-studs of the key-hole guard-plates and the locking-bolt tumbler, as presently explained. Next the outer plate,  $a'$ , of the lock-case A is placed the plate F, which has a pendent portion,  $f$ , forming a guard, which may be set over the key-hole G in the outer plate,  $a'$ , of the lock-case. This guard-plate F, (see Fig. 8,) has a slot,  $f'$ , into which a guide pin or stud,  $a^5$ , on the plate  $a'$  enters, and also has a slot,  $f^2$ , through which the lock-case stud E passes, and the upper wall or margin of the slot  $f^2$  is provided with a stop-stud,  $f^3$ , which is adapted to lock at one side or the other of the stud E. A



spring,  $F'$ , fixed to plate  $F$ , acts against the case-stud  $a^4$ , to force the inner part of the plate  $F$  downward after the plate has been lifted and shifted by the key  $H$ , so as to lock the stud  $f^3$  either behind the case-stud  $E$ , for holding plate  $F$  back so its guard  $f$  does not cover the key-hole  $G$ , as in Figs. 1 and 2, or with the stud  $f^3$  in front of the stud  $E$ , for holding the plate  $F$  forward, so its part  $f$  covers said key-hole  $G$ , as in Fig. 3.

Back of the guard  $f$  the plate  $F$  has a notch,  $f^4$ , against the inclined sides of which the bit  $h$  of the key  $H$  acts to shift the guard-plate  $F$  with the locking-bolt  $I$  when the key is passed into the lock from its inner face or through the key-hole  $J$ , made in the inner lock-plate,  $a^2$ , out of line with the opposite key-hole,  $G$ , of the lock. The locking-bolt  $I$  (see Fig. 9) has a head or end part,  $i$ , adapted to enter the striking or catch plate (not shown) fixed to the door-casing, and also has a slot,  $i'$ , through which the case-stud  $E$  passes to guide the bolt, and the bolt has two notches,  $i^2$   $i^3$ , against the inclined sides of which the key-bit  $h$  may act to shift the bolt when the key is entered, respectively, through the outer key-hole,  $G$ , and inner-key hole,  $J$ .

The letter  $K$  (see Fig. 10) indicates the tumbler of the locking-bolt, which latter has a pin or stud,  $k^4$ , which enters a hole,  $k$ , in the tumbler, so as to cause the tumbler to be moved with the bolt, and the tumbler has a slot,  $k'$ , the upper wall or margin of which is provided with a stop-stud,  $k^2$ , which stud is adapted to catch either in front of or behind the case-stud  $E$ , which passes through the slot  $k'$ , and so as to hold the bolt  $I$  projected or withdrawn. A spring,  $K'$ , fixed to the tumbler  $K$ , and acting on case-stud  $a^4$ , holds the tumbler down on the stud  $E$ , and the tumbler is positioned so that the key-bit will lift its stud  $k^2$  above the stud  $E$ , to allow the bolt  $I$  to be shifted by the key  $H$  when the key is passed into either key-hole  $G$  or  $J$ . Next the inner plate,  $a^2$ , of the lock-case  $A$ , and over the tumbler  $K$ , is placed the inner plate,  $L$ , (see Fig. 11,) which plate has a pendent portion,  $l$ , adapted to be moved over the inner key-hole,  $J$ , of the lock, and has also a guide-slot,  $l'$ , through which the pin or stud  $i^4$  of bolt  $I$  passes, and also a slot,  $l^2$ , through which the case-stud  $E$  projects, and a stop-stud,  $l^3$ , at the upper margin of slot  $l^2$ , is adapted to catch either in front of or behind the stud  $E$ , to hold the guard  $l$  over the key-hole  $J$ , as in Fig. 2, or back and clear of the key-hole, as in Figs. 1, 3, and 5, a spring,  $L'$ , fixed to the plate  $L$ , and acting on the case-stud  $a^4$ , serving to hold the plate down to the stud  $E$  in either position. The guard-plate  $L$  has a notch,  $l^4$ , against which the bit  $h$  of the key  $H$ , when passed into the key-hole  $G$ , is adapted to act for lifting the plate so its stud  $l^3$  clears the stud  $E$ , and for shifting the plate at the same time that the locking-bolt  $I$  is shifted by the key. A lug,  $M$ , fixed to the bottom edge of the lock-case  $A$ , stands between the lower ends of the guards  $f$   $l$  of plates  $F$   $L$ , respectively, and pre-

vents either of the guards being pushed away from the respective side plates,  $a'$   $a^2$ , of the lock-case, and re-enforces the guards, so it will be difficult to break them, and it will be quite impossible to insert a wire or instrument of any kind into the lock-case from the side opposite that in which the key is held, for the purpose of picking the lock, and it will be difficult to introduce explosives into the lock.

The lock-case plates  $a^2$   $a'$ , respectively, are provided with round holes  $g$   $j$ , opposite the key-holes  $G$   $J$ , respectively, to admit the end stud,  $h'$ , of the key  $H$ , for steadying the key; but the guards  $f$   $l$ , when over the respective key-holes  $G$   $J$ , effectually prevent persons looking through the key-holes of the lock.

The operation of the locking-bolt and key-hole guards, briefly stated, is as follows: We will suppose the locking-bolt  $I$  is withdrawn from the catch-plate or is unlocked, as in Fig. 1. The guards  $f$   $l$  then will not cover the key-holes  $G$   $J$ . Should the key  $H$  be inserted in the outer key-hole,  $G$ , until its bit  $h$  strikes the opposite inner lock-plate,  $a^2$ , and should the key then be turned to project the bolt  $I$ , by acting in its notch  $i^2$ , the key-bit  $h$  will clear the guard-plate  $F$ , so as not to move it, and will act in the notch  $i^4$  of guard-plate  $L$  as the bolt  $I$  is projected to throw the plate  $L$ , so its guard  $l$  stands in front of or over the inner key-hole,  $J$ , as shown in Fig. 2. Should the key  $H$  be inserted through the door into the inner key-hole,  $J$ , to project the bolt  $I$ , and until its bit  $h$  strikes the opposite or front plate,  $a'$ , of the lock-case, and should the key then be turned to throw the bolt by acting in its notch  $i^3$ , the bit  $h$  will clear the guard-plate  $L$ , so as not to move it, and will act in the notch  $f^4$  of guard-plate  $F$ , as the bolt is thrown, to carry the guard  $f$  over the outer key-hole,  $G$ , as shown in Figs. 3 and 5.

It is obvious that the arrangement of the key-holes  $G$   $J$  out of line with each other at opposite sides of the lock-case, and the construction of the locking-bolt with two key-bit-receiving notches are in themselves elements of protection in the use of the lock; but these features, combined with the key-hole guard-plates, greatly increase the security of the lock. The locking-bolt may be fitted with more than one tumbler and the key be correspondingly shaped to throw the bolt from either face of the lock.

All parts of the lock are very simple in construction, allowing cheap manufacture, and the lock is not liable to get out of order, and is particularly adapted to hotels and dwelling-houses.

Instead of a key having a round barrel, a flat key may be provided, and the holes  $j$   $g$  in the lock-case may be dispensed with, thus affording additional security when the lock is locked from the outside.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a lock, the latching-bolt  $B$ , made in two parts,  $B'$   $B^2$ , said part  $B'$  having studs  $b$   $b$ ,



on which the spindle-dog acts, and provided with a pin,  $b'$ , entering a hole of part  $B^2$ , and said part  $B^2$  having the latching-head  $b^2$ , and the parts  $B'$   $B^2$  having slots, as at  $b^3$ , in combination with a stud, as at  $b^4$ , on the lock-case, and a retracting-spring, as at  $D$ , coiled around the pin  $b'$  and bearing at its ends on the pins  $b^4$   $a^4$ , substantially as shown and described, whereby the part  $B^2$  may be reversed for right or left hand locks, as set forth.

2. A lock comprising a case,  $A$ , having key-holes, as at  $G$   $J$ , formed through its opposite side plates and out of line with each other, a locking-bolt, as at  $I$ , having two key-bit-receiving notches,  $i^2$   $i^3$ , into which the key may be passed from the opposite key-holes, and key-hole guard-plates, as at  $F$   $L$ , provided with guards  $f^1$ , respectively, adapted to cover said key-holes  $G$   $J$ , and said plates  $F$   $L$ , provided also with key-bit-receiving notches  $f^4$   $l^4$ , respectively, adapting them to be thrown by the key as the bolt is thrown, substantially as herein set forth.

3. In a lock, the combination, with the case  $A$ , provided with key-holes  $G$   $J$ , made through its opposite sides out of line with each other, and provided, also, with a stud,  $E$ , of the key-hole guard-plates  $F$   $L$ , adapted to cover the key-holes  $G$   $J$ , and to be moved by the key as the key throws the bolt, and said key-hole guard-plates  $F$   $L$ , having stop-lugs  $f^3$   $l^3$ , respectively, adapted to lock against the stud  $E$  of the lock-case, and springs, as at  $F'$   $L'$ , adapted to hold the plates  $F$   $L$  over or clear of the respective key-holes  $G$   $J$ , substantially as herein set forth.

GARRET G. ACKERSON.  
JULIUS FRENCH SHY.

Witnesses to G. G. Ackerson:

A. B. NIVEN,  
N. T. ROBERTS.

Witnesses to J. F. Shy:

F. J. LANGENBERG,  
F. H. HUNICKE.