(No Model.)

2 Sheets—Sheet 1.

A. MAUL.

LOCK.

No. 532,573. Patented Jan. 15, 1895.

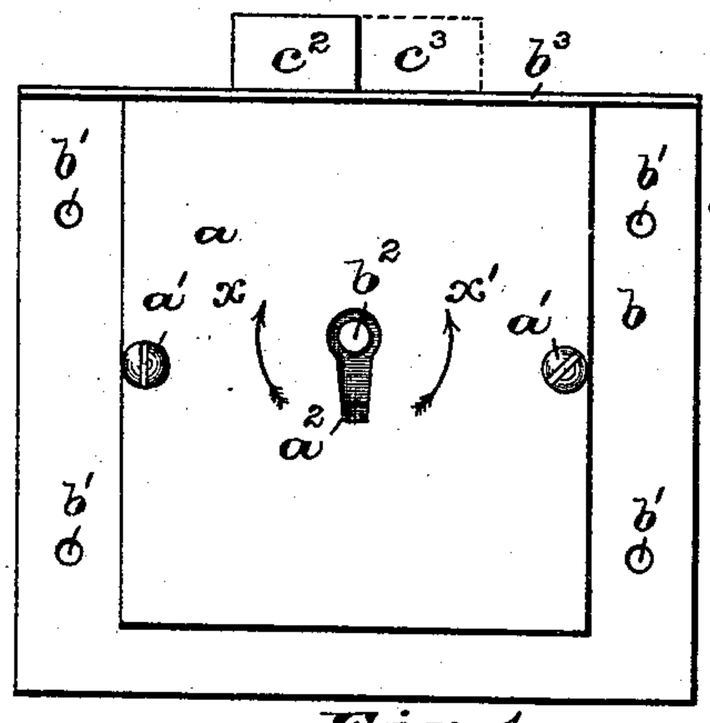

Fig. 1

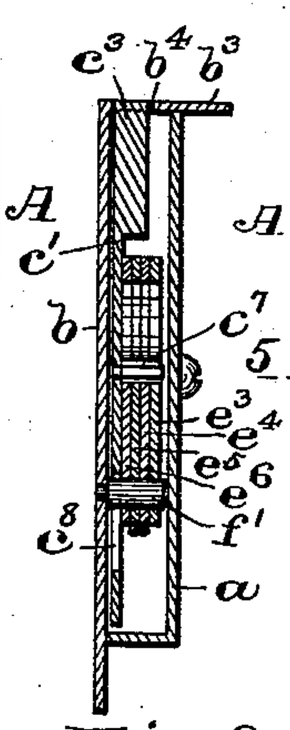

Fig. 3

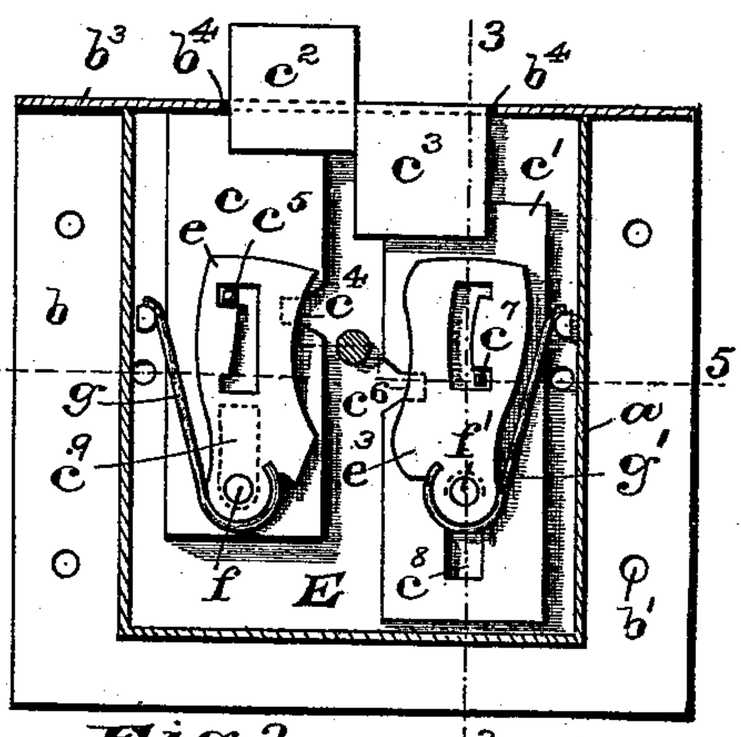

Fig. 2

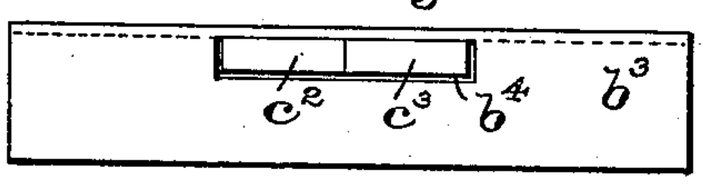

Fig. 4

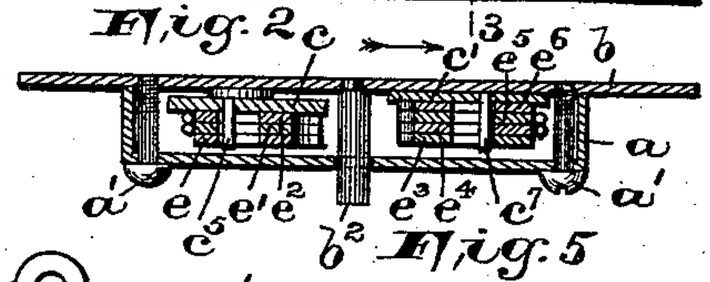

Fig. 5

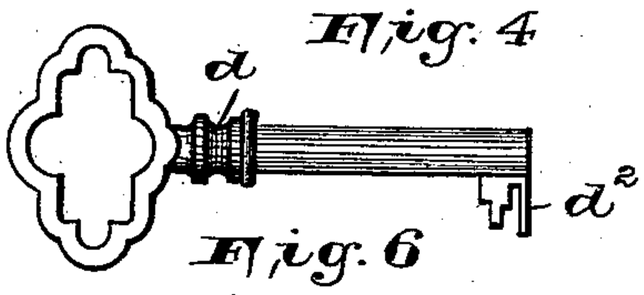

Fig. 6

Fig. 7

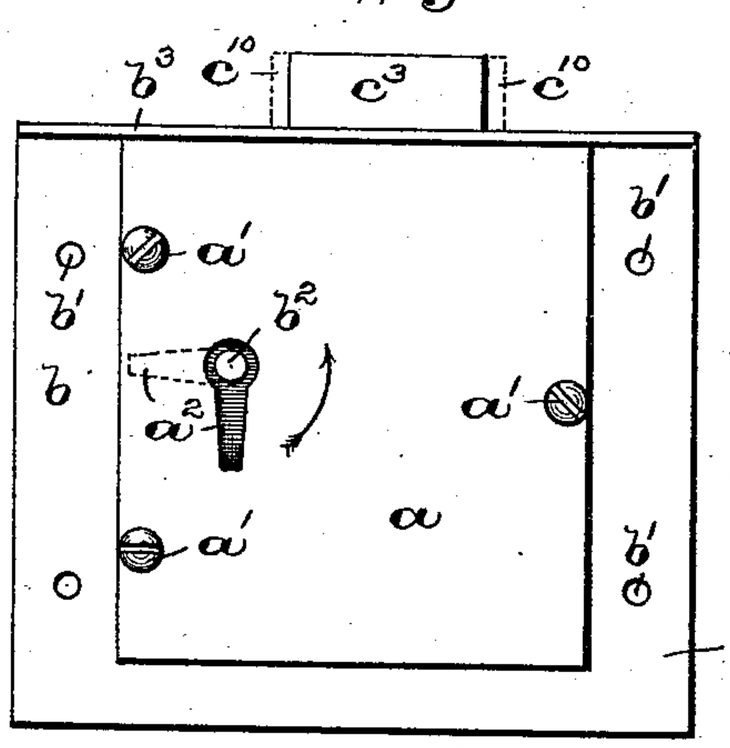

Fig. 8

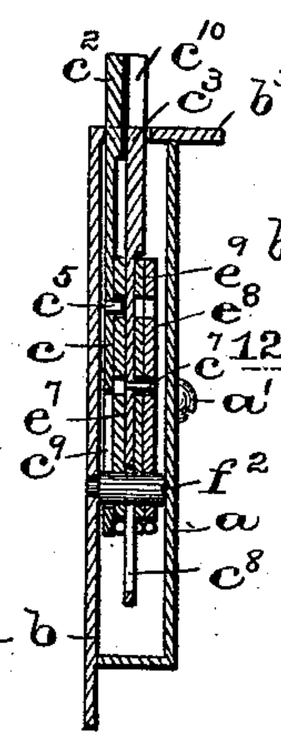

Fig. 10

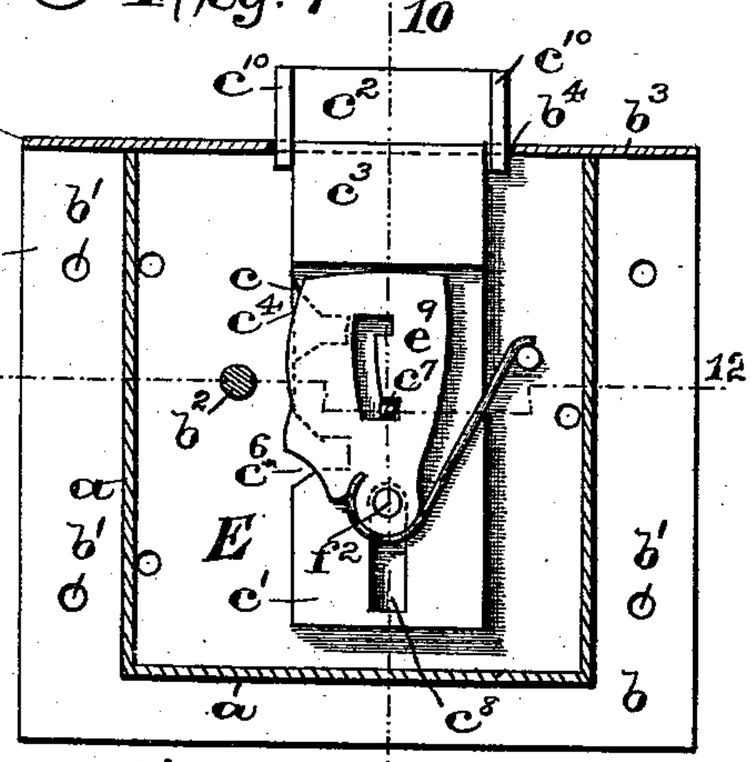

Fig. 9

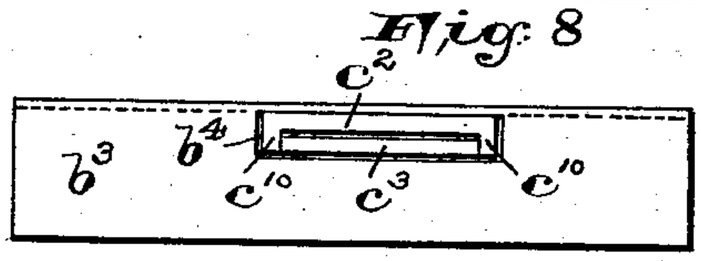

Fig. 11

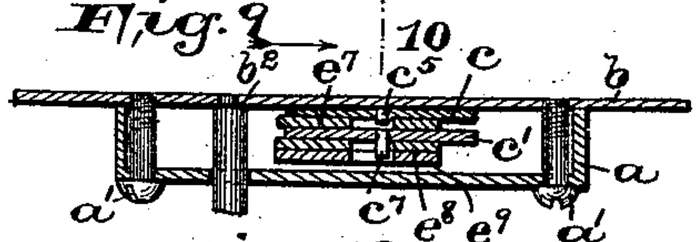

Fig. 12

WITNESSES:

Wm. H. Canfield, Jr.

G. Basil Hooper.

INVENTOR:

Anton Maul,

BY Fred'k C. Fraentzel, ATT'Y.

(No Model.) 2 Sheets—Sheet 2.

A. MAUL.

LOCK.

No. 532,573. Patented Jan. 15, 1895.

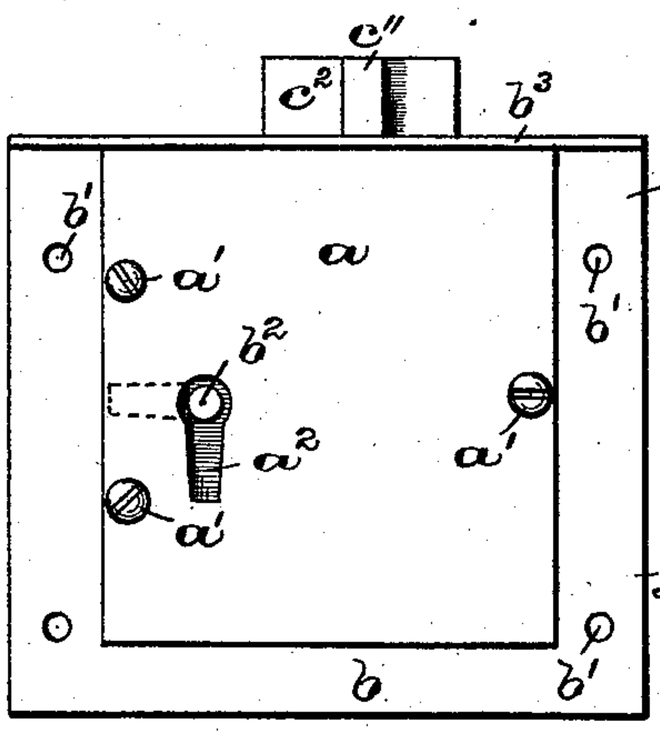

Fig. 13

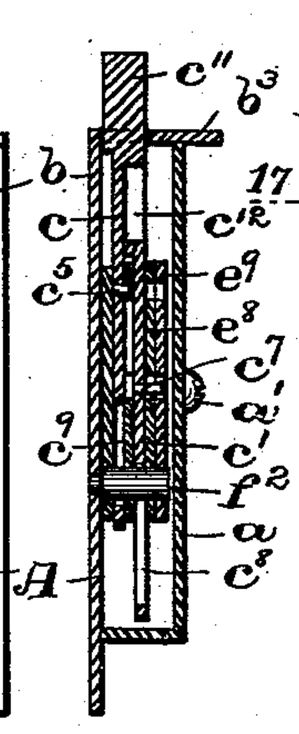

Fig. 15

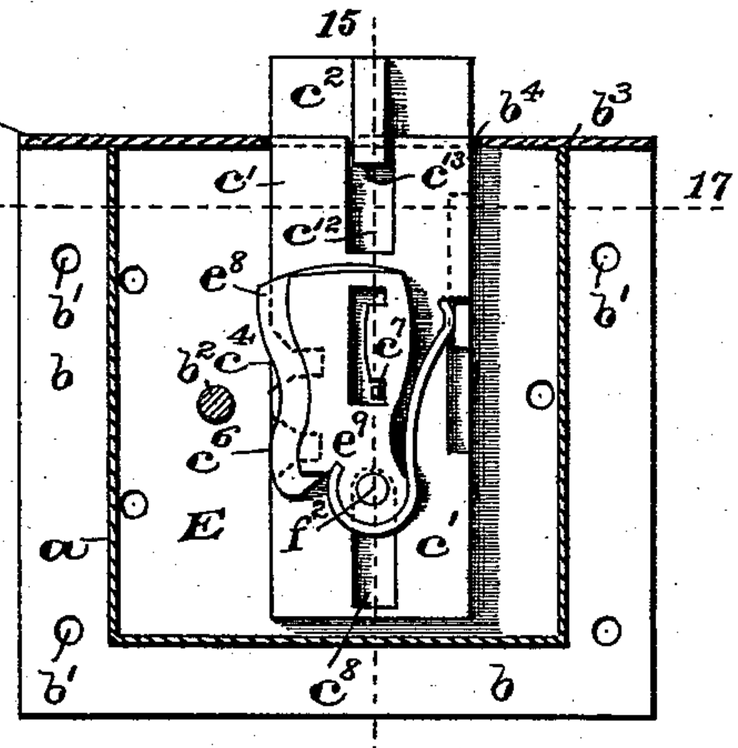

Fig. 14

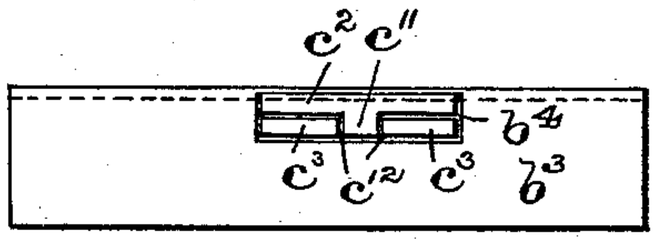

Fig. 16

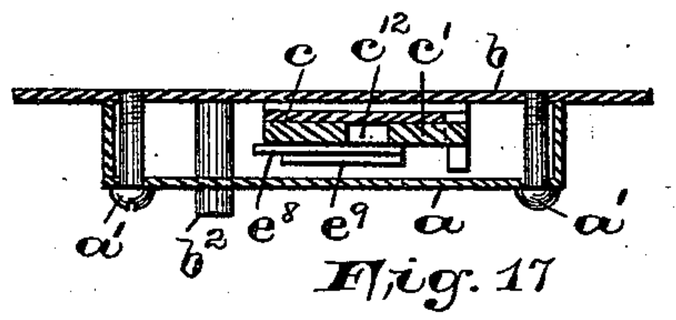

Fig. 17

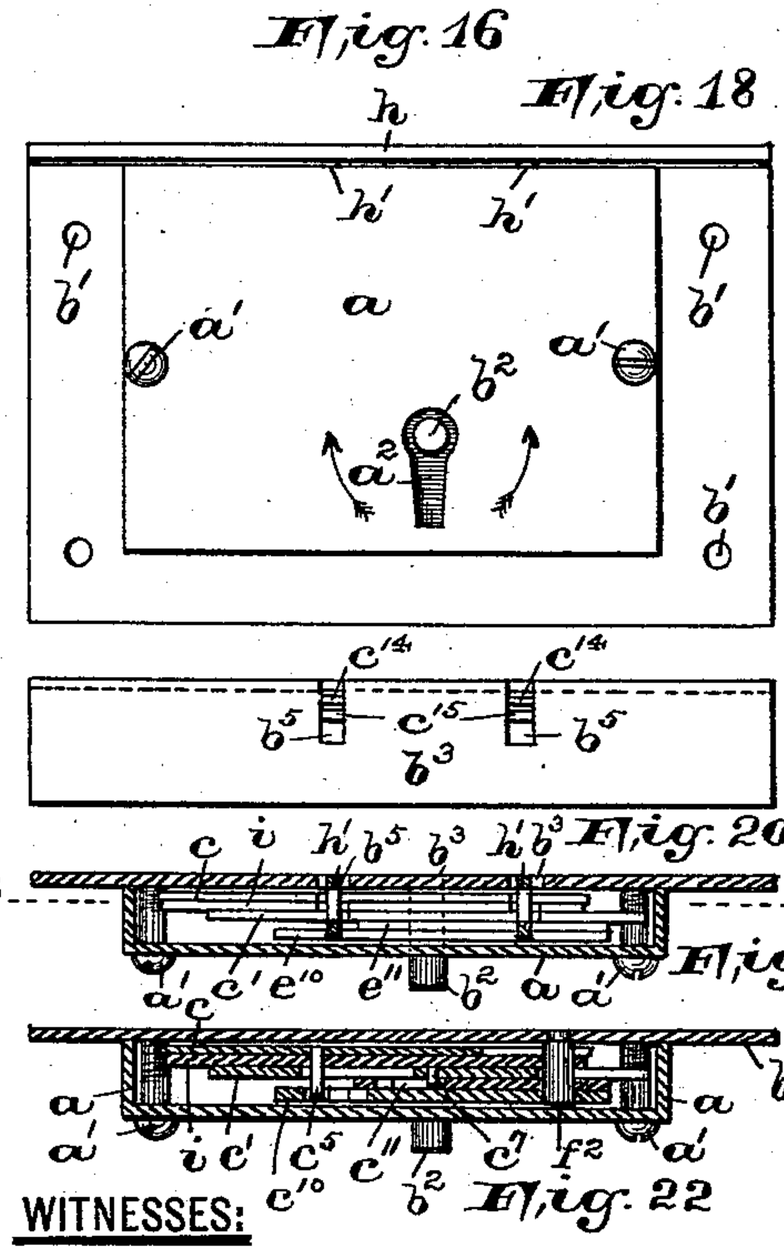

Fig. 18

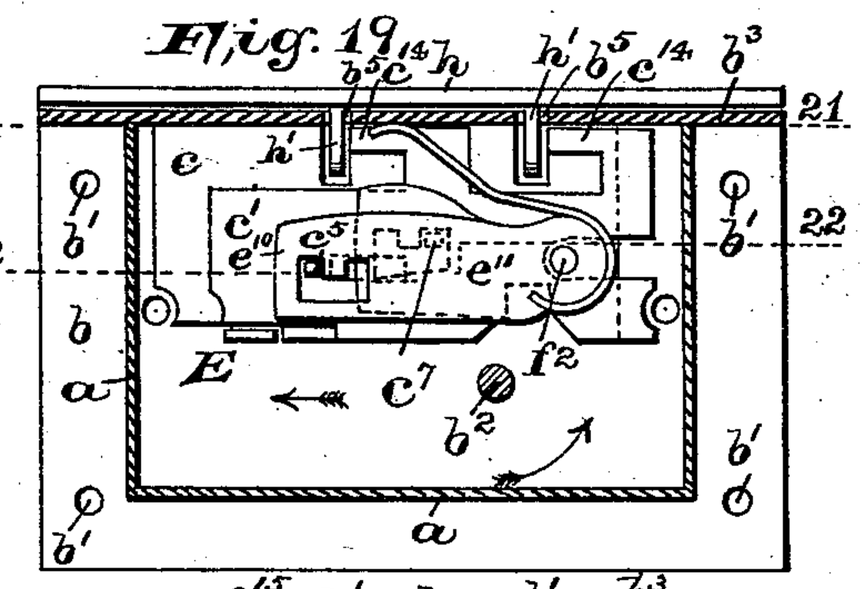

Fig. 19

Fig. 20

Fig. 21

Fig. 22

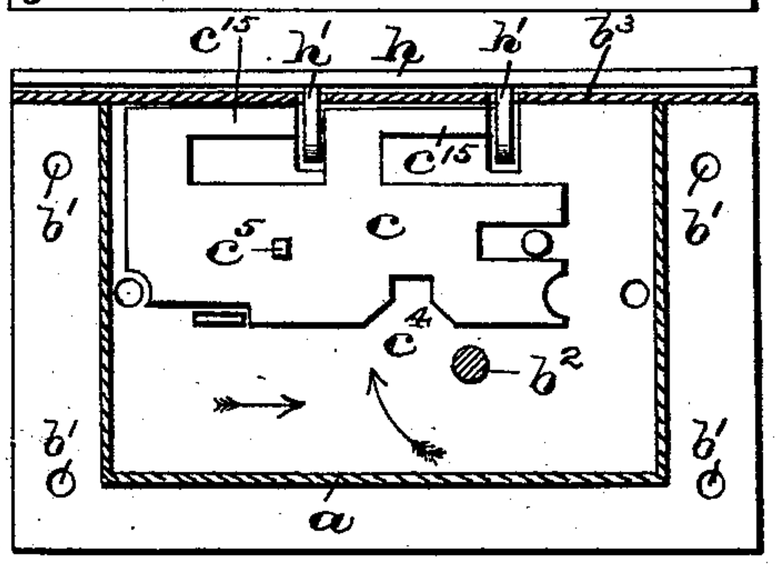

Fig. 23

WITNESSES:

Wm H. Caulfield, Jr.

G. Basil Hooper.

INVENTOR:

Anton Maul,

BY Fred C. Fraentzel, ATT'Y.

UNITED STATES PATENT OFFICE.

ANTON MAUL, OF NEWARK, NEW JERSEY.

LOCK.

SPECIFICATION forming part of Letters Patent No. 532,573, dated January 15, 1895.

Application filed May 29, 1894. Serial No. 512,871. (No model.)

To all whom it may concern:

Be it known that I, ANTON MAUL, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Locks; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in locks, and is designed to provide a lock having two locking bolts, arranged to slide side by side, or upon each other, and two sets of tumbler mechanism, each set co-operating with a locking bolt, said mechanism being operated by different keys, inserted in one key-hole in the lock casing.

My novel form of lock is especially designed to be used in connection with safety deposit boxes, where the banker holds one key and the depositor the other key, but it is applicable to many other uses, as on trunks, and on tool or other similar chests.

The invention is illustrated in the accompanying sheets of drawings, in which—

Figure 1 is a front view of the lock, showing the arrangement of the two independently operated locking bolts and one key hole in the casing. Fig. 2 is a sectional view of the lock, clearly illustrating one arrangement of two sliding bolts and independent tumbler mechanism for operating said bolts by means of different keys, inserted in the same key-hole. Fig. 3 is a vertical section, taken on line 3—3 in Fig. 2. Fig. 4 is an end view of the bolt; and Fig. 5 is a horizontal section, on line 5—5 in said Fig. 2. Figs. 6 and 7 are views of two keys adapted to be used in connection with the construction of lock illustrated in said Fig. 2. Figs. 8 and 9 are a front view and a cross-section respectively, of a lock embodying the principles of my invention, in which the locking bolts slide one upon the other, each being adapted to be operated by a different key. Fig. 10 is a vertical section of said lock, taken on line 10—10 in Fig. 9. Fig. 11 is an end view of the same, and Fig. 12 is a horizontal section, on line 12—12 in said Fig. 9. Figs. 13 and 14 are a front view and a cross-section respectively of a lock embodying the principles of my invention, in which there is still another modified form of arrangement of the two sliding bolts. Fig. 15 is a vertical section, taken on line 15—15 in said Fig. 14. Fig. 16 is an end view of the same; and Fig. 17 is a horizontal section, on line 17—17 in said Fig. 14. Figs. 18 and 19 are a front view and a cross-section of a hasp lock, in which the sliding bolts are arranged in the manner embodying the principles of my invention. Fig. 20 is an end view of the lock. Fig. 21 is a horizontal section, taken on line 21—21 in said Fig. 19. Fig. 22 is a similar section on line 22—22 Fig. 19, and Fig. 23 is a vertical section on line 23—23 in said Fig. 21.

Similar letters of reference are employed in each of the above described views to indicate corresponding parts.

In said drawings, A represents the lock case which is provided with the usual back-plate *b* having screw-holes *b'* therein for securing the lock to a door or drawer. Secured to said plate *b* by means of suitable screws *a'*, or in any other well-known manner, is the case plate *a* provided with a key-hole a^2 into which projects a stud or post b^2 on which the key is placed and may be turned thereon in the usual manner.

As has been stated, I use in connection with my lock construction, two sliding bolts *c* and *c'*, arranged side by side, as clearly shown in Figs. 2 and 4, said bolts *c* and *c'* being respectively provided with the holding or locking pieces c^2 and c^3, which extend normally into an opening b^4 in the turned-over portion b^3 of said back-plate *b*, and may be shot out to extend from said opening by the independent action of two keys on the tumbler mechanism in the lock-casing.

As shown more especially in Fig. 2, the means for operating the bolt *c* consists of a spring-actuated tumbler mechanism E, which retains the bolt in place until the tumblers *e*, *e'* and e^2, which engage with a stop or projection c^5 on said bolt *c*, as shown, are released from said stop by means of the tongue d^2 of the key *d*, illustrated in Fig. 6, whereby, when said key is turned in the direction of arrow *x*, see Fig. 1, the tongue d^2 enters a recess c^4

in said bolt, and while throwing the tumblers e, e' and e^2 out of their locked engagement with the stop or projection c^5, at the same time pushes the nosing c^2 from the opening b^4, as will be seen from Fig. 2. The key d is then withdrawn from the key-hole and a second key d', see Fig. 7, is placed on the post or stud b^2. When this key d' is turned in the direction of arrow x', see Fig. 1, then its tongue d^3 enters a recess c^6 in the bolt c'. At the same time said tongue causes the disengagement of a second set of tumblers e^3, e^4, e^5, and e^6, with a stop or projection c^7 on said bolt c', and the nosing c^3 of said bolt can be pushed from the opening b^4, as will be understood. The tumblers e, e', and e^2 are pivoted on a post f, and springs g cause the normal locked engagement of said tumblers with the stop or projection c^5 on the bolt c.

The tumblers e^3, e^4, e^5, and e^6 are pivoted on a post f' and springs g' cause the normal locked engagement of said tumblers with the stop or projection c^7 on the bolt c'. Thus it will be seen, that I have devised a lock in which a person may use but one key to operate a certain part of the mechanism, or two keys may be used, as a double safety. The essential feature of my invention therefore is, the arrangement of two independently operating sliding or locking bolts used in connection with any suitable form and construction of tumbler mechanism, worked by two different keys to be inserted into the same key-hole and upon the same post or stud b^2, as stated. Said bolts c and c' are provided with the slots c^8 and c^9 respectively, to permit the reciprocatory movement of said bolts on the posts f and f'.

In lieu of the construction and arrangement of the parts illustrated in Figs. 1 to 5 inclusive, the bolts c and c' may be arranged to slide one upon the other, instead of side by side. In this construction, as will be seen more especially from Figs. 9, 10 and 12, I use but one post f^2, and while the nose-portions of the bolts are made to slide intimately one upon the other, still I arrange on said post f^2 and between the two bolts, a tumbler e^7 which is normally in locked engagement with the stop or projection c^5 on the bolt c, while the tumblers e^8 and e^9 are in normal locked engagement with the stud or projection c^7 on the second bolt c'. Of course, the operation of the two keys is similar to that described in connection with Fig. 2, &c., one key being used to release the tumbler e^7 and operating the bolt c, and a second key being employed to release the tumblers e^8 and e^9 and operating the bolt c'. To perfectly guide the bolt c', said bolt c is provided with two oppositely arranged projections or guides c^{10} between which the nosing c^3 of the bolt c' can be made to slide, as will be clearly understood from an inspection of Figs. 9 and 11.

In Figs. 13 to 17 inclusive, I have illustrated still another manner of arranging the parts of the lock. In this construction the bolts c and c' slide one upon the other, and the tumbler mechanism is arranged in precisely the same manner as that illustrated in said Figs. 9, 10 and 12. In this construction, however, the bolt c must be operated before the second bolt c' can be shot from the opening b^4 of the lock. As will be seen from Figs. 14 and 15, said bolt c is provided with a projection c^{11} which forms a stop and also a guide for the bolt c' when the latter is operated. Said bolt c' is provided with a slot c^{12}, the surrounding edges of which embrace said projection c^{11}, as will be clearly seen from Fig. 14. From an inspection of said figure, it will be evident, that the edge c^{13} on said projection c^{11} prevents the sliding movement of the locking bolt c', unless the bolt c has first been operated. Thus it will be seen, that the difference in operation between the form of lock illustrated in Figs. 13 to 17 inclusive, and the lock shown in said Figs. 1 to 12 inclusive, so far as the operations of the keys are concerned, is, that in the lock illustrated in Figs. 13 to 17, the bolt c must first be operated before the bolt c' can be worked, while in the two other constructions either bolt c or c' can be operated first.

In Figs. 18 to 23 inclusive, I have shown a form of hasp lock for trunks or boxes, the construction of lock still embodying the principles of my invention. In said figures, h, indicates the hasp-plate provided with hasps h', which enter into the openings b^5 in the portion b^3 of the plate b. In this construction the bolt c is provided with suitable holding tongues c^{14} which may be made to enter the hasps, see Fig. 19, and the bolt c' is provided with holding tongues c^{15}, as will be seen from Fig. 23. Said bolts c and c' are arranged on opposite sides of a suitable separating plate i and the stud c^5 on said bolt c projects through an opening in said plate and a slot in the bolt c' and engages with a tumbler e^{10}. The bolt c' is provided with the stud c^7 which engages with the tumbler e^{11}. Said bolts c and c' are respectively provided with the recesses c^4 and c^6, whereby the tumbler mechanism and the bolts can be operated by two different keys in the manner of the lock construction, illustrated in Figs. 1, 2, &c., and the holding portions of said bolts can be shot into the hasps h' on said hasp-plate h from opposite sides.

Of course it will be evident that many changes in the arrangement and construction of the parts of the lock may be made without departing from the scope of my present invention, and I therefore do not wish to be understood as limiting myself to the exact forms of construction herein shown.

The essential feature of my invention is the combination, with any form of bolt-operating mechanism, of two independently sliding bolts arranged side by side, or upon one

another, and operated by two different keys, which are inserted into the same key-hole in the lock casing.

Having thus described my invention, what I claim is—

1. In a lock, the combination, with the lock casing having an opening b^4 and a key-hole, of a pair of locking bolts being in sliding contact and the noses extending into said opening b^4, said bolts being operated by different keys, and two sets of tumbler mechanism in said casing, each set co-operating with a bolt and being operated independently by the keys, substantially as and for the purposes set forth.

2. In a lock, the combination, with a lock casing having an opening b^4 and a key-hole, of a pair of locking bolts arranged to slide one upon the other and their noses extending into said opening b^4, a guide on one of said bolts, said bolts being adapted to be operated by different keys, and two sets of tumbler mechanism in said casing, each set co-operating with a bolt and being operated independently by the keys, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 26th day of May, 1894.

ANTON MAUL.

Witnesses:
FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.