

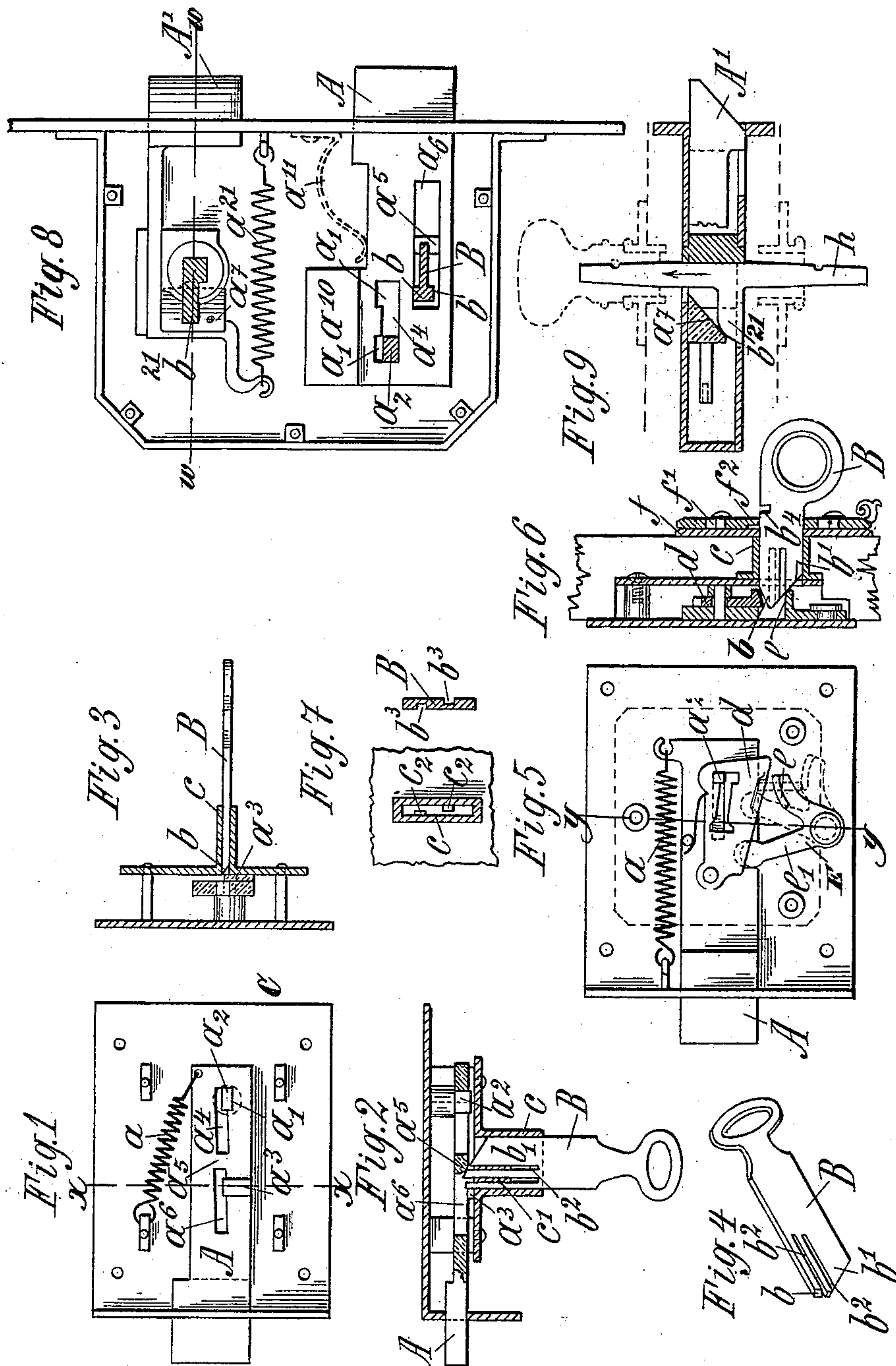
(No Model.)

2 Sheets—Sheet 1.

T. WOHLMUTH.  
LOCK.

No. 471,453.

Patented Mar. 22, 1892.



Witnesses:  
H. G. Dieterich  
B. V. Sommers.

Inventor:  
Theodor Wohlmuth,  
by *[Signature]* Atty:

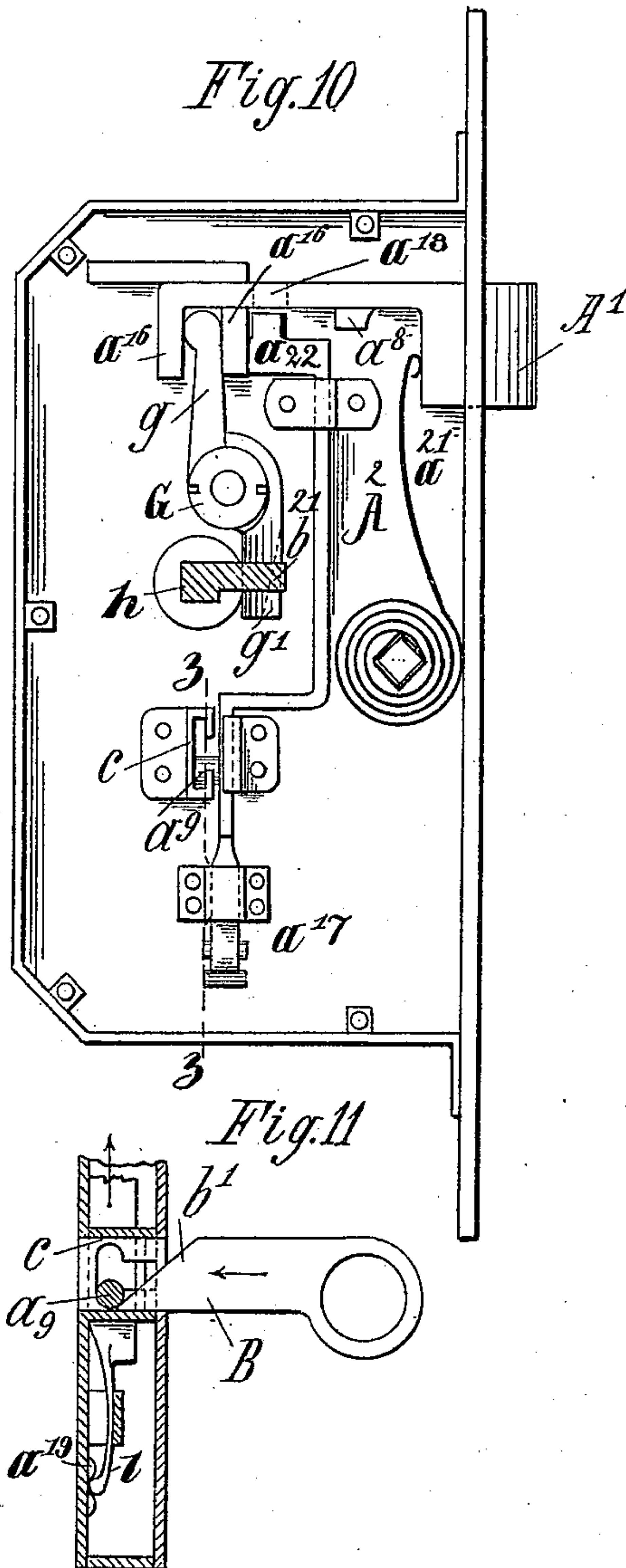
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*Theodor Wohlmuth,*  
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# UNITED STATES PATENT OFFICE.

THEODOR WOHLMUTH, OF VIENNA, AUSTRIA-HUNGARY.

## LOCK.

SPECIFICATION forming part of Letters Patent No. 471,453, dated March 22, 1892.

Application filed July 9, 1891. Serial No. 398,898. (No model.)

*To all whom it may concern:*

Be it known that I, THEODOR WOHLMUTH, a subject of the Emperor of Austria-Hungary, residing at Vienna, in the Province of Lower Austria, in the Empire of Austria-Hungary, 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.

The invention relates to locks, and has for its object the simplification of the lock mechanism without detrimentally affecting or impairing the security of the lock, in so far as unauthorized tampering with the lock mechanism is concerned, whenever such security is desirable.

To these ends the invention consists in structural features and in combinations of parts, as will now be fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a face view of the lock mechanism. Fig. 2 is a longitudinal sectional view through the bolt, the latter being shown partly in plan. Fig. 3 is a vertical sectional view of the lock, taken about on line  $xx$  of Fig. 1, the actuating-spring being omitted; and Fig. 4 is a perspective view of the key employed in the lock shown in Figs. 1 to 3. Figs. 5, 8, and 10 are views similar to Fig. 1, illustrating certain modifications, as well as the application of the invention to tumbler-locks and to latch-bolts. Fig. 6 is a sectional view taken about on line  $yy$  of Fig. 5. Fig. 7 is a detail view. Fig. 9 is a section taken about on line  $ww$  of Fig. 8. Fig. 11 is a vertical sectional view taken about on line  $zz$  of Fig. 10.

Similar letters of reference indicate like parts wherever such may occur in the above-described figures of drawings.

Referring more particularly to Figs. 1 to 4, inclusive, and to Fig. 7, the bolt A is guided by the usual slot in the lock-case C and by a keeper  $a^2$ , that extends through a longitudinal slot  $a^4$ , said keeper  $a^2$  also serving as a stop for the bolt to prevent its motion in either

direction by engaging a notch  $a'$  at the rear end of slot  $a^4$ , said bolt being provided with another longitudinal slot  $a^6$ , at or near the rear end of which is formed a rib or projection  $a^3$ .

As shown in Fig. 1, the bolt A is thrown forward by means of a coiled spring  $a$ , one end of which is attached to the rear upper corner of the bolt, so as to lift said end and bring the locking-notch  $a'$  into engagement with the keeper or stop  $a^2$ .

The lock-case C has a flattened key-barrel  $c$  for the introduction of the key B, Figs. 2, 3, and 4, and to prevent unauthorized tampering with the lock the barrel  $c$  may be provided with partitions  $c'$ , the number and length of which may be varied, the key being provided with suitable slits or slots  $b^2$  for said partitions, as shown in Fig. 2, or the key barrel or extension  $c$  may be provided with lugs or ribs  $c^2$ , the key B being provided with suitable grooves  $b^3$ , as shown in Fig. 7.

In order that a lock constructed as described may be opened, the key B has its outer end beveled in reverse directions, the bevel  $b$  acting upon the rib  $a^3$  to first depress the bolt A and disengage it from the keeper  $a^2$  when said key is pushed into the key barrel or hole, while the incline  $b'$  acts upon the bridge between the slots  $a^4$  and  $a^6$  and moves the bolt A back against the stress of the spring  $a$ .

It is obvious that unless the key B after being pushed into the lock is firmly held the bolt A, under the stress of its spring, will move the said key out again, so that it cannot be left in the lock, as it will be ejected by the bolt as soon as released. This may be obviated by providing the key with a notch  $b^4$ , Fig. 6, and connecting with the escutcheon  $f$  a gravity-latch  $f'$ , adapted to drop into said notch, thus locking the key and bolt against movement.

The wedge action of the key upon the bolt, which involves the main feature of my invention, may be applied to various styles of locks. For instance, it may be applied to a tumbler-lock, an intermediate device being used to throw the bolt back. This application is illustrated in Figs. 5 and 6, the bolt and tumblers being simultaneously lifted out of engagement with the keeper  $a^2$  by the incline  $b$  on



the end of the key B, the bolt being withdrawn against the stress of its spring  $a$  by the action of the incline  $b'$  upon an arm  $e$  of a bell-crank lever E, whose other arm  $e'$  engages a notch in the bolt A. The inclines  $b$  and  $b'$  on the end of the key are of course so arranged as to act successively, the former  $b$  acting first to disengage the bolt or both the bolt and tumblers from their keeper, after which the incline  $b'$  acts upon the bolt or its actuating-lever to withdraw the same against the stress of its spring.

The spring for throwing the bolt forward may be dispensed with and said bolt thrown in either direction by means of the key, in which case the locking-notches that lock the bolt against motion either when thrown forward or when withdrawn are preferably formed in the upper part of the slot  $a^4$ , as shown at  $a' a'$ , Fig. 8, the slot  $a^6$  in this construction, which has the beveled bearing or bridge  $a^5$ , being arranged below the said slot  $a^4$ , the bolt when the key is withdrawn falling back to its normal position, with one or the other of the notches  $a'$  in engagement with the keeper  $a^2$ . To insure this movement of the bolt, I preferably weight the rear end thereof, as shown at  $a^{10}$ , Fig. 8, though the same result may be attained by the use of a spring  $a^{11}$ . (Shown in the same figure in dotted lines.)

In moving the bolt A in opposite directions when the lock is constructed as shown in Fig. 8 the key has to be reversed, so that the incline  $b'$  may act upon the bridge  $a^5$  after the incline  $b$  has lifted the bolt out of engagement with the keeper  $a^2$ , and to this end the said key is provided with an incline  $b$  on opposite sides, as shown in said Fig. 8. In the last-named figure I have shown the lock provided with a latch, the bolt A' of which is also thrown forward by a spring  $a^{21}$ , said bolt having an inclined bearing-face  $a^7$ , operated by pushing or pulling a knob-spindle  $h$  in the direction of the arrow, Fig. 9, said spindle being provided with a laterally-projecting arm  $b^{21}$ , the outer face of which is beveled and acts upon the corresponding bearing  $a^7$  of the bolt A.

In Figs. 10 and 11 I have shown a night-latch, the bolt A' of which may be locked by means of a key, the said bolt being thrown by means of a knob-spindle  $h$  through the medium of an intermediate lever. The knob-spindle  $h$  has the laterally-projecting actuating-arm  $b^{21}$ , (shown in Figs. 8 and 9,) that has bearing upon the arm  $g'$  of a two-armed lever G, said arm  $g'$  having a correspondingly inclined or beveled bearing-face, while the arm  $g$  of said lever G lies between two lugs  $a^{16} a^{16}$ , depending from the latch-bolt A'. The said bolt A' is locked in either its forward or withdrawn position by means of a key B through the medium of an auxiliary bolt A<sup>2</sup>, arranged at right angles to the latch-bolt A' and adapted to engage a notch or

slot  $a^{18}$  therein, and shown in dotted lines in Fig. 10. When said auxiliary bolt is in its forward or locked position and when the latch-bolt A' is thrown back, the locking-nose  $a^{22}$  of lever A<sup>2</sup> may be thrown in front of a lug  $a^8$  on said bolt to lock the same against motion under the stress of its spring  $a^{21}$ . The auxiliary bolt is moved upward or downward by means of the key B, that has the inclined actuating-face  $b'$ , said face acting on a pin or stud  $a^9$ , projecting from the bolt across the key-hole. When the key B is in the position shown in Fig. 11 in the key-hole and pushed in, it will lift the bolt A<sup>2</sup>, its spring-arm riding over the abutment  $a^{19}$ , by means of which it is held in that position, the position of the key being reversed when the bolt A<sup>2</sup> is to be moved downward, as will be readily understood. Thus when the parts are in the relative positions shown in Figs. 10 and 11 and the key B is pushed into the key-hole the locking-nose  $a^{22}$  of the bolt A<sup>2</sup> will enter the slot or notch  $a^{18}$  in the latch-bolt A' and lock the same, as well as the knob-spindle  $h$ , against motion. If the key B is now reversed and inserted into the key-hole the bolt A<sup>2</sup> will be moved downward, thus releasing the latch-bolt A', which may now be thrown back by the knob-spindle and locked into this position by again reversing the key, so as to move the bolt A<sup>2</sup> upward to bring its nose  $a^{22}$  in front of the lug  $a^8$ , as will be readily comprehended.

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

1. In a lock, means for imparting motion to the bolt, comprising coacting and reciprocally-movable wedges or inclined planes and intermediate transmitting devices, such as a lever, for transmitting the movement of one of said wedges or planes to the bolt, as and for the purpose set forth.

2. In a lock, the combination, with the bolt, a keeper therefor, a spring exerting its power to keep the bolt within said keeper, and a fixed locking device operating to lock the bolt against motion under the stress of its spring, of means for releasing the bolt and imparting motion thereto against the stress of its spring, comprising coacting and reciprocally-moving wedges or inclined planes operating to first release the bolt and then move the same against the stress of its spring, and a second fixed locking device automatically engaging the bolt when so moved and locking the same against motion under the stress of said spring, as and for the purpose set forth.

3. In a tumbler-lock, the combination, with the bolt and tumblers, of means for throwing the tumblers and bolt, comprising coacting and reciprocally-movable wedges or inclined planes and a lever operated by one of said wedges or planes to simultaneously throw the tumblers and bolt, as and for the purpose set forth.



4. In a lock, the combination, with the bolt  
and means for throwing the same, comprising  
coacting and reciprocally-movable wedges or  
inclined planes and a lever operated by one  
5 of said wedges and operating the bolt, of a  
locking device for locking the bolt against  
motion, comprising coacting and reciprocally-  
movable auxiliary wedges or inclined planes  
and an auxiliary locking-bolt operated by one

of said wedges or planes and adapted to en- 10  
gage the lock-bolt, as and for the purpose set  
forth.

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

THEODOR WOHLMUTH.

Witnesses:

W. B. MURPHY,

JULIUS GOLDSCHMIDT.