

(Model.)

J. J. HELSING.

3 Sheets—Sheet 1.

## DOOR LOCK.

No. 282,517.

Patented Aug. 7, 1883.

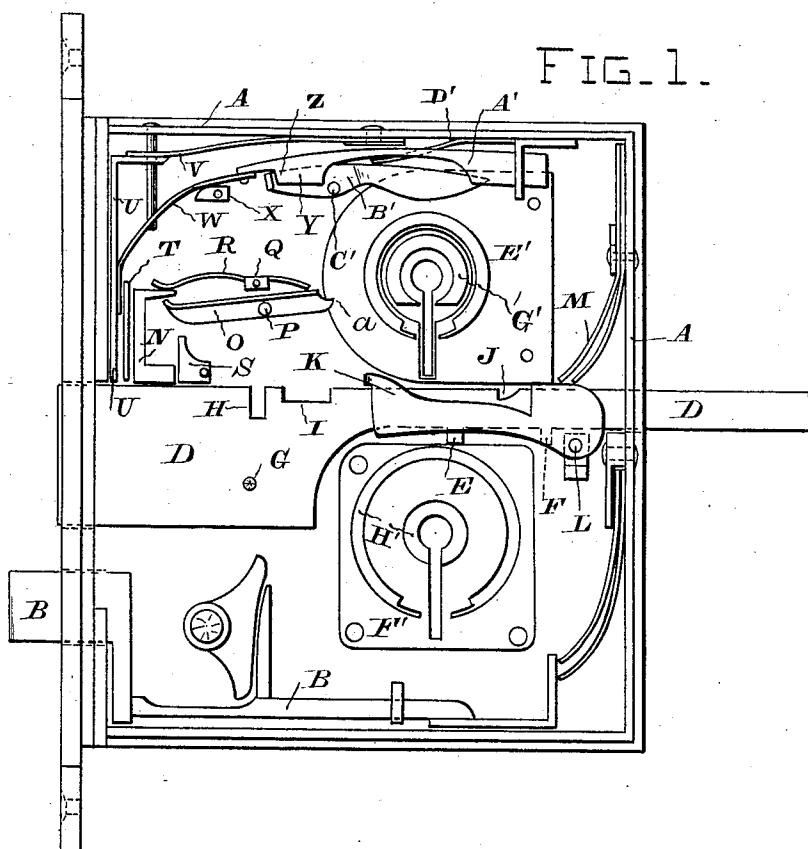
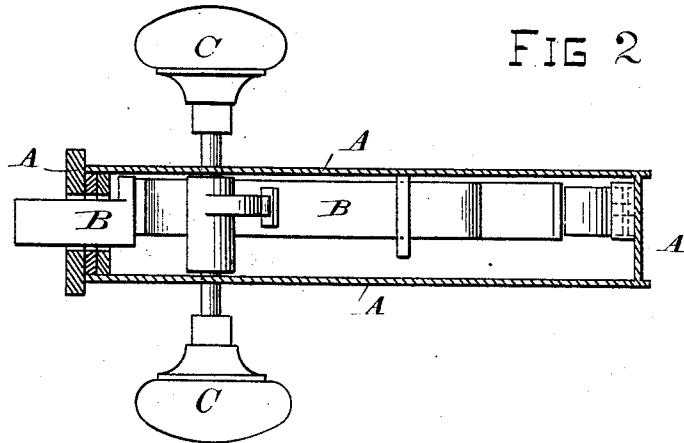


FIG 2



## WITNESSES

Kilmer Bradford  
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## INVENTOR

INVENTOR  
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by L. W. M. Smith  
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(Model.)

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3 Sheets—Sheet 2.

DOOR LOCK.

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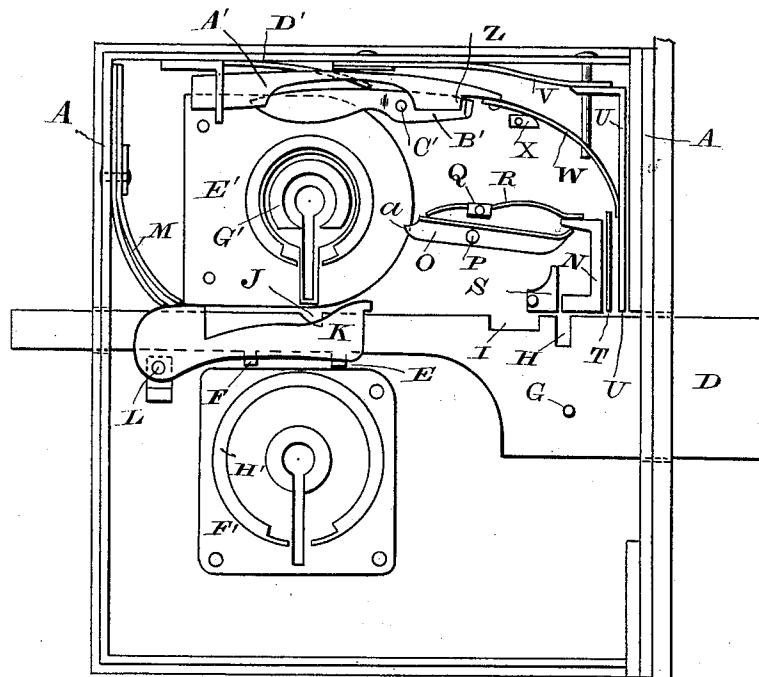


FIG. 3.

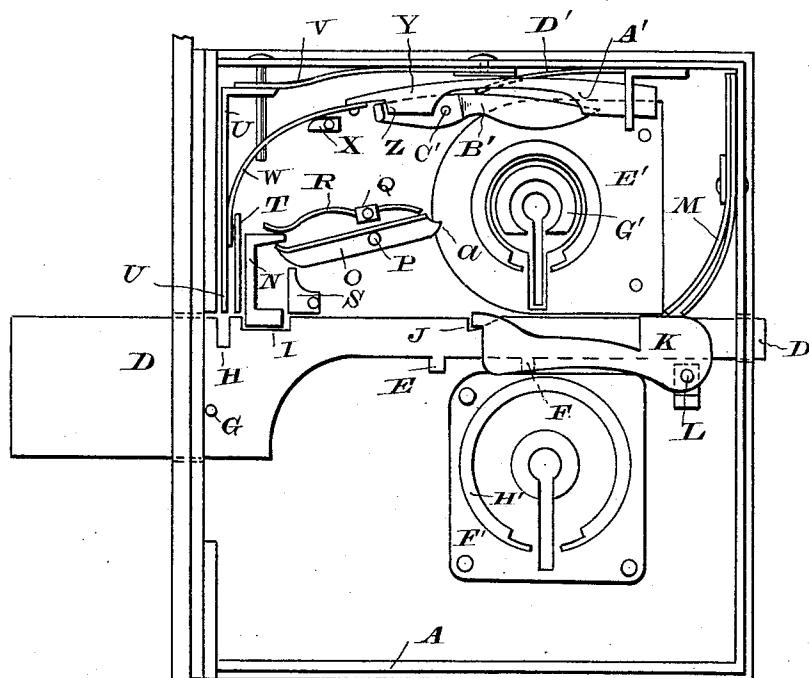


FIG. 4.

WITNESSES.

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(Model.)

J. J. HELSING.

3 Sheets—Sheet 3.

DOOR LOCK.

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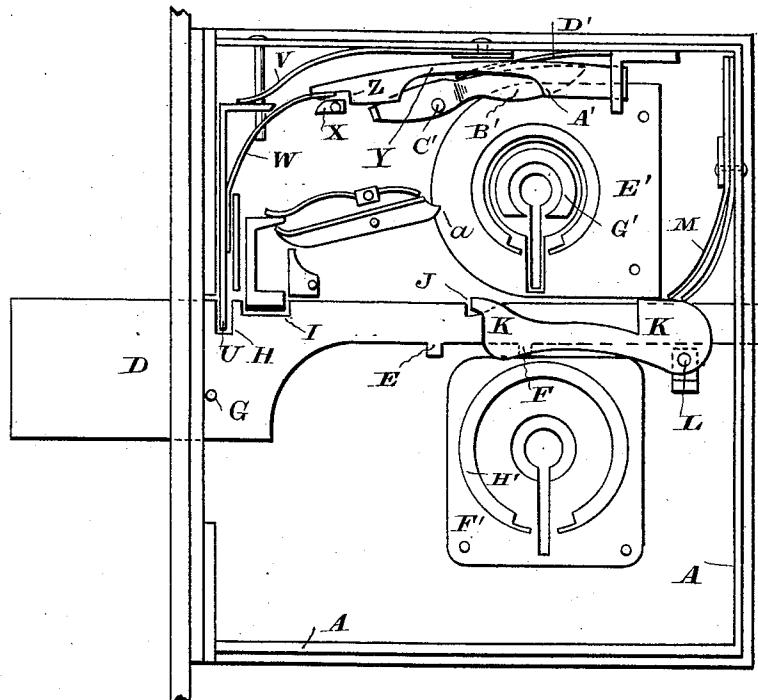


FIG. 5.

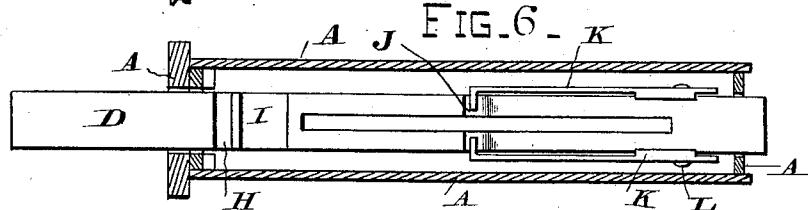


FIG. 6.

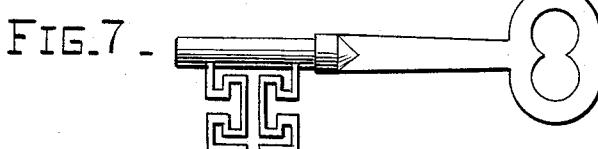


FIG. 8.

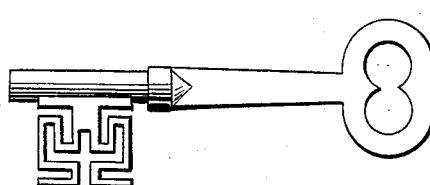


FIG. 9.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

J. JONAS HELSING, OF SAN FRANCISCO, CALIFORNIA.

## DOOR-LOCK.

SPECIFICATION forming part of Letters Patent No. 282,517, dated August 7, 1883.

Application filed December 8, 1882. (Model.)

To all whom it may concern:

Be it known that I, J. JONAS HELSING, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Compound Door- Locks, of which the following is a specification.

My invention relates to improvements in rim or mortise door-locks; and the objects of my invention are, first, to provide a lock adapted to be used either as an ordinary door-lock or as a burglar-proof lock, as the occasion may require, and, second, to provide a lock adapted to be operated by two separate keys, one of which shoots the bolt and the other operates a mechanism by which the bolt is held in its locked position. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

20 Figure 1 represents a side view of my compound lock, a side plate being removed to show the internal mechanism. Fig. 2 is a top view of the spring-latch. Figs. 3, 4, and 5 are side views showing the locking mechanism in different positions. Fig. 6 is a sectional top view, showing the locking-bolt. Figs. 7 and 8 are side views of the two keys. Fig. 9 is a cross-section of the outer ward on one key.

Similar letters of reference are used to designate like parts throughout the several views.

The casing A of my lock is made much in the usual manner.

At the bottom of the case I place an ordinary spring-latch, B, operated by a knob, C.

35 The bolt D is provided upon its under side with two lugs, E and F, and has two bearings or points of support, one in the slot of the front plate and the other in the slot of the back plate. It is also provided with a stud, G, which limits its forward throw.

40 Upon the upper edge or surface of the bolt I cut three notches or mortises, H, I, and J, of varying width and depth. The rearmost notch, J, is engaged by the tumbler K, pivoted to the pin L and operated by the lower key, and held in place by the spring M, attached to the back plate of the lock. The notch I is adapted for the reception of the lower portion of the catch or tumbler N, (which in form 45 somewhat resembles the cross-section of an iron channel-beam,) the lower face of the up-

per flange resting upon the outer end of a lever, O, pivoted on a pin, P.

Immediately over the pin P, I place a fixed stud, Q, which carries a bow-spring, R, one 55 end of which presses upon the upper face of the top flange of the tumbler N, and the other end presses down upon the inner end of the lever O, and thus the upper end of the tumbler is kept gripped between the spring and 60 lever. The tumbler N is held in a vertical position between two guides, S and T, as shown.

The notch H receives the tumbler or bar U, which slides up and down between the front plate of the lock and the guide-plate T. The 65 free end of the spring V, attached to the top plate of the lock-frame, rests upon the top of the tumbler and tends to force it down. A flexible metallic band, W, is attached to the tumbler U, passes over a guide-stud, X, and 70 is attached to the horizontal sliding arm Y, having shoulders Z and A', and is controlled in its movements by the pawl B', pivoted at C', and operated by a spring, D', secured to the top plate of the frame.

E' represents the upper, and F' the lower, 75 ward-plates, carrying the wards G' and H', which are of any suitable form, and attached to the casing in any well-known manner.

Having thus fully and accurately described 80 the construction of my compound door-lock, I will now proceed to describe the operation thereof.

When the door is unlocked, or only "upon the latch," the position of the parts will be 85 such as represented in Fig. 1. Should it be desirable to lock the door or shoot the bolt, so that it may be easily withdrawn by means of the same key, I insert a key (from the side facing the operator) and turn it to the right 90 until the bridge-ward strikes against the lug E and moves it into the position shown in Fig. 3, and upon continuing to rotate the key it will be brought around to the key-hole and may be withdrawn. Should it be desirable to withdraw the bolt from this position, the key 95 is again inserted and turned to the left. It will now clear the lug E and strike against the lug F and the bolt will be moved backward for a short distance. After the key clears the 100 lug it should be moved around again until it strikes against the lug E, when the backward

movement of the locking-bolt may be completed and the door opened. Should it be necessary to firmly secure the door and lock the bolt in place, the motions necessary to throw the bolt into the position shown in Fig. 3 are first gone through with, but after the key clears the first lug, E, it is turned until it strikes upon the second stud, F, and the bolt is moved forward until the slot I is beneath the tumbler N, which will be forced downward by the spring R into the said notch I, while at the same time the catch or lug of the tumbler K will drop into the notch J, and the position of the parts will be such as is represented in Fig. 4, and it will be impossible to withdraw the bolt by the operation of the key which shot it in place. As a further guard against tampering with the lock, I now insert the second key at the upper key-hole and turn it to the right until it strikes the under curved surface of the spring-pawl B', and, by causing it to pivot on the pin C', will release the lip of the part from contact with the shoulder Z of the sliding arm, and the spring V, by pressing down upon the tumbler U, will cause it to descend and enter the notch H. The key may now be turned in the same direction until it is aligned with its key-hole, when it may be withdrawn. When it becomes necessary to withdraw the bolt, a key is inserted in the upper key-hole and turned to the left until it engages with the shoulder A' of the sliding arm Y and draws it backward, at the same time raising the tumbler U from the slot H in the bolt. When the arm Y has been retracted a sufficient distance, the clip end of the spring-pawl B' will be raised up and engage with the shoulder Z, and thereby hold the arm Y and tumbler U in a retracted position. The key is now rotated in the same direction until the operator discovers, either by a clicking sound or by the sense of touch, that the key has passed the point of the lever O. He then reverses the movement of the key and presses down upon the sharp point a of the lever O, and when the

lever has been moved sufficiently to lift the catch or tumbler N out of the notch I the sharp point a will spring into the groove b in the bridge-ward or outer edge of the key, (shown in Figs. 8 and 9,) and in so doing will make a sharp click, which will warn the operator that the catch N has been raised to the required height. The bolt is now in a position to be acted upon by a key inserted through the lower key-hole and turned to the left, which, first striking upon the under side of the outer end of the tumbler K, raises it up from out the notch J. The key is then turned till it strikes the lug F, when the bolt may be partially drawn back. The key is then made to perform another revolution, and, striking against the lug E, withdraws the bolt. Both keys may now be removed from the lock and the door be left upon the latch.

A lock constructed as above described will be very difficult, if not impossible, to pick, and may be used in locations and under circumstances where a combination-lock would not be available.

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

In a compound door-lock, the combination of the bolt D, having lugs E F, notches J I H, and stop-pin G, the tumblers K N U, adapted, respectively, to engage with said notches, the pivoted lever O, and spring R, for gripping the tumbler N, the sliding arm Y, having shoulders A' Z, the pawl B', and spring D', for controlling the movements of said sliding arm, the spring V, adapted to actuate the tumbler U, and the flexible band W, connecting said tumbler to the sliding arm, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

J. JONAS HELSING. [L. S.]

Witnesses:

C. W. M. SMITH,  
CHAS. E. KELLY.